ANNUAL REPORT
2008-2009

University of Michigan
Medical School

DEPARTMENT OF PATHOLOGY

THE UNIVERSITY OF MICHIGAN

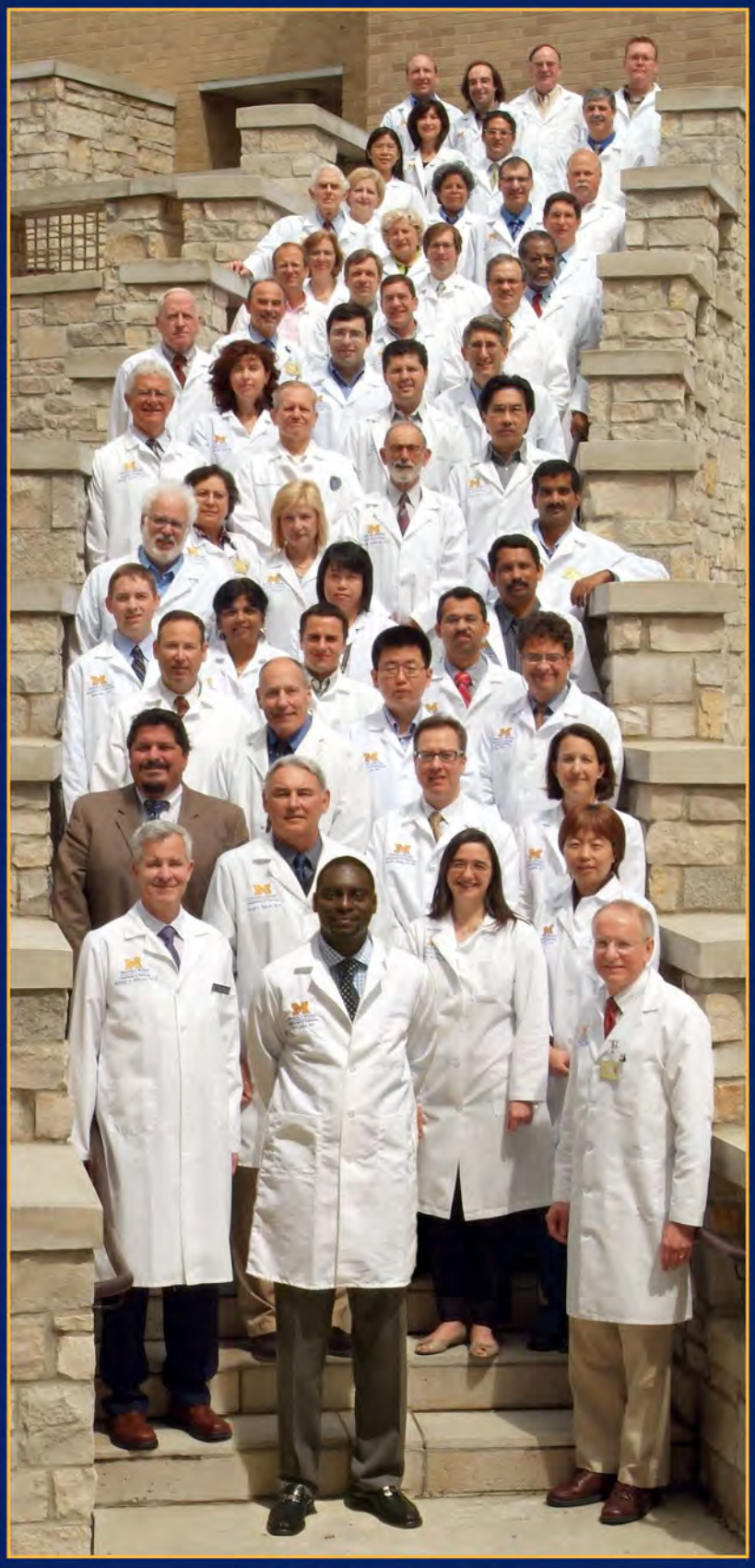
MEDICAL SCHOOL

Department of Pathology

Annual Report

1 July 2008 – 30 June 2009

The University of Michigan Department of Pathology



2008 - 2009

2008-2009 PATHOLOGY RESIDENTS AND FELLOWS

Bryan Coffing,MD
HO IV
CHIEF RESIDENT

Limin Yu,MD
HO III
ASST. CHIEF RESIDENT

Luzette Habib,MD
HO V

Jonathan Cutlan,MD
HO IV

Julie Jorns,MD
HO IV

Cohra Mankey,MD
HO IV

Julianne Purdy,MD
HO IV

Lindsay Schmidt,MD
HO IV

Bun (Brian) Siu,MD,PhD
HO IV

Sara Farmen,MD,PhD
HO III

Jingmei Lin,MD,PhD
HO III

He Wang,MD,PhD
HO III

Elizabeth Wey,MD
HO III

Eric Batterson,MD
HO II

Larry Bischof,MD,PhD
HO II

Suntrea T.G. Hammer,MD
HO II

Jennifer Hummel,MD,MPH
HO II

David Moons,MD,PhD
HO II

Abhishek (Ajay) Shukla,MD
HO II

Kurt Bernacki,MD
HO I

Melissa Bombery,MD
HO I

Noah Brown,MD
HO I

Monisha Dandekar,MD
HO I

Matthew Elkins,MD,PhD
HO I

Paul Harms,MD,PhD
HO I

Daniel Leino,MD
HO I

Rohit Mehra,MD
HO I

Sharon Bihlmeyer,MD
CLINICAL LECTURER
GASTROINTESTINAL PATH FELLOW

Paul Bogner,MD
HO VI
DERMATOPATHOLOGY FELLOW

Jason Carvalho,MD
HOV
SURG PATH FELLOW

Jerome Cheng,MD
ADVANCED PRACTICE TRAINEE
INFORMATICS FELLOW

Cynthia Cookingham,MD
CLINICAL LECTURER
BREAST PATHLOGY FELLOW

Kristen Curlett,MD
HO V
SURG PATH FELLOW

Jitakshi De,MD
HO V
HEMATOPATHOLOGY FELLOW

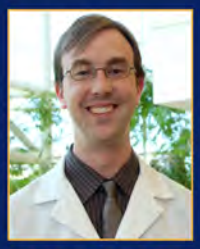
Diane Hall,MD,PhD
HO V
HEMATOPATHOLOGY FELLOW

Atef Hanna,MD,PhD
HO V
CYTOPATHOLOGY FELLOW

Seung (David) Kim,MD,PhD
HO IV
DERMATOPATHOLOGY FELLOW

Amir Lagstein,MD
CLINICAL LECTURER
PULMONARY FELLOW

Mohammad Soltani,MD
HO VI
CYTOPATHOLOGY FELLOW



Matthew Wasco,MD
CLINICAL LECTURER
GENITOURINARY PATH FELLOW

Angela Wu,MD
HO V
SURG PATH FELLOW

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DEPARTMENT OVERVIEW

Jay L. Hess, M.D., Ph.D.
Carl V. Weller Professor and Chair

Dear Colleagues

It has been another exciting year for the Department of Pathology. The regional and national economic downturn created many challenges, however, we continue to thrive in our pursuit of excellence in patient care, research and education.

Our clinical activities continue to increase. Our year-to-date charges increased by 8.9% and net collections on professional billing increased by 5.8% compared with 2008. As detailed in the Division Reports, this was a very active year for the recruitment of clinical faculty. We successfully passed our CAP inspection with signifcantly fewer citations than in 2007, with a number of the laboratories passing inspection with no citations. The Lean implementation in the Clinical laboratories has resulted in turn-around-time reductions of 47% in Surgical Pathology and 50%, 25-35%, and 20-25% for CBCs, chemistries, and routine coagulation tests, respectively. And in the Anatomic Pathology Division, the Michigan Pathology Quality System, which is focused on improving workflow, quality and safety, won the UMHHC Senior Management Team Clinical Program of the Year.

We also initiated or completed a number of other projects that impact not just the Department but the operational efficiency and quality of patient services at UMHS overall. As just one of a number of initiatives, we completed the Outside Laboratory Results Project, which makes laboratory results from non-UMHS laboratories accessible through Careweb. We have aggressively “in sourced” tests and created the Laboratory Test Formulary Committee to help control send-out costs and to provide a forum for vetting laboratory tests on the basis of their medicine based evidence. In addition, we created a Blood Products Utilization Committee and are seeing early signs of decreased blood product usage. For the second consecutive year, our send-out costs, which have been steadily rising for more than a decade, have actually decreased.

Several important renovation projects were completed this year. We now have a dramatically improved apheresis unit that is not only more spacious but also provides a more comfortable

and attractive environment for our patients. We also completed the renovations to our autopsy facility in a partnership with Washtenaw County.

The Department's research programs continue to thrive. Importantly, the University purchased the former Pfizer Research and Development facility (now known as the North Campus Research Center), dramatically increasing the amount and quality of research space available for future research programs. We submitted an NIH C06 proposal for $15M to renovate Building 35 at NCRC to house an Institute for Personalized Medicine, combining researchers from the Department of Pathology with the Departments of Biomedical and Chemical Engineering. This building is adjacent to Building 36, which is being explored as a home for some of the Departement's clinical laboratories. As detailed in the Sponsored Research Division Report, we were able to further build our research programs in chemical biology through recruitment of several faculty members in chemical and structural biology. The Department moved from 15th to 8th in NIH funding amongst Pathology Departments, with $15,302,613 in NIH awards in 2008, a 25% increase in the number of grants in force and a 28.5% increase in grant dollars compared with 2007.

We are pleased that Lloyd M. Stoolman, M.D. (Pathology) and J. Matthew Velkey, Ph.D. (Cell and Developmental Biology) received one of five Provost's 2009 Teaching Innovation Prizes for the project entitled Virtual Microscopy for Life Sciences Education.
In addition, Dr. Scott Tomlins received the George R. DeMuth Award for the MSTP fellow best representing the qualities of a physician scientist (Dr. Tomlins joined the Department as a Resident in Anatomic Pathology this July). These are challenging time to begin a career in academic medicine. This year, we appointed Dr. Peter Lucas as Assistant Director of the Residency Program to assist Dr. Joseph Fantone with the recruitment and mentoring of residents pursuing careers as physician-scientists. Interest in Pathology as a career appears to be increasing sharply at Michigan, where it is estimated that more than a dozen medical students will be entering the match in Pathology this Fall.

It continues to be a pleasure and an honor to serve as the Chair of Pathology. I hope that you find this Annual Report a valuable source of information about this outstanding Department.

Jay L. Hess M.D. Ph.D.
Carl V. Weller Professor and Chair

DIVISION AND CENTER REPORTS

ANATOMIC PATHOLOGY

Division of Anatomic Pathology

Jeffrey L. Myers, M.D.
A. James French Professor of Pathology
Director, Division of Anatomic Pathology

OVERVIEW
Anatomic Pathology continued to experience growth and change in clinical operations while maintaining robust educational and research programs.

The practice experienced growth in various surgical and medical pathology subspecialties. A combination of practice growth and attrition fueled the addition of five full-time and one part-time faculty. Three new faculty were recruited to cytopathology, and another (**Dr. Michael Roh**) will join us in the first quarter of FY2010. **Dr. Xin Jing** was appointed Assistant Professor, after having spent a year as Clinical Instructor following completion of our own cytopathology fellowship program. **Dr. Stewart Knoepp** also joined our cytopathology group as an Assistant Professor. **Dr. Mohammad Yousef**, a graduate of our surgical pathology and cytopathology fellowships, was appointed for one year as a Clinical Lecturer, but resigned in May 2009 to pursue a community practice opportunity in the region. **Dr. Jeffrey Hodgin** joined us as a Clinical Lecturer to meet needs in our medical renal pathology practice while developing a laboratory based research program in collaboration with Dr. Matthias Kretzler in the Department of Internal Medicine. **Dr. Rajiv Patel** was appointed Assistant Professor of Pathology in March 2009 to an incremental position in our dermatopathology section, expanding the number of dermatopathology faculty to five. Finally, **Dr. Michael Caplan** joined us in the fourth quarter as a part-time contract employee to spend two days a month meeting clinical and educational needs in pediatric pathology. Mike is an alumnus of our training program and a former faculty member who is currently employed by the Grand Traverse Pathology, PLLC group based in Traverse City, MI.

Safety and quality remain high priority strategic targets. This year, the practice and workflow changes implemented in FY2008, that foreshadowed creation of the Michigan Pathology Quality System (MPQS), were recognized as the Clinical Program of the Year by University of Michigan Hospital and Health Centers (UMHHC) leadership.

Facilities improvements for our autopsy suite and a new pathology laboratory at the East Ann Arbor Surgical and Medical Procedures Center were nearly complete by the end of the fourth quarter and position us to significantly improve service to the patients and families of the

University of Michigan Health System (UMHS). The new East Ann Arbor practice offers a unique opportunity to provide more timely intra-operative consultations to surgical oncology and other surgical practices located at this outpatient facility. A plan for staffing this facility is under active development and is enabled, in part, by an incremental position for a Clinical Lecturer that will be filled in the first quarter of FY2010 by **Dr. Angela Wu**, a graduate of our residency program as well as fellowships in surgical and genitourinary pathology.

Education programs remain strong as demonstrated by the continued success and expansion of our training programs. Success and vitality in our research activities is evidenced by continued visibility in peer-reviewed journals considered high impact by the academic anatomic pathology community, a nearly 50% increase in extramural research funding, and high visibility in national and international societies.

CLINICAL ACTIVITIES

Surgical Pathology

A total of 80,120 pathology specimens, including a combination of intramural and extramural cases, were processed in 2009, compared to 72,280 in 2008, and 69,991 in 2007. This represents an annual growth rate of 10.8% and a 24.2% increase over the last 5 years. Patient specimens acquired from procedural areas within the UMHHC accounted for 70.4% of cases. Among our "inside" subspecialty practices, our breast (BE) and dermatopathology (ID) services saw the most dramatic gains. The number of BE cases grew at an annual rate of 16.1% to a total of 2,492 unique accessions. Added to the growth experienced in FY2008, the breast service has grown 24.4% in just two years! Inside derm (ID) cases grew at an annual rate of 15.4% to a grand total of 13,551 cases. Our internal GI practice grew to a total of 16,199 cases compared to 15,672 in FY2008, an annual growth rate of 3.4%. The general hospital practice (Room 1) shrunk at an annual rate of -6% due to diversion of Mott Hospital cases to a new pediatric subspecialty practice. However, there was a 10.6% increase compared to FY2008 when the general hospital (IF + IS) and pediatric (IP) cases are added together. Transfer cases, meaning those cases sent from outside institutions on behalf of patients referred to UMHS, increased nearly 30% compared to the previous year and accounted for 9.5% of overall case volume.

The new pediatric pathology service was staffed by multiple faculty and continued after departure of our Director of Pediatric Pathology, Dr. Robert Ruiz, in October 2008. The service saw 1,562 IP cases accessioned from the Mott Hospital ORs as well as a number of transfer cases and staging bone marrows accessioned as HP cases. **Dr. Michael Caplan**, a part-time contract employee, alumnus and former member of our faculty, joined us in April. In its first year of operation, the pediatric pathology service performed at a very high level, with high levels of diagnostic accuracy and an average turnaround time for IP cases of 2.4 days. We successfully recruited a new Director of Pediatric Pathology, **Dr. Raja Rabah**, who will join us in first quarter of FY2010.

The number of extramural consultation cases held steady at 8,267 compared to 8,275, a -0.1% decline. This is due in large part to a drop in dermatopathology (DP) consults that was more

than offset by a 32.1% jump in extramural dermatopathology cases referred through MLabs (see "MD" cases in Table 1 below). In contrast, the number of consultation cases seen by surgical pathology faculty supported by University Hospital administrative support staff grew to 5,821, an annual growth rate of 19.7% and a remarkable 39.0% increase in just the last two years!

Growth in the practice combined with an increase in funded research effort resulted in increased productivity, rising from 437 RVUs/paid clinical FTE/month in June 2008 to 497 in June 2009, an increase of 13.7%. Addition of an incremental position in dermatopathology and a new Director of Pediatric Pathology will modulate the slope of this curve downward.

Service gains achieved with large scale implementation of redesigned workflows in August 2007 have been maintained despite persistent challenges in achieving single piece flow at the time of accessioning and gross examination (Figure 1). Maintaining the gains reflects the collective successes of a number of groups (*e.g.* Histology Committee, AP Laboratory Operations Group, laboratory management, laboratory staff) that have continuously redesigned processes using Lean tools and principles. Our PAs have played an increasingly important and visible role in managing work in our specimen grossing areas and are now assigned to grossing laboratories rather than individual services, allowing them greater flexibility in matching capacity to demand and managing competing priorities.

Figure 1: Turnaround Time for Services Affected by August 2007 Workflow Changes

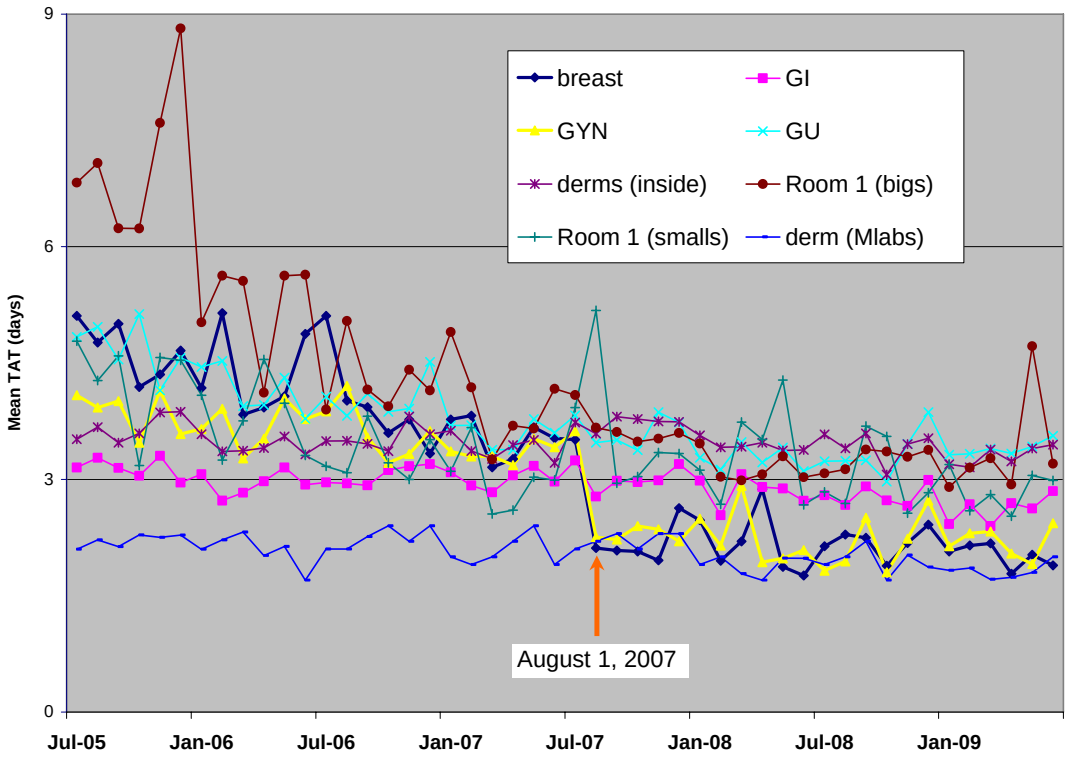


Table 1: Dermatopathology Clinical Activity, FY07-FY09

	FY07	FY08	FY09	% change (FY08-FY09)	% change (FY07-FY09)
ID	11,637	11,744	13,551	15.4%	16.4%
MD	4,609	4,936	6,519	32.1%	41.4%
TD	1,715	1,952	2,019	3.4%	17.7%
DP	2,283	2,856	2,274	-20.4%	-0.4%
TOTALS	20,244	21,488	24,363	13.4%	20.3%

Dermatopathology

The Dermatopathology Service receives diagnostic case material from four primary sources: (1) UMMC (ID) cases; (2) outside contractual (MD) cases; (3) personal consultation cases (DP); and (4) outside slides reviewed for referred patients (TD) cases.

The clinical service volumes remain high in dermatopathology as summarized in Table 1.

This fiscal year saw an impressive 13.4% increase in overall volume compared to the previous year, with greater than 24,000 cases signed out. The majority of this growth was from two key services. There was a 15.4% increase in in-house (ID) cases, as well as a healthy 32.1% growth in MLabs (MD) cases.

We successfully recruited our 5th dermatopathologist, **Dr. Rajiv Patel**, who started in March, 2009. Dr. Patel brings not only dermatopathology expertise, but also soft tissue expertise, having completed fellowship training in both disciplines. This addition to the dermatopathology service greatly compliments our program.

We continue our active involvement in the University of Michigan Multidisciplinary Melanoma Clinic (MDMC) and Tumor Board, Multidisciplinary Cutaneous Oncology Clinic (MCOC) and Tumor Board, Cutaneous Lymphoma Conference and Tumor Board, and the University of Michigan Cutaneous Oncology “Destination” Program. Dermatopathology plays an integral role in all of these programs.

Neuropathology

Neuropathology services were supported by Drs. Mila Blaivas, Andrew P. Lieberman and Paul E. McKeever in collaboration with Ms. Constance J. D'Amato, Active Emeritus staff. Clinical demand was relatively stable with a total of 1,372 neurosurgical cases, a 1.3% increase over FY2008. The hospital practice grew at an annual rate of 5.9%, accounting for 719 surgical specimens compared to 679 in FY2008. The numbers of nerve and muscle biopsies were virtually unchanged, totaling 379 compared to 377 in the previous year. Personal consultation cases declined to a total of 137 cases in FY09 compared to 149 in FY08.

Medical Renal Pathology

Our renal biopsy service volume was largely unchanged, showing a 1.5% drop from 666 cases

in FY2008 to 656 cases in FY2009. This activity has increased 22.6% in the last decade and remains an area of growth opportunity. Our electron microscopy laboratory, a key support unit for the renal biopsy service, is implementing Lean principles in order to streamline their processes and offer higher levels of service to our renal biopsy patients in order to keep pace with the increasingly competitive landscape.

Dr. Jeffrey Hodgin, a clinician scientist developing his research program in the laboratory of Dr. Matthias Kretzler, joined us in the first quarter as a Clinical Lecturer and supports clinical and educational activities in our renal biopsy service.

Cytopathology

Gynecologic cytology specimens (*i.e.* Pap smears) continued to decline at an annual rate of 5.1% to a total of 40.905 (Table 2). This reflects a national trend resulting from changes in follow-up Pap smear recommendations for HPV-negative women.

Table 2: Cytopathology Clinical Activity, FY08-FY09

	FY2008	FY2009	%change
Gyn Total	**43,119**	**40,905**	**-5.1%**
Non-Gyn Total	**9,204**	**9,245**	**+0.5%**
ASP Total	**2,336**	**2,415**	**+3.3%**
ASP 1	**1,029**	**985**	**-4.3%**
ASP 2	**945**	**1,067**	**+12.9%**
ASP 3	**362**	**363**	**+0.3%**

Non-gynecologic specimens numbered 9,245, a 0.5% increase from last year. Taken as a group, fine needle aspirations (FNAs) grew at an annual rate of 3.3%, totaling 2,415, compared to 2,336 in FY2008. Assisted FNAs (ASP2) contributed disproportionately to the growth and jumped to 1,067 cases, a 12.9% increase from last year. FNAs performed at the Cancer Center (ASP3) numbered 364, representing a 0.3% increase over FY2008, while aspirates performed by clinicians without our assistance (ASP1) numbered 985 representing a 4.3% decrease. The continued increase in assisted FNAs is the result of our continuous communications with clinical colleagues and the value of on-site cytology assistance in improving patient outcomes. It also represents increased demand on laboratory personnel, cytotechnologists, fellows and faculty that is out of proportion to the actual increase in case numbers.

Service improvements reflect the combined effects of multiple quality efforts. A Lean project was done in collaboration with Mike Vicker and drove multiple process improvements as reflected in turnaround time (Table 3). Improved inventory management resulted in an annual supply savings of $30,000. Cytopathology also worked with the Division of Endocrinology to develop a new model for assessing thyroid/parathyroid FNA adequacy at a distance, supported in part by a $15,000 Grant for Fostering Innovation.

Table 3: Cytopathology Turnaround time

	MEAN TAT (WKDAYS)	MEAN TAT (ALL DAYS)	% ON-TIME COMPLETION
GYN	**3.0**	**4.4**	**99.2 % (5 all days)**
NGYN/FNA	**1.3**	**1.8**	**98.8% (48 hours)**

The end of FY08 saw the departures of Drs. Robert Pu and Yijun Pang who left academics for community practice. The resulting staffing needs were met by appointing **Dr. Xin Jing** as Assistant Professor, **Dr. Mohammad Yousef** as Clinical Lecturer, and **Dr. Stewart Knoepp** as Assistant Professor in the first quarter of FY2009. In addition, we successfully recruited **Dr. Michael Roh** who joins our cytopathology group as Assistant Professor in first quarter FY2010.

Autopsy and Forensic Services

The autopsy section provides faculty and resident coverage for the University and VA hospitals. The section also provides forensic pathology support for the Washtenaw County Medical Examiner.

A total of 292 autopsies were performed during the 2009 fiscal year that included 198 in-house hospital autopsies; 17 were restricted to Brain-Only. 94 autopsies were performed for the Washtenaw County Medical Examiner. Our hospital autopsy rate was 19% for the year. An ongoing goal is to increase the number of hospital autopsies to over 30 percent of hospital deaths.

The current initiatives of the section are focused on continuous improvements in autopsy turn around time and communication with clinical staff. Gross pathological diagnoses are routinely communicated to healthcare providers immediately following completion of the autopsy. Autopsy turnaround time is in compliance with CAP requirements, the majority being completed within 30 days. Average autopsy turnaround time to date is 26 days. The percentage of autopsies completed within specified time periods is summarized in Table 4.

Table 4: Turnaround Time for Completion of Final Autopsy Reports

% of Autopsies Completed in FY2009		
≤ 30 days	**31 – 60 days**	**61 – 90 days**
57%	36%	5%

The section will soon begin performing all Washtenaw County medical examiner cases in the newly renovated morgue. This will greatly increase the number of autopsies available for resident education. The administrative and investigative functions of the medical examiner will be centralized in offices located in the North Ingalls building allowing for complete integration of all medical examiner functions. This initiative will enhance the experience of residents and medical students in forensic medicine.

The education goals of the section remain unchanged: 1) to provide a memorable educational experience for residents and medical students in autopsy pathology, and 2) to establish a forensic fellowship effective July 2010. For residents, we expect the use of medical examiner case material and increased case volume to enhance their experience. Senior students will have the option of taking a new one-month rotation dedicated to forensic medicine. The fellowship will include training and experience in all aspects of forensic medicine including; toxicology, criminology, forensic anthropology, forensic pathology, and courtroom testimony. The forensic autopsy experience will be augmented with cases from the office of the Wayne County medical examiner in nearby Detroit.

A long-awaited renovation of the autopsy space is now a reality and should improve the overall educational experience. We continue to work with decedent affairs to improve the autopsy service in the UM hospital. Another anticipated outcome will be to receive autopsies from the VA hospital in the new morgue.

Plans are underway to attract additional medical examiner cases from counties other than Washtenaw to create a regional system. An increase in medical examiner autopsies will provide the department with additional revenue. We also expect to work with clinical service to offer a limited toxicology menu and molecular service to provide limited range of alleles for pharmacogenomic testing.

RESEARCH ACTIVITIES

The Anatomic Pathology faculty remains remarkably productive despite the demands of patient care and our educational programs as summarized in Table 5. Thirty-one faculty reported an average of 6.1 (median 5) peer-reviewed publications for a total of 172 papers either in print or in press. That reflects a modest -7.5% decline compared to a year ago. In addition, faculty reported the results of their work in abstract form on 93 different occasions, a 12% increase over last year. Twenty-four faculty served as invited lecturers, speakers or visiting professors on 122 occasions, for an overall average of 5.1 per participant. Clearly our faculty remain top-of-mind when looking for cutting edge speakers in anatomic pathology. In addition, fourteen different faculty reported being members of 30 editorial boards, including a Senior Editor for Cancer Research (Dr. Kathleen Cho).

Table 5: Academic Productivity in AP, FY08-FY09

	FY2008	FY2009	% change
publications	186	172	-7.5%
abstracts	83	93	12.0%
invited lectures	129	122	-5.4%
editorial boards	37	30	-18.9%
FTEs funded	3.6	3.9	6.6%
research expenditures	$3,068,779	$4,579,223	49.2%

Despite national trends, research expenditures increased nearly 50% to just over $4.5 million. Six different faculty participated as Principle or Co-Investigators in projects accounting for $3.2

million in direct and $1.4 million in indirect costs. This was accompanied by a slight increase in funded effort from 3.6 to 3.9 FTEs. The diverse list of projects reflects critical support for multidisciplinary collaborative translational research. Support for the Cancer Center includes tissue procurement and Dr. Giordano's role as Tissue Core Director.

An additional $150,000 was made available from departmentally allocated division resources to spark continued growth in peer-reviewed projects aligned with strategic priorities in translational research. This program continues to fund important academic activity, but the number of projects and expenditures has dropped substantially over the three and a half years of its existence, from 13 projects totaling $92,128 in FY2007 to 4 projects totaling $11,800 in FY2008. A primary goal for the coming academic year is to discover ways to showcase research opportunities and significantly increase project submissions and awards through this program. Despite a drop in projects funded through this mechanism, the Molecular Pathology Research Laboratory (MPRL) continues to be an important asset for faculty in AP. This year the MPRL supported 6 different AP faculty who generated 6 abstracts presented at national and international meetings and 4 manuscripts submitted or in press.

Two faculty were successfully promoted in the current cycle (effective September 2008): Drs. Thomas Giordano (Professor) and Andrew Lieberman (Associate Professor).

EDUCATIONAL ACTIVITIES

Education is an essential and vibrant component of our mission. Anatomic Pathology continues to provide a robust experience for trainees, including standard rotations in autopsy, surgical and cytopathology as well as required and elective rotations in various subspecialties. Fellowships in breast pathology (1), cytopathology (2), gastrointestinal pathology (1), dermatopathology (2), genitourinary pathology (1), pulmonary pathology (1) and surgical pathology (3) were filled by competitive candidates in the 2008-2009 academic year. Within the next two years, our portfolio of fellowships will expand to include forensic and pediatric pathology. Trainees continued to actively participate in various research projects during the course of the year; 9 served as authors or co-authors for 14 different abstracts presented at the 2009 annual spring meeting of the USCAP in Boston.

Educational programs within our autopsy and forensic services have grown as a consequence of our reorganization. Residents complete three one-month rotations on the autopsy service to comply with ACGME autopsy requirements. Medical students receive exposure to autopsies during their second year. A one-month rotation dedicated to forensic medicine is offered to senior medical students. Educational conferences in autopsy pathology include the autopsy gross conference, extended gross conference and presentations in mortality conferences serving the clinical services within the hospital. A general monthly forensic pathology conference and multidisiplinary forensic sign-out conference are provided by the faculty and staff.

Faculty in Anatomic Pathology continue to play significant roles in the medical school, including primary responsibility for first and second year courses in pathology as lecturers, laboratory

instructors, advisers and mentors. Electives for senior-level students remain popular and are supported by a number of faculty including Drs. Andy Flint, Dave Lucas, Peter Lucas and Claire Michael. Multiple faculty also participate in teaching dental students.

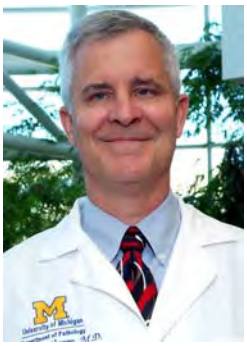
Nearly all faculty in Anatomic Pathology participate in supporting an impressive array of interdisciplinary conferences including Tumor Boards for adrenal (monthly), bone and soft tissue (weekly), brain (weekly), breast (weekly), endocrine (monthly), gastrointestinal (weekly), genito-urinary (weekly), gynecologic (semi-monthly), liver (monthly), pediatric (semi-monthly), and lung (weekly) tumors. Faculty also regularly participate in various other conferences including brain cutting, dementia brain cases (quarterly), diagnostic dermatology, cutaneous T-cell lymphoma, nephrology, nerve and muscle (weekly and monthly), multiple pediatric subspecialties (GI, hematology-oncology, lung, surgery) and adult non-neoplastic lung disease (semi-monthly). Educational conferences targeting primarily pathology trainees in which faculty participate include weekly slide (Monday) and didactic (Tuesday) teaching sessions, weekly autopsy gross conferences (Tuesday and Friday), a semimonthly cytology conference (every other Thursday), and a monthly "extended" gross conference.

Multiple faculty participated in our second on-campus CME workshop entitled "New Frontiers in Pathology" presented in collaboration with the A. James French Society. Dr. E. Leon Barnes served as guest faculty and the A. James French lecturer. We attracted over 100 attendees whose evaluations reflected high praise for the world-class quality of this annual event. Proceedings of this year's meeting will be published in the November 2009 issue of *Archives of Pathology and Laboratory Medicine*.

Jeffrey L. Myers, M.D.
A. James French Professor of Pathology
Director of Anatomic Pathology

CLINICAL PATHOLOGY

Division of Clinical Pathology



Jeffrey S. Warren, M.D.
Aldred S. Warthin Endowed Professor of Pathology Director of Clinical Pathology

OVERVIEW

The University of Michigan Health System (UMHS) Clinical Pathology Laboratories encompass Specimen Processing and the Sendout Laboratory; System-wide off-site limited function laboratories, phlebotomy services and point-of-care testing at more than twenty satellite facilities; a 24 hour per day/7day per week Phlebotomy Service; and full service hospital-based laboratories that include Hematology (which encompasses Special Hematology, Automated Hematology, Flow Cytometry, and Coagulation); Chemical Pathology (which encompasses Special Chemistry, Automated Chemistry, Immunology, Ligand Assays, Toxicology-Therapeutic Drug Monitoring and Endocrinology); Cytogenetics; Microbiology/Virology; the Blood Bank/Transfusion Medicine Service (which encompasses the Therapeutic Apheresis/Hematopoietic Progenitor Cell Procurement Unit (HPC), an FDA-approved Good Manufacturing Process – compliant HPC Processing Laboratory, and an Immunohematology Reference Laboratory; Histocompatibility; and Molecular Diagnostics. Pathology Informatics, Specimen Processing, and Pathology Administration continue to provide logistical, operations, and regulatory support for the Pediatrics Biochemistry and Molecular Diagnostics Laboratories, Pediatrics Blood Gas Laboratories, and the Pediatrics Pulmonary Laboratory. The Clinical Laboratories were again ably supported in many areas by the Division of Clinical Informatics directed by Dr. Ulysses Balis and managed by Ms. Kathy Davis. The overarching 2008-09 Clinical Informatics initiative has been selection of, training and development for, and the initial implementation of, a new laboratory-wide information system (Soft Corporation).
The Laboratories continued to experience growth in both clinical volume and scope of activity. The year was marked by intensive focus on improvement of operations, service, and efficiency. 5.18M procedures were performed in FY09, a 1.8% increase over FY08 (5.09M). Gross Laboratory revenue was $415M, an increase of 3.2% over FY08 ($402M). Expenses rose from $86.9M to $88.4M, a 1.7% increase. Blood product expenses increased to $14.6M, 2% above $14.3M in FY08, while Pathology reference test (send-out) expenses declined to $6.55M from $6.77M, a reflection of successful in-sourcing and the Laboratory Formulary initiative. The 2008-09 decrease in sendout laboratory expense marks the second consecutive year after more

than a decade of unabated growth. The total number of employees at the end of FY09 was 595, an increase of 1.5% over FY08 (586 employees). (Data are annualized based on year to date through May, 2009.)

Many specific achievements within Laboratories and by individual faculty members are detailed within individual laboratory reports and faculty annual reports, respectively. Major 2008-09 accomplishments included the renovation of the Specimen Processing and Sendout Laboratories into more efficient configurations and expansion of the Apheresis/HPC Procurement Unit. The latter will allow for greater capacity and more efficient support of the Adult and Pediatric Hematopoietic Progenitor Cell Transplantation Programs. The Cancer Center Hematology Laboratory was merged into the main UH Hematology Laboratory resulting in a more efficient operation with improved turnaround times for key tests. Forward momentum of Laboratory-wide and individual laboratory Lean initiatives was not only sustained, but increased, as evidenced by successful initiatives in Cytogenetics, Microbiology, Hematology, the Blood Bank, and Chemistry. A Lean process-driven multi-laboratory “Lost Specimen” project was also initiated. Application of Lean principles was critical to the success of several Division-wide operations improvement initiatives (eg. critical value callbacks and blood product utilization).

The Faculty Group Practice and Office of Clinical Affairs (OCA) supported the establishment of a multidisciplinary Laboratory Formulary Committee. Developed at the behest of Pathology and manned by Pathology leadership, the committee vetted 21 expensive laboratory tests using an intensive, medical evidence-based expert opinion-based process. This UMHS program has established a robust process for the regulation of test utilization, management of sendout costs, and full utilization of the inpatient order entry system, (CareLink).

Ms. Holly Eliot (Pathology Administration), Mr. Harry Neusius (Manager, Pathology Phlebotomy Service), Mr. John Hamilton and Mr. Julius Alexander (Pathology Informatics), many dedicated phlebotomists, and a team of four UM Ross School of Business OMS 490 students refined the application of earlier morning blood draw sweeps (as early as 4 AM) in UH using a “just-in-time” software tool developed specifically for this initiative. Results have been spectacular. More than 95% of first AM UH blood draws are completed by 9 AM and more than 95% of high impact/high volume automated test results are posted by 10 AM. The software tool has enabled more efficient matching of draw times to unit-specific/service-specific decision making times and has led directly to the completion of 20 more “timely draws”/day beyond service improvements that had been initially achieved through earlier draw times in UH.

Ms. Brenda Schroeder, Mr. John Perrin, Ms. Laura Blythe, Ms. Beverly Smith, and Ms. Robin Kunkel, the Laboratory Chief Technologists and Supervisors, and the Laboratory Directors revamped the UMHS critical value callback process, Laboratory-wide communication (Pathology website, Laboratory Communication Committee, CP Dashboard, a standing informal communication meeting, and several Lab-specific newsletters), and UMHS patient care unit-specific communication. The entire Laboratory creatively and effectively improved productivity through many thoughtful rework exercises coupled with reductions in FY09 overtime expense. Ms. Beverly Smith and Ms. Brenda Schroeder led important restructuring of the Employee Recognition Program and a Customer Service initiative.

Beginning in late FY08 and continuing through FY09, the Microbiology/Virology Laboratory has managed an expanded program to manage environmental and new patient specimens for

detection of methicillin-resistant Staphylococcus aureus, vancomycin-resistant enterococcus, and C.difficile toxin – in order to support the UMHS plan to triage patients and manage hospital-acquired infections. Dr. Duane Newton and Mr. Bill LeBar continue to play major institutional policy-making and communication roles in the UMHS response to the H1N1 influenza epidemic. Ms. Holly Eliot (Pathology Administration) with support from John Perrin, Brenda Schroeder, David Golden, Christine Shaneyfelt, John Hamilton, and Tom Morrow, fully operationalized the Clinical Pathology dashboard project. The CP dashboard, an important management and communication tool, is used to track numerous important Laboratory-wide performance metrics. The Clinical and Anatomic Pathology Laboratories posted an outstanding performance that culminated in a very successful 2-day unannounced CAP inspection in May, 2009. Clinical Pathology Divisional emphasis on quality assurance, communication, and safety was reflected in a nearly 50% improvement in performance compared to 2007. The Histocompatibility Laboratory, led by interim director, Dr. Malek Kamoun (University of Pennsylvania) and Ms. Cindy Schall (Supervisor) successfully negotiated its biannual ASHI inspection and the Blood Bank/Transfusion Medicine Service, led by Drs. Rob Davenport and Laura Cooling and Ms. Suzanne Butch (Chief Technologist) successfully negotiated its biannual AABB and FDA inspections.

Noteworthy among many laboratory contributions was the implementation of 11 new clinical assays by the Molecular Diagnostics Laboratory, numerous new assays by the Microbiology, Chemistry, and Hematology Labs, and the initiation of a successful OCA-led, Pathology-driven blood product utilization program. Blood product expense rose only 2% from FY08 to FY09 ($14.3M to $14.6M). Blood product expenses declined over the last quarter of FY09.

The UMHS Clinical Laboratories will face many challenges and opportunities in 2009-10. Plans continue to extend Lean training and Lean philosophy-influenced operations improvements into more laboratory areas. Plans for a new Pathology clinical laboratory space are being reevaluated in the context of the current economic climate. Medical directors, chief technologists, supervisors, and technologists will engage in planning the Pathology space. Considerations in this critical process will include Lean design principles, assessment of the role and extent of automation, and an analysis of the “core laboratory” concept.

It is anticipated that M Labs will move forward in its goals to better align UMHS Clinical Laboratory directives, the “in-house” service agenda, and M Labs-driven “product lines”. Major areas of focus in this regard will include hematopathology, related molecular diagnostics, cytogenetics, and microbiology/virology. Beyond continued attention to new assay development in both molecular diagnostics and cytogenetics (eg. FISH assays, array cytogenetics, PCR-based molecular assays) will be the development of a more aggressive marketing strategy and sustainment of efforts to improve hematopathology service efficiency (eg. templated reports, standard approach to consultation cases, and integrated result reporting). Excellent progress has been achieved in the latter.

A major ongoing Clinical Pathology goal is to continue to raise the academic profile of the Division. Pursuit of this overarching goal has been actively approached through support of high profile visiting CP faculty (eg. James AuBuchon, M.D., Director of Puget Sound Blood Center, Seattle; Nancy Harris, M.D., Massachusetts General Hospital, Harvard Medical School, Boston; and Carl Wittwer, M.D., Ph.D., ARUP Laboratories, University of Utah, Salt Lake City); support of current faculty scholarship through Divisional discretionary funds; addition of fellows; and through strategic faculty recruitments. Particular success has been achieved through

collaborations between CP faculty and faculty within the University of Michigan School of Public Health, College of Engineering, Ross School of Business, the Department of Chemistry, and several other departments within the medical school.
New faculty recruitments are underway in Hematopathology, Cytogenetics, and Histocompatibility. A Microbiology recruitment is planned for the near future. Dr. Chisa Yamada (University of California, Irvine) will join the faculty (Blood Bank/Transfusion Medicine) in August, 2009.
The many accomplishments of the laboratory staff, administrative staff, support staff, laboratory supervisors and chief technologists, and laboratory directors are a testimony to outstanding dedication and professionalism. Following are reports from each of the sections, laboratories, and faculty of the Division of Clinical Pathology.

BLOOD BANK AND TRANSFUSION SERVICE

Patient Care

Activity continued to increase. Total fee codes for laboratory testing were 273,019 compared to 269,989 for the previous year, an increase of 1.1%. Total blood component utilization was 127,176 units compared to 117,995 for the previous year, an increase of 7.8%.

	2007	2008	Percent change
Red Blood Cells	31,363	32,757	4.4
Platelets	57,501	64,366	11.9
Plasma	12,678	12,523	-1.2
Cryoprecipitate	5112	6041	18.2

Hematopoietic progenitor cell processing and transplantation activity was decreased compared to the previous year. This reflects activity of the adult and pediatric Blood and Marrow Transplantation programs.

	2007	2008	Percent change
Units processed[1]	528	483	-8.5
Bags frozen	666	592	-11.1
Transplants, autologous	116	109	-6.0
Transplants, allogeneic	61	55	-12.8
Transplants, unrelated	74	68	-8.1
Transplants, total	251	232	-7.6

Includes adult and pediatric activity.
[1]Includes units received from outside centers.

Total activity in the Apheresis Procedure Unit was decreased compared to the previous year. Decrease in the number of HPC collections reflected both activity of the Blood and Marrow Transplantation program and judicious management of autologous HPC patients.

	2007	2008	Percent change
Therapeutic apheresis[1]	1340	1352	1.0
HPC collections, autologous	414	293	-29.2
HPC collections, allogeneic	107	99	-7.5
Total encounters[2]	2416	1944	-19.5

[1]Includes plasmapheresis, LDL apheresis, red cell exchange and therapeutic cell depletion
[2]Includes procedures not listed above

The Reference Laboratory activity increased in all categories. Notably, the substantial increase in overall activity was accommodated without increased staff.

	2007	2008	Percent change
Antibody identifications	823	959	16.5
ABO resolution	106	99	-6.6
M-Labs/referrals	41	14	-65.6
BMT	810	719	-11.2
Eulates	183	199	8.7
Adsorptions	152	174	14.5
Titers	110	161	46.4
Total activity[1]	1906	2916	53.0

[1] Includes procedures not listed above

Laboratory Operations

A number of major process changes were implemented that improved service and efficiency. Elimination of paper requisitions accompanying Carelink orders was accomplished. This was made possible by changes in Carelink that allow for positive identification of the phlebotomist of pretransfusion compatibility testing samples. Routine stocking of units of AB plasma in the Emergency Department blood refrigerator and in the Blood Bank for emergency release was implemented. This improved response time for level I traumas. Improvements were made in the blood dispensing process for the Canton transfusion center. This improved delivery of services for off-site outpatient transfusions. Polyspecific antiglobulin reagent was implemented in transfusion reaction work-ups. This increased sensitivity for detention of ABO incompatibility as well as complied with CAP requirements. Modifications were made in the Carelink blood order and send blood order which improved clarity and will decrease the risk of dispensing errors.

A notable clinical quality improvement effort was the initiation of the Blood Lean Team led by Dr. Tim Laing under the auspices of the Office of Clinical Affairs. This multidisciplinary team is addressing improvement in transfusion practice and reducing costs through utilization controls. The Team formulated evidence-based adult blood transfusion guidelines, which were adopted by the Executive Committee for Clinical Affairs. The Team is working further on refining the guidelines, broad educational efforts, and improving quality assurance in conjunction with the Transfusion Committee.

Educational Activities

Members of the Blood Bank medical and technical staffs participated in Pathology house officer teaching, Hematology fellow teaching, M2 and M4 medical student teaching, the transfusion component of nursing orientation, and many interdepartmental conferences.

The 36th annual postgraduate course, "Current Topics in Blood Banking", was held on May 27-29, 2009. The course, under the direction of Suzanne Butch, attracted approximately 100 medical technologists and physicians from throughout the United States. It continues to be one of the most popular postgraduate courses in the country devoted to blood bank topics. The Blood Bank and Transfusion Service medical and technical staffs were instrumental in planning, organizing and presenting this program.

Professional Activities

Members of the Blood Bank and Transfusion Service staff were active at the regional and national levels. Suzanne Butch was particularly active on the national and international levels. She was on the Board of Directors of ICCBBA (formerly the International Council on Commonality in Blood Banking Automation), an international professional organization. She was a member of the Annual Meeting Education Program Unit and the Coding and Reimbursement Committee of AABB; served on the Area Committee on Automation, the Area Committee on Quality Systems and Laboratory Practices, and the ISO 212 Technical Advisory Group of the Clinical and Laboratory Standards Institute; and served as the Job Analysis for CLS and CLT Chair and the Management Examination Chair of the National Certifying Agency of Clinical Laboratory Professionals. In addition, Suzanne Butch was elected President of the Michigan Association of Blood Banks (MABB). Theresa Downs was served on the Education Committee of the MABB. Meredith Hoag served on the Publications committee of the MABB. Andrea Hickey was a District Representative of the MSCLS

Sharon Lowery was MABB Executive Board member-at-large and MABB Education Committee member. Sharon Lowery gave presentations at the MABB annual meeting, MABB RAP session, the Michigan Society of Clinical Laboratory Scientists (MSCLS) annual meeting and Current Topics in Blood Banking. Louann Dake was Chair of the Immunohematology Reference Laboratory Standards Program Unit of the AABB. Louann Dake gave presentations at the AABB annual meeting and Current Topics in Blood Banking. Notably, Louann Dake received the 2008 Kay Beattie Memorial Lectureship of the MABB. Sharon Lowry, Louann Dake, Suzanne Butch and Theresa Downs were AABB Assessors.

CHEMISTRY

Submitted by Donald Giacherio, Ph.D.

The Chemistry Section, under the leadership of Donald Giacherio, Ph.D., experienced an approximate 1.4 % increase in overall testing volume this year. The lab performed over 7.3 million individual tests. The Chemistry Section continued its efforts this past year at utilizing lean principles to continually improve the turnaround times for testing, searching for ways to

automate manual testing, and bringing in additional testing from the list of sendout tests. Daily monitoring and posting of STAT test turnaround time data and continued cooperative efforts by all staff to improve performance led to dramatic TAT reductions. Currently, 1.25 % of STAT chemistry testing takes over 1 hour to complete, and 96 % of STAT samples are verified within 45 minutes. This compares to data of one year ago showing 4 % of STAT's over 1 hour and 89.9 % completed within 45 minutes. The activities of a lean team led by Chemistry and Specimen Processing staff have focused on reducing the number of misplaced samples in specimen processing and in the clinical laboratories, and has streamlined the process for sharing samples and the cooperation between laboratories.

Automated Chemistry

The Automation section of the lab began performing high sensitivity CRP assays, moving from a batched nephelometric assay at the Immunology Lab to a random access immunoassay on the automation line. This has improved the TAT for the test, and reduced the need for sample splitting. The lab is also in the process of validating an assay for Cystatin C, which shows considerable promise as means of assessing renal function, especially in children. The contract to acquire instrumentation to perform allergy testing is in its final stages, and in-house testing for IgE to the 60 most common allergens should begin by the end of summer or early fall.

Special Chemistry

The Special Chemistry section has validated an RIA assay and completed a reference range study for 1,25dihydroxy Vitamin D, with a go-live date for testing in June. Currently, the sendout volume for his test averages 280 samples per month. The lab just finished the installation of a second Diasorin Liason immunoassay analyzer that will allow multiple serology assays currently performed by ELISA in the Virology Lab to be transferred to the Chemistry lab. These include antibody assays to VZV, CMV, HSV Type 1 and HSV Type 2 (currently sendouts), as well as antibody tests for Toxoplasma gondi and Borrelia burgdorferi (Lyme Disease). Validation of the performance of these assays is nearing completion.

Toxicology

The Toxicology section developed, validated, and implemented an LC-MS assay for iohexol that is being utilized by Nephrology to accurately measure glomerular filtration rate in individuals with declining renal function. The section has validated and in June will begin performing a test for ethyl glucuronide in urine (currently a sendout). The lab has also implemented specific urine tests for oxycodone, methadone, and buprenorphrine in the past year.

Immunology

The Immunology section of the lab experienced a 5% growth in testing volume this past year. The section implemented Epstein Barr Virus serology panels on the Bioplex 2200 multiplex immunoassay analyzer. The lab also took over all celiac disease serology testing in the fall of 2008 (antibodies to tissue transglutaminase and deamidated gliadin). The lab is evaluating specific antibody tests for confirmation of anti-neutrophil cytoplasmic antibodies on the Bioplex 2200 analyzer (myeloperoxidase and proteinase 3), with a goal of bringing up these current sendout tests by fall. The Immunology lab is also in the final stages of evaluating a capillary

electrophoresis system from Sebia as a potential labor saving alternative to serum protein electrophoresis.

Point-of Care Testing

The lab has continued its leadership role in Point of Care (POC) testing both within the hospitals and at the off-site health care centers. Chemistry took over staffing the laboratory in the Emergency Department in February and began performing Troponin I testing by an I-STAT point-of-care assay in the ED. This has reduced the TAT for this important cardiac marker in the ED from 65 minutes to less than 20 minutes. The bedside blood glucose meter program continues to grow within the hospital. Many new meters and docking stations that allow the download of patient data to the laboratory information system continue to be installed. The lab continues its active oversight of the 290 glucose meters at University Hospitals. The chemistry lab and the satellite support group conducted evaluations of new Hemoglobin A1c analyzers for POC testing throughout the health care centers. The group selected the Siemens DCA-Vantage analyzer, and 24 were acquired and placed in use at outpatient sites. The group oversees quality control, proficiency testing, and result entry for these analyzers. The new reagent contract is estimated to save the institution over $30,000 a year on A1C testing.

CYTOGENETICS

Submitted by Diane Roulston, Ph.D.

The overall sample volume for the past fiscal year remained at about the same level as for the previous year (3,456 total tests, -0.58%), however, there were several changes in the mix of testing requested and performed. Much of the summer was spent on efforts related to the relocation of the laboratory to a new off-campus facility at 2900 Huron Parkway.

The year began with the tragic passing of Dr. Sharon Betz after a devastating illness. We continue to miss her professional expertise and her many wonderful personal qualities. In November 2008, locum tenens were contracted to help cover case sign-out and decrease the send-out costs. Thomas Glover, Ph.D. (Professor, Department of Human Genetics) continued to provide invaluable expertise and sign-out coverage of constitutional genetics cases.

As part of our on-going plan to increase capacity, the laboratory acquired additional workstations and cameras for the automated karyotyping system. This has increased efficiency by reducing the wait for an available capturing station. With the aim of increasing efficiency in other areas, several lab members attended a Lean workshop conducted by Dr. Steve Mandell. Numerous small improvements have resulted after the workshop and as procedures are developed for the new space.

Clinical Services

The total number of samples submitted for chromosome analysis decreased slightly relative to last year, with 2,603 samples submitted, a decrease of 5.5%. The number of bone marrow samples submitted has plateaued over the last two years, with only a slight increase this year, with 1,655 (+1.7%) samples received. All other categories of samples submitted for

chromosome analysis declined relative to last year. The blood samples for constitutional studies declined for a second year, with 411 samples submitted, a loss of 22.6%. This loss is likely due to the increasing use of genomic microarrays for genetics patients.

Offsetting the slight decline in cytogenetics samples, the overall number of FISH studies performed increased over the previous year by 18%, with a total of 839 samples. The gains were primarily from increases in oncology FISH testing, both single-probe FISH and FISH panels. Constitutional FISH testing increased as well, due to continued collaboration with the Pediatrics Molecular Genetics Laboratory for microarray confirmations. Increased activities in several areas of FISH testing are planned, as demand continues to increase and new abnormalities significant in oncogenesis come to light. Additional FISH for microarray confirmation will be performed, as BACs that are tiled across the genome and confirmed by FISH mapping are now commercially available. Also, a collaboration for testing the utility of genomic microarrays in hematologic malignancies is planned.

HEMATOPATHOLOGY

Submitted by Megan S. Lim M.D., Ph.D. and William G. Finn M.D.

The hematopathology laboratory continues to offer an extended menu of tests in hematology, coagulation, and flow cytometry, with more than 1 million total test orders in FY 2008. Total test volumes for the combined hematopathology laboratories (hematology/ coagulation/ flow cytometry) exceeded 1,000,000 for the first 11 months of FY 2008. The number of in house bone marrow aspirate and biopsy samples remains stable at approximately 2500. The number of consults (600) also is similar to FY2007. The number of TH cases increased from 783 to 920 (15%). The flow cytometry laboratory performed 3104 leukemia/lymphoma analyses representing a 20% increase from last fiscal year. The combined hematology laboratories (hematology, urinalysis, bone marrow, coagulation, flow cytometry) performed extremely well in an inspection by the College of American Pathologists in May 2009, passing the inspection with no deficiencies.

We have made significant improvements in the organization of the Hematopathology service and reporting which has resulted in decreased turnaround times (average of 20%) for most of the service rotations. Some of the key improvements in efficiency are the following:
1) decreased numbers of fluid reviews by hematopathologists (greater than 50% decrease), 2) standardized bone marrow reports, 3) use of digital transcription system for the TH and consult cases.

In accordance with safety recommendations, we have completed the switch over to AZF fixative replacing the mercury based B-5 fixative for processing of hematologic tissues.

We have instituted and improved a number of our quality control policies by developing guidelines and standard operating procedures to document cases that have been reviewed by more than one pathologist as well as instituting an ad hoc review policy to ensure appropriate re-review and documentation of cases requested for second review.

The addition of Nicole Cheesman to the Hematopathology administrative office has created an effective combination of administrative support for the faculty and the fellowship program. The effort and teamwork demonstrated by Vicki Slone and Nicole Cheesman has had a positive impact for our faculty. Together, they have created an up-to-date Office Procedure Manual. We have instituted the policy of returning all materials to the originating institution, along with coordinating the return of older cases that have been kept on file. A system for tracking blocks that come to the Hematopathology Suite for review with a tracking log and sign out sheet has been initiated.

Clinical Hematology Laboratory

We have reallocated staff to meet shifting demand and in response to efficiencies realized in our operations planning. Our staff remains active in the preparation of the hematology laboratory for the scheduled change in laboratory information systems from Cerner Classic to Soft Computer (SCC). We have successfully transitioned to online procedure manuals for the flow cytometry and coagulation sections. We successfully resurrected a program of continuing education for laboratory staff via slide review sessions and lectures from house officers and fellows on hematopathology rotations.

Hematology Section

Physical renovations were completed as part of the department-wide lean initiative. These renovations were accompanied by the deployment of the IRIS urinalysis system, which provides greater efficiency in the analysis and microscopic examination of urine specimens, and the deployment of a new Excyte 20 erythrocyte sedimentation rate system. We also released a request for proposals (RFP) for new hematology analyzers, and we anticipate the installation of a new hematology analysis platform by mid-2010, when the contract for our current analyzers expires. In the interim, we have increased capacity in our sample stockyard (for previously analyzed samples) from 2000 to 3000 to accommodate current sample volumes.

As part of the medical center-wide mandate for efficiency and cost-control, we began to process and analyze patient samples from the Cancer Center hematology/oncology clinics in our main hematology laboratory in UMH, rather than in the Cancer Center satellite laboratory. The analysis of Cancer Center samples in a separate laboratory utilized substantially greater resources per sample than when samples were run in the main laboratory. This transition was undertaken in cooperation with Cancer Center staff and faculty, and has resulted in many improvements including:

1. Decreased turnaround times for hematology testing for Cancer Center clinic and infusion patients.
2. Deployment of a novel method for early release of absolute neutrophil counts (ANC), resulting in an 85% increase in autoverification of ANCs for all medical center patients, and reduced wait times for infusion patients.
3. Deployment of computer software (programmed by members of our own staff) to assure timely preparation and delivery of peripheral blood smear slides to clinic physicians in the Cancer Center.

We also substantially improved operations in the bone marrow processing area. Our staff developed a system for direct entry of bone marrow differential counts into the laboratory information system (allowing for internal tracking/trending of results over time), and direct entry of the tabulated counts into bone marrow aspirate/biopsy reports in the Anatomic Pathology reporting system. This has provided a much needed systems-based approach to the formatting and building of bone marrow biopsy reports, and provides an extra layer of quality assurance for bone marrow differential count reporting.

Coagulation Section

Improvements in operations in the coagulation laboratory allowed for the reassignment of one full time equivalent (FTE) away from the special coagulation laboratory. We successfully deployed several new tests and methods, including:

1. Switching to a more sensitive and consistent methodology for the dilute Russell viper venom time (dRVVT).
2. Implementation of an IgG HIT (Heparin-induced thrombocytopenia/thrombosis) ELISA method to reduce borderline and false positive results and reduce the need send samples out for serotonin-release confirmatory assays.
3. Elimination of the Tissue Thromboplastin Inhibition method, with replacement by a Hexagonal Phospholipid Neutralization assay with better specificity for lupus anticoagulant, and no interference from anticoagulant therapy or factor deficiency.
4. Deployment of a Protein S Activity assay, eliminating the need for sendout.
5. Consolidation of proficiency testing vendors.

Flow Cytometry Section

There were substantial improvements to the flow cytometry reporting system, including deployment of a semi-automated reporting program that unifies most leukemia templates and incorporates QC/QA measures into technologists\' reports, and implementation of paperless processing for CD4 counts. All faculty and fellows now have access to raw flow cytometry data immediately after samples are run, with analysis and reporting software available on all faculty and laboratory computers, allowing for great efficiency in interpretation, rapid re-analysis (when necessary), and rapid building and verifying of clinical flow cytometry reports.

We continue to optimize our 5-color panels for clinical diagnosis. We began work on a new panel for detection of paroxysmal nocturnal hemoglobinuria (PNH), currently a sendout test, and also began work on improvements to our stem cell analysis procedure. We successfully deployed a 5-color lymph node panel, aimed at immunophenotyping the expected cellular constituents of lymph node samples, and therefore allowing for more comprehensive and meaningful lymph node analysis.

MICROBIOLOGY AND VIROLOGY

Submitted by Duane W. Newton, Ph.D.

The Laboratory continued to experience increases in test volume with an overall 4% increase compared to that of FY 2006-07, with a total testing volume of over 400,000 tests. While this increase is being seen relatively equally across all areas of the laboratory, we are continuing to

see increases in molecular diagnostics, and are beginning to see substantial changes in workload due to increased surveillance for MRSA, VRE, and C. difficile.

Molecular diagnostics continues to be a major growth area of the laboratory. Virtually every molecular diagnostic test performed in the laboratory increased in volume, with the largest increase being seen in Human papillomavirus testing (35% increase). Over the past 5 years, this volume has nearly tripled with our total testing volume last year approaching 10,000 tests. The laboratory has also added new molecular tests that have allowed us to improve diagnostic performance, decrease turnaround time, and reduce sendout costs: Enterovirus real-time PCR, Bordetella pertussis real-time PCR , Epstein Barr virus viral load (real-time PCR). To improve test performance, Herpes simplex virus detection was upgraded from a conventional PCR with gel detection to real-time PCR , and Group B streptococcus detection in prenatal screening samples was converted from culture to real-time PCR detection. Additional instrumentation has also been acquired and validated for the performance of automated nucleic acid extraction for many of our viral load assays, and we have also acquired and validated a new FDA-approved system for automated sample extraction and real-time quantitation of HIV viral load in plasma. Each of these equipment acquisitions has been negotiated with the vendor without an overall increase in cost/test because of our steady increases in volume.

Additional significant contributors to the laboratory's testing volume were the expansion of active surveillance for MRSA and VRE to include 4 units (up from 2) beginning in June 2008, to be increased to 8 units by September 2008. This program was established in conjunction with Infection Control & Epidemiology in order to identify and isolate patients with these drug resistance organisms so as to prevent their nosocomial spread. This information is also used to guide emperic therapy for infections in these colonized patients, thereby reducing associated morbidity and mortality. Our annual volume for these tests increased by ~35% this year to a total of ~8000 tests, which we expect to double as the program is fully implemented.

The increases in workload have been successfully accommodated due to the continued expansion of activities performed by the afternoon shift. Through the addition of personnel and cross-training, we have increased the amount of culture and susceptibility work performed and reported on this shift, which is allowing for prompt availability of results to the clinical staff. We have also implemented GBS real-time PCR testing on this shift as a first step to introducing molecular testing to the afternoon staff, with the expectation that the breadth of molecular testing they perform will expand.

In collaboration with Pharmacy, Infectious Diseases and Infection Control, we have generated several unit- and hospital-specific antibiograms to more closely track trends in antimicrobial resistance throughout the hospital and health system. These are being used to assess the appropriateness of antibiotic usage and determine whether changes in therapeutic recommendations or antibiotic formulary are required.

MOLECULAR DIAGNOSTICS
Submitted by Kojo S. J. Elenitoba-Johnson, M.D.

The laboratory is directed by Dr. Kojo S. J. Elenitoba-Johnson. Dr. Thomas Wilson is the Associate Director. The laboratory's Technical Director is Dr. Bryan Betz with Jennifer Sanks as Technical Supervisor.

The laboratory currently employs one full-time supervisor, six full-time technologists, and two part-time technologists. Four of the full-time and both part-time technologists are cross-trained in all areas of the laboratory. One full-time technologist serves in a research/development capacity for the development and validation of new clinical assays. The laboratory also has a technologist responsible for the development, validation, and test performance of the FISH assays, and fluorescent in-situ hybridization assays

The laboratory test menu continues to expand with the introduction of eight new assays:

KRAS Mutation Detection – 10/1/08
KIT Mutation Detection in GIST – 12/8/08
KIT Mutation Detection in Melanoma – 12/8/08
Warfarin Sensitivity Analysis – 1/31/09
BRAF V600E Mutation Detection – 4/1/09
HER-2/neu FISH for Breast Cancer – 7/1/08
UroVysion FISH for Bladder Cancer – 2/16/09
CEBPA Mutation Detection – 6/8/09

The test volume in 2007-2008 was 11,162. The laboratory experienced a 10% increase in annual volume in 2008-2009. During the past year, the average turn-around time for all assays has decreased from 3.5 days (2007-2008) to 3.06 days (2008-2009). This average turn-around time is well within the published range of 2 – 7 business days. It is anticipated in 2009-2010 that several more tests will be brought on line, with a continued increase in test volumes.

Jeffrey S. Warren, M.D.
Aldred S. Warthin Endowed Professor of Pathology
Director of Clinical Pathology

PATHOLOGY EDUCATION

Division of Pathology Education

Joseph C. Fantone III, M.D.
Godfrey D. Stobbe Professor of Pathology Education
Director of Pathology Education
Associate Dean for Medical Education

OVERVIEW

The Department of Pathology offers a diverse and expanding array of outstanding educational programs. Foremost among these are programs focused on medical student, resident, graduate student and clinical and research fellow training. Expanded programs in cancer biology, inflammation and immunopathology, translational research, informatics, proteomics and biomarker discovery provide additional opportunities for training within the department.

Pathology faculty are also actively involved in teaching other learners within the University of Michigan including the Medical School, Dental School, School of Public Health, College of Literature, Science and the Arts, and the Rackham School of Graduate Studies. This involves formal lecture and laboratory exercises, senior clinical clerkships, and research training for undergraduate, graduate, medical students, and postdoctoral fellows. Departmental teaching activities also extend to house officers and the staff of many clinical departments in the form of regularly scheduled clinical teaching conferences.

Departmental teaching also extends to practitioners in the region and nation through continuing medical education (CME) programs, workshops and seminars offered through The University of Michigan, and professional organizations including the United States and Canada Association of Pathologists (USCAP), and American Society of Clinical Pathologists (ASCP).

MEDICAL STUDENT

Pathology faculty provide outstanding leadership (e.g. course directors, sequence coordinators, Associate Dean for Medical Education, Associate Dean for Diversity and Career Development) and excellent teaching in the first two years of the medical student curriculum. Faculty continue to be recognized as recipients of student teaching awards, including Dr. Andrew Flint, who is the recipient of this year's Elizabeth Crosby Award. This award is given by the student members of the Galen's Medical Society and is one of the highest teaching awards given by students. Student interest in fourth year clerkships in Pathology, as well as research and specialty

experiences, continues to increase with almost half of the fourth year medical school class choosing elective rotations in the department. These experiences are individualized based on student career interests and continue to be highly evaluated by students and meet important curriculum educational goals.

GRADUATE STUDENT

The Department's doctoral graduate program continues to expand and thrive (23 students) with a focus on providing excellent training in preparation for careers as scientific investigators. Nine new students joined the program this past year and four students graduated from the program; two are continuing their medical education as part of the MSTP program at the University of Michigan, one accepted a post-doctoral fellowship at the University of Pittsburgh and the other is enrolled in the University of Pennsylvania School of Veterinary Medicine. A training grant within the Department continues to serve as an important source of support for graduate students and post-doctoral fellows. The Department of Pathology is an active participant with other basic science departments in the Program in Biomedical Science (PIBS). This program includes a joint effort of biomedical graduate programs to recruit the very best students to the University of Michgan and allow them to delay selection of specific departments until they have completed their first year of study. Several faculty serve on both the curriculum and admissions committees for the program. The annual Pathology Research Symposium was very well attended by students and faculty both within and outside the department.

RESIDENT AND CLINICAL FELLOW

There has been significant expansion of our graduate medical education programs in the department during the past several years. The Department offers both individual and combined residency training in Anatomic and Clinical Pathology as well as ACGME approved fellowships in Cytopathology, Hematopathology, Dermatopathology, Blood Bank/Transfusion Medicine, and Molecular Genetic Pathology. Additional fellowship opportunities include training in the specialty ares of surgical pathology, breast pathology, pulmonary pathology, urologic pathology, GI pathology, GYN pathology and informatics. Eight new residents joined our department and approximately 40 residents and fellows receive training annually. Applications to the program exceed 120 from LCME accredited medical schools and more than 200 international medical graduates. Residents and fellows continue to be very academically active, with multiple presentations at national meetings and first author publications. RohitMehra, M.D. was the recipient of the AACR GlaxoSmithKline Outstanding Clinical Scholar Award. The AJ French Society supports traveling fellowships for several residents each year expanding their educational opportunities at other institutions. Several residents provide strong support to the medical student educational programs through their involvement as laboratory instructors, mentors and tutors to students. Twenty-two house officers and fellows completed training this past year. Graduates found desirable fellowships (13), faculty positons (2) at academic health centers and employment in private practice (4).

UNIVERSITY AND CME

Department faculty continue to offer high quality laboratory research opportunities to both undergraduate and medical students, a Dental student pathology course with lab, CME programs, and individual teaching in the other schools of the University including Public Health. The Pathology Informatics and Blood Bank CME courses continue to be recognized as foremost programs in the country. Faculty continue to develop internet based educational modules that can be linked to established and future CME programs. The fall New Frontiers in Diagnostic Pathology meeting continues to be a focal point for CME especially for graduates of our resident training programs, pathologists within the midwest and nationally.

Joseph C. Fantone III, M.D.
Godfrey D. Stobbe Professor of Pathology Education,
Director, Pathology Education
Associate Dean For Medical Education

PATHOLOGY INFORMATICS

Division of Pathology Informatics

Ulysses G. J. Balis, M.D.
Associate Professor of Pathology
Director of Pathology Informatics

OVERVIEW

The Division of Pathology Informatics completed its third academic year since my arrival in July of 2006 with uniform progression of a number of both short- and long-term initiatives, many of which are now being completed and fully operational. The Division continues to benefit from its being a wholly-embedded IT division within the Pathology Department proper, under direct Pathology oversight (being one of only three remaining academic pathology departments in the U.S. that retains such autonomy) in tandem with its possession of a team of highly-qualified and specially-trained I.T. professionals who are able to appropriately steward the growing number of complex systems under our aegis.

Challenges for the division include the continued reality of pent up demand from the department-at-large for incremental I.T. solutions that are added to our project list at a rate faster than extant projects are being completed, creating an increasing backlog of future work. This reality exists despite the fact that the division has implemented detailed project planning and tracking, and despite the reality that our average project turn-around-time has significantly decreased for the majority. This disparity can be traced to the high complexity and long lead times for a number of projects that have recently entered our project portfolio, in tandem with the operational burden created by our lab information system (LIS) replacement project, which is now fully in its implementation phase. An additional operating challenge has been the continued staffing of our 24/7 help desk services, in the setting of attrition of existing personnel combined with a hiring freeze.

A major emphasis in the coming year will be the amelioration of this project backlog through the incorporation of rapid prototyping and software development techniques, a repertoire of capability that has recently been added to the division specifically to address this challenge. Additionally, the division is observing a decrease in the rate of new special project requests, with this possibly being a reflection of the number of previously unavailable information technology infrastructure elements that are now available to members of the department. In the setting of a continued trend of decreased numbers of new projects, the division is well-positioned to complete a majority of its extant projects.

CLINICAL ACTIVITIES

LIS Replacement Project

The Cerner Pathnet LIS Application, which went into operation over 22 years ago, while fully operational, is obsolete from a number of I.T. perspectives with the foremost limitation being seamless interoperability. As a result, the division has been involved in a multi-year project to fully replace the core LIS functionality for all aspects of clinical operations, included CP and AP areas. Of these two, the collective CP areas were initially selected for LIS replacement, with that effort resulting in a sophisticated, multi-tiered project, which is now fully within the implementation phase. As a high-level overview, the major functional tasks of the project can be broken down into 3 general areas: Legacy data cross-load, system table configuration and work flow optimization and modification. At present, all 3 classes of effort are ongoing, with further expectation that the degree of project concurrency will elevate to as many as 14 active sub-tasks, through the course of the project.

As the selection process for the anatomic pathology information system is predicated upon a number of key internal architectural decisions within the larger LIS project proper, it was necessary to identify specific architectural solutions that would be compatible with projected department growth of both volume and complexity. Most central to this decision set was the selection of an appropriate enterprise master patient index (EMPI) architecture that would allow for seamless operation of both internal and MLabs-originated specimens. While this process is not fully completed at present, a number of substantive ground level architectural choices have been selected, thus making it possible to commence with the final revised AP-RFP process. Parenthetically, premature selection of an AP-LIS architecture in the absence of a fully instantiated EMPI would have led to significant interoperability challenges, with the ensuing need to integrate what likely would have been vastly disparate architectures. In the present evolved setting, a priori knowledge of the most likely EMPI storage and interchange methods will likely facilitate a near-seamless integration of both AP patient demographics and AP results with the larger extant LIS.

CAP Inspection

Following a detailed review of the Informatics Division's curatorship of all clinical and infrastructure operations supporting the LIS, no citations were assigned. This trend echoes a similar citation-free review at the most recent CAP inspection two years ago, and serves as a helpful external metric of the Division's continued sound practices with respect to stewardship of clinical data and information technology. It should be noted, that during this most recent inspection, the division made extensive use of its own locally-developed tool, the on-line laboratory policies and procedures manual, to expedite demonstration of compliance with all the CAP checklist questions.

Anatomic Pathology

A large number of projects were completed for the Anatomic Pathology Division. In addition to determining the requirements for the AP-LIS system, Informatics enhanced the AP stalled case reports, completed a text data extraction project, and continued to work with Suncoast Pathology toward the goal of a paperless workflow environment, among others. In addition, Informatics provided support for the New Frontiers in Pathology national meeting, hosted by the Anatomic Pathology Division.

Research Activities

The Division was also instrumental in researching and developing new solutions for both the clinical and research activities of the Department and our partners. These include:

1. Fabric-Layer integration into Careweb as a generic solution for integrating legacy foreign system
2. Lexical Analysis of Legacy Data for simplified ETL operations
3. Next Generation Image Search Algorithms and Specifically, Rotationally Invariant Vector Quantization
4. LITS-Interop and Partnership with the National Cancer Institute
5. Sophisticated Reporting/Integration tools for Hematopathology
6. Thiopurine Project
7. Solexa Analysis system upgrade
8. Active Directory Project Completion
9. Installation of working Enterprise Virtual Array Storage Infrastructure

Pathology Informatics has been instrumental in keeping the Department of Pathology functioning effectively and efficiently. Whether it be desktop support or delivering state-of-the art new technologies for the users, Pathology Informatics has provided the support needed for the Department. We look forward to the new year as the LIS project continues forward and the AP-LIS process moves ahead.

Ulysses G. J. Balis, M.D.
Associate Professor of Pathology
Director of Pathology Informatics

SPONSORED RESEARCH

Division of Sponsored Programs

Jay L. Hess, M.D., Ph.D.
Carl V. Weller Professor and Chair
Co-Director of Sponsored Programs

Steven L. Kunkel, Ph.D.
Endowed Professor of Pathology Research
Co-Director of Sponsored Programs

OVERVIEW

The Department and the Medical School's research programs significantly expanded over the past year. Division Co-Director Dr. Steven Kunkel plays a pivotal role in coordinating these efforts as Senior Associate Dean for Research for UMMS. One of the great challenges and opportunities for the University is to develop and implement a plan for the North Campus Research Center (NCRC). Some of the thematic areas being explored by the University include Health Sciences Research, Neuroscience and Drug Discovery and Development. Developing the latter area has been a strategic objective for the Department, particularly in the area of targeting of epigenetic regulators. To this end, we have recruited several faculty members including Dr. Zaneta Nikolovska-Coleska, a chemical biologist from Zhaomeng Wang's laboratory at the University of Michigan, Dr. Jolanta Grembecka, a chemical biologist from the University of Virginia, and Dr. Tomasz Cierpicki, a structural biologist/NMR spectroscopis,t who is also from the University of Virginia. The Department is currently installing a 600 MHz NMR magnet at the LSI in support of the new chemical biology initiative. In addition, the Department has partnered with other units on campus to improve other research infrastructure including investment in institutional chemical genomics and shRNA facilities, two-photon imaging equipment and the Taubman institutional stem cell initiative.

Other areas of strategic direction for the Department is in the discovery, development and detection of new biomarkers, part of a rapidly growing and important field encompassed by Personalized Medicine. In addition to the ongoing efforts of the Michigan Center for Translational Pathology (MCTP) led by Dr. Arul Chinnaiyan, a number of other investigators on

campus, many in the School of Engineering, are pusuing work relevent to this area. In an effort to create a research home for this interdiscliplinary group, the Department submitted a CO6 American Recovery and Reinvestment Act (ARRA) grant for $15M to fund renovations to Building 35 at the NCRC. This renovation would create an Institute for Personalized Medicine located adjacent to Building 36, which is being explored as a future home for some of the Pathology Department's clincal laboratories.

This year Dr. Nicholas Lukacs was selected as Assistant Dean for Research Faculty. This is a particularly important position as the Research track, which is growing rapidly at the University, is currently undergoing significant reorganization.

The Pathology Department faculty published papers in many top-tier journals over the past year including papers in *Cell , Cancer Cell, Genes and Development, Molecular Cell, Nature Medicine* and multiple papers in *Nature* and *Science*. The Department's asthma research was discussed in an article in the April 7 Edition of the New York Times. In addtion, Dr. Richard Miller's research on Rapamycin and prolonged lifespan was also featured in the August 17 Edition of the New York Times.

A number of Departmental faculty garnered research awards and recognition this year. Dr. Soory Varambally received the Research Faculty Recognition Award. Dr. Andrew Lieberman was inducted into the American Society for Clincial Investigation (ASCI), Dr. Steven Kunkel was named an American Association for the Advancement of Science Fellow, Dr. Jay Hess delivered the 2009 Ramzi Cotran Lecture at the New England Society of Pathologists in Boston. MCTP Director Dr. Arul Chinnaiyan was awarded a Doris Duke Distinguished Clinical Scientist Award as well as an American Cancer Society Research Professorship, and Dr. Rohit Mehra, House Officer, received the AACR GlaxoSmithKline Outstanding Clinical Scholar Award.

Over the past year, the Department moved from 15th to 8th in NIH funding amongst Pathology Departments, with $15,302,613 in NIH awards in 2008, a 25% increase in the number of grants in force and a 28.5% increase in grant dollars compared with 2007. This figure does not reflect the expected uptick in funding as a result of the American Recovery and Reinvestment Act (ARRA). Departmental faculty submitted 38 ARRA grants totalling nearly $34M. While our focus is on the science we do and the discoveries we make, sustainable growth in research programs is dependent on sufficient indirect cost recovery. Currently, we have 32 principal investigators occupying 53,714 square feet of research space. 94.0% of our faculty with research space have effort supported by Federal or non-Federal grants. Our Department's space productivity of $125/sq ft is up 16% from 2008, exceeding both cohort ($115) and Medical School as a whole ($94).

Jay L. Hess, M.D., Ph.D.
Carl V. Weller Professor and Chair
Director, Division of Sponsored Programs

Steven L. Kunkel Ph.D.
Endowed Professor of Pathology Research
Co-Director, Division of Sponsored Programs

TRANSLATIONAL RESEARCH

Division of Translational Research

Kojo Elenitoba-Johnson, M.D.
Associate Professor of Pathology
Director of Translational Research
Director of Molecular Diagnostics Laboratory

OVERVIEW

The Division of Translational Research includes the mass spectrometry-based proteomics resource, the analytical flow cytometry core, the tissue procurement resource and the molecular pathology research laboratory. This year, we had an increase in the number and diversity of experiments performed by mass spectrometry-based proteomics. We made substantial progress with regard to the hematopoietic tissue repository led by Dr. Megan Lim with the construction of tissue microarrays for the common malignant lymphomas. Dr. Tom Giordano (MPRL Director) and Dr. Lloyd Stoolman continue to offer relevant translational research services in molecular pathology research and analytical flow cytometry respectively. The details of the activities and accomplishments of the Division are provided below.

TISSUE PROCUREMENT RESOURCE FOR HEMATOPOIETIC MALIGNANCIES

We have made substantial progress in the identification and archiving of retrospective cases of hematopoietic malignancies (as detailed below). At the helm of this venture is Dr. Megan Lim. We developed a working structure for the Tissue Procurement Resource (TPR)

- November 2008: HP tissue repository technician hired
- Collection of data for the following HP tissue repository
- Identified formalin-fixed paraffin embedded tissues: consult block: n=2000, In-house blocks: n=3000
- Constructed tissue microarray (TMA) blocks : 15

MASS SPECTROMETRY-BASED PROTEOMICS RESOURCE FACILITY

Submitted by Venkatesha Basrur, Ph.D.

The following mass spectrometers and accessories are housed in the laboratory at MS1, Rm. 4204:

1. LTQ-Orbitrap XL (Thermo Corp) – High resolution linear ion trap with Orbitrap analyzer
2. Quantum Ultra (Thermo Corp) – Triple quadrupole mass spectrometer
3. LTQ-XL-ETD (Thermo Corp) – Linear ion trap with electron transfer dissociation. This is just an upgrade of the old LTQ that was purchased in 2005 with ETD module.

4. Nano-HPLCs – Two new dual pump HPLCs (MS2, Michrom Bioresources) were purchased.
5. Surveyor HPLC (Thermo) & UV detector with nanoliter flow cell: Existing, unused system has been made operational and is being used for off-line 2D-LC techniques.

This facility is staffed by Venkatesha Basrur, Ph.D. (Laboratory Manager), Damian Fermin, Ph.D. (Proteomics Informatics Specialist) and Keven P. Conlon, B.S. (Senior Research Lab Specialist). The PRF offers services in potein identification, pst-translational modification site identification, relative quantitation using ICAT and iTRAQ methods, and MRM-based quantitation.

The majority of the projects submitted to PRF deal with the identification of interacting proteins, post-translational modification and determining the relative quantitation of differentially expressed proteins. To accomplish these analyses, PRF employs in-gel or in-solution digestion of the samples with trypsin followed by acquisition of data-dependant MS/MS spectra using ion-trap instruments.

PRF, in collaboration with Dr. Elenitoba-Johnson's laboratory, is also working on standardizing the protocols for MRM-based quantitation of peptides (proteins) using Quantum Ultra – a triple quadrupole mass spectrometer. Since last year, PRF has seen a sharp increase in the number of samples submitted for analysis. To date, approximately 3500 samples (gel slices/SCX fractions etc) has been processed through the facility (compared to 1500 fraction during FY 07-08).

The proteomic data generated exclusively at the PRF has resulted in several manuscripts published, in press or submitted for publication. Five poster and oral presentations were presented at both national and international meetings based on the work performed by the PRF. In addition, grants in excess of $2.1M support the PRF with several additional grants yet pending.

ANALYTICAL FLOW CYTOMETRY AND DIGITAL MICROSCOPY CORE LABORATORIES
Submitted by: *Lloyd M. Stoolman, M.D. (Director) and Ronald Craig, Ph.D. (Operator/manager)*

Flow Cytometry Core Laboratory
The Flow Cytometry Core Laboratory provides access to research grade flow cytometers (Coulter/Beckman FC 500 [2-laser, 5-color, 8-parameter; carousel-loader], Becton-Dickinson LSR-II [3-laser, 10-color, 13-parameter; plate-loader]), networked data storage and web-based scheduling system. In excess of 50 undergraduates, graduate students, post-docs, research associates and principal investigators from 18 laboratories used one or both instruments. T he instruments operated ~2000 hours or 52% (FC-500) and 42% (LSR-II) of the available time. A steady migration of users from the 5-color to the 10-color instrument occurred during the year as the benefits of polychromatic flow cytometry become more widely known. This migration required a substantial training effort. Based on University of Michigan Cancer Center Core rates, the departmental subsidy of this activity saved users over $60K. This figure does not reflect the added benefits of 24/7 access and the value of hands-on experience for trainees. Users report that this Core contributed to 17 publications in peer reviewed journals and a minimum of 21 NIH grants (18 active and 3 pending).

Pathology Digital Microscopy Core Laboratory

The Pathology Digital Microscopy Core Laboratory generates diagnostic quality (200-1000X) digital slide scans using an Aperio XT-robotic slide scanner, a Zeiss Axiomat computer-controlled photomicroscope with "mosaic" stitching software and networked Image servers. 8000+ scans (~8 terabytes) are currently online including both educational and research collections. This year, for the first time, scans for research projects (56% of scans) exceeded those for education (44% of scans). The Laboratory conducts automated and manual slide scans, contributes server support (with MSIS) for the Medical School and provides leadership for Pathology Department education, training and many research initiatives that involve virtual microscopy.

Medical School educational initiatives include online laboratories in the following areas: Medical Histology, Medical Histopathology, Medical Organ Systems Pathology, Dental and Graduate Student Histology and Histopathology with approximately 500+ campus users and a growing audience of Web users outside the institution. These efforts were recognized this year with one of five Provost's Teaching Innovation Awards. Departmental educational initiatives include searchable Virtual slide collections for residents and fellows, New Frontiers Conference, virtual slides for offsite seminars and online case development and competency testing for the Hematopathology training program. Users report that this Core contributed to 10 peer reviewed publications, 9 abstracts, 5 NIH grants (active) and 1 Breast Ca Foundation Grant (re-submission).

MOLECULAR PATHOLOGY RESEARCH LABORATORY

Submitted by Thomas J. Giordano, M.D., Ph.D. and Dafydd G. Thomas, M.D., Ph.D.

The mission of the Molecular Pathology Research Laboratory (MPRL) is to assist Department of Pathology faculty members with translational molecular pathology projects. The MRPL is directed by Drs. Thomas Giordano and Dafydd Thomas. The MRPL is assisted as needed by Michelle Vinco and Donita Sanders, both research technicians in Dr. Giordano's research laboratory.

The services provided include the following: tissue embedding and frozen sectioning (in part thru the UMCCC Tissue Core), DNA extraction, RNA extraction, protein extraction, PCR, quantitative RT-PCR, DNA microarray analysis thru the UMCCC Microarray Core, DNA sequencing thru UM DNA Sequencing Core, western blots, in situ hybridization, chromogenic in situ hybridization (CISH), quantitative in situ antigen detection (via AQUA analysis), laser capture microdissection thru the UMCCC Tissue Core, tissue array construction, and immunohistochemistry. This year, 11 abstracts and publications were published with presentations at national meetings such as the USCAP and New Frontiers in Pathology.

Kojo S. J. Elenitoba-Johnson, M.D.
Associate Professor of Pathology
Director of Translational Research
Director of Molecular Diagnostics Laboratory

MICHIGAN CENTER FOR TRANSLATIONAL PATHOLOGY

Michigan Center for Translational Pathology

Arul M. Chinnaiyan, M.D., Ph.D.
S. P. Hicks Professor of Pathology
Professor of Pathology and Urology
Director, Michigan Center for Translational Pathology

OVERVIEW

The Michigan Center for Translational Pathology (MCTP) was established in April of 2007 through the collaborative efforts of the Department of Pathology, the University of Michigan Health System, the Medical School, and the University President's Office to further the development of research in molecular medicine with the goal of impacting clinical care. During the first year of operation, efforts were focused on building the foundational infra-structure for the establishment of MCTP. The efforts of MCTP's scientists in the past year have produced significant discoveries that have advanced the field cancer research, showing much promise for the refinement of diagnostics and development of new targeted molecular therapies.

This past year has been both challenging and exciting as the Center continued to expand. Our initial efforts to establish a solid foundation for this program have enabled us to become well-positioned to pursue leadership in the molecular medicine research for cancer diagnostics and treatment. We have strived to integrate our efforts toward the development of a high quality biomedical research program focused on impacting patient care, have begun to spearhead leadership in the field, and sought to foster an environment supportive of training and education in the biomedical sciences. At the conclusion of this fiscal year, we are greatly encouraged by the strides we have taken towards the advancement of cancer research, the development of innovative analysis technologies that will have significant impact on cancer diagnostics, and the early efforts to identify and explore possible candidates for targeted therapies. The recognition of the quality of our work in peer-reviewed, high profile journals is a positive sign that we have begun to successfully establish our presence in the fields of cancer biology and molecular medicine.

During the last period, we reported that several laboratory research initiatives were undertaken with the recruitment of faculty, and these groups are now actively participating and contributing to our program. Dr. Ken Pienta, who had just joined MCTP at the close of last year's report, is

working toward the establishment of a laboratory focused on experimental therapeutics research and improvement of cancer diagnostics to track cancer metastasis. Dr. Xiaoju Wang is actively leading investigations to define and develop a multiplexed microarray for the identification of prostate cancer based on the immune system's humoral response in the Immunomics laboratory. Dr. Chris Beecher's Metabolomics group has successfully established partnerships with members of industry, such as Agilent Technologies, fostering the early steps that will be required with industry partners to transition research discoveries from the "bench to the bedside." Collaborations with Dr. John Wei are moving forward to develop an additional diagnostic test for prostate cancer, PCA3, that will be offered through a joint effort between the MCTP Molecular Testing Lab and MLabs.

The collaborative environment at MCTP has resulted in the development of novel and innovative data analysis methodologies that have been successfully employed for the identification and validation of critical cancer biomarkers. These discoveries have important diagnostic and therapeutic implications that are projected to impact patient care in the near future. Members of the Bioinformatics group have been actively working to develop user-friendly data analysis pipelines, such as OncoSeq, and sample databases to quickly and effectively scour tumor samples for genetic abnormalities associated with various types of cancer. Dr. Anastasia Yocum is actively developing a multiplexed MRM-MS method to improve diagnostic sensitivity and accuracy of prostate cancer detection. Dr. Thekkelnaycke Rajendiran and Dr. Amjad Khan, through collaborations with the Bioinformatics, Cancer Biology, Genomics groups, as well as Dr. Chris Beecher's Metabolomics group and Dr. John Wei's tissue core, made a significant discovery regarding the possible role of the metabolite, sarcosine, in cancer aggressiveness and metastasis. Other noteworthy projects include collaborations between the Bioinformatics, Cancer Biology, Genomics, and Gene Fusion groups to develop innovative methodologies for cancer biomarker detection and validation, as exemplified by Dr. Soory Varambally's efforts to examine the role of microRNA-101 expression in cancer. Using transcriptome sequencing technologies, joint efforts lead by Dr. Chris Maher and colleagues have already successfully identified novel genetic abnormalities in prostate and breast cancer. Indeed, MCTP researchers have already expanded their studies from primarily prostate cancer to address other forms of cancer, such as those of the pancreas, breast, and myeloma. Most recently, Dr. Dan Rhodes and colleagues had announced the discovery that a gene over-expressed in some forms of estrogen responsive breast cancer, AGTR-1, may be blocked by the FDA-approved hypertension medication, Losartan. Discussions are currently underway regarding the development of clinical trials to carefully examine the possible use of Losartan for a subset of estrogen responsive breast cancer patients.

The increased capacity for the biomarker identification and validation has been coupled with the expansion and streamlining of our ability to perform genomic analysis to search for novel genomic aberrations. New analysis pipelines have been created to scour published genomic information for aberrations associated with cancer, giving second wind to previous analysis and efficiently harvesting existing data generated by our group, as well as that generated at other institutions. Recent purchases of both Illumina and Solexa high-throughput sequencing platforms have greatly increased our capacity to rapidly and efficiently perform detailed genomic

analysis through next generation sequencing. Large quantities of data generated from such analysis are managed with Sample DB; a web-based sample management application developed in-house for tracking and efficiently managing sample information. Additionally, the various research groups at MCTP meet on a regular basis, and at a yearly summit, to discuss the efficient management of sample information and data, prioritization of sample analysis to expedite workflow, and future research directions.

Our efforts to improve our productivity and efficiency during these difficult economic times have not compromised the rigor of our research, which has actually increased. MCTP is rapidly establishing a reputation for scientific excellence on both the national and international stages. This past year, the group published over 30 peer-reviewed papers in the literature, several of which were accepted in high quality journals as fast-track online publications. There were numerous, key discoveries that attracted the global attention of the scientific community and the news media. The Cancer Biology group discovered that the loss of microRNA-101 lead to the over expression of histone methyltransferase EZH2 in cancer (published in *Science*, December 2008). A collaborative effort by MCTP researchers led to the discovery of a possible role for the metabolite, sarcosine, in prostate cancer cell invasion and aggressiveness (*Nature,* February 2009) generating considerable discussion in the field, which was emphasized by inclusion of this work in the Faculty of 1000 listing for scientific merit and the most important contributions to medical literature. We also announced the discovery of a new gene fusion linked to prostate cancer, SLC453-ELK4, using novel methods in transcriptome sequencing (*Nature*, March 2009). As previously mentioned, our group reported the blocking of action of the blood pressure drug Losartan on the AGTR1 gene, which over-expressed in a subtype of breast cancer (*PNAS*, June 2009). Further, our research efforts resulted in the filing of eight technology transfers. Upcoming young investigators, Dr. Bo Han and Dr. Ram Mani, received 2nd and 3rd place awards respectively for their abstracts at the 2008 Michigan Cancer Research Symposium (November 2008) emphasizing the quality of the research and strength of our training efforts. Such discoveries illustrate the flexibility of MCTP's approach to answer biological questions arising from a diversity of diseases.

The unique research environment and organizational structure of MCTP has yielded an expansion in scientific productivity and innovation, with a concomitant increased recognition and visibility of the Center. Our research accomplishments were highlighted in press releases that appeared in a variety of media outlets, such as *BBC News*, *Reuters*, *Time*, *American Association for Cancer Research*, the *National Cancer Institute*, and the *Howard Hughes Medical Institute*, among many others. This has resulted in increased traffic to our website with requests (both national and international) from researchers to join our team and initiate collaborations. We also receive inquires from students wishing to join MCTP to pursue careers in cancer research. The MCTP website has also been linked to a new, related website, hosted and maintained by Dr. Chris Beecher's Metabolomics group, which is frequented by industry partners. We have also noted an increase in inquiries about our research discoveries from patient populations, and, in response to increased public interest, the MCTP website has been extensively expanded.

Not only has MCTP gained recognition as an entity, but several individual members were also recognized for their contributions to the University of Michigan Health system and to the field of cancer research. Dr. Arul Chinnaiyan, the Director of MCTP was named a "DOD Era of Hope Scholar" (September, 2008), received the Doris Duke Foundation "Distinguished Clinical Scientist Award for Excellence in 'Bench to Bedside' Research" (January, 2009), and named to the Association of American Physicians (February, 2009). Dr. Chris Beecher was awarded a grant of equipment from Agilent Technologies to assist in his search for genetic factors that underlie disease development. Dr. Scott Tomlins was selected for the "George R. DeMuth Award", given to the MSTP fellow who best represents the qualities of a physician scientist. Dr. Rohit Mehra and his colleagues received the International Society of Urological Pathology "Excellence in Urologic Pathology" award for their work "TMPRSS2-ERG Gene Rearrangement and C-MYC in Prostate Cancer." Dr. Mehra was also awarded the "AACR GlaxoSmithKline Outstanding Clinical Scholar Award", given to promising young cancer researchers who have published high quality clinical research papers. Dr. Chandan Kumar and his research group received the "2009 Competitive Award" from the Lustgarten Foundation for Pancreatic Cancer Research for their study entitled "Discovery of Recurrent Gene Fusions in Pancreatic Cancer Using High Throughput Sequencing." Further, Dr. Chris Maher received support to attend the "AACR-Aflac, Incorporated Scholar-in-Training Award" at the AACR 100th Annual Meeting this year. Dr. Nallasivam Palanisamy received the "2009 MRA Development Award" from the Melanoma Research Alliance (MRA), given to promising melanoma researchers, for his work "Transcriptome Sequencing to Detect Gene Fusions in Melanoma." Members of MCTP were also recognized internationally for their contributions to research, including an award given to Dr. Palanisamy, who received the "2008 Singapore Medical Journal Recognition Award" for lending his experitise as a reviewer for the journal, and Dr. Bo Han, who received the "Best Abstract Award" from the International Association of Chinese Pathologists (IACP) for his work "Comprehensive Assessment of TMPRSS2 and ETS Family Molecular Aberrations in Histologic Variants of Prostate Carcinoma".

Overall, despite economically challenging times, the Center continues to make strides in procuring external funding through competitive awards and philanthropy efforts. The growth rate of committed awards increased by 30% over that of the previous reporting period, with the actual dollar amount of committed awards over 1.6 times that of the previous period, accompanied by more than twice the number of projects. Philanthropy efforts initiated by Steffanie Samuels (Director of Development, Depts. of Urology and MCTP), have been productive as well, with a total fundraising production of $1,234,018, reflecting a sustained public interest in MCTP's efforts to advance cancer research. This is coupled by essential support from the University of Michigan, Department of Defense, the Doris Duke Foundation, NIH, and industry partners. The diversity of the awards and support is reflective of MCTP's flexibility to investigate the genetic origins of the disease process as a whole, which remains an economically competitive strategy and ensures that the Center will continue to thrive.
This past fiscal year represents the successful integration of three essential elements that guide MCTP's development vision: research, training, and clinical care. Our efforts to produce high quality research that significantly impacts the field are coming to fruition, as evidenced by the acceptance of key scientific works in the field. MCTP is assisting in the formation of new

research directions and training for the field of cancer biology, and will host the Keystone Symposia on Molecular and Cellular Biology, "New Paradigms in Cancer Therapeutics", a venue whereby cancer biology scientists, representing a wide variety of emerging research and technical disciplines, may come together for engaging discussions to explore the identification and development of promising new targets for cancer therapy. We are expanding our training efforts, providing a unique collaborative research environment to foster the growth of young investigators, as well as graduate, undergraduate, and high school students. Through our efforts to impact clinical care, we have made significant strides in the development of innovative methods to identify new biomarkers for a variety of cancers, and our Molecular Testing Lab has begun to establish the infrastructure to bring these findings to the bedside through the development of new diagnostic tests. Our discovery of the possible utility of treating a subset of breast cancer with Lorsartan, a FDA approved medication, only highlights the potential rapid impact that is possible with through collaboration and the development of innovative analysis techniques. The synthesis of these three goals (research, training, and clinical care) with the support obtained from the University of Michigan Health Care System, governmental agencies, private organizations, industry partners, and benefactors, have successfully enabled MCTP's development from a conceptual vision into a working reality. It is our hope that the Center will serve as a role model for similar endeavors throughout the University of Michigan Health System, and serve as an example of a successful research initiative that compliments the State of Michigan's efforts to develop a life science corridor for economic development. Though the current economic situation poses considerable challenges, it also presents great opportunities for re-thinking how we perform research and fosters the development of innovative methods to achieve the greatest possible clinical impact. We have been pleased by the milestones that we have achieved thus far, and expectantly anticipate the development of new advances in molecular medicine that will impact clinical care in the near future.

SUMMARY OF RESEARCH GROUP ACTIVITIES FOR 2009 AT MCTP

Bioinformatics

The Bioinformatics team continues to progress in the analysis of data generated by next generation sequencing technologies (NGS) for gene fusion discovery, biomarker detection, and integrative cancer biology. Oncomine, developed previously for collection and analysis of transcriptome data, continues to be heavily utilized by the scientific research community with over 340,000 hits to this website since August, 2008, representing a diverse set of inquiries arising from domains in the educational, commercial, and non-profit sectors and from variety of countries. Dr. Dan Rhodes, along with other MCTP researchers, recently announced the discovery that a gene over-expressed in some breast cancers, AGTR-1, may be blocked by the FDA-approved hypertension medication, Losartan. This finding generated considerable interest in the scientific community, the results of this study published in *PNAS* in early June of this year.

Several other projects are currently underway, including the development of OncoSeq, an automated data pipeline, analysis engine, and gene annotation warehouse developed by Shanker Kalyana Sundaram and Bob Lonigro for analysis of next generation sequencing, as well as explorations of cancer specific alternative splicing mechanisms of gene fusion partners

by Dr. Catie Quist. Scott Begley is currently developing Sample DB; a web-based sample data management application for tracking and managing sample information, built on lean-workflow principals, which is currently being utilized by Dr. Khalid Suleman to manage sample data generated from tumor samples in association with Path Archives. Terry Barrette continues to shape systems administration and develop infrastructure. Doctoral candidate Lee Sam is investigating the detection of novel transcribed regions in the genome using RNA-Seq data generated by our group, searching for novel exons and transcripts. Dr. Steve Qin is constructing an H peak (HMM-based) program, used for peak calling as part of the analysis of Chip-Seq data for analysis of genomic aberrations in cancer.

Cancer Biology

Dr. Sooryanarayana Varambally continues to lead the Cancer Biology group in efforts to utilize advanced genomic analysis for the identification regulatory genes that may be involved in neoplastic progression and cancer development. Current studies include a search for inhibitors of oncogenic EZH2 using high-throughput screening methodology and a DU145-Luc xeonograft mouse model. This search proved to be productive with the discovery that the loss of microRNA-101 lead to the over expression of histone methyltransferase EZH2 in some cancers. Addition of microRNA101 to the human prostate cancer cell line, DU145, reduced tumor growth in a mouse xenograph model, and these results were published in *Science* (2008). Dr. Bushra Ateeq has undertaken efforts to screen for small molecule inhibitors of EZH2, with primary assays for drug screening currently underway using high-throughput technology (assisted by the Center for Chemical Genomics). A small molecule inhibitor of EZH2 has been identified, and a mouse model has been developed to study tumor growth *in vivo.* Several young emergent investigators in this group are also engaged in related studies, including efforts by Dr. Xiaosong Wang and Sunita Shanker to identify and characterize a new recurrent gene fusion in prostate cancer, Dr. Ram Mani's investigations to understand the genesis of gene fusions, Dr. Qi Cao's examination of the regulation of microRNAs as they relate to cancer development, and graduate student Chad Brenner's study of the role of DNA repair mechanisms in cancer metastasis. As a whole, the Cancer Biology group, in collaboration with several other MCTP research units, has been quite active this past year in the identification and characterization of a number of novel, regulatory elements that may be potential therapeutic targets for cancer treatment.

Epigenetic and Transcriptional Regulation of Prostate Cancer

Dr. Jindan Yu's group has been delineating a model of the AR and ERG regulatory network in prostate cancer, with emphasis on determination of epigenetic modifications. More than 70 samples were analyzed by a ChIP-Seq technique, with particular emphasis on the effects of androgen on associated genes. Although Dr. Yu has recently left MCTP to pursue a new career direction, other young investigators, such as Dr. Mohan Dhanasekaran and graduate student Julie Kim, will continue epigenetic research through their studies addressing the role of DNA methylation in prostate cancer using next generation sequencing. Their work includes the global analysis of methylation patterns using next generation sequencing (Methylplex) array CGH analysis, with special emphasis on methylation, and they have already identified and validated novel candidates.

Experimental Therapeutics

Under the leadership of Dr. Ken Pienta, the efforts of this group currently includes investigations into the role of the monocyte chemoattractant protein (MCP-1; CCL2) in the regulation of prostate cancer growth and metastasis; the potential use of functional MRI diffusion maps for imaging biomarkers in cancer (now in human trials and listed on both the MCTP and Engage websites); the use of Veridex technology to characterize RNA changes of circulating cells during cancer metastasis to improve cancer diagnostics; and the capture of prostate cancer stem cells using high-throughput screening methodology.

Gene Fusion Discovery

The Gene Fusion Discovery group, under the leadership of Dr. Nallasivam Palanisamy, is actively working on several research projects with the goal of identifying new gene fusions in several types of cancer. Transcriptome sequencing is being employed to detect gene fusions in melanoma, for which Dr. Palanisamy recently received a Development Award from the Melanoma Research Alliance. As previously detailed, this group collaborated with the Bioinformatics and Cancer Biology groups on the transcriptome sequencing and microRNA101 projects. Dr. Xiasong Wang and Sunita Shanker have been working on the identification of new recurrent gene fusions in prostate cancer. Studies are also being undertaken to perform an integrated analysis of the prostate cancer transcriptome. With the support from the Agilent Technologies Program for University Research, investigations are underway to explore the combined use of aCGH and genome partitioning to identify and characterize recurrent genomic amplifications in prostate cancer, with an emphasis on the identification and sequence characterization of oncogenic and tumor suppressive events.

Genomics

This past year has been a productive one for the Genomics group, under the leadership of Dr. Chandan Kumar, with efforts directed toward the delineation of transcriptome sequencing in breast and pancreatic cancers. A large, diverse array of tissues and cell lines have been extensively analyzed thus far for genomic aberrations (e.g. gene fusions), which included 52 unique samples, 23 cell lines, and 29 tissues with good representation among different types of mutations and tumors. In association with the Bioinformatics group, these samples are also undergoing a primary analysis of gene expression to assist in the identification of pathways that may be affected. Additional efforts include collaborations with the Bioinformatics, Cancer Biology, and Gene Fusion discovery groups on transcriptome sequencing and microRNA101 projects.

Most recently, the group has embarked on a noteworthy project; obtaining a complete spectrum of all breast cancer cell lines by paired-end sequencing. Such efforts will greatly facilitate MCTP's expansion into the realm of breast cancer research.

Immunomics

Under the leadership of Dr. Xiaoju Wang, the Immunomics group is pursuing the development of multiplex platforms to detect autoantibody signatures in prostate cancer. The humoral immune response to AMACR, a cancer biomarker, is under the process of characterization and

validation in patient cohorts. The group is working to develop a protein microarray for prostate cancer detection employing autoantibodies generated in response to cancer, with the aid of Luminex xMAP system technology and phage epitope biomarkers.

Metabolomics

The Metabolomics group, under the leadership of Dr. Chris Beecher, continues to progress in the development of platforms for metabolomic analysis. These platforms, in late-stage development, will be fully integrated, chemocentric, mass spectrometry-based, and will be reproducible with a low coefficient of variance. This group has successfully gained support from an industry partner, Agilent Technologies, in the form of a donation of equipment (valued at $800,000) as part of their commitment to the Human Blood Plasma Consortium. This will be used to support investigation on the effects of cancer on metabolic pathways.
This group has also launched a new website highlighting their research, which has been linked to the MCTP main website. The Metabolomics website will maintain this site, which will feature a Lims database for the samples, compound analysis, and other details such as sample tracking and information on plates. The group is approaching their goal of 800 compounds in the library, with 300 of them known, named compounds.

Additional metabolomic profiling is being undertaken by Dr. Thekkelnaycke Rajendiran and Dr. Amjad Khan, who have assumed some of the metabolomic investigations that were formerly under Dr. Sreekumar's Proteomic's group, prior to his departure. These investigators have been actively defining a metabolomic signature for clinically localized and metastatic prostate cancer vs. benign specimens. Changes in metabolic pathways during prostate cancer were assessed, with particular emphasis on those enzymes involved in amino acid metabolism. A significant discovery was made this past year regarding metabolite, sarcosine, in cancer aggressiveness and metastasis represented a collaborative effort by Drs. Rajendiran and Khan, along with the support of the Bioinformatics, Cancer Biology, Genomics groups, as well as Dr. Chris Beecher's Metabolomics group and the tissue core under Dr. John Wei's leadership (*Nature* 2009). This discovery was well received by the scientific community, and was cited in the Faculty of 1000 listing for scientific merit. Follow-up investigations are currently underway.

Next Generation Sequencing Platform Development

Xuhong Cao, Laboratory Manager, has undertaken extensive development of next generation sequencing platforms using Illumina and Solexa high-throughput methodologies that are cost-effective, rapid, and productive. Under her leadership, this group's efforts has refined and expanded the platform's capabilities to perform sequencing, many of which were developed in-house.

In just the past year, this group has performed six billion reads, with extensive gene libraries developed for a variety of cancers, such as those of the prostate, breast, melanoma, pancreas, lung, kidney, leukemia, cervical, skin, and brain. In collaboration with other groups at MCTP, this effort has resulted in successful publications in *Nature* and *Cell*. This year, using Solexa technology, the group has substantially increased the number and type of samples that can be analyzed.

Proteomics

With Dr. Arun Sreekumar's departure to the Medical College of Georgia, the research efforts of the Proteomics group have been assumed by Dr. Anastasia Yocum, Research Fellow, who has aptly risen to the challenge with a seamless transition. Under her leadership, the efforts of the group are focused on the utilization of targeted proteomics methodologies, such as multiple-reaction-monitoring mass spectrometry (MRM-MS) and affinity chromatography, for the sensitive and selective detection of peptide biomarkers as prognostic indicators of prostate cancer, accompanied by investigations into the mechanisms of oncogenesis through interactome studies. This research has been undertaken to expand upon current clinical testing methodologies.

MRM-MS methodologies are being developed and applied for the detection of fusion proteins. This includes applications of MRM-MS for detection of peptide, and such methodologies are now being developed to measure endogenous truncation of protein. These methods are particularly useful when antibodies are not available, or the antibody recognition epitope is not translated after fusion, illustrating the novel uses of innovative technology being explored by this group to further expand research capabilities.

The metabolomic profiling that was performed by Dr. Sreekumar, as part of the Proteomics group effort, has now been assumed by Dr. Thekkelnaycke Rajendiran and Dr. Amjad Khan, as previously detailed in the Metabolomics section.

Tissue Core and Molecular Testing Lab

The Tissue Core continues to serve as a repository for invaluable prostate cancer tissue specimens and remains active in issues surrounding tissue procurement and management. As part of the caBIG project, the Spore Tissue Core (MCTP) hosted a TBPT (Tissue Bank Pathology Tools) Face-to-Face meeting in June of this year, sponsored by the NCI. This venue featured various discussions concerning the common biorepository model, pathology imaging, and issues surrounding interoperability.

The Molecular Testing Lab, under the leadership of Dr. John Wei and Javed Siddiqui, continues to progress with the goal of developing clinical testing for disease identification and prognosis, subtype characterization, and monitoring of treatment efficacy. Of particular note this year is the efforts to supplement PSA Prostate-specific antigen (PSA), a commonly used biomarker for prostate cancer screening. Conventional PSA testing lacks sufficient specificity for the identification of prostate cancer, as PSA is present in both benign and malignant prostate cells and is elevated in non-cancerous conditions such as benign prostatic hyperplasia. This may lead to false positives and unnecessary biopsies, which are of continual concern to patients and physicians alike.

Levels of the prostate cancer gene 3 biomarker (PCA3) have been found to be more specific for prostate cancer, and such testing could be performed using a urine sample rather than a more invasive biopsy. The Molecular Testing lab, in association with other MCTP groups, is

developing a test that employs a "PCA3 score" to clinically assist in prostate cancer evaluation. ***This test will be made available shortly as a supplement to the conventional PSA test, which will assist in the characterization of disease and will be offered by Mlabs (in collaboration with the MCTP Molecular Testing Lab).***

CENTER VISIBILITY AND REPUTATION

Accompanying the increased research productivity of the aforementioned groups, we have also noted an increase in inquiries about our research discoveries from the scientific community and patient populations. Since August, 2008, the MCTP and Chinnaiyan lab websites have had over 340,000 hits (over 1000 per day, with some being repeat visitors, averaging 33 times per visitor). This represents diverse interest from educational, commercial, network, non-profits, and unidentified domains, both nationally and internationally. The majorities of searches that are performed, which bring visitors to the site, are for the phrase "Michigan Center for Translational Pathology", indicating that the Center is gaining recognition within the field of cancer biology. As an example of public interest, our publication of the sarcosine discovery gave rise to a rapid increase in website traffic, with 24 stories related to this discovery appearing in major news outlets within two days of when it was announced. This announcement alone generated 17 inquiries to the CancerAnswerline from patients who had either read about our work in the news media, or who had visited the website and wished to learn more about possible diagnostic tests or participate in a clinical trial, if available.

In response to increased public interest, Jill Granger (MCTP Laboratory Research Specialist/ Technical Writer) and Radhika Varambally (Database Analyst and Programmer) have extensively expanded the MCTP website to provide the most current information about our work to both the scientific and lay communities with regular updates as advances occur (website located at web address: http://mctp.path.med.umich.edu/mctp/main/index.jsp.). The website contains pages for the scientific community detailing our research activities, including information about our research projects to encourage student participation and training. There are also special sections to educate the public about our latest discoveries in easily understood terms, providing them with a supplement to what they read in the news media. The MCTP site contains links directing patients to the appropriate resources within our health system, such as the University of Michigan Health System, Cancer Center, and the Engage websites. Regular communications between our group and the Cancer Center AnswerLine assures that each patient inquiry is answered as quickly and accurately as possible, and we have received favorable feedback from patients regarding this process. The infrastructure to respond to patient inquires is now in place in advance of future developments.

There have also been over 60 news stories related to our work in various media outlets since November of 2008, such as *Reuters*, *BBC NEWS*, *London Guardian*, *Washington Post*, *Los Angeles Times*, *Forbes*, and *Fox News*, among numerous others. We work closely with Ms. Nicole Fawcett (UMHS Newsroom) regarding press releases about new discoveries at MCTP, and provide additional information on a regularly updated News section of our website. MCTP strives to present a unified, consistent voice concerning our work that reflects the values of the University of Michigan Health System. We take measures to assure that the Center is an

approachable research unit, and we accurately inform and educate patients, researchers, benefactors, industry, and members of the news media regarding our discoveries We strive to provide the most current information about our work to both the scientific and lay communities with regular updates as advances occur, with the goal of establishing our reputation as a collaborative and informative research unit, not only within the scientific research community, but also within the public at large on the national and international stage.

ADMINISTRATION

Under the leadership of Dorothy Nalepa, MCTP's Administrative branch remains focused on establishing efficient operation and judicious use of Center resources while maintaining productivity. The Administrative branch of the Center assists in recruitment efforts and effectively manages highly talented faculty and staff in response to research needs. The administrative infrastructure of the Center has rapidly developed into a high-functioning unit that is both flexible and responsive to the continual demands of a dynamic research environment.

Personnel Recruitment

Faculty

Dr. Ken Pienta accepted the position of Director of Experimental Therapeutics within the Center effective 7/1/08. His role is to develop a robust pre-clinical pipeline to test novel cancer small-molecule drugs developed by MCTP (those directed against gene fusion targets) as well as promising drug candidates from other laboratories (e.g. Dr. Shaomeng Wang). In addition, he will begin to coordinate the "first-in man/woman" clinical trials of novel cancer therapies and develop a personalized medicine initiative called "Oncomine Clinical," which will use gene expression predictors to identify the appropriate targeted therapies for cancer patients.

Graduate Students/Research Assistants

Jung Kim
John Prensner
Lee Sam
Jincheng Shen

Research Fellows

Catherine Quist
Dan Robinson

Research Staff/Administrative Staff – Chinnaiyan

Scott Begley-App Programmer/Analyst Inter
Angela Fullen - Research Technician Associate
Karen Giles-Executive Assistant Assoc Hlth
Kalpana Ramnarayanan-Res Lab Specialist Assoc

Research Staff– Beecher

Heidi Baum-Res Laboratory Specialist Intermediate
Kari Bonds-Clinical Res Coordinator Hlth

Maureen Kachman-Chemist Senior
Alexander Raskind-App Programmer/Analyst Inter

Administrative Staff – Pienta
Kathy Haskin-Admin Specialist Assoc
Rhonda Hotchkin-Program Manager

Departures
The Center experienced the departure of two faculty members, Dr. Arun Sreekumar and Dr. Jindan Yu, to pursue other career directions. Dr. Sreekumar joined the Medical College of Georgia, Atlanta, GA as of 2/1/09, and Dr. Yu joined Northwestern University, Chicago, IL as of 6/15/09. We have planned continued collaborations with both individuals and anticipate an ongoing collaborative relationship for years to come. In addition, two research fellows have also left the Center; Masish Subramaniam left the University due to family obligations, and Bhaskar Malayappan, after a short appointment, transferred to Minnesota to complete his fellowship.

SPACE

Due to successful research efforts, The Traverwood campus had grown considerably in response since the last report. This includes the relocation of the Immunomics group headed by Dr. Xiaoju Wang, the Metabolomics group, (formerly headed by Dr. Arun Sreekumar, Ph.D. and now continued by Dr. TM Rajendiran, and the Proteomics effort led by Research Fellow, Dr. Anastasia Yocum). The Bioinformatics students have also been relocated to the Traverwood facility under the direction of Dr. Chris Maher. Jill Granger (Laboratory Resesarch Specialist and the Center's technical writer) as well as Radhika Varambally (Database Analyst and Programmer) also joined the Traverwood campus.

SPONSORED RESEARCH

The Center's ability to successfully obtain sponsored funding not only remains strong, it has actually increased. There was a 68% increase in committed awards for this 2008/2009 fiscal year, over the previous reporting period. Last year, at this same time, we were at a 38% increase over the previous year. This 30% improvement in our rate of sponsorship is indicative of our potential to secure sponsored funding to pursue clinical research advances despite the current economic climate, which has been devastating for some programs. Further, we have increased the number of critical research projects in response to new findings. The Center's high quality research, coupled with the diverse funding base obtained from the University of Michigan, federal government, industry, non-profits, and other sectors, have proven strategically well-placed, with an upward trajectory of funding to secure the longevity of MCTP.

PHILANTHROPY

Efforts by Steffanie Samuels (Director of Development, Dept. of Urology and MCTP) to raise funds for MCTP have been productive this year, with a total fundraising production of $1,234,018. This includes outright gifts ($326,350), pledges ($583,818.) and the Prostate Cancer Foundation $1M match ($323,850). This represents a well-rounded source of donations that includes support from individuals, corporations, and foundations. Pledges will be paid over a five year period, which will finish the $1M challenge.

A development presentation was also held at the home of Larry and Andi Wolfe, in conjunction with Keith Pomeroy. Mr. and Mrs. Wolfe graciously donated $25,000 towards the match.

Arul M. Chinnaiyan, M.D., Ph.D.
S. P. Hicks Professor of Pathology
Professor of Pathology and Urology
Director, Michigan Center for
Translational Pathology

and Jill Granger, Sr. Technical Writer

MLabs

MLabs Program

Steven H. Mandell, M.D.
Assistant Professor of Pathology
Director of MLabs Program
Director of Reference Laboratory
Sendouts and Specimen Processing

OVERVIEW

MLabs, established in 1985, is the University of Michigan Health System's outreach laboratory program. Its role is to extend the Pathology Department's clinical laboratory services and faculty expertise to regional hospitals, clinics, physician offices and other healthcare settings; work that otherwise might be sent outside the region or state to national reference laboratories. This model proved to be successful, capitalizing on the quality reputation of the University, the Health Care System and the Department, and the dedication and drive of several key individuals to guide and support the growth of the program.

With competition in the marketplace and advances in laboratory automation and informatics, quality in clinical laboratory testing is now *assumed* by our clients and laboratory services are increasingly being viewed as a negotiable "commodity" with work going to the lowest bidder. As such, MLabs is able to distinguish itself from its competitors by offering value-added specialty expertise and a testing menu, Stat services, University programs and informatics connectivity and support not available at local or regional levels from national reference laboratories.

MLabs is expected to grow and further enhance its services, capacity and operations and will do so sharing in the progress of the clinical laboratories. The mission statement below describes this intent and reflects the client advocate role that MLabs plays in the advancement of departmental operations; it reflects MLabs continued commitment to respond and remain responsible to the competitive marketplace.

Mission Statement

1. To develop and enhance MLabs; to increase its scope and profitability.
2. To represent the "voice" of the outreach client and patient in seeking constant improvement in all University laboratory, clinical, administrative, informatics and business operations where they might impact MLabs services; to do the same when dealing with external vendors whom provide support services to the department that might impact MLabs services.

3. To maintain price competitiveness in our target markets; to ever seek improvement in the revenue/cost ratio for the MLabs test menu.
4. To enrich the academic mission of the department by providing laboratory specimens of interest to the faculty, residents and students as well as opportunities to expand the faculty's reputation and reach into the regions we serve as educators, experts, supportive colleagues and researchers.
5. To support the mission of the University of Michigan Health System by providing outpatient laboratory services through a network (or networks) of hospitals' laboratories and laboratory draw stations.

Workforce

Faculty

Division Director: Steven H. Mandell, M.D., Assistant Professor, (65% effort of full time appointment)
Associate Director: Rodolfo F. H. Rasche, M.D., Assistant Professor (10% effort of 60% part time) Dr. Rasche will become professor emeritus in September 2009.

Staff

The following individuals represent the University of Michigan Health System and Pathology Department to the patients and clients we serve on a day to day basis and are by far our most prized and valuable resources. Our call center hours of operation have been expanded and MLabs customer service representatives are now available from 6:30 am to 11 pm, Monday through Friday, and from 8:00 am to 4 pm on Saturday to better serve the needs of both our hospital and physician office clients as well as outpatient clinics and urgent care centers providing weekend and evening services. Specimen processing staff covers our phones for off-hours coverage.

Position	Name	Years with MLabs
Program Manager	Susan Valliere, BS, MT (ASCP)	16
Operations Supervisor	Deborah Moss, BS, MBA, MT (ASCP)SM	13
Account Representative	Melissa Brown, MT (ASCP)	13
Managed Care/Financial Analyst	Deirdre Fidler, MHSA, BS, MT (ASCP)	13
Information Services Consultant	Steve Goyette, BS, MT (ASCP)SC	4
Training Specialist, Intermediate, MLabs Connect	H. Steven Gregg	9
Customer Service Assistant, Senior	Chanin Kelly	5
Customer Service Assistant, Intermediate	Denise White	8

Customer Service Assistant, Intermediate	Leesa Stanislovaitis	7
Informatics Application Specialist, Senior, MLabs Connect	Jackie Goodman	3
Customer Service Assistant, Senior	Jenny Curtis	2
Customer Service Assistant, Intermediate	Cindi Lycan	2
Customer Service Assistant, Intermediate	Billie Jo Bennett	2

Market Segments Served

1. Physician Offices – all specialties
2. Hospitals – full coverage
3. Hospitals – reference and esoteric testing
4. Extended Nursing Care Facilities
5. Independent Laboratories
6. Managed Care / Laboratory Networks
7. Surgical Pathology Consultations

The MLabs Division plays a significant role in providing reference laboratory services within a 100 mile radius of Ann Arbor, but our reach for molecular diagnostic services and anatomic pathology and hematopathology consultation services is national and/or international.

Physician Office Market

35% of business based on Test Activity and 50% by actual CP Billing.

Testing from these offices is billed to the third party payer at UMHS' 3rd party fee schedule. This segment represents laboratory testing provided to over 125 individual offices in the greater Washtenaw County service area, including the two primary care providers in this region, Integrated Health Associates and Allied Primary Care. The physician office market best reflects our involvement with managed care and network activity. In general, the physician office market segment is a potential growth area for MLabs.

Hospital Market

45% of business based on Test Activity and 40% by CP Billings. Hospital clients are billed discounted fees for service, not at UMHS 3rd party fee schedule. MLabs is the primary reference laboratory and provides full esoteric laboratory testing to 5 hospitals in Michigan. MLabs provides specialty services, e.g., renal biopsy, flow cytometry, molecular diagnostics to an additional 15+ hospitals throughout the state. A large hospital system and a critical care hospital left this market in FY09 and accounted for a revenue decline this year. The extent of this revenue decline was largely off-set by increase requests for specialty services from our hospital clients.

Extended Care Nursing Facilities

Over the past year, MLabs, began providing laboratory services to regional nursing homes and

integrating reporting data within CareWeb to benefit the combined strategic initiatives of the COO and Geriatrics Divisions. These efforts mark a landmark point for MLabs and the Health Care System as this is UM's first success at using existing resources to create a regional, integrated health information record. This market requires, in addition to establishing laboratory services, the establishment of phlebotomy services for these facilities. This will be a growth area for the next few years for MLabs at the direction of the Health System. The success of these projects - and an incredibly smooth Go Live - goes to the entire team, supplemented with special efforts by our on-site, care-oriented phlebotomists. We have had a highly-favorable response from our clients, hospital administration and UM physicians indicating that we have significantly improved not only the quality, but also the costs and efficiency of care.

Managed Care/Laboratory Networks

BCN M-Premier CARE

Since January 2008, MLabs has supported Blue Care Network, M-Premier Care Plan, its physicians and patients through the health system's contracts with BCN as well as through our relationship as an equity member of Joint Venture Hospital Laboratories. MLabs personnel also serve as a valuable resource for the health system's managed care contracting office in these dealings.

Joint Venture Hospital Laboratories (JVHL)

JVHL is the largest laboratory network in Michigan and is organized as a limited liability company in Michigan, equally owned by its hospital laboratory members. The University of Michigan Health System (MLabs) became an equity member of JVHL in 1997. MLabs personnel coordinate all of the Departmental issues pertaining to contractual obligations to JVHL (e.g., Quality Assurance and HEDIS reporting). The University is represented on JVHL\'s Executive Committee by Dr. Mandell and Mr. Marty Lawlor, and on the Quality Assurance and Operations Committees by Deirdre Fidler.

Great Lakes Laboratory Network (GLN)

MLabs became a member of GLN in 1996. MLabs does not participate in managed care contracts through GLN; our membership is primarily advisory through representatives on the Steering committee.

Surgical Pathology Consultations

Historically, outside institutions only referring surgical pathology consult cases to the department, were not set up with a unique client code as is the protocol for clinical pathology referral clients. Instead, all outside consult cases were accessioned using a generic "Refer" client code and as a result, data granularity in this segment was lacking. As a strategic initiative to better understand and grow these activities, significant effort has been undertaken this past year to contact these institutions, and while establishing their site with a unique client code, provide them with MLabs requisitions, familiarize them with our MLabs Client Services Office and introduce them to the many other services available to them through MLabs. By doing so, we are now able to streamline the accessioning, billing and reporting processes for these clients and acquire and maintain client utilization and demographic information. This effort will prove

fruitful in determining the impact of our consultation services, providing strategic direction to our marketing efforts, and enabling operational efficiencies for consultation clients as they are trained in the most effective, customer-friendly use of MLabs services.

Client Enrichment and Education

MLabs coordinates continuing medical education activities for its clients, including a popular Saturday Anatomic Pathology Symposium (includes informal lectures, lunch and slide reviews at a multi-headed projection scope), attendance at the department's annual Blood Bank Conference, and other events. Client site training is also provided for a variety of in-service topics.

Client Services and Service Enhancements

MLabs Client Services Office acts as liaison between Department, UMHS Health Center sites and our Clients on all related lab issues. Client service assistants handled over 50,000 incoming client calls this year, a slight increase from previous years. Training of customer service personnel has been expanded to better enable handling of health system calls previously directed to Central Distribution. The number of MLabs customer calls requiring coverage by Central Distribution incompletely trained in MLabs customer services processes has declined from a high of over 450 per week in 2007 to merely 100 per week at this time. In addition, the department, at the request of UMHS leadership, has established a back up laboratory answer line for general lab inquiries of uncertain type from inpatient and outpatient units and these will also be covered by MLabs personnel.

Electronic Order Entry and Resulting with MLabs Connect

Use of our web-based laboratory portal for customer electronic order entry and result retrieval, *MLabs Connect*, has been implemented at an additional extending nursing care facility, University Health Service and several physician office clients. In addition, work on an interface to a multi-specialty physician group's electronic health record has made significant progress. The roll out of *MLabs Connect* (Atlas LabWorks) represents a major undertaking for MLabs that will continue to show benefits for patient care, patient safety, physician satisfaction and laboratory efficiency for years to come and the majority of our resources at this time are dedicated to assuring project success. Partnering with our three primary settings, we have customized *MLabs Connect* to optimize client workflow and further improve patient care. With additional functionality, now in final testing, *MLabs Connect* will be our portal for integrating outreach patient and testing information with Health System databases into the future.

MLabs is expanding services in selected markets (physician offices, dermatopathology, head and neck pathology, urologic pathology, hematopathology and molecular diagnostics) and will add a sales position to capture opportunities revealed in a regional physician office market analysis undertaken by Sue Valliere and Deirdre Fidler this year. MLabs is also nurturing opportunities to expand our national volume of reference work for hematopathology, molecular diagnostics and targeted surgical pathology consultations through reverse reference laboratory arrangements. With the rapid expansion and government endorsement of electronic health records, MLabs has been working with the Michigan State Medical Society and Covisint

Corporation to ensure a place for MLabs and MLabs Connect in their statewide health information network initiative (MSMS Connect); this will bear fruit as Covisint has also acquired the national contract for a similar product for the American Medical Association and the platforms will be identical or cross-compatible.

Acknowledgements

The success of our program is dependent on many individuals in administration, the faculty, Pathology Informatics, the clinical labs, health care center sites, specimen processing and laboratory sendouts who are too numerous to list here but without whose contribution we would not succeed.

Steven H. Mandell, M.D.
Assistant Professor of Pathology
Director of MLabs Program
Director of Reference Laboratory
Sendouts and Specimen Processing

ANN ARBOR VA HEALTH SYSTEM

Ann Arbor VA Health System Pathology and Laboratory Medicine Service

Stephen W. Chensue, M.D., Ph.D.
Professor of Pathology
Chief of Pathology and Laboratory Medicine Service AAVHS

OVERVIEW

The VA Ann Arbor VA Healthcare System (VAAAHS) is a University of Michigan affilated tertiary health care provider for veterans. It is one of three tertiary medical centers in the Veterans Integrated Service Network (VISN) #11 serving the veteran population of Michigan, and portions of Ohio, Indiana and Illinois. The VAAAHS Pathology and Laboratory Medicine Service (PALMS) maintains a close relationship with the University Department of Pathology at every level. All pathologists in the VAAAHS have Medical School appointments and participate in University activities in a manner similar to other departmental sections. Recruitment for VAAAHS pathologists is a joint activity and candidates are selected on the basis of academic performance and potential as well as professional competence similar to any departmental candidate. There are currently four full-time pathology staff positions plus a consultant dermatopathologist. Two and 1/2 resident training positions in the Department's program are supported with funds from the Department of Veterans Affairs. All residents serve monthly rotations in Surgical Pathology, Autopsy Pathology, with access to Diagnostic Electron Microscopy and special study programs in Surgical Pathology, Cytopathology and Digital Imaging. The VAAAHS laboratory retains full accreditation by the College of American Pathologists. The VAAAHS satellite laboratory at the Toledo Oupatient Clinic has been inspected by the JCAHO and is currently fully accredited. The medical center's Decentralized Hospital Computer System (VistA) is recognized as the most fully-integrated medical information system. It combines all of the clinical management of the patient and has shifted to a computerized patient record system (CPRS) in year 2000. Data storage for all components of pathology and the clinical laboratories contains full patient information for nearly 3 decades. Digital images of selected patient surgical, cytopathology, autopsy and ultrastructural specimens are stored as part of the patient medical record and are accessible to clinicians.

In addition to the Toledo Outpatient clinic, there are additional community based outpatient clinics (CBOCs) in Flint, Lansing and Jackson, Michigan. The VAAAHS PALMS provides specimen testing for these sites. The VAAAHS PALMS has successfully adapted to the shift to outpatient care and provides highest quality laboratory services in an environment of increasing demand. The VISN continues efforts toward an integrated health delivery system. Diagnostic Services will be a target for networking/consolidation among the current 8 independent facilities. This will result in additional sharing of service responsibilities, equipment standardization, VISN-wide reagent contracting, decreased cost of referred (send-out) testing to nonVA clinical labs and an increase in the workload in VAAAHS's anatomic pathology and the clinical labs. Due to overall testing volume, laboratory equipment standardization with blanket contracting promises to allow for substantial savings in laboratory costs.

ANATOMICAL PATHOLOGY

Surgical Pathology

In addition to serving local hospital and clinics, the VAAAHS PALMS is currently performing all surgical pathology for the Battle Creek/Grand Rapid facilities. The Ann Arbor PALMS also performs all gynecologic cytopathology for Battle Creek, Detroit, Toledo, and affiliated CBOCs. 9174 surgical cases were accessioned and reported during this reporting period, this represents a 14% increase over last year. There is an extensive quality improvement program within Anatomical Pathology including regular consultations with the Armed Forces Institute of Pathology, University of Michigan, and other outside consultants. There is a comprehesive quality assurance review with analyses of frozen section accuracy, amended diagnoses, surgical appropriateness, turnaround times, report quality, random restropective review, and follow-up of positive cancer diagnoses. In addition, the VAAAHS PALMS has taken the lead with regard to patient safety by implementing preop second review of pathology for patients about to undergo major resections or excisions.

- Surgical pathology diagnosis under 48 hr: 99%
- Average surgical pathology report turn-around-time: 1.3 days
- Case concordance (internal and external second reviews): 98.1%
- Average frozen section turn-around-time: 8.2 minutes
- Frozen section to permanent section concordance: 98.7%

Informatics, Infrastructure and Automation

In FY09 the VAAAHS PALMS continued its move to introduce greater automation in the Anatomic Pathology through the acquisition of and integrated and automated staining and coverslipping equipment which allows for the improved flow of tissue slides from microtome to microscope. In addition, automated thin prep and cell block preparation equipment was deployed in our cytology section. Future directions include efforts to institute digital telepathology consultation to further integrate VA facilities.

Autopsy Pathology

The Department of Veterans Affairs maintains a policy to recognize the value of the autopsy and to encourage increased utilization. Currently, VHA policy does not establish a target autopsy rate but rather encourages performing a maximum number sufficient to examine a variety of diseases and clinical circumstances. The VHA does require all autopsy reports to be finalized in under 30 days. Autopsies performed at the VAAAHS may also be presented at the extended Gross Conference and Clinical Service Morbidity/Mortality Conferences at the University. Nineteen autopsies were performed during the reporting period representing 17.1% of in-patient deaths. Autopsy protocols are submitted to clinical staff for comparison of anatomic diagnoses with clinical findings. Each autopsy is also evaluated as to correlation of clinical and anatomic pathologic findings by review of the pathologist. Monthly reports are submitted to the VHA central office.

- Autopsy completion turn-around-time average: 12.6 days
- Percent less than 30 days: 100%

Cytology

Cytology specimens are of non-gynecologic diagnostic and gynecologic screening types. Due to the increasing population of women veterans, gynecologic pathology is becoming an important compontent of the VAAAHS workload. The VAAAHS performs all PAP screening cytologies for the northern tier of VISN 11. The Ann Arbor VA laboratory is rated a VA "Center of Excellence" in cytology. 4,658 cases were examined and diagnosed during this period. This is a 8 % increase over last year. The VHA requires that its cytoplathologists are enrolled in multiple proficiency testing programs encompassing both gynecologic and non-gynecologic diagnosis. In addition, several aspects of quality assurance are monitored.

- Non-gyn cytology diagnosis under 48 hr: 99.%
- Average non-gyn and gyn turn-around-time: 2.55 days
- Cytology PAP diagnostic concordance: 99%

Electron Microscopy

The VAAAHS is a "Center of Excellence" in electron microscopy and serves as consultant to other VA Medical Centers, the University of Michigan Medical Center and to other hospitals by contract. The unit also serves several VAAAHS research investigators. An elective rotation is available for pathology residents in electron microscopy. In some cases, electron microscope findings are used to complement surgical or cytopathology diagnoses. 39 electron microscopy cases were processed in 2008. In order to maintain a "Center of Excellence" certification, the VAAAHS is required to submit a detailed annual report to central office providing statistics and representative EM case examples. These reports are evaluated by a panel of experts and certification documents are provided. Due to low case load volume, Electron Microscopy Services are to be phased out by 2010.

CLINICAL PATHOLOGY

During the period of this report 2,217,762 clinical pathology tests were performed in the Ann Arbor laboratory. In Chemistry, there were 1,409,100; in Hematology/Coagulation/Urinalysis 411,903, in Microbiology 65,721 and in Blood Bank 30,779; A total of 95,657 phlebotomies were performed. Our affiliated community-based outpatient clinic laboratory in Toledo performed 188,081 tests. These figures represent productivity (billable) rather than weighted test numbers. Residents may participate or observe clinical pathology procedures when this activity is appropriate in relation to their rotations. Drs. Stephen Chensue, Cheryl Utiger and Priscilla Chamberlain oversee the clinical laboratory and make interesting and pertinent clinical laboratory information available to residents as desired. Clinical pathology and medical historical data is available to pathology residents via CPRS for their information in surgical pathology, autopsy pathology, and elective rotations.

An extensive quality assurance program is in place monitoring all aspects of clinical laboratory activities, including proficiency testing, precision, turn-around-times, safety, education, and staff competency. The VAAAHS clinical laboratories have continued to incorporate as much automation as possible employing state-of-the-art analyzers. In 2009, new hematology and microbiology analyzers were installed. In chemistry, liquid based occult blood testing was instituted. In addition, the special chemistry automated capillary zone electrophoresis replaced manual agarose gel technology. Future directions include initiative to set up a Molecular Diagnostics division and installation of new chemistry analyzers with an even broader test menu.

EDUCATION AND TEACHING

In surgical pathology, the staff pathologists provide one-to-one mentoring during the surgical case sign out. The resident assigned to surgical pathology, usually a first year resident in training, has the opportunity to examine all of the specimens grossly and microscopically under close one-to-one mentoring by the staff pathologists. The resident interacts with the clinical teams. Weekly Urology Case Review Conference is held by Dr. Hedwig Murphy. The residents assigned to autopsy and surgical pathology are primary presenters in clinical conferences. The residents obtain a broad educational experience and aid in providing high quality medical care. Residents are invited to join in continuing educational activities in histopathology and cytopathology from the AFIP, CAP, and ASCP. Because of the closeness of various sections of the laboratory, there is frequent consultation among the pathologists and the residents are involved throughout. Since the VAAAHS is physically close to the University, the residents are expected to attend the appropriate teaching conferences at the University. VAAAHS pathologist staff contribute to the laboratory and lecture portions of the second year medical and graduate students at the University of Michigan. In addition, Dr. Murphy designed and implemented pathology courses for graduate students (Path 581). Both Drs. Chensue and Murphy have made presentations at national and international pathology conferences. Through his research program, Dr. Chensue also mentors post-doctoral fellows, graduate students and undergraduate students.

RESEARCH

The specific research efforts of the VA pathology staff are included on individual reports. Dr. Stephen Chensue has ongoing research program funding by the NIH and VHA. He also participates in cooperative studies with other investigators at the University of Michigan. Dr. Murphy is also assigned a 50% research and academic effort. Drs. Murphy and Chensue have research laboratories in Research Building 31 of the VAAAHS. All staff participate in various clinical studies and collaborates with a variety of investigators. The laboratory in general serves the VAAAHS research program by providing considerable technical support for clinical research and, in some cases, for more basic research in both anatomic and clinical pathology.

ADMINISTRATION

Dr. Chensue has served as Chief of Service since March 2001. He serves on the VA/UM Dean's Committee as well as local and national VA oversight committees. The staff pathologists at the VAMC serve in various capacities involving administrative tasks for the University of Michigan, such as the Resident Selection Committee, the Medical Student Admissions Committee, Graduate student preliminary exam and thesis committees, teaching faculty for second year medical students as well as teaching for other graduate courses in the medical school. At the VAAAHS, the pathology staff members serve on all major committees involved with institutional policies and procedures.

SUMMARY

The VAAAHS Pathology and Laboratory Medicine Service is the major provider of Anatomic Pathology services for the northern tier of VISN 11. The primary goal of the department is to provide high quality diagnostic services and appropriate care to the veteran patients. This is evidenced by continuing accreditation by external review agencies such as the College of American Pathologists (CAP), Joint Commission for the Accreditation of Hospitals Organization (JCAHO) and the Food and Drug Administration (FDA). There is close supervision of resident activities as they are involved with patient care. All staff members are privileged and evaluated in accordance with their training, experience, continuing education and participation in quality improvement activities. Within the service there is an extensive quality improvement program that integrates with that of the hospital as a whole. The affiliation with the University of Michigan serves to strengthen and improve the quality of patient care to our veterans. The teaching effort involving both residents and medical students is of benefit to the two institutions. The VAAAHS PALMS is positioned to continue delivery of high quality service to Veteran patients as demand for medical care continues to mount in the next decades.

Stephen W. Chensue, M.D., Ph.D.
Professor of Pathology
Chief, Pathology and Laboratory Medicine Service
VA Ann Arbor Healthcare System

FINANCE AND ADMINISTRATION

Division of Finance and Administration

Martin A. Lawlor
Department Administrator

OVERVIEW

The Division of Finance and Administration, which is under the auspices of the Office of the Chairman and directed by Mr. Martin A. Lawlor, Department Administrator, is responsible for the business, operational, and fiscal affairs of the Department of Pathology as mandated by the policies of the Chairman, University of Michigan Health System (Medical School and Hospitals), and the University.

In addition to directing this division, Mr. Lawlor serves on various departmental, Health System and University committees. He is also the current Midwest Regional Representative to the Pathology Department Administrators Coordinating Council, a section of the Association of Pathology Chairs.

Leadership provided by the administrator included several initiatives designed to improve patient safety and operational efficiency. A positive patient identification system was implemented in Anatomic Pathology to eliminate specimen mislabeling. Phlebotomy's morning blood sweep was moved two hours earlier to provide more timely lab results for clinical rounds; improvements were documented and a phlebotomy resource allocation tool was created by a group from Ross School of Business. The Outside Lab Results Project enabled entry of external results into Pathnet and CareWeb. Work done by the Michigan Pathology Quality System to improve turnaround time, safety and efficiency led to its being named as Clinical Program of the Year by the UMHHC Senior Management Team.

On the financial front, cost savings were realized through the closure of the Cancer Center Heme Lab. Overtime hours were reduced from a total of 80,581 in FY08 to 55,676 in FY09. A Blood Products Utilization Committee was formed to manage blood use; its efforts have led to reduction in cost and units used in the final quarter of FY09. The Sendout Formulary Committee brought more than a dozen tests in-house in FY09.

Revenue from grants stayed consistent from FY08 to FY09, but proposals increased markedly from $24,552,395 in FY08 to $57,759,962 in FY09.

Investments were made in the physical plant, including remodeling of the Morgue and Autopsy Suite, expansion of the Apheresis Unit, and construction of a frozen section room in the new East Ann Arbor Health Center. In the Molecular Diagnostics Lab, two new DNA sequencers were purchased, allowing 11 new molecular tests to be brought on line. A contract was signed to purchase a comprehensive Lab Information System, and the Pathology Informatics Division has begun training and implementation of the system. Finally, a $15 million C06 grant was submitted for funds to renovate Building 35 on the North Campus Research Complex, which would house the new Institute of Personalized Medicine.

Investments were also made in Pathology Department faculty and staff through a Research Incentive Plan and a two-stage departmental administrative restructuring plan. Efforts to improve communication with Pathology staff, including the first annual Pathology All Staff Meeting, resulted in improvement in 19 of 20 Employee Engagement Survey scores; 10 of these improved scores were statistically significant. A new Pathology/Environmental Services Quality Partnership was launched to address staff concerns about lab cleanliness and to improve communication between the two departments.

ADMINISTRATIVE SUPPORT CENTER

Administrative Support Center/Pathology Laboratories

This includes preparation and monitoring of all Hospital laboratories' revenue, expense and capital budgets, and personnel and payroll systems. Gross revenue for FY2009 was 410,723,734, compared to $402,121,400 in FY2008, an increase of 2.1%. During this period, total laboratory expenditures were $88,005,495. Pathology is responsible for 11.5% of Total Hospital Revenue and 4.8% of Total Expense. Mr. Thomas Morrow is responsible for administration of the Clinical Pathology Laboratories and Mr. Craig Newman is responsible for the administration of the Anatomic Pathology Laboratories.

Mr. Thomas Morrow oversaw the Clinical Pathology Laboratories, which account for 90% of our Medical Center revenue and expenses, during a challenging year in which increased length of stay on the inpatient side and decreased activity on the outpatient side caused extreme pressure to achieve our margin. Mr. Morrow was instrumental in putting together submissions and ROI's to get our capital needs met, as well as leading Lean workflow improvements.

Mr. Craig Newman continued in his role of Anatomic Pathology Operations Administrator this year. In addition to overseeing the A/P Labs, Mr. Newman is the department lead for many building and renovation projects: the UH morgue renovation, the NIB forensics center to integrate UH autopsy service with the Washtenaw County ME Office, the new East Ann Arbor Ambulatory Surgery Center frozen section lab, and UH grossing and accessioning space expansion. He has led initiatives to produce and license our new Michigan slide trays, to

develop the Suncoast software, to create a comprehensive departmental Safety Manual, and to build a robust quality program for the Division of Anatomic Pathology.

Safety and Compliance Administrative Coordinator Ms. Brenda Schroeder assists with the coordination of intra- and inter-laboratory activities for the anatomic and clinical pathology laboratories; this includes coordination of required proficiency tests, coordination of inspections required for continuing certification or licensure by the JCAH, CAP and MDPH, and serving as departmental representative on the Safety Committee and Disaster Committee. In addition, the Administrative Coordinator acts as the liaison with the Hospital for renovation projects, coordinates the publication of the Pathology Laboratories Handbook (including on-line version), and is responsible for all requisition modifications.

Billing Coordinator Ms. Nancy Coray is responsible for processing and auditing all laboratory charges (gross charges of approximately $410,723,734), ensuring the accuracy of the daily billing files, correction of all errors with the appropriate Hospital department and responding to all questions regarding interdepartmental, MLabs or Hospital patient billings (technical portion). Ms. Coray is also responsible for our billing system related to the MLabs Program.

HUMAN RESOURCES

The combined Medical Center and Medical School human resource functions are led by Ms. Laura Blythe and Ms. Beverly Smith, with support from Ms. Cathy Bearman. They are responsible for human resource issues for faculty and staff in the Medical School (approximately 312 FTEs) including our house officer program (36 FTEs), postdoctoral fellows (46 FTEs), and graduate students (12). They provide administrative oversight for staff in the Pathology Education Office and the faculty support staff in the Medical Science I Building, and also coordinate the human resources functions for Pathology Laboratories' non-instructional staff (approximately 594 FTEs). Ms. Blythe and Ms. Smith jointly coordinate the department's newly expanded orientation program. Ms. Smith coordinates the Medical Technology Internship Program, is a departmental representative for the Health System's Diversity Task Force, and this year developed the Service Excellence Training program for all staff. Ms. Blythe coordinated the development of a new web-based HR system for faculty appointments and information.

OFFICE OF ACADEMIC AND BUSINESS AFFAIRS–MEDICAL SCHOOL

Manager Mr. David Golden is responsible for the all funds budget preparation, funds allocation model (FAMII), variance reporting, tracking of all Medical School expenditures, professional fee billing operations (front end), general funds, and teaching and administration funds. All business and administrative functions associated with our sponsored research and education programs including coordination of the application process (pre-award), receipt of grant awards, establishment of budgets, monitoring of expenditures and acting as liaison between the principal investigators, research sponsors and other university departments are now performed by staff in this unit (post-award). During the past year, he refined the clinical pathology faculty incentive

plan and created the MLabs sales staff incentive plan. He also managed various laboratory, autopsy and administrative space renovations. He hired Nancy Parker as the new Billing Supervisor, and continues to mentor Christine Shaneyfelt and Dorothy Nalepa in their analytic and managerial roles.

Administrative Specialist Mr. John Harris is responsible for oversight of the staff supporting our research programs and the daily management of post awards. Extramural sponsored expenditures for FY2009 amounted to approximately $25,259,842.

Administrative Specialist Mr. Thad Schork is responsible for pre-award activities for our research program and serves as Development Coordinator for the Department of Pathology. He also serves as the lead administrative staff member for facilities, including major renovation projects initiated in North Ingalls Building and UH morgue. In addition, he is responsible for building maintenance and minor renovation.

Financial/Business Analyst Senior Ms. Christine Shaneyfelt serves as the primary contact for UHHC finance; this includes completing the Hospital budget for FY 09 and developing and managing the departmental capital equipment process. In addition, Ms. Shaneyfelt has prepared a number of financial analyses including profit and loss statements, faculty incentive analysis and financial performance reports for both Anatomic and Clinical Pathology divisions.

OFFICE OF THE CHAIRMAN

Office Manager: Ms. Lynn McCain provides support to the Chair of the Department including management of his calendar, completing travel arrangements and preparation of manuscripts, abstracts, clinical consultations and all materials related to the search committees chaired by Dr. Hess. In addition, Ms. McCain continues in her managerial responsibilities for our faculty support group, and continues to lead the monthly mentoring series for our administrative support staff. She has brought in training for staff in the Microsoft Office 2007 programs, as well as encouraged staff in other educational opportunities.

Operations Assistant: Ms. Holly Eliot provides support to the Administrator, Mr. Martin Lawlor, including scheduling, travel arrangements, data collection, and event planning. She reconciles the department P-cards, and is responsible for renewal of medical licenses and payment of honoraria for visiting professors. She has been involved with the Lean team developing an A3 for Timekeeping and Scheduling Project that will be piloted in FY10. She also worked with Dr. Jeff Warren and Pathology Informatics to create the Clinical Pathology Quality Dashboard, and continues to compile it monthly.

Administrative Assistant: Ms. Liz Schuiling processes p-card transactions and reimbursements for the Department including professional society dues, subscriptions, books, software, registration fees, travel, hosting, and state and federal medical licenses. She maintains the database for continuing medical education expenses of Pathology faculty and house officers. She is responsible for the schedule and upkeep of the Chairman's Conference

Room, Warthen Weller Library, and departmental vehicle. Liz provides backup support for the Chairman and Administrator, as well as escorting faculty candidates.

PATHOLOGY PROFESSIONAL FEE BILLING OFFICE

Ms. Holly Daul continues in her role as Director of Professional Billing, overseeing the combined Pathology/Radiology Billing Office. She supervises 26 FTE staff and is responsible for the coding, accounts receivable management, and collections of professional fees for services provided by Department of Pathology faculty.

SUMMARY OF FINANCIAL DATA FOR FY2009

Grants, Contracts and Other Accounts
417 active grants, contracts and other accounts
*Includes General Fund, Extramural Funds, FGP Professional Fee Income, Gift, etc.

Total Extramural Direct Expenditures: $ 18,399,144

Indirect Extramural Research Expenditures: $ 6,860,698

Total Sponsored Projects: $ 25,259,842

Sponsored Project Proposals: $ 57,759,962

Faculty Group Practice Plan–Pathology Associates
Number of charge entries: 242,179

Gross Billings–Anatomic and Clinical Pathology: $ 38,095,798

Net (FGP): $ 13,826,503

Part A Payment–Laboratory & Administrative Supervision: $ 3,058,615

All Fund Expenditures–Medical School

Compensation & Benefits: $ 34,427,696

Commodities & Other Costs: $ 15,943,237

Total: $ 50,370,933

Number of Funded Faculty: 100.17

Number of Funded Residents & Clinical Fellows: 36

Number of Funded FTE Research Staff: 176 (12 graduate students, 46 post-doctoral fellows)

Pathology Laboratories

Number of billed tests reported by CDM: 5,181,221

Total Gross Revenue–Pathology Laboratories: $ 410,723,734

Total Direct Expenses–Pathology Laboratories: $ 88,005,495 (includes ACUs)

Number of FTE Staff: 594

Martin A. Lawlor
Director of Finance and Administration

INDIVIDUAL FACULTY REPORTS

Gerald D. Abrams, M.D.

Professor Emeritus of Pathology

I. Clinical Activities

A. Cardiac Transplant Team: Transplant biopsies - 4 weeks

II. Teaching Activities

A. MEDICAL STUDENTS

1. Freshman Class
   a. Co-director and lecturer, General Pathology/Basic Concepts of Disease (Patients and Populations and Cardiovascular-Respiratory sequences): 6 lecture hours
   b. Multidisciplinary conferences: 2 contact hours
   c. Co-director, lecturer, and lab instructor, Histopathology sequence: 28 contact hours (4 lectures, 24 lab hours)
2. Sophomore Class
   a. Pathology lab instructor, multiple sequences: 50 contact hours
   b. Production of Teaching Materials
   c. Syllabus and website to accompany M-1 Pathology lectures
   d. Syllabus and website to accompany M-1 Histopathology

B. OTHER

1. Hospital Conferences
   a. Cardiology-Pathology Case Conference (with Cardiology staff): 8 hours
2. Community
   a. Director, "Mini Med School" (6-week course for the public): April - May 2009

III. Research Activities

A. PROJECTS UNDER STUDY

1. Tetrathiomolybdate suppression of inflammatory/autoimmune diseases (with G.Brewer, Human Genetics)

IV. Administrative Activities

A. INSTITUTIONAL

1. Member, Component I Committee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial board member, *Modern Pathology*
2. Ad hoc reviewer, *Cancer*

B. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. AAAS
2. USCAP
3. Gastrointestinal Pathology Society
4. Michigan Society of Pathologists

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Hou,G, **Abrams,GD**, Dick,R, Brewer,GJ. Efficacy of tetrathiomolybdate in a mouse model of multiple sclerosis. *Translational Res*.2008;152:239-244.

Thomas M. Annesley, Ph.D.

Professor of Pathology

I. Clinical Activities

A. DIRECTOR, DRUG ANALYSIS AND TOXICOLOGY

B. CHEMICAL PATHOLOGY LABORATORY, CLINICAL PATHOLOGY LABORATORIES

C. LABORATORY DIRECTOR, CHELSEA FAMILY PRACTICE, M-CARE FACILITY

D. LABORATORY DIRECTOR, BRIARWOOD MEDICAL GROUP, M-CARE FACILITY

E. LABORATORY DIRECTOR, BRIARWOOD FAMILY PRACTICE FACILITY

F. LABORATORY DIRECTOR, WEST ANN ARBOR HEALTH CARE FACILITY

G. NEW ASSAYS DEVELOPED OR INTRODUCED
1. Iohexol by UPLC-LC-MS/MS
2. Ethyl Glucuronide by Enzyme Immunoassay

II. Teaching Activities

A. MEDICAL STUDENTS
1. Didactic Lectures on Mass Spectrometry, Toxicology
2. Brown Bag Lecture Series

B. HOUSE OFFICERS AND FELLOWS
1. Lecturer, Clinical Pathology Grand Rounds
2. Lecturer, Clinical Pathology Didactic Lecture Series
3. Sign-out and Interpretation and Laboratory Results

III. Research Activities

A. SPONSORED SUPPORT None

B. PENDING PROJECTS None

C. PROJECTS UNDER STUDY
1. Ionization Effects in Mass Spectrometry
2. Pediatric Tacrolimus Pharmacokinetics Study (GCRC Study Number HUM00006037)
3. Pharmacokinetics of Mycophenolic Acid in Cystic Fibrosis Lung Transplant Patients (GCRC Study Number HUM00020989)

IV. Administrative Activities

A. DEPARTMENTAL
1. M.J. (Gus) Abell House Officer Award Selection Committee

B. REGIONAL/NATIONAL/INTERNATIONAL
1. Vice Chair, Annual Meeting Organizing Committee, American Association for Clinical Chemistry
2. By-Laws Committee, National Academy of Clinical Biochemistry
3. Executive Committee/Journal Management Group, Clinical Chemistry Journal

C. Other Relevant Activities
1. EDITORIAL BOARDS/REVIEWS
   a. Editorships
      i. Deputy Editor, *Clinical Chemistry* (50% Appointment)
   b. EDITORIAL BOARDS
      i. *Clinical Chemistry*
      ii. *Therapeutic Drug Monitoring*
2. INVITED LECTURES/SEMINARS
   a. “Subtleties of Matrix Effects in LC-MS”, MassTrak LC/MS Solutions for the Clinical Laboratory, Washington, District of Columbia, July 2008.
   b. “Matrix Effects in LC-MS Assays”, University of Minnesota, Minneapolis, Minnesota, September 2008.
   c. “Subtleties of Matrix Effects in LC-MS”, MassTrak LC/MS Solutions for the Clinical Laboratory, University of Michigan, Ann Arbor, Michigan, September 2008.
   d. “Use of Commercial Calibrator Materials for Immunosuppressant Drugs”, Mass Spectrometry Applications in the Clinical Laboratory Conference, University of California, San Diego, November 2008.
   e. “Ion Suppression and Other Interferences in the Qualitative and Quantitative LC-MS/MS Analysis of Biological Fluids”, Mass Spectrometry Applications in the

Clinical Laboratory Conference, University of California, San Diego, November 2008.

f. "New Applications of LC-MS in the Clinical Laboratory", Hong Kong Society of Clinical Chemistry, Kowloon, Hong Kong, March 2009.
g. "New Applications of LC-MS in the Clinical Laboratory", Hong Kong Society of Mass Spectrometry, Kowloon, Hong Kong, March 2009.
h. "Drug Screening: Choosing Methods and Screens Based on the Physiology, Metabolism, and Properties of Drugs", Chinese University of Hong Kong, Shatin, New Territories, March 2009.
i. "High Performance Liquid Chromatography Mass Spectrometry", Memorial Regional Hospital System, Fort Lauderdale, Florida, May 2009.
j. "Implementation and Validation of LC-MS/MS Systems", Memorial Regional Hospital System, Fort Lauderdale, Florida, May 2009.

D. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Member, Council of Scientific Editors
2. Member, World Association of Medical Editors
3. Member, National Academy of Clinical Biochemistry
4. Member, American Society for Mass Spectrometry
5. Member, International Association of Therapeutic Drug Monitoring and Clinical Toxicology

E. HONORS AND AWARDS
1. Outstanding Speaker Award, American Association for Clinical Chemistry
2. Clinical Chemist Recognition Award, American Association for Clinical Chemistry
3. Presidential Citation, National Academy of Clinical Biochemistry, Outstanding Contribution To Clinical Mass Spectrometry

V. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. **Annesley, T.M.**, Boyd, J.C., and Rifai, N.: Publication Ethics: Clinical Chemistry Editorial Standards. *Clin. Chem.* 2009; 55:1-4.
2. **Annesley, T.M.**, and Clayton, L.T.: Ultraperformance Liquid Chromatography-Tandem Mass Spectrometry Assay for Iohexol in Human Serum. *Clin. Chem.* 2009; 55:1196-1202.
3. **Annesley, T.M.**: Mass Spectrometry in the Clinical Laboratory: How Have We Done, and Where Do We Need to Be? *Clin. Chem*. 2009:55:1236-1239.
4. Boyd, J.C., Rifai, N., and **Annesley, T.M.**: Preparation of Manuscripts for Publication: Improving Your Chances for Success. *Clin. Chem.* 2009; 55: in press.

Henry Appelman, M.D.

M.R. Abell Professor of Pathology

I. Clinical Activities

A. GENERAL SURGICAL PATHOLOGY SERVICE - 2 weeks

B. GASTROINTESTINAL AND HEPATIC PATHOLOGY SERVICES - 7 months

C. G-I TUMOR CONFERENCE - 2-3 hours per month

D. LIVER BIOPSY CONFERENCE - 8 hours per year

E. GASTROENTEROLOGY-PATHOLOGY CONFERENCES, adult and pediatric - 18 hours per year

II. Teaching Activities

A. MEDICAL STUDENTS
1. Pathology 600 - 2 full class 1-hour lectures.
2. Director of the 5 laboratories during the Gastrointestinal Sequence
3. Senior Elective in Pathology: supervising during diagnostic signout

B. DENTAL STUDENTS
1. Pathology 630 (dental) - one hour full class lecture.

C. HOUSE OFFICERS AND FELLOWS
1. Surgical pathology diagnosing room instruction for assigned house officer - 4 months
2. Gastrointestinal and hepatic pathology tutoring - full time

D. LECTURES
1. Lectures in gastrointestinal and liver pathology to pathology trainees, 2 hours
2. Consult conferences, 4-5 hours

3. Introduction to liver pathology for Gastroenterology Fellows, 1 hour

III. Research Activities

A. SPONSORED SUPPORT

1. "Great Lakes/New England Clinical Epidemiology and Validation Center" in Hematology/Oncology (Dr. Dean Brenner PI). 5% effort

B. PROJECTS UNDER STUDY

1. Marginal collagenous colitis: does it e*xist?* With BJ McKenna, W Xin, M Anderson and L Evans
2. Calcium sensing receptors in colorectal carcinoma, with James Varani and colleagues
3. Reproducibility of diagnosis of villous features and high-grade dysplasia in colorectal adenomas, with Chris Golembeski and Barbara McKenna
4. Biomarkers in Barrett's mucosa with Dean Brenner, Kim Turgeon and a national consortium of investigators
5. Recurrent colorectal adenomas after polypectomy, with Kim Turgeon and a national consortium of investigators
6. Intense mid-zone gastritis, clinicopathologic associations, with Scott Owens
7. Sloughing esophagitis, with Julianne Purdy and Barbara McKenna
8. Markers of risk for recurrent Barrett's and cardiac carcinomas in resection specimens following chemo-radiation therapy, with Sharon Bihlmeyer, Barbara McKenna and members of the section of thoracic surgery.
9. Histologic factors predicting outcome in patients transplanted for hepatocellular carcinoma, with Pratima Sharma of the Division of Gastroenterology
10. Outcome of patients with the autoimmune variant of recurrent hepatitis C in transplant recipients with Pratima Sharma of the Division of Gastroenterology
11. Novel endoscopic imaging techni*que*s using peptides for Barrett's mucosa and its neoplastic complications, with Tom Wang and others of the Division of Gastroenterology and the School of Engineering
12. New studies of Barrett's mucosa, including the effect of circulating adiponectin, with Joel Rubenstein of the Division of Gastroenterology

IV. Administrative Activities

A. DEPARTMENTAL

1. Chairman, Advisory Committee on Appointments, Promotion and Tenure

B. INSTITUTIONAL

1. Member, Cancer Work Group

2. REGIONAL/NATIONAL/INTERNATIONAL
   a. Member, American Joint Committee on Cancer, Lung and Esophagus Task Force

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Boards
   a. *Modern Pathology*
   b. *American Journal of Surgical Pathology*
2. Reviews
   a. *American Journal of Gastroenterology*
   b. *Journal of Clinical Gastroenterology*
   c. *Archives of Pathology and Laboratory Medicine*

B. INVITED LECTURES/SEMINARS
1. "Annoying stuff at the gastroesophageal junction and how to become less annoyed" and "A nihilistic approach to gastritis", presented at the Midwestern Conference: Update Course in Surgical Pathology, Medical College of Wisconsin, September 12, 2008.
2. "Whatever happened to the old ulcerative colitis we know and loved" and "Why aren't inflamed gastric biopsies more informative", Eighth Annual Current Topics in Gastrointestinal and Liver Pathology, Johns Hopkins University School of Medicine, Baltimore, MD, November 8, 2008.
3. "An annoying day of liver, pancreas and biliary pathology consults: How in the hell am I supposed to know what these are if you don't " and "An even more annoying day on the gastrointestinal pathology consult service: Why was Barrett's mucosa ever invented in the first place?" Semiannual Miniseminar, Maryland Society of Pathologists, Baltimore, MD, December 6, 2008.
4. Teaching cases in Gastrointestinal Pathology: a seminar and a microscopic tutorial, Institute of Pathology, Tel Aviv Medical Center, Tel Aviv, Israel, February 16, 2009.
5. "Histopathology of serrated lesions of the colorectum: how does one tell?", presented during a seminar on The Serrated Polyp Pathway in Colorectal Cancer at Digestive Disease Week, sponsored by the American Gastroenterology Association Institute, Chisago, IL, June 2, 2009.
6. "Neoplastic diseases of the intestine", sponsored by the American Society of Clinical Pathologists. Annapolis, MD, June 4, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. United States and Canadian Academy of Pathology, Past President
2. Organization for Statistical Studies of Diseases of the Oesophagus (OESO), Past President
3. American Society for Clinical Pathology, Fellow

4. American Gastroenterology Association, Member
5. American College of Gastroenterology, Fellow
6. Rodger C. Haggitt Gastrointestinal Pathology Society, Member

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Purdy JK, **Appelman HD**, McKenna BJ. Lymphocytic esophagitis. *Am J Clin Pathol*.130:508-13, 2008.
2. Polydorides AD, Gruber SB, McKenna BJ, **Appelman HD**, Greenson JK. Adenoma-infiltrating lymphocytes are a potential marker of HNPCC. *Am J Surg Pathol.* 32:1661-6, 2008.
3. **Appelman HD**. Fabulous contributions of Japanese doctors to relevant gastrointestinal, especially esophageal, pathology in the United States as well as areas of contention. *Esophagus*. 5:185-190, 2008.
4. **Appelman HD**. One American pathologist's view of the diagnosis of Barrett's mucosa and its neoplastic complications: we do not always have to agree, but we need to respect our differences. *Esophagus*. 5:191-196, 2008
5. Lees CW, Zacharias WJ, Tremelling M, Noble CL, Nimmo ER, Tenesa A, Cornelius J, Torkvist L, Kao J, Farrington S, Drummond HE, Ho GT, Arnott ID, **Appelman HD**, et al. Analysis of germline GLI1 variation implicates hedgehog signaling in the regulation of intestinal inflammatory pathways. *PLoS Med*. 2008 Dec 9;5(12):e239.
6. Luan RL, Trillsch F, Henger A, Eichinger F, Norman S, **Appelman H**, Kretzler M. A pilot study of gene expression-based categorization of pancreas transplant biopsies. *Transplantation*. 87:222-226, 2009
7. Huang EH, Hynes MJ, Zhang T, Ginestier C, Dontu G, **Appelman H**, Fields JZ, Wicha MS, Boman BM. Aldehyde dehydrogenase 1 is a marker for normal and malignant human colonic stem cells (SC) and tracks SC overpopulation during colon tumorigenesis. *Cancer Res.* 2009 Apr 15; 69(8):3382-9.
8. Zhu W, **Appelman HD**, Greenson JK, Ramsburgh SR, Orringer MB, Chang AC and McKenna BJ. High grade dysplasia in Barrett's mucosa is not highly predictive for concurrent carcinoma unless architectural features suspicious for carcinoma are also present. Accepted for publication, *Am J Clin Pathol,* March, 2009.
9. **Appelman HD**. Adenocarcinoma in Barrett's mucosa treated by endoscopic mucosal resection. Accepted for publication, *Arch Pathol Lab Med,* May, 2009.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Yong M. Kwon, Cyrus R. Piraka, Richard S. Kwon, **Henry D. Appelman**, Thomas D. Wang. Targeting of Intra-Epithelial Neoplasia in Barrett's Esophagus with Fluorescence-Labeled Peptide, *Gastroenterology* 2009; 136 (Suppl 1):779.

Ulysses G. J. Balis, M.D.

Director of Pathology Informatics, Associate Professor of Pathology

I. Clinical Activities

A. DIRECTOR OF PATHOLOGY INFORMATICS

II. Teaching Activities

A. UNDERGRADUATE STUDENTS

1. Faculty advisor and sponsor for the Senior-level Mechanical Engineering design and fabrication course

B. HOUSE OFFICERS AND FELLOWS

1. Limin Ye, M.D.
2. Jerome Cheng (Informatics Fellow) - faculty mentor.

C. LECTURES

1. Introduction to Pathology Informatics-1 hour
2. Medical Innovation Center; Lectures on
   a. Startup Initiatives
   b. Entrepreneurial Inventorship
   c. Risk Mitigating Strategies when engaging venture capital firms for funding and operational support
3. Informatics/Management Lecture series
4. Internal Medicine/ CCMB grand Rounds - Update on Content-based Image Retrieval
5. Pathology Research Seminar Series - Update on Content-based Image Retrieval

III. Research Activities

A. SPONSORED SUPPORT

1. University of Michigan Clinical and Translational Science Award - Pathology Informatics domain specialist - 25% effort

B. PROJECTS UNDER STUDY

1. Interop Consortium - standardization and implementation of an international standard for real-time exchange of identified clinical laboratory results data, using federated data modeling architectures.
2. Content-based Image Retrieval within Histology.

IV. Administrative Activities

A. DEPARTMENTAL
1. Administrative Director of Clinical Informatics in Pathology

B. INSTITUTIONAL
1. Careweb Clinical Advisory Committee - member
2. Ambulatory Care Information Search Committee - member
3. Long Term Working Group for Outside Laboratory Results - Chair
4. Physician Organization Clinical Data Repository Initiative - founding member and lab results team lead
5. Information Technology Executive Committee - voting member
6. North Campus Research Complex (NCRC) I.T. and Core Labs Committee - Co-Chair
7. Executive Vice President for Medical Affairs' Committee on Research - Member
8. CIMOC - member
9. Contract Negotiation Team Lead - SCC contract meetings (completed September, 2008)

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Anatomic Pathology, Informatics Imaging and the Internet (APIII) Meeting - Co-Organizer
2. Lab Infotech Summit Meeting - Co-Organizer
3. LITS-Interop - Project Director and Consortial Convener
4. WCPI 2010 - Organizer and Convener
5. FDA Canvassing Committee on adoption of digital whole-slide technology - guest domain expert and discussant
6. NCI / CaBIG digital whole-slide domain expert and meeting moderator TBPC Initiative
7. NIAID MID-B Study Section - Member (four-year term ending 2012)
8. Association of Pathology Informatics - Past President (2008)

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Boards
   a. *Archives of Pathology and Laboratory Medicine* - Section Editor for Pathology Informatics
2. Manuscript Reviews
   a. *Pattern Recognition*
   b. *BMC Bioinformatics*
   c. *Clinical Chemistry*
   d. *Molecular Diagnostics*

B. INVITED LECTURES/SEMINARS
1. Content-based Image Retrieval Update, Pathology Visions Meeting, San Diego, September 9, 2008.
2. Disruptive Technologies in Pathology Informatics, Grand Rounds, University of Pennsylvania.

3. Plenary Lecture - Disruptive Technologies as a Change Agent in Pathology Informatics - New Frontiers in Pathology Meeting, University of Michigan, September 19, 2008.
4. Breakout session on Content-based Image Retrieval - New Frontiers Pathology in Meeting, University of Michigan, September 19, 2008.
5. Plenary Lecture - The Antikythera Mechanism; overview of the Freeth Initiative - University of Michigan Department of Classical Studies Annual Platsis Symposium, September 28, 2008.
6. Invited Presentation -Update on CBIR, APIII 2008 Annual Meeting, Pittsburgh, PA, October 22, 2008.
7. Pathology Visions Meeting - Content-based Image Retrieval Update, San Diego, October 27, 2008.
8. Invited Presentation -Update on CBIR, AACC Annual Meeting, Kansas City, KS, October 28, 2008.
9. Invited Moderator - Pathology Image Workshop (NCI CaBIG Consortium) Stanford University, November 13, 2008.
10. USCAP Short Course - Microscopy for the new Millennium (SC32) , Boston, MA, March 12, 2009.
11. Meeting Co-Host and Presenter - Lab Infotech Summit, Las Vegas, NV, March 15-18, 2009.
12. Emerging Disruptive Technologies in Pathology Informatics, Grand Rounds - Brigham and Womens Hospital & Harvard Medical School, Boston, MA, April 10, 2009.
13. Emerging Disruptive Technologies in Pathology Informatics, Plenary Presentation - Executive War College, New Orleans,LA, April 28, 2009
14. The Emergence of Digital Pathology as a Core Tool within Pathology Informatics
15. Companion Day-Long Meeting on Digital Pathology - Moderator and Presenter - Executive War College, New Orleans, LA, April 30, 2009.
16. National Cancer Institute - Tissue Bank and Imaging Core Face Meeting - Moderator and Presenter, University of Michigan, MI, June 4, 2009; Session Moderation for Planning Initiative in Whole-Slide Repositories.

C. PATENTS

1. Methods for detecting fetal abnormality, Patent number US2007059716, Publication date 2007-03-15, Inventor: Balis Ulysses (US); Toner Mehmet (US); Kapur Ravi (US); Walsh John (US).
2. System For Delivering A Diluted Solution, Patent number: EP1765503, Publication date: 2007-03-28, Inventor: Cosman Maury D (US); Kapur Ravi (US); Carvalho Bruce L (US); Barber Tom (US); Balis Ulysses J (US); Toner Mehmet (US); Huang Lotien Richard (US); Gray Darren S (US), Applicant: Gen Hospital Corp (US); Living Microsystems Inc (US).
3. Systems And Methods For Enrichment Of Analytes, Patent Number: WO2007035585, Publication Date: 2007-03-29, Inventor: Kapur Ravi (US); Toner Mehmet (US); Huang Lotien Richard (US); Barber Tom (US); Carvalho Bruce (US); Gray Darren (US); Balis Ulysses (US); Walsh John (US); Grisham Michael (US); Tompkins Ron (US); Schmidt Martin (US), Applicant: Living Microsystems Inc (US); Gen Hospital Corp (US); Kapur Ravi (US); Toner Mehmet (US); Huang Lotien Richard (US); Barber Tom (US); Carvalho Bruce (US); Gray Darren (US); Balis

Ulysses (US); Walsh John (US); Grisham Michael (US); Tompkins Ron (US); Schmidt Martin (US)

4. Magnetic Device For Isolation Of Cells And Biomolecules In A Microfluidic Environment, Patent Number: EP1776449, Publication Date: 2007-04-25, Inventor: Cosman Maury D (US); Kapur Ravi (US); Carvalho Bruce L (US); Barber Tom (US); Balis Ulysses J (US); Toner Mehmet (US); Huang Lotien Richard (US), Applicant: Gen Hospital Corp (US); Living Microsystems Inc (US).

Christopher Beecher, Ph.D.

Research Professor

I. Clinical Activities - None

II. Teaching Activities

A. LECTURES

1. Bioinformatics 551 – Lecture (1) on Metabolomics
2. Cancer Biology Tutorial – Lecture (1) on Metabolomics
3. Pathology Seminar – Lecture (1) on Metabolomics

III. Research Activities

A. SPONSORED SUPPORT

1. Consultant, "Integrative Metabolomics of Prostate Cancer Progression", NCI, $1,250,000 (direct, Awarded, 2008 to 2013).
2. Co-Investigator, "Nutrigenomic and Metabolomic Response of Peripheral Blood to Macronutrients", CCMB, $77,625 (direct, Awarded, 2008).
3. Co-Investigator, "National Center for Integrative Biomedical Informatics", year 4 5% time.
4. PI, “Systems Biology Approaches", Agilent Technologies, Gift, $500,000
5. PI, “Plasma Center Consortium”, Partnership fees, ~$800,000 in equipment.

B. PENDING PROJECTS

1. PI, "A lipidomic/metabolomic platform to investigate cancer metabolism", NCI, $500,000.
2. PI, "The cancer metabolome: a comparative study of similarities and differences", NCI, $1,000,000.

C. PROJECTS UNDER STUDY

1. Development of Metabolomics lab.
2. Human Blood Plasma Consortium.
3. Novel algorithms for metabolomic data interpretation.

IV. Administrative Activities – None

V. Other Relevant Activities

A. INVITED LECTURES/SEMINARS
1. "The application of a Metabolomic dataset toward the understanding of prostate cancer," Mass Spectometry Applications to the Clinical Laboratory, San Diego, CA, 11/20/2008.
2. Late Breaking News: "The involvement of Sarcosine in Prostate cancer", 24th Annual European Urological Association, Stockholm, Sweden, 3/20/2009.
3. Section leader: Metabolomics, American Society of Mass Spectroscopy 2009, Philadelphia, PA, 6/02/2009.
4. "A metabolomic investigation of prostate cancer progression", メタボロームアプローチによる前立腺がん進行の研究', Metabolomics, Tokyo, Japan, 6/26/2009.
5. "A metabolomic investigation of prostate cancer progression", メタボロームアプローチによる前立腺がん進行の研究', Keio University, Tsuruoka, Japan, 6/24/2009.

B. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Chemical Society
2. American Metabolomic Society
3. American Society of Mass Spectrometry

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Sreekumar A, Poisson LM, Rajendiran TM, Khan AP, Cao Q, Yu J, Laxman B, Mehra R, Lonigro RJ, Li Y, Nyati MK, Ahsan A, Kalyana-Sundaram S, Han B, Cao X, Byun J, Omenn GS, Ghosh D, Pennathur S, Alexander DC, Berger A, Shuster JR, Wei JT, Varambally S, **Beecher C**, and Chinnaiyan AM. “Metabolomic Profiles Delineate Potential Role for Sarcosine in Prostate Cancer Progression” *Nature* 457: 910 – 915 (2009).

Bryan L. Betz, Ph.D.

Assistant Professor of Pathology
Technical Director, Clinical Molecular Diagnostics Laboratory

I. Clinical Activities

A. NEW TESTS DEVELOPED AND IMPLEMENTED

1. KRAS mutation detection: To predict clinical response of colon and lung cancers to EGFR inhibitor therapies
2. KIT mutation detection for GIST: To aid in the diagnosis of GIST and to predict response to kinase inhibitor therapy
3. KIT mutation detection for melanoma: To predict response to kinase inhibitor therapy
4. Warfarin sensitivity analysis: Genotyping to identify patients at risk for increased sensitivity to Warfarin
5. UroVysion FISH: For diagnosis and detection of recurrent bladder cancer
6. BRAF V600E mutation detection: To predict response of colon cancers to EGFR inhibitor therapy; To differentiate sporadic vs. germline MSI-H colorectal cancers; To aid in the diagnosis of papillary thyroid carcinoma
7. CEBPA mutation detection: For prognosis of AML

B. NEW TESTS IN DEVELOPMENT

1. KIT exon 8 and 17 mutation analysis for AML: For prognosis
2. MYC FISH on paraffin tissues: For detection of MYC rearrangements associated with Burkitt lymphoma and DLBCL

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS

1. Resident/Fellow Rotations – Block E
   a. Regular didactic sessions on various aspects of molecular diagnostic testing including: Background, indication, and interpretation of specific tests; Methods and procedures for new clinical test validation and implementation.
   b. Participation IN and regular presentations at monthly Molecular Diagnostics Lab Meeting.
   c. Initiated a Molecular Diagnostics Journal Club that meets every 6 weeks.
   d. Planned and supervised a MYC FISH project for Diane Hall.
2. Molecular Genetic Pathology Fellow – Larry Bischof

a. Regular contact on test interpretation, test troubleshooting, QC/QA procedures
b. Planned and supervised his initial development and validation of a second generation clinical BCR/ABL kinase mutation analysis test
c. Supervising his evaluation of new RNA extraction instrumentation

B. LECTURES
1. "HER2 FISH: For Detecting HER2 Gene Amplification in Breast Cancer", Molecular Diagnostics Lab Meeting, October 14, 2008.
2. "JAK2 Mutations in Myeloproliferative Disorders", Molecular Diagnostics Journal Club, January 14, 2009.
3. "Mutation Analysis of DNA Sequence Traces Using Mutation Surveyor Software", Molecular Diagnostics Lab Meeting, January 15, 2009.
4. "UroVysion FISH: For the Diagnosis and Monitoring of Bladder Cancer", Cytopathology Monday Meeting, January 26, 2009.
5. "Solid Tumor Molecular Diagnostics", Clinical Pathology Grand Rounds, April 14, 2009.
6. "Molecular Diagnostics for the Practicing Pathologist: Emerging Tests and Technologies to Impact Patient Care", MLabs Saturday Symposium, April 25, 2009.

III. Research Activities

A. PROJECTS UNDER STUDY
1. A novel peptide nucleic acid PCR clamping-based real-time PCR assay for the detection of oncogenic KRAS mutations.
2. Collaboration with Kojo Elenitoba-Johnson on IGF1R mutation analysis in lymphoma.
3. Collaboration with Rajal Shah to develop and evaluate a UroVysion FISH assay on paraffin sections for the diagnosis of nested-variant urothelial carcinoma.

IV. Administrative Activities

A. DEPARTMENTAL
1. Molecular Diagnostics Laboratory
a. Oversaw the development and validation of new clinical molecular tests including all aspects of assay design, technical optimization, documentation and implementation.
b. Worked closely with laboratory staff and supervisors (both within AP and CP) to implement new tests.
c. Worked with AP to streamline and optimize the selection, review, and processing of AP specimens for molecular testing.
d. Fostered collaborations with various AP faculty to advance the implementation and utilization of new tests.
e. Troubleshooting day to day assay problems
f. Daily review and interpretation of sequencing-based testing results
g. Ongoing evaluation of QA/QC procedures
h. Established proficiency/specimen exchanges with other clinical molecular laboratories
i. Participated in technologist annual reviews

V. Other Relevant Activities

A. INVITED LECTURES/SEMINARS

1. "Detection of Mutations with Prognostic Implications in AML".2009 Association for Molecular Pathology Annual Meeting. November 20, 2009.

B. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. Member, Association for Molecular Pathology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Wei SJ, Williams JG, Dang H, Darden TA, **Betz BL,** Humble MM, Chang FM, Trempus CS, Johnson K, Cannon RE, Tennant RW. Identification of a specific motif of the DSS1 protein required for proteasome interaction and p53 protein degradation. *Journal of Molecular Biology* 14;383(3):693-712, 2008.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Mandell S., Elenitoba-Johnson K., **Betz B.** Molecular Diagnostics and Pharmacogenetics: Personalizing Chronic Myelogenous Leukemia Therapy by Detection of Specific ABL1 Gene Mutations. *MLabs Spectrum* 22(2):1-3, 2008. Review article.
2. Shah RB, **Betz B.** Bladder Cancer Detection by Fluorescence In Situ Hybridization (FISH). *MLabs Spectrum* 22(3):1-4, 2008. Review article.

Mila Blaivas, M.D., Ph.D.

Associate Professor of Pathology

I. Clinical Activities

A. SURGICAL NEUROPATHOLOGY - 20.5 weeks and on call Service; weekly Brain Tumor Board.

B. AUTOPSY SERVICE - 33 days, including weekend autopsy calls.

C. MUSCLE AND NERVE BIOPSIES
1. (370) muscle biopsies and 56 nerve biopsies from UMHS and other institutions.
   a. About 10% of muscle biopsies with EM
   b. Nearly 100% of nerve biopsies with EM and 11 with teasing.
   c. 48 cases were tested with antidystrophy antibody or screened by IPOX and several other additional new techniques.

D. DIAGNOSTIC EM on skin for CADASIL and other various rare disorders, including other tissues, 11 cases.

E. CONSULT SERVICE
1. Brain, muscle and nerve pathology
2. 76 personal consults

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS
1. Cutting autopsied brains with Pathology house officers, microscopic evaluation of these brains as well as brains from other autopsies with the residents for the diagnosis
2. Instructed residents, fellows and staff in Neurology, Rheumatology and Pediatrics and students on muscle, nerve and brain biopsies.
3. Taught pathology residents how to perform and read-out autopsies.
4. Lectures on muscle and nerve pathology to residents and fellows in Neurology.
5. Conferences on muscle and nerve cases with Neurology Department.
6. Neuropathology cases review with pathology residents.
7. Weekly and monthly conferences with Neuromuscular staff, other residents and students rotating in the service.

8. Tutoring of four neurology residents and seven pathology residents on Neuropathology.
9. Helping a number of residents, fellows and faculty, with a variety of requests – clinical and research, regarding humans and animals.

III. Research Activities

A. SPONSORED SUPPORT

1. NIH 5R21-NS052681-02, Protein Interactions with CADASIL –Mutants of Notch 3. Principal Investigator, Michael M. Wang, M.D., Co-Investigator Mila Blaivas, M.D., Ph.D., 10% effort. 2-01-07 through 1-31-2009. Budget $338,450. No Cost Extension Date: 1/31/2010.
2. NCI R21 F32 CA126295, Nanoparticle-enabled Brain Tumor Surgery. Principal Investigator, Daniel Orringer. 08/15/07 through 06/30/09. Mila Blaivas, M.D., Ph.D., Consultant with no money effort assigned.
3. NCI R21/R33 Nanobiophotonics Enabled Tumor Surgery and Intraoperative PDT. Principal Investigator, Raoul Kopelman, M.D., Co-Principal Investigators, Oren Sagher, M.D., Brian Ross, M.D., Alnawaz Rehemtulla, M.D., Martin Philbert, M.D. 9-1-06 through 8-31-10 total budget, $2,453,808.00. Mila Blaivas, M.D., Consultant with 0% effort, with the budget $75,000 per year.
4. NIAMS PA-05-051, The Role of Mig-2 in Myogenesis, Muscle Maintenance and Childhood Myopathy. Principal Investigator, James J. Dowling, Lecturer. 12-01-06 through 11-30-11. Total budget costs $642,600.00. Mila Blaivas, M.D., Consultant with 0% effort assigned. The budget is being negotiated.

B. PENDING PROJECTS

1. Validation of Molecular Characterization of Glioblastoma Multiforme using 18F-Galacto-RGd, 11C-Methionine and 18F-FAZA PET. Principal Investigator, Morand Piert, M.D. Grant submitted to: Edard Mallincrodt, Jr. Foundation. Co-Investigators: Jason Heth, M.D., Parag Ptil, M.D., Mila Blaivas, M.D., Ph.D.
2. ″SPG6 HSP": Molecular and Animal Studies. Principal Investigator, John Fink, M.D., R21, submitted to NIH October 2008. Will be resubmitted as R01, Fall 2009. Co-Investigator, Mila Blaivas, M.D., Ph.D.

IV. Administrative Activities

A. DEPARTMENTAL

1. Supervision of the muscle histochemistry and muscle and nerve biopsy handling.
2. Working on improvement of interdepartmental and interinstitutional coordination of muscle and nerve biopsy service.
3. Improvements in immunoperoxidase stainings, expansion of anti-dystrophy workup.
4. Daily monitoring muscle histochemistry group performance.

B. INSTITUTIONAL

1. Member of the Neuropathy Center.

C. REGIONAL/NATIONAL/INTERNATIONAL

1. Consulting with outside pathologists, neurologists and family practitioners on muscle and nerve biopsies performance and interpretation, brain biopsies.

2. Member, American Association of Neuropathologists, World Muscle Society, IAP, CAP, PNS, EFNS, AAN.

V. Other Relevant Activities

A. Editorial Boards and Reviews
   1. Ad-hoc reviewer
      a. Archives of Pathology and Laboratory Medicine
      b. Archives of Ophthalmology
      c. Journal of Neurophthalmology
      d. Journal of Neuropathology
      e. Experimental Neurology.
   2. Provided illustrations and legends several chapters by Ann Little, M.D. for the Oxford Handbook of Neurology, Ed. S. Gilman, M.D.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
   1. Meng H, Zhang X, **Blaivas M**, Wang M. Localization of blood proteins thrombospondin-1 and ADAMTS13 to cerebral corpora amylacea. *Neuropathology*, 2009 April, pp. 1-8.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
   1. Afshari ZS, **Blaivas M**, Dowling J, Gruis K. A novel skeletal muscle alpha-actin gene (ACTA1) missence mutation in a patient with dilated cardiomyopathy. Presented at the AANEM, September 2008.
   2. Dowling JJ, Majczenko K, **Blaivas M**, Burmeister. Identification and Characterization of a novel Congenital Myopathy. Presented at WMS meeting, October 2008; published in *Neuromuscular Disorders* 2008,18:811.

Corrado Caslini, Ph.D.

Research Assistant Professor

I. Clinical Activities – None

II. Teaching Activities

A. GRADUATE STUDENTS
1. Sara Monroe, Ph.D. Student
2. Stephanie Jo, M.D./Ph.D. Student

B. HOUSE OFFICERS AND FELLOWS
1. Jim Connelly, M.D., Pediatric Hematology-Oncology Fellow

III. Research Activities

A. SPONSORED SUPPORT
1. Leukemia and Lymphoma Society of America, Specialized Center for Research – 7132-08 (PI-Licht), Consortium for the Study of Chromatin Biology and Epigenetic Targeting in Hematological Malignancies 10/1/07-9/30/12, Project 1 (PI-Hess) 50% effort.
2. PIG# U016907, PO# 279800, Department of Pathology, University of Michigan Medical School 09/2005 – 09/2008, $50,000/year, 2 years.

B. PROJECTS UNDER STUDY
1. Functional characterization of MLL binding with telomeric and centromeric heterochromatin.
2. BMI1-mediated silencing of differentiation-determining GATA genes in ovarian cancer.
3. Targeting of MLL-menin interaction as therapeutic strategy for MLL-mediated leukemia.

IV. Administrative Activities

A. DEPARTMENTAL
1. Pathology postdoctoral and faculty candidate meetings.

V. Other Relevant Activities

A. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. American Society of Hematology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Cai K.Q., **Caslini C.**, Capo-chichi C.D., Slater C., Smith E.R., Wu H., Klein-Szanto A.J., Godwin A.K., and Xu X.-X. Loss of GATA4 and GATA6 expression specifies ovarian cancer histological subtypes and precedes neoplastic transformation of ovarian surface epithelia. PloS ONE (accepted for publication).
2. **Caslini C.***, Connelly J., Serna A., Broccoli D., Hess J.L. MLL associates with telomeres and regulates telomeric repeat-containing RNA transcription. Molecular and Cellular Biology (in press, see MCB accepts). * Corresponding author

Priscilla R. Chamberlain, M.D.

Clinical Instructor/Lecturer

I. Clinical Activities

A. SURGICAL PATHOLOGY
1. 12.5 weeks of coverage - 25% SP cases primary pathologist
2. 25% frozen section coverage
3. 5% of SP cases - 2nd opinion
4. 50% of retrospective 5% review

B. CYTOLOGY
1. 50% of GYN & Non GYN sign out
2. 60 Fine Needle Aspirations performed with rapid evaluation
3. 10% GYN Second Opinion & Negative Pap review
4. >5% of NonGYN cases – Consultation & 2nd opinion

C. AUTOPSY
1. 13 weeks
2. Off Hours (on call) coverage for the VA – AP/CP
3. 13 weeks

II. Teaching Activities

A. MEDICAL STUDENTS
1. M2 pathology lab – 28 hours (14 hrs lab + 14 hrs preparation)

B. GRADUATE STUDENTS
1. Pathology Graudate Course - 20 hours

C. HOUSE OFFICERS AND FELLOWS
1. Pathology residents SP – 500 hours - supervision & sign out
2. Pathology residents Cytology Elective – 25 hours
3. Pathology resident Autopsy – 35 hours
4. Lecture series for ENT residents – 25 hours (20 hrs prep + 5 hrs lecture)

III. Research Activities – None

IV. Administrative Activities

A. DEPARTMENTAL: VA MEDICAL CENTER PATHOLOGY DEPARTMENT

1. Director of Cytopathology for VA Hospital
2. High Grade pap clinical follow-up reporting
3. QA review of concurrent SP cases
4. Atypical pap review reporting
5. Annual Cytology Report
6. Cytopathology CME for all pathologists
7. Medical Director Chemistry Laboratory
8. Medical Director Microbiology/Immuno Laboratory
9. Medical Director Ancillary Testing
10. Medical Director Toledo Outpatient Laboratory
11. Medical Director of Central Receiving
12. Pathologists' Scheduling

B. INSTITUTIONAL

1. Medical School Admissions Committee
2. Tumor Board
3. Cancer Committee
4. Safety Case Management Committee

V. Other Relevant Activities – None

VI. Publications - None

Stephen W. Chensue, M.D., Ph.D.

Professor of Pathology

I. Clinical Activities

A. Chief, Pathology and Laboratory Medicine Service, VA Ann Arbor Healthcare System, responsibilities include, overall laboratory supervision and administration, equipment and methodology evaluation, review and consultation regarding quality management programs, personnel evaluation, counseling and grievance procedures.

B. Hematology, daily evaluation of pathologist referred blood smears, lymph nodes, bone marrow smears, VA Ann Arbor Healthcare System (6 months/year)

C. Surgical/Frozen Section Diagnosis (2.5 months/year)

D. Surgical Case Diagnosis VA Ann Arbor Healthcare System (2.5 months/year)

E. Autopsy Service, rotational basis, on call 13 weeks/year

F. Special Chemistry/Immunology, daily interpretation of protein electrophoreses and problem ligand studies (6/months/year), VA Ann Arbor Healthcare System

G. Blood Bank, consults and investigations, full time as needed, VA Ann Arbor Healthcare System

II. Teaching Activities

A. MEDICAL STUDENTS
   1. Pathology 600 laboratory

B. GRADUATE STUDENTS
   1. Pathology 581 lectures

C. HOUSE OFFICERS AND FELLOWS
1. Pathology house officers, surgical pathology and autopsy supervision and instruction

D. OTHER
1. Technologists, technicians and hospital staff, ongoing continuing medical education instruction on clinical laboratory topics
2. Research mentoring for post-doctoral, graduate, undergraduate, and high school trainees

III. Research Activities

A. SPONSORED SUPPORT
1. Principal Investigator, Chemokine Receptor Dynamics in Granuloma Formation, NIH AI43460 ($150,000 direct costs annually, 2003-2007).
2. Principal Investigator, Chemokine Determinants of Pulmonary Immunity, VHA Merit, (125,000 direct costs annually, 2006-2009).
3. Co-investigator, Molecular Mechanisms of Lung Host Defense, VA REAP Grant (250,000 annually, 2006-2009).

B. PENDING PROJECTS
1. Principal Investigator, Chemokine Receptor Dynamics in Granuloma Formation, NIH AI43460 ($200,000 direct costs annually, 2007-2012).

C. PROJECTS UNDER STUDY
1. Regulation and participation of chemokine receptors during Th1 and Th2 immune and inflammatory responses.
2. Effect of aging on T regulatory cell function in the lung.
3. Role of chemokine receptors in dendritic cell recruitment and activation and in vivo migration during innate stages of granuloma formation and Mycobacteria infection.
4. Role of chemokine receptors (CCR4 and CCR6) in Th1 and Th2 cell-mediated responses to lung infection.

IV. Administrative Activities

A. DEPARTMENTAL
1. Pathology Graduate Program Preliminary Exam Committee Member of graduate student thesis committees
2. Interviewing and evaluation of residents and faculty

B. INSTITUTIONAL
1. Dean's Committee, University of Michigan Medical School and VA Ann Arbor Healthcare System, voting member
2. Clinical Executive Board, VA Ann Arbor Healthcare System, voting member

3. Professional Standards Board, VA Ann Arbor Healthcare System, voting member
4. Invasive Procedures Committee, VA Ann Arbor Healthcare System, voting member
5. Residency Review Board, VA Ann Arbor Healthcare System, voting member
6. VHA VISN 11 Laboratory Equipment Standardization Committee
7. Chief of Staff Advisory Committee, VA Ann Arbor Healthcare System, voting member
8. Personnel employment and annual performance evaluations
9. Anatomic Pathology Quality Assurance evaluation and reporting
10. Editor, VALabs Newsletter and webmaster for VA Laboratory webpage

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Implementation Committee, VHA National Bar Code Expansion Project

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Review
   a) *American Journal of Pathology*
   b) *Journal of Immunology Inflammation Research, Section Editor*
   c) *American Journal of Respiratory Cell and Molecular Biology*
   d) *Journal of Clinical Investigation*
   e) *Journal of Leukocyte Biology*
   f) *Infection and Immunity*

B. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Society of Investigative Pathology American Association of Immunologists

C. HONORS AND AWARDS
1. Department of Veterans Affairs Performance Award, January 2007

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Freeman, C.M, Curtis, J. L. and **Chensue, S.W.** CCR5 and CXCR6 expression by lung CD8+ cells correlates with chronic obstructive pulmonary disease severity. *Am. J. Pathol.* 2007, 171:767-76.
2. Chiu, B., Freeman, C.M., Stolberg, V.R. and **Chensue, S.W.** Mononuclear phagocyte-derived IL-10 suppresses the innate pulmonary granuloma cytokine response in aged mice. *Am. J. Pathol*. 2007, 171:829-37
3. Choi, S.W., Hildebrandt, G.C., Olkiewicz, K.M., Hanauer, D.A., Chaudhary, M.N., Silva, I.A., Rogers, C.E., Deurloo, D., Fisher, J.M., Liu, C., Adams, D., **Chensue, S.W.,** Cooke K.R. CCR1:CCL5 (RANTES) receptor ligand interactions modulates allogeneic T cell responses and reduces graft-versus-host disease following stem cell transplantation. *Blood*. 2007, 110:3447-55.

4. Ito,T., Schaller, M., Hogaboam, C.M., Standiford, T.J., **Chensue, S.W.** and Kunkel, S.L. Toll-like receptor 9 activation is a key event for the maintenance of a Mycobacterial Ag-elicited pulmonary granulomatous response. *Eur. J. Immunol.* 2007, 37:2847-55.
5. Chiu, B., Freeman, C.M., Stolberg, V.R. Zhang, H., and **Chensue, S.W.** Increased Foxp3+ Treg Cell Activity Reduces Dendritic Cell Costimulatory Molecule Expression in Aged Mice. *Mech. Ageing Dev*. 2007, 128:618-27.
6. Chiu, B., Stolberg, V.R., and **Chensue, S.W.** Age-related Loss of CD62L Impairs Lymph Node CD4 T cell Mobilization. *Open Aging J*., 2007, 1:1-7.

B. BOOKS/CHAPTERS IN BOOKS - None

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR,MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Freeman, C.M., Martinez, F.J., **Chensue, S.W.**, Murphy, H.S., Arenberg, D.A., Sonstein, J., Meldrum, C., Thompson D.L., and Curtis J.L. Lung CD8+ T cells expression of IL-18R and CD69 increases with COPD severity. American Thoracic Society (International Meeting), May 16-21, 2008, Toronto, Canada.
2. Freeman, C.M., Martinez, F.J., **Chensue, S.W.**, Murphy, H.S., Arenberg, D.A., Sonstein, J., Meldrum, C., Thompson D.L., and Curtis J.L COPD severity correlates with an increased percentage of dendritic cells expressing CD80 and CD83. American Thoracic Society (International Meeting), May 16-21, 2008, Toronto, Canada.
3. Freeman, C.M., Martinez, F.J., Arenberg, D.A., **Chensue, S.W.**, Murphy, H.S., Meldrum, C., Han, M., Flaherty, K., Frederick, M., Thompson D.L., and Curtis J.L. Lung IL-15 production in COPD correlates with measures of disease severity: a study using LTRC resources. American Thoracic Society (International Meeting), May 16-21, 2008, Toronto, Canada.

Arul M. Chinnaiyan, M.D., Ph.D.

S.P. Hicks Professor of Pathology
Professor of Pathology and Urology
Director of Michigan Center for Translational Pathology

I. Clinical Activities

A. Board-Certified in Clinical Pathology (2002), Diplomate of the American Board of Pathology

II. Teaching Activities

A. GRADUATE STUDENTS

1. Scott Tomlins (MSTP)
2. Qi Cao (Molecular and Cellular Pathology)
3. Julie Kim (Bioinformatics)
4. Laila Poisson (Biostatistics Masters Student)
5. Beth Helgeson (Molecular and Cellular Pathology)
6. J. Chad Brenner (Cellular and Molecular Biology)
7. Lee Sam (Bioinformatics)
8. Matthew Iyer (Bioinformatics)
9. John Prensner (MSTP)
10. Alejandro Oscar Balbin (Bioinformatics)

B. HOUSE OFFICERS AND FELLOWS

1. Mentor, House Officer: Rohit Mehra, M.D., Pathology
2. Mentor, Postdoctoral Fellows:
   a. Xiaosong Wang
   b. Ram Shanker Mani
   c. Bushra Ateeq
   d. Anastasia Yocum
   e. Christopher Maher
   f. Catherine Grasso Quist
3. Mentor, Clinical Fellows:
   a. Rou Wang, M.D. (Urology)
   b. David Seung Lae Kim, M.D. (Pathology)
   c. Bo Han, M.D. (Molecular Pathology)
   d. Simon Kim, M.D. (Urology)
   e. Jingsong Zhang, M.D. (Hematology/Oncology)
   f. Ajai Alvai, M.D. (Hematology/Oncology)

g. Manish Subramanium, M.D. (Pathology)

C. LECTURES
1. Medical Innovation Center Fellows, October 29, 2008
2. Pediatric Hematology and Oncology Research Conference, May 13, 2009

D. OTHER
1. Mentor, Junior Faculty:
   a. David Hanauer, M.D., M.S. (Pediatrics Instructor)
   b. Sami Malek, M.D. (Assistant Professor, Internal Medicine)
   c. Soory Varambally, Ph.D. (Research Assistant Professor, Pathology)
   d. Arun Sreekumar, Ph.D. (Assistant Professor, Pathology)
   e. Mohan Dhanasekran, Ph.D. (Research Investigator, Pathology)
   f. Daniel Rhodes, Ph.D. (Research Investigator, Pathology)
   g. Bharathi Laxman, Ph.D. (Research Investigator, Pathology)
   h. George Wang, Ph.D. (Research Investigator, Pathology)
   i. Jindan Yu, Ph.D. (Research Investigator, Pathology)
   j. Guoan Chen, Ph.D. (Research Investigator, Surgery)
   k. Khalid Suleman, Ph.D. (Research Investigator, Pathology)

2. Mentor, Undergraduate Students
   a. Nishi Singhal, College of LS&A, University of Michigan
   b. Azalea Ayuningtyas, College of LS&A, University of Michigan
   c. Jason Banish, College of LS&A, University of Michigan
   d. Ian Bury, College of LS&A, University of Michigan
   e. Elizabeth Buss, College of LS&A, University of Michigan
   f. Kaitlin Callahan, College of LS&A, University of Michigan
   g. Sagar Deshpande, College of LS&A, University of Michigan
   h. Megan Frasier, College of LS&A, University of Michigan
   i. Danny Fries, College of LS&A, University of Michigan
   j. Eric Ganowicz, College of LS&A, University of Michigan
   k. John Gulbronson, College of Engineering, University of Michigan
   l. Haala Hai, College of LS&A, University of Michigan
   m. Heather Han, College of LS&A, University of Michigan
   n. Hannah Anderson-Knight, College of LS&A, Univ of Michigan
   o. Han Li, College of LS&A, University of Michigan
   p. Patrick Murray, College of LS&A, University of Michigan
   q. Sonam Patel, College of LS&A, University of Michigan
   r. Briana Russo, College of Engineering, University of Michigan
   s. Rupal Shastri, College of LS&A, University of Michigan
   t. Khushbu Chadha, College of LS&A, University of Michigan
   u. Rithu Srikantha, College of LS&A, University of Michigan
   v. Abbas Alawieh, College of LS&A, University of Michigan
   w. Hal Kominsky**,** College of LS&A, University of Michigan
   x. Joy Tsai, College of LS&A, University of Michigan
   y. Thrusha Chauhan, College of LS&A, University of Michigan
   z. Lauren Kadel, College of LS&A, University of Michigan
   aa. Yue Ding, College of LS&A, University of Michigan
   bb. Xiaodi Gao, College of LS&A, University of Michigan

cc. Suni Liang, Northwestern University

3. Mentor, High School Students (Research Rotation):
   a. Santosh Shanmuga, Plymouth Canton High School,
   b. Aparna Gosh, Pioneer High School
4. Prelim-Committees:
   a. Qi Cao, Molecular and Cellular Pathology Graduate Program (Chair)
   b. Julie Kim, Bioinformatics Graduate Program (Chair)
   c. Laila Poisson, Biostatistics Graduate Program (Cognate Member)
5. Interviewed prospective MSTP, PIBS, and Bioinformatics students

III. Research Activities

A. SPONSORED SUPPORT

1. Howard Hughes Medical Institute (HHMI) Investigator, 02/01/08 - 01/31/13, $700,000/yr.
2. Doris Duke Foundation (PI: Chinnaiyan), 01/01/09 - 12/31/13, $275,000/yr, Distinguished Clinical Scientist Award for Excellence in "Bench to Bedside" Research.
3. R01 32874-01 (PI: Chinnaiyan), 03/01/09 - 11/31/13, $166,000/yr, Molecular Sub-typing of Prostate Cancer Based on Recurrent Gene Fusions.
4. Lustgarten Foundation (PI: Kumar), Role: Co-Investigator, 03/01/09 - 02/28/10, $100,000/yr, Discovery of Recurrent Gene Fusions in Pancreatic Cancer using High-throughput Sequencing.
5. DOD W81XWH-09-2-0014 (PI: Wicha) Role: Co-Investigator, 03/01/09 - 4/24/10, $443,618/yr, National Functional Genomics Center.
6. DOD W81XWH-08-0110 (PI: Chinnaiyan) 09/01/08 - 11/30/13, $500,000/yr. A Search for Gene Fusions/Translocations in Breast Cancer.
7. NCI P50 CA69568 (PI: Pienta) Role: Co-Investigator, 06/01/08 - 05/31/13, $196,297/yr, SPORE in Prostate Cancer, Project 1 Title: Role of gene fusions in prostate cancer.
8. P50 CA69568 (PI: Pienta) 06/01/08 - 05/31/13, Core 3*:* Tissue/Informatics Core Director, $335,726/yr.
9. DOD W81XWH-08-1-0031 (PI: Chinnaiyan) 04/15/08 - 07/14/11, $ 121,746/yr Characterization of SPINK1 in Prostate Cancer.
10. NIH U01 CA111275 (PI: Chinnaiyan) 09/20/04 - 08/31/09 (continuation in progress), $404,077/yr, Epitomic Biomarkers of Prostate Cancer.
11. NIH U01 CA113913 (PI: Wei) Co-Investigator, 03/29/05 - 02/29/10, $100,172, Harvard-Michigan Prostate Cancer Biomarker Clinical Validation Center.
12. NIH 1 U54 DA021519-01A1 (PI: Athey) Co-Investigator, 09/25/05 - 08/31/10, $2,543,758/yr, National Center for Integrative Biomedical Informatics.
13. Burroughs Wellcome Fund, Project# 1005930 (PI: Chinnaiyan) 07/01/06 - 06/30/11, $150,000/yr, Autoantibody Profiles for Cancer Diagnosis, Prognosis, and Therapy.

B. PENDING PROJECTS

1. American Cancer Society (PI: Chinnaiyan) 07/01/09 - 06/30/14, Clinical Research Professor Award, $80,000/yr, Oncoseq, A Bioinformatics Platform for Nextgen Sequencing in Oncology. Awarded.
2. Genentech Foundation (PI: Chinnaiyan) 09/01/09 - 08/31/11, Genentech Foundation Postdoctoral Fellow Award $153,181/yr. Awarded.

3. AACR (Dream team leader: Gray), 08/31/09 - 7/31/2012, Stand Up To Cancer Dream Team Translational Cancer Research, $362,190/yr, Personalizing treatment of triple negative, metastatic breast cancer. Awarded.
4. NIH 1RC2CA148258-01 (PI: Chinnaiyan) 09/30/09 - 09/29/11, $1,970,622/yr, The NCI Molecular Target Discovery and Development Center.
5. NIH 1RC1CA147062-01 (PI: Chinnaiyan) 09/30/09 - 09/29/11, $500,000/yr, Validation of TMPRSS2-ERG gene fusion as a biomarker for prostate cancer.
6. NIH 1RC1CA145182-01 (PI: Chinnaiyan), 09/30/09 - 09/29/11, $500,000/yr, OnsoSeq: A platform for Integrative analysis and visualization of cancer sequencing data.

C. PROJECTS UNDER STUDY
1. Gene Fusions/Translocations in Cancer
2. EZH2 and Cancer Epitgentics
3. Genomic Profiling
4. Cancer Bioinformatics
5. Biomarkers
6. Proteomics
7. Immunomics
8. Metabolomics
9. Bioinformatics
10. Experimental therapeutics

IV. Administrative Activities

A. DEPARTMENTAL
1. Director Division of Pathology Research Informatics in the Department of Pathology
2. Pathology Faculty Candidate Interviews

B. INSTITUTIONAL
1. Director, Michigan Center for Translational Pathology
2. MSTP Career Advisory Panel, University of Michigan
3. Bioinformatics Pilot Grant Committee
4. Bioinformatics Program Executive Committee
5. Tissue Usage Committee, UMCCC Prostate S.P.O.R.E.
6. University of Michigan Medical School Conflict of Interest Board
7. Career Development Committee, Dr. Sami Malek, Physician-Scientist Assistant Professor
8. Director, UMCCC Bioinformatics Core
9. Bioinformatics Student Interviews
10. MSTP Student Interviews

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Dana-Farber Cancer Institute External Advisory Board
2. Member, Special Conference Committee, American Association for Cancer Research
3. Co-Chair, American Association for Cancer Research Special Symposium, “Advances in Prostate Cancer Research, January 21-24, 2009, San Diego
4. Co-Chair, Keystone Symposium, “Novel Cancer Therapeutics/Integration of Developmental Signaling Pathways”, 2010

5. Member, Multiple Myeloma Research Foundation Scientific Advisory Board
6. Member, Multiple Myeloma Research Foundation Technology Board
7. Chair of Clinical Science Symposium Signal Transduction Pathways for Prostate Cancer, 2009 ASCO Annual Meeting, May 29 - June 2, 2009, Orlando, FL
8. Co-Chair, American Association for Cancer Research Program Committee for 2010 AACR Annual Meeting

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Board:
   a. *Cancer Research*
   b. *Cancer Informatics*
   c. *Cancer Genomics and Proteomics*
   d. *Neoplasia*
   e. *Cancer Biomarkers*
   f. *Oncogene*
   g. *Genes*
   h. *Chromosomes & Cancer*
2. Ad hoc reviewer
   a. *Nature*
   b. *PNAS*
   c. *Nature Genetics*
   d. *New England Journal of Medicine*
   e. *Nature Cancer Reviews*
   f. *Nature Medicine*
   g. *American Journal of Pathology*
   h. *Journal of Biomedical Informatics*
   i. *Cancer Research*
   j. *Oncogene*
   k. *Neoplasia*
   l. *Cell Death & Differentiation*
   m. *Cytokine*
   n. *Clinical Cancer Research*
   o. *Journal of Experimental Medicine*
   p. *Bioinformatics*
   q. *Molecular Diagnosis*
   r. *BMC Cancer*
   s. *Urology*
   t. *Journal of Biological Chemistry*
3. External Advisory Board Member
   a. UCSF Breast SPORE (PI Joe Gray)
   b. MD Anderson Ovarian SPORE (PI, G. Mills)
   c. Johns Hopkins Prostate Cancer SPORE
4. AACR Grants Committee – Subcommittee for Clinical and Translational Research, American Association for Cancer Research, January 2008
5. Reviewer, 2008 NIH Director's New Innovator Award Program, January 2008
6. Technology Board Member, Multiple Myeloma Research Foundation, 2009
7. Reviewer, NIH ARRA Grants

B. INVITED LECTURES/SEMINARS

1. **National/International**

a. US Oncology Research Annual Meeting 2008, Keynote Speaker, “Discovery of Recurrent Gene Fusions in Prostate Cancer: A New Class of Biomarkers and Therapeutic Target”, Dallas, Texas, August 22, 2008.
b. U.S. Oncology Research Annual Meeting, Invited Speaker, “Discovery of Recurrent Gene Fusions in Prostate Cancer: A New Class of Biomarkers and Therapeutic Targets”, Dallas, TX, August 22, 2008.
c. 17th Annual Short Course on Experimental Models of Human Cancer, Invited Speaker, “Prostate Cancer”, Bar Harbor, ME, August 29, 2008.
d. Fred Hutchinson Cancer Research Center/University of Washington Program in Prostate Cancer Research Seminar Series, Invited Speaker, “Discovery of Recurrent Gene Fusions in Prostate Cancer”, Seattle, WA, September 18, 2008.
e. Robert H. Lurie Comprehensive Cancer Center of Northwestern University Tumor Cell Biology Seminar, Invited Speaker, “Discovery of Recurrent Gene Fusions in Prostate Cancer: A New Class of Biomarkers and Therapeutic Targets”, Chicago, IL, October 2, 2008.
f. The 70th Annual Meeting of the Japanese Society of Hematology, Invited Speaker, “Discovery of Recurrent Gene Fusions in Prostate Cancer: A New Class of Biomarkers and Therapeutic Targets”, Kyoto, Japan, October 11, 2008.
g. UCLA Genitourinary Oncology Leaders in the Field Seminar Series, Invited Speaker, “Discovery of Recurrent Gene Fusions in Prostate Cancer: A New Class of Biomarkers and Therapeutic Targets”, November 4, 2008, Los Angeles, CA.
h. Advanced Prostate Cancer Collaboration Meeting, Expert Panel Member, “Discovery of Recurrent Gene Fusions in Prostate Cancer: A New Class of Biomarkers and Therapeutic Targets”, November 24, 2008, Tampa, FL.
i. Moffitt Cancer Center Grand Rounds, Invited Speaker, “Discovery of Recurrent Gene Fusions in Prostate Cancer: A New Class of Biomarkers and Therapeutic Targets”, November 26, 2008, Tampa, FL.
j. AACR Special Conference in Cancer Research-Advances in Prostate Cancer, Meeting Organizer and Speaker, “Recurrent Gene Fusions in Prostate Cancer”, January 21, 2009, San Diego, CA.
k. AACR Special Conference in Cancer Research-Translation of the Cancer Genome, Keynote Speaker, “Recurrent Gene Fusions in Prostate Cancer: A New Class of Biomarkers and Therapeutic Targets”, February 8, 2009, Boston, MA.
l. Fondation Ipsen Molecular Targets of Cancer Therapy Conference, Clinical Trials Discussant, February 15-18, 2009, Jaipur, India.
m. 28th Annual Convention of the Indian Association for Cancer Research and International Symposium on Emerging Challenges and Approaches in Cancer Biology, Keynote Speaker, “Recurrent Gene Fusions in Common Solid Tumors”, February 22, 2009, Bangalore, India.
n. GlaxoSmithKline Seminar, “The Role of EZH2 in Cancer Progression”, March 4, 2009, Philadelphia, PA.
o. Howard Hughes Medical Institute Scientific Meeting, “Transcriptome Sequencing to Detect gene Fusions in Cancer”, March 17, 2009, Reston, VA.
p. Inter-SPORE Prostate Cancer Program Retreat, “Prognostic and Predictive Markers”, March 27, 2009, Baltimore, MD.

q. ASCI/AAP Joint Meeting, “The Next Generation of Gene Fusion Discovery in Cancer”, April 24, 2009, Chicago, IL.
r. Department of Genetics & Genomic Sciences Seminar Series at the Mount Sinai School of Medicine, “The Next Generation of Gene Fusion Discovery in Cancer”, May 22, 2009, New York, NY.
s. LEAD Summit VII Keynote Speaker, ”Adventures in Translational Pathology”, June 19, 2009, Budapest, Hungary.
t. Keystone Symposium on Molecular and Cellular Biology, “The Next Generation of Gene Fusion Discovery in Cancer”, June 24, 2009, Killarney, County Kerry, Ireland.

2. Internal
   a. University of Michigan Metabolics & Obesity Center 2008 Symposium, “Metabolic Profiling of Prostate Cancer Progression”, October 15, 2008.
   b. University of Michigan 7th Annual Pathology Research Symposium, "The Role of EZH2 and Epigenetic Silencing in Prostate Cancer Progression", October 17, 2008.
   c. University of Michigan Dental School Oral Health Sciences Seminar Series, “The Next Generation of Gene Fusion Discovery in Cancer”, March 5, 2009.
   d. University of Michigan NCIBI 4th Annual Research Conference, Driving Biological Projects-1, April 29, 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Member, American Medical Association (AMA)
2. Associate Member, American Association of Cancer Research (AACR)
3. Member, College of American Pathologists (CAP)
4. Member, American Society of Clinical Pathologists (ASCP)
5. Member, American Society of Investigative Pathologists (ASIP)
6. Member, Society of Basic Urological Research (SBUR)
7. Member, United States and Canadian Academy of Pathology (USCAP)
8. Member, Michigan Society of Pathologists (MSP)
9. Member, American Advancement for the Advancement of Science (AAAS)
10. Member, Association for Pathology Informatics (API)
11. Affiliate Member, American Urological Association (AUA)
12. Member, American Society of Clinical Investigation (ASCI)
13. Member, Multiple Myeloma Genomics Initiative External Advisory Board
14. Member, Association of American Physicians (AAP)

D. HONORS AND AWARDS
1. DOD Era of Hope Scholar
2. Doris Duke Foundation Distinguished Clinical Scientist Award for Excellence in “Bench to Bedside” Research
3. Elected Member of the Association of American Physicians
4. American Cancer Society Research Professor

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. van Golen KL, Ying C, Sequeira L, Dubyk CW, Reisenberger T, **Chinnaiyan AM**, Pienta KJ, Loberg RD. CCL2 induces prostate cancer transendothelial cell migration

via activation of the small GTPase Rac. *J Cell Biochem*. 2008 Aug 1; 104(5): 1587-97. PMID: 18646053.

2. Narla G, DiFeo A, Fernandez Y, Dhanasekaran S, Huang F, Sangodkar J, Hod E, Leake D, Friedman SL, Hall SJ, **Chinnaiyan AM**, Gerald WL, Rubin MA, Martignetti JA. KLF6-SV1 overexpression accelerates human and mouse prostate cancer progression and metastasis. *J Clin Invest*. 2008 Aug; 118(8): 2711-21. PMID: 18596922/PMCID: PMC2441856.
3. Lippman ME, Rae JM, **Chinnaiyan AM**. An Expression Signature Of Estrogen-Regulated Genes Predicts Disease-Free Survival In Tamoxifen-Treated Patients Better Than Progesterone Receptor Status. *Trans Am Clin Climatol Assoc*. 2008; 119: 77-92. PMID: 18596862/PMCID: PMC2442700.
4. Woods Ignatoski KM, Grewal NK, Markwart SM, Vellaichamy A, **Chinnaiyan AM**, Yeung K, Ray ME, Keller ET. Loss of raf kinase inhibitory protein induces radioresistance in prostate cancer. *Int J Radiat Oncol Biol Phys*. 2008 Sep 1; 72(1): 153-60. PMID: 18722266.
5. Hanauer DA, Rhodes DR, **Chinnaiyan AM**. Identifying significant associations using free text problem summary lists in a clinical data repository. *AMIA Annu Symp Proc*. 2007 Oct 11: 968. PMID: 18694068.
6. Han B, Mehra R, Dhanasekaran SM, Yu J, Menon A, Lonigro RJ, Wang X, Gong Y, Wang L, Shankar S, Laxman B, Shah RB, Varambally S, Palanisamy N, Tomlins SA, Kumar-Sinha C, **Chinnaiyan AM**. A fluorescence in situ hybridization screen for E26 transformation-specific aberrations: identification of DDX5 ETV4 fusion protein in prostate cancer. *Cancer Res*. 2008 Sep15:68(18):7629-37. PMID: 18794152/PMCID: PMC2597029.
7. Cao Q, Yu J, Dhanasekaran SM, Kim JH, Mani RS, Tomlins SA, Mehra R, Laxman B, Cao X, Yu J, Kleer CG, Varambally S, **Chinnaiyan AM**. Repression of E-cadherin by the polycomb group protein EZH2 in cancer. *Oncogene*. 2008 Sep; 27(58):7274-7284. PMID 18806826/NIHMSID 104449.
8. Varambally S, Laxman B, Mehra R, Cao Q, Dhanasekaran SM, Tomlins SA, Granger J, Vellaichamy A, Sreekumar A, Yu J, Gu W, Shen R, Ghosh D, Wright LM, Kladnev RD, Kuefer R, Rubin MA, Fimmel CJ, **Chinnaiyan AM**. Golgi Protein G0LM1 is a Tissue and Urine Biomarker of Prostate Cancer. *Neoplasia*, 2008:10 (11):1285–1294. PMID 18953438/PMCID: PMC2570605.
9. Worzel WP, Yu J, Almal AA, **Chinnaiyan AM**. Applications of genetic programming in cancer research. *Int J Biochem Cell Biol*, 2008 Oct; 41(2):405-413. PMID 18929677.
10. Albertus DL, Seder CW, Chen G, Wang X, Hartojo W, Lin L, Silvers A, Thomas DG, GiordanoTJ, Chang AC, Orringer MB, Bigbee WL, **Chinnaiyan AM**, Beer DG. AZGP1 autoantibodypredicts survival and histone deacetylase inhibitors increase expression in lung carcinoma. *J Thorac Oncol*, 2008: 3(11):1236-1244. PMID 18978557.
11. Varambally S, Cao Q, Mani RS, Shankar S, Wang X, Ateeq B, Laxman B, Cao X, Jing X, Ramnarayanan K, Brenner JC, Yu J, Kim JH, Han B, Tan P, Kumar-Sinha C, Lonigro RJ, Palanisamy N, Maher CA, **Chinnaiyan AM**. Genomic loss of microRNA-101 leads to overexpression of histone methyltransferase EZH2 in cancer. *Science*, 2008: 322(5908):1695-1699. PMID 19008416/NIHMSID 104414.
12. Maher CA, Kumar-Sinha C, Cao X, Kalyana-Sundaram S, Han B, Jing X, Sam L, Barrette T, Palanisamy N, **Chinnaiyan AM**. Transcriptome sequencing to detect

gene fusions in cancer. *Nature*, 2009: 458(7234): 97-101. PMID 19136943/NIHMSID 103039.
13. Bedolla RG, Wang Y, Asuncion A, Chamie K, Siddiqui S, Mudryj MM, Prihoda TJ, Siddiqui J, **Chinnaiyan AM**, Mehra R, de Vere White RW, Ghosh PM. Nuclear versus cytoplasmic localization of filamin A in prostate cancer: Immunohisotchemical correlation with metastases. *Clin Cancer Res* 2009: 15(3):788-796. PMID 19188148.
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18. Lee I, Ajay SS, Yook JI, Kim HS, Hong SH, Dhanasekaran SM, **Chinnaiyan AM**, Athey BD. New class of microRNA targets containing simultaneous 5'-UTR and 3"-UTR interaction sites. *Genome Res* 2009 Mar 31 [Epub ahead of print]. PMID 19336450.
19. Jung Kim Y, Teletia N, Ruotti V, Maher CA, **Chinnaiyan AM**, Stewart R, Thomson JA, Patel JM. ProbeMatch: A tool for aligning oligonucleotide sequences. *Bioinformatics* 2009: 25(11):1424-5. PMID 19351619/PMCID: PMC2682521.
20. Hanauer DA, Rhodes DR, **Chinnaiyan AM**. Exploring clinical associations using '-omics' based enrichment analyses. *PLOS One* 2009: 4(4):e5203. PMID 19365550/PMCID: PMC2664474.
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22. Wang R, Morris DS, Tomlins SA, Lonigro RJ, Tsodikov A, Mehra R, Giordano TJ, Priya Kunju L, Lee CT, Weizer AZ, **Chinnaiyan AM**. Development of a Multiplex Quantitative PCR Signature to Predict Progression in Non-Muscle-Invasive Bladder Cancer. *Cancer Res* 2009: 69(9):3810-3818. PMID 19383904/NIHMSID 119025.
23. Shah RB, **Chinnaiyan AM**. The Discovery of Common Recurrent Transmembrane Protease Serine 2 (TMPRSS2)-Erythroblastosis Virus E26 Transforming Sequence (ETS) Gene Fusions in Prostate Cancer: Significance and Clinical Implications. *Adv Anat Pathol*, 2009: 16(3):145-153. PMID 19395877.
24. Brenner JC, **Chinnaiyan AM**. Translocations in epithelial cancers. *Biochim Biophys Acta* 2009 Apr 27 [Epub ahead of print]. PMID 19406209/NIHMSID 119029.
25. Han B, Mehra R, Lonigro RJ, Wang L, Suleman K, Menon A, Palanisamy N, Tomlins SA, **Chinnaiyan AM**, Shah RB. Fluorescence in situ hybridization study shows

association of PTEN deletion with ERG rearrangement during prostate cancer progression. *ModPathol* 2009 May 1 [Epub ahead of print]. PMID 19407851.

26. Tomlins SA, Bjartell A, **Chinnaiyan AM**, Jenster G, Nam RK, Rubin MA, Schalken JA. ETS gene fusions in prostate cancer: From discovery to daily clinical practice. *Eur Urol* 2009 Apr 24 [Epub ahead of print]. PMID: 19409690.
27. Han B, Mehra R, Suleman K, Tomlins SA, Wang L, Singhal N, Linetzky KA, Palanisamy N, Zhou M, **Chinnaiyan AM**, Shah RB. Characterization of ETS gene aberrations in select histologic variants of prostate carcinoma. *Mod Pathol* 2009 May 22 [Epub ahead of print]. PMID: 19465903.
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B. BOOKS/CHAPTERS IN BOOKS

1. Wang R, Tomlins SA, **Chinnaiyan AM**. Androgen Regulation of Prostate Cancer Gene Fusions in Androgen Action in Prostate Cancer. Editors, Tindall and Mohler J. May 2009. Springer.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. During this period, several abstracts have been submitted from the Chinnaiyan Lab to various national meetings including USCAP, American Association for Cancer Research (AACR), NCI SPORE meeting, and the Fall Research Symposium of the University of Michigan Cancer Center. Please refer to the published manuscripts that have resulted from these abstracts.

Kathleen R. Cho, M.D.

Peter A. Ward Professor of Pathology
Professor of Pathology and Internal Medicine

I. Clinical Activities

A. GYNECOLOGICAL PATHOLOGY
1. Case sign-out in surgical pathology (11 weeks)
2. Section Head, Gynecological Pathology
3. Gynecological Pathology consultation service (26 weeks)
4. Multidisciplinary Gynecological Oncology tumor board (bi-weekly; shared with Dr. R. Lieberman)

II. Teaching Activities

A. PRE-DOCTORAL STUDENTS
1. Sarah Fogoros - 09/08 - 12/08; PIBS rotation student, Department of Pathology, University of Michigan School of Medicine
2. Bernadette Zwaans - 01/09 - 04/09; PIBS rotation student, Department of Pathology, University of Michigan School of Medicine

B. DISSERTATION COMMITTEES
1. Ph.D. Candidate: Christine Pierce, Department of Epidemiology (Dissertation Committee Member), University of Michigan School of Public Health.

C. HOUSE OFFICERS AND FELLOWS
1. Gynecological pathology case sign-out (11 weeks)
2. Staff consult conference; one hour
3. Didactic conference - reviews of ovarian epithelial tumors and vulvar/vaginal pathology (two hours)

D. LECTURES
1. AP Grand Rounds, Review of ovarian epithelial tumors, May 2009
2. AP Grand Rounds, Review of vulvar/vaginal pathology, April 2009
3. New Frontiers in Diagnostic Pathology, plenary lecture, September 2008
4. Pathology 581, Introduction to Neoplasia, March 2009
5. Pathology 581: Tissue, Cellular and Molecular Basis of Disease (course faculty, University of Michigan Medical School, Winter Terms 2000 - present)

E. OTHER
1. Research/laboratory supervisor for the following UM undergraduate students:
   a. Tom Hu, UM undergraduate student - part time research assistant, Cho laboratory, summer 2009

III. Research Activities

A. SPONSORED SUPPORT
1. NIH/NCI RO1 CA 94172 (Cho) 02/01/02 - 05/31/12 $177,300 annual direct, 20% effort. Molecular Pathogenesis of Ovarian Endometrioid Adenocarcinomas (OEAs)
2. DOD W81XWH-08-1-0453 (Cho & Rehemtulla) 07/01/08 – 09/30/11, $125,000 direct costs to Cho lab,15% effort, Ovarian Cancer Research Program (OCRP) Translational Research Partnership Award Development of Mouse Models of Ovarian Cancer for Studying Tumor Biology and Testing Novel Molecularly Targeted Therapeutic Strategies
3. DOD W81XWH-09-2-0014 (Wicha) 03/25/09 - 04/24/10, $104,929 direct costs to Cho lab, 5% effort, Project 1: National Functional Genomics Center (PI Fearon)
4. NIH/NCI RO1 CA 132755 (Yu) 07/01/08 - 05/31/13, $207,500, 5% effort, Molecular Mechanisms of Brca1-Dependent DNA Damage Response and Tumorigenesis
5. NIH/NCI RO1 CA85463 (Fearon) 06/01/00 - 05/31/10 $191,250, 7.5% effort, The Role of ß-catenin/Tcf Pathway Defects in Cancer
6. NIH/NCI RO1 CA82223-06 (Fearon) 08/15/99 - 05/31/09, 06/01/09 - 05/31/10 no cost extension, $202,500, 7.5% effort

B. PENDING PROJECTS
1. NIH/NCI CA130899 (PI: Yu, Xiaochun) 12/01/08 -11/30/13, $1,250,000 direct costs requested (5% effort), Regulation of Ionizing Radiation Induced DNA Damage Response
2. DOD OC093370 (PI: Cho) OCRP IDEA Development Award 04/01/10 - 03/31/13, $375,000 direct costs requested (10% effort) Prediction of Therapeutic Response in a Minimal Residual Disease Model of Ovarian Cancer

C. PROJECTS UNDER STUDY
1. Molecular profiling of ovarian epithelial tumors using liquid proteomics and Affymetrix gene chip technologies
2. Identification and characterization of molecular markers of ovarian carcinomas
3. Identification of novel genes amplified in ovarian carcinomas
4. Evaluation of the role of Wnt/ß-catenin/Tcf and PI3K/Akt/Pten pathway defects in the pathogenesis of ovarian endometrioid adenocarcinomas
5. Development of murine models of ovarian cancer
6. Pre-clinical testing of novel therapeutics for ovarian cancer using mouse models with on-board imaging reporters
7. Identification of genes involved in cervical cancer progression

IV. Administrative Activities

A. DEPARTMENTAL

1. Department of Pathology, Internal Advisory Committee on Appointments, Promotions and Tenure
2. Department of Pathology Graduate Student Admissions Committee
3. Department of Pathology, Projects in Anatomic Pathology Funding Committee, Committee Chair
4. Department of Pathology, Graduate Program Advisory Committee for the Molecular and Cellular Pathology (MCP) Graduate Program
5. Section Head, Gynecological Pathology

B. INSTITUTIONAL

1. Institutional Review Board, University of Michigan School of Medicine (IRB-MED), Tissue Procurement Core Ancillary Committee member
2. Cancer Research Committee, University of Michigan Comprehensive Cancer Center

C. REGIONAL/NATIONAL/INTERNATIONAL

1. Benjamin Castleman Award Committee, United States and Canadian Academy of Pathology
2. Councilor, American Society for Investigative Pathology (ASIP)
3. Chair, Committee for Career Development Women and Minorities, American Society for Investigative Pathology
4. Member, Publications Committee, American Society for Investigative Pathology
5. Member, Nominating Committee, American Society for Investigative Pathology
6. Secretary, International Society of Gynecological Pathologists
7. Member, Laboratory Research Awards Selection Committee (AACR-G.H.A. Clowes Memorial Award and AACR Award for Outstanding Achievement in Cancer Research, AACR

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Boards
   a. *International Journal of Gynecological Pathology*
   b. *Human Pathology*
   c. *Clinical Cancer Research* (Associate Editor)
   d. *Cancer Research*, Senior Editor, Molecular Biology, Pathobiology and Genetics Section
   e. *Diagnostic Molecular Pathology*
   f. *Clinical and Translational Science*
   g. *Laboratory Investigation* (Associate Editor)

B. INVITED LECTURES/SEMINARS

1. Annual Companion Meeting of the American Society for Investigative Pathology, "Molecular Insights into the Morphological Heterogeneity of Ovarian Carcinomas – Does Histological Type Matter?", United States and Canadian Academy of Pathology, Annual Meeting, Denver, Colorado, March, 2008.
2. Cell, Development and Cancer Seminar Series, "Ovarian Cancer Pathogenesis: Insights from Morphology, Molecules, and Mice", Denver, Colorado, April, 2008.

3. Pathology Grand Rounds, "Of Mice and (Wo)men: Molecular Insights into the Morphological Heterogeneity of Ovarian Carcinomas", Weill Cornell Medical College, New York, New York, May, 2008.
4. Translational Research Seminar Series, "Ovarian Cancer Pathogenesis: Insights from Molecular Profiling and Mouse Models", Barbara Ann Karmanos Cancer Institute, Detroit, Michigan, May 2008.
5. ENDO 08 – Annual Meeting of the Endocrine Society, Symposium on Ovarian and Uterine Neoplasias: Genetics & Genomics, "Wnt and PI3K Signaling in Ovarian Cancer", San Francisco, California, June 2008.
6. New Frontiers in Pathology: An Update for Practicing Pathologists, "Ovarian Cancer Update: Lessons from Morphology, Molecules, and Mice" (plenary lecture), CME conference sponsored by the University of Michigan Department of Pathology, Ann Arbor, Michigan, September, 2008.
7. 3rd AACR International Conference on Molecular Diagnostics in Cancer Therapeutic Development. "Ovarian Cancer Classification: Lessons from Morphology, Molecules, and Mice" (plenary speaker), Philadelphia, Pennsylvania, September, 2008.
8. Visiting Professor and Grand Rounds speaker, "Ovarian Cancer Pathogenesis: Lessons from Morphology, Molecules, and Mice", Department of Pathology & Laboratory Medicine, University of Pennsylvania Health System, Philadelphia, Pennsylvania, October, 2008.
9. Grand Rounds speaker, "Molecular Subtyping of Ovarian Cancer", OSI Pharmaceuticals, Boulder, Colorado, December, 2008.
10. Pathology Grand Rounds speaker, "Ovarian Cancer Pathogenesis: Lessons from Morphology, Molecules, and Mice", Department of Pathology, Yale University School of Medicine, New Haven, Connecticut, February, 2009.
11. Advanced Molecular Pathology Special Course, Invited Speaker, "Pathology of Ovarian Cancer: Lessons from Morphology, Molecules, and Mice", United States and Canadian Academy of Pathology Annual Meeting, Boston, Massachusetts, March, 2009.
12. Workshop on Achieving Work-Life Balance, Invited Speaker, "Mid-career perspectives on achieving work-life balance: Thinking back and looking forward", Experimental Biology/American Society for Investigative Pathology Annual Meeting, New Orleans, Louisiana, April, 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. Member, USCAP
2. Member, International Society of Gynecological Pathologists
   a. 2003 - 2009 Secretary
3. Member, American Association for Cancer Research (ACCR)
4. Member, American Society for Investigative Pathology
   a. 2008 - 2009 Chair**,** Committee for Career Development Women and Minorities,
5. Member, American Society for Clinical Investigation
   a. 2006 - 2009 Councilor
6. Member, Michigan Society of Pathologists
7. Member, Laboratory Research Awards Selection Committee (AACR-G.H.A. Clowes Memorial Award and AACR Award for Outstanding Achievement in Cancer Research, AACR

8. Member, Association of American Physicians

D. HONORS AND AWARDS
1. Election to the Association of American Physicians, April 2008

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Greer BE, Koh WJ, Abu-Rustum N, Bookman MA, Bristow RE, Campos S, **Cho KR**, Copeland L, Eifel P, Huh WK, Jaggernauth W, Kapp DS, Kavanagh J, Lipscomb GH, Lurain JR 3rd, Morgan M, Morgan RJ Jr, Powell CB, Remmenga SW, Reynolds RK, Secord AA, Small W Jr, Teng N. Cervical cancer. *Journal of the National Comprehensive Cancer Network*, 6:14-36, 2008.
2. Wang SS, Smiraglia DJ, Wu Y-Z, Ghosh S, Rader JS, **Cho KR**, Bonfiglio TA, Nayar R, Plass C, Sherman ME. Identification of novel methylation markers in cervical cancer using restriction landmark genomic scanning (RLGS). *Cancer Research* 68:2489-97, 2008.
3. Kim H, Wu R, **Cho KR**, Thomas DG, Gossner G, Liu JR, Giordano TJ, Shedden KA, Misek DE, Lubman DM. Comparative proteomic analysis of low stage and high stage endometrioid ovarian adenocarcinomas. *Proteomics- Clinical Applications*, 2:571-584, 2008.
4. Sangha N, Wu R, Kuick R, Powers S, Mu D, Fiander D, Yuen K, Katabuchi H, Tashiro H, Fearon ER, and **Cho KR**. Neurofibromin 1 (NF1) defects are common in human ovarian serous carcinomas and co-occur with TP53 mutations. *Neoplasia*, 10: 1362-72, 2008.
5. Wang Y, Wu R, **Cho KR**, Thomas DG, Gossner G, Liu JR, Giordano TJ, Shedden KA, Misek DE, Lubman DM. Differential Protein Mapping of Ovarian Serous Adenocarcinomas: Identification of Potential Markers for Distinct Tumor Stage. *J Proteome Res*, 8:1452-63, 2009.
6. **Cho, K.R.** and Shih, I.M. Ovarian Cancer. *Annual Review of Pathology: Mechanisms of Disease*, 4:287-313, 2009.
7. **Cho, K.R.** Ovarian Cancer Update: Lessons from Morphology, Molecules and Mice. *Archives of Pathology & Laboratory Medicine*, 2009 (in press).

B. BOOKS/CHAPTERS IN BOOKS

1. Seidman, J., **Cho, K.R.**, Ronnett, B.R., and Kurman R.J. Surface Epithelial Tumors of the Ovary. Blaustein's Pathology of the Female Genital Tract, 6th edition, eds. Robert J. Kurman, Lora H. Ellenson and Brigitte R. Ronnett. Springer, New York, 2009 (in press).

Laura L. W. Cooling, M.D.

Assistant Professor of Pathology
Associate Director, Blood Bank

I. Clinical Activities

A. ASSOCIATE MEDICAL DIRECTOR, TRANSFUSION MEDICINE
1. Blood Bank, clinical coverage and administration
2. Director, Bone Marrow/Cell Therapy Laboratory
3. Clinical Consultation/Management, Special Product Requests
4. Clinical Coverage, Therapeutic Apheresis

II. Teaching Activities

A. RESIDENT EDUCATION
1. Didactic teaching activities
   a. Blood Component Therapy
   b. Transfusion Reaction Evaluation
   c. Evaluation and management of platelet refractoriness
   d. Fundamentals of Clinical Apheresis (with nursing staff)
   e. Evaluation and Management of Therapeutic Apheresis Requests
   f. Administrative Issues on-call
2. Clinical Teaching
   a. Supervision Resident/ Fellow Activities (6 mo/yr)
   b. Morning Report
   c. Transfusion reaction sign-out
   d. Clinical apheresis requests/patient management
   e. Special product request evaluation and clinical follow-up
   f. Case-based informal teaching
3. Other Clinical Teaching: non-pathology housestaff & fellows
4. Resident Applicant Interviews

B. MEDICAL STUDENTS
1. Medical school admission interviews
2. Lectures, 4th year pathology elective

C. NURSING/PHYSICIAN ASSISTANTS
1. Lecture, evaluation and treatment of transfusion reactions

III. Research Activities

A. SPONSORED RESEARCH - None

B. PENDING PROJECTS - None

C. PROJECTS UNDER STUDY
1. Translational Research
   a. The Glycome of Normal Human Platelets
   b. Aberrant Glycolipid Expression in Myeloproliferative Platelets
   c. The Regulation and Biology of Globo/Lacto-Series Glycosphingolipids
2. Clinical Research
   a. Factors effecting stem cell collection and engraftment
   b. Platelet glycoimmunology, role in transfusion therapy

IV. Administrative Activities

A. DEPARTMENTAL
1. Associate Director, Transfusion Medicine
2. Director, Cell Therapy Laboratory (CTL)

B. INSTITUTIONAL
1. Transfusion Subcommittee
2. Data Analysis Council
3. Medical School Admissions Committee

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Michigan Association of Blood Banks
   a. Board of Directors
   b. President, 2008
2. American Association of Blood Banks
   a. Scientific Section Coordinating Committee (SSCC)
   b. SSCC Liaison to Annual Meeting Education Unit
   c. AABB-Fenwal Scholarship Review
   d. American Association of Blood Banks Abstract Selection Unit

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. *Blood*
2. *Transfusion*
3. *Immunohematology*

B. INVITED LECTURES/SEMINARS
1. Transfusion when nothing is compatible, American Red Cross, Detroit, MI, August 2008.

2. Clinical Case Studies: ABO discrepancies in children on long-term parenteral nutrition. Michigan Association of Blood Banks 54th Annual Meeting, Livonia, Michigan, September 2008.
3. Therapeutic Apheresis: Care of patients with TTP. American Association of Blood Banks, Montreal, Canada. Faculty, October 2008.
4. Deadly donations. Hematology Noon Conference, University of Michigan, December 2008.
5. Thrombotic Thrombocytopenia Purpura. American Society for Clinical Apheresis, International webinar, January 2009.
6. Delayed hemolytic transfusion reactions (with Dr. Sam Silver). Hematology Noon Conference, University of Michigan, January 2009.
7. Diagnosis and care of TTP/HUS. Clinical Pathology Grand Rounds, University of Michigan, January 2009.
8. Deadly donations. Brown Bag Lunch Series, Dept. Pathology, University of Michigan, January 2009.
9. "A_2" new look at ABO and platelet transfusion support. 42nd Annual Heart of America Blood Bank Meeting, Kansas City, MO, May 2009.
10. Disease- and mobilization-specific decreases in CD34 collection rates with the COBE Spectra AutoPBSC kit. *Plenary session*, American Society of Apheresis Annual Meeting, San Diego, CA, May 2009.
11. Mobilization with G-CSF only is associated with increased infusion toxicity. *Plenary session*, American Society of Apheresis, San Diego, CA, May 2009.
12. Significant thrombocytopenia as an early sign of spontaneous splenic rupture in an allogeneic stem cell donor. American Society of Apheresis, San Diego, CA, May 2009.
13. Clinical problem solving in the blood bank workshop. 36th Annual Current Topics in Blood Banking, University of Michigan, May 2009.
14. The ABCs of transfusion reactions. New York Association of Blood Banks Annual Meeting, New York, NY, June 2009.
15. Right drug, wrong diagnosis. Invitational Conference of Investigative Immunohematology, Asilomar, CA, June 2009.
16. Alloimmunization due to IUT. Invitational Conference of Investigative Immunohematology, Asilomar, CA, June 2009.
17. Apheresis 101. Dept. Rheumatology, University of Michigan, June 2009.
18. Moderator/Director of-National Meeting, Red Cell IV: Carbohydrate blood group antigens. American Association of Blood Banks Annual Meeting, Montreal, CA, October 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. Michigan Association of Blood Banks Board of Directors
   a. Scientific Section Coordinating Committee (SSCC)
   b. SSCC Liaison to Annual Meeting Education Unit
   c. AABB-Fenwal Scholarship Review
   d. Chair, Technical/Clinical Education Tract, 2009 Annual Meeting, Montreal, Canada
   e. American Association of Blood Banks Abstract Selection Unit
2. National Blood Foundation Grant Review Committee
3. Society for Glycobiology International
4. Society for Blood Transfusion

5. American Society for Apheresis

D. HONORS AND AWARDS
1. President Award, Michigan Association of Blood Banks
2. Therapeutic Apheresis Best Abstract Award, American Society for Apheresis

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. **Cooling LLW.** Inside Blood**:** "Mining" the possibilities behind red cell alloimmunization. *Blood* 2008; 112:2180-81.
2. **Cooling L,** Hoffmann S. Reply to ABO type does not effect platelet engraftment after peripheral stem cell transplantation in a series of 249 hematologic patients. *Transfusion* 2008; 28:2646-47.
3. **Cooling L**, Downs T, Butch S, Davenport R. Anti-A and anti-B titers in group O pooled platelets are equivalent to apheresis platelets. *Transfusion* 2008;48:2106-13:
4. ***Cooling L***. Editorial summary, *Transfusion* 2008; 48:2047.
5. **Cooling L,** Hoffmann S, Herrst M, Muck C, Armelagos H, Davenport R. A prospective randomized trial of the COBE Spectra AutoPBSC and White Blood Cell collection sets for autologous peripheral blood stem cell collection in multiple myeloma. Revision 6/09 *Transfusion*.
6. **Cooling L,** Gay S, Silver S. An InPRESsive Mimic. Revision 6/09 *Transfusion*, in press.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. **Cooling L,** Hoffmann S, Herrst M, Armelagos H, Muck C, Meade M, Mineishi S, Davenport R. Disease- and mobilization-specific decreases in CD34 collection rates with the COBE Spectra AutoPBSC kit. *J Clin Apheresis* 2009; 24:53-54.
2. **Cooling L,** Hoffmann S, Herrst M, Mineishi S, Davenport R. Mobilization with G-CSF only is associated with increased infusion toxicity. *J Clin Apheresis* 2009; 24:54-55.
3. **Cooling L,** Hummel J, Khaled Y, Hoffmann S, Smitka C, Barnosky A, Mineishi S, Davenport R. Significant thrombocytopenia as an early sign of spontaneous splenic rupture in an allogeneic stem cell donor. *J Clin Apheresis* 2009; 24:70.
4. **Cooling L**, Dake L, Pagani F, Hickey A, Butch S, Davenport R. RBC alloimmunization in patients undergoing left ventricular assist device placement. *Transfusion* 2008; 48(2S):420.
5. Shah-Khan F, **Cooling L**, Hoffmann S, Mineishi S, Hersst M, Davenport R. DT-PACE is equivalent or superior to Cytoxan + G-CSF or G-CSF alone for the collection of CD34 cells in multiple myeloma. *Transfusion* 2008; 48(2S):SP263.
6. **Cooling L**, Luoma T, Bahdori A, Shayman J. Wide variation in platelet ganglioside content in individual platelet donors. *Transfusion* 2008; 48(2S):SP400.
7. **Cooling L.** Platelet gangliosides with ABO activity are restricted to A_1 donors and display donor-specific variation. *Transfusion*, in press.
8. **Cooling L.** Novel donor-specific differences in sialyl-Lewis expression on human blood platelets. *Transfusion*, in press.
9. Bombery M, Armalagos H, **Cooling L.** A severe case of rascuricase-induced methemoglobinemia treated by erthrocytopheresis. *Transfusion*, in press.

10. Butch S, **Cooling L**. The age of red cells at transfusion: One facility's experience. *Transfusion*, in press.
11. Kshirsagar MP, Pipe S, **Cooling L**. A misdiagnosis of disseminated intravascular coagulation due to argatroban toxicity. Michigan Association of Blood Banks Newsletter, Summer 2008.
12. **Cooling L**. The basics of molecular biology for immunohematologists. New York State Association of Blood Banks Newsletter. 2008.

Robertson D. Davenport, M.D.

Associate Professor
Director of Blood Bank and Transfusion Services

I. Clinical Activities

A. MEDICAL DIRECTOR, BLOOD BANK AND TRANSFUSION SERVICE
B. CYTOPATHOLOGY

II. Teaching Activities

A. MEDICAL STUDENTS
1. M2 Hematology sequence, Blood Transfusion

B. HOUSE OFFICERS AND FELLOWS
1. Daily blood bank teaching rounds
2. Cytopathology sign-out
3. Current Topics in Blood Banking, Department of Pathology and Office of Continuing Medical Education
4. Hematology fellows, Blood Transfusion
5. Blood Banking/Transfusion Medicine core lecture series for residents and fellows

C. LECTURES
1. Blood Banking Theory and Practice, M2 Hematology sequence
2. Complication of Transfusion, M2 Hematology sequence
3. Introduction to Blood Banking, Hematology Fellows
4. ABO Typing Problems, Hematology/Oncology Fellows Report

D. OTHER
1. Mechanical Engineering 450, "Fine Needle Aspiration", project sponsor
2. Mentor adviser, Yoshi Suzuki, MD Scientific Advisory Committee, Clinical Research Masters Program

III. Research Activities

A. SPONSORED SUPPORT
1. Ortho-Clinical Diagnostics (PI) 0% effort, A Validation Study of the ORTHO ProVue System. 12/1/08 -1/15/09, $9,031.
2. CaridianBCT, (PI) 5% effort, Engraftment Kinetics of Peripheral Blood Stem Cells (PBSCs) Isolated Using the Spectra Optia Apheresis System, 4/1/09 - 3/31/10,

54,043 annual direct costs.

B. PENDING PROJECTS
1. NIH/HHSD (PI) 15% effort, A Novel Organoselenide-base Assay for S-nitrosohemoglobin, 12/1/09 - 11/30/11, $150,000 annual direct costs.
2. NIH (Co-I) 5% effort, CTRIP: Clinical erythrocytic S-nitrosothiol measurements in human disease, 9/30/09 - 9/29/11, $160,677 annual direct costs.
3. Verax Biomedical (PI) 5% effort, Platelet Bacteria Contamination Study using the Platelet PGD Test, 8/3/09 - 11/2/09, $17,329 annual direct costs.
4. NIH/Blaze Medical Devices (PI) 10% effort, Determination of variation of RBC membrane fragility in blood bank inventory at the point of use: potential relevance of RBC fragility testing for monitoring RBC storage lesion and transfusion outcome, 3/1/10 - 2/28/11, $62,727 annual direct costs.

C. PROJECTS UNDER STUDY
1. Nitrosohemoglobin content of stored red blood cells
2. Validation of automated pretransfusion testing
3. Collection of peripheral hematopoietic progenitor cells
4. Web-based teaching in anatomic pathology

IV. Administrative Activities

A. DEPARTMENTAL
1. Director, Fellowship Program in Blood Banking/Transfusion Medicine

B. INSTITUTIONAL
1. Chair, Transfusion Committee
2. Regular Member, Institutional Review Board C1
3. Blood Lean Team

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Chair, Medical Advisory Committee, American Red Cross, Southeastern Michigan Blood Services Region
2. Member, Board of Directors, American Red Cross, Southeastern Michigan
3. Member, Executive Committee, Board of Directors, American Red Cross, Southeastern Michigan Region
4. National Institutes of Health, Challenge Grants Panel 20

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Board: *Transfusion*
2. Reviews
   a. Transfusion
   b. Chest
   c. *American Journal of Hematology*
   d. International Journal of Laboratory Hematology

B. INVITED LECTURES/SEMINARS
   1. Phenotype Matching in Sickle Cell and Thalassemia: What to Match and When. American Association of Blood Banks
   2. Guidelines for Red Cell Transfusion. Immunohematology Update Seminar, American Red Cross Blood Services

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
   1. Clinical Transfusion Medicine Committee, AABB
   2. Plasma Transfusion Guidelines Task Force, AABB
   3. Editorial Board, *Transfusion*

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
   1. Cooling LL, Downs TA, Butch SH, **Davenport RD**. Anti-A and anti-B Titers in Pooled Group O Platelets are Comparable to Apheresis Platelets. *Transfusion* 2008;48:2106-13.
   2. **Davenport, RD.** An Introduction to Chemokines and Their Roles in Transfusion Medicine. *Vox Sang* 2008 Epub ahead of print.
   3. Cooling L, Hoffmann S, Herrst M, Muck C, Armelagos H, **Davenport R.** A prospective randomized trial of the COBE Spectra AutoPBSC and White Blood Cell collection sets for autologous peripheral blood stem cell collection in multiple myeloma. Accepted by *Transfusion* 2009.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
   1. Shah-Khan F, Cooling L, Hoffmann S, Mineishi S, Hersst M, **Davenport R.** DT-PACE is equivalent or superior to cytoxan+G-CSF or G-CSF alone for the collection of CD34 cells in multiple myeloma. *Transfusion* 2008; 48(2S):126A.
   2. Cooling L, Dake L, Pagani F, Hickey A, Butch S, **Davenport R.** RBC Alloimmunization in patients undergoing left ventricular assist device placement. *Transfusion* 2008; 49(2S):179A.

Yali Dou, Ph.D.

Assistant Professor of Pathology

I. Clinical Activities - N/A

II. Teaching Activities

A. GRADUATE STUDENTS

1. Elizabeth Townsend, Ph.D. candidate – Advisor
2. Graduate Student thesis committee
   a. Hacer Karatas (Pharmacology)
   b. Emily Petty (MCDB)
   c. Five prelim examination committees

B. LECTURES

1. Five 1.5 hour lectures for Biochem 650 Eukaryotic gene expression

III. Research Activities

A. SPONSORED SUPPORT

1. NIH R01 CA092251-07A1 (PI-Hess) Transcriptional deregulation by MLL fusion proteins, 9/27/2007 - 8/31/2012, $5,000/year.
2. NIH R01 HL31237 (P.I. - Kunkel) Monokine gene expression in lung injury, 12/1/2008 - 11/30/2013, $5,000/year.
3. NIH R01 RGM082856A (P.I. - Dou) Epigenetic regulations of transcription by mixed lineage leukemia protein MLL, 4/1/2009 - 3/31/2014, $281,000/year.

B. PENDING PROJECTS

1. NIH R01 CA142596-01 (P.I. - Dou) The Function of Histone Acetyltransferase MOF in DNA repair and tumorigenesis, 1/1/2010 -12/31/2015, $250,000 annual direct costs

IV. Administrative Activities

A. DEPARTMENTAL

1. Prelim committees
2. Committee for stimulus compensation for research faculties

B. INSTITUTIONAL
   1. Research Assessment Team for north campus development, Medical School

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
   1. Manuscript reviews
      a. *Molecular and Cellular Biology*
      b. *Current Protein and Peptide Science (CPPS)*

B. INVITED LECTURES/SEMINARS
   1. Department of Biomedical Engineering, Macromolecular Science and Engineering Program, UM, 2009
   2. Laboratory of Receptor Biology and Gene Expression, DHHS/NIH/NCI/CCR

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
   1. Member, American Association for the Advancement of Science
   2. Member, American Chemical Society
   3. Member, American Association for Cancer Research

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
   1. F. Cao, X. Li, S. Hiew, H. Brady, Y. Liu, **Y. Dou** (2009). Dicer independent small RNAs associate with telomeric heterochromatin. *RNA*, in press.
   2. M. Ishii, H. Wen, T. Liu, C. A. S. Corsa, **Y. Dou** and S. L Kunkel (2009). Epigenetic regulation of alternatively activated macrophages is controlled by the histone H3 lysine-27 demethylase Jmjd3. *Blood*, accepted.

Gregory R. Dressler, Ph.D.

Professor of Pathology

I. Clinical Activities – None

II. Teaching Activities

A. GRADUATE STUDENTS

1. Pre-doctoral Students Supervised
   a. Peng Zhang, Pathology
2. Post-doctoral Trainees Supervised
   a. Hong Xiao, M.D., Ph.D.
   b. Kristopher Schwab, Ph.D.
   c. Gaelle Lefevre, Ph.D.
3. Ph.D. Thesis Committee Member
   a. Alicia Yallowitz, CDB
   b. Sara Monroe, Pathology
   c. Tushar Menon, Biochemistry

B. LECTURES

1. Course Lectures Path 582, Course Director, 21 hours
2. Summer Postdoctoral Training Course for Medical Fellows, 40 hours
3. First Year Medical Students - Embryology, 2 hours

C. OTHER

1. Undergraduate Student Supervised, John Nan

III. Research Activities

A. SPONSORED SUPPORT

1. NIH/NIDDK R01 DK073722 (PI) 30% effort, Epigenetic Regulation Kidney Development, 7/01/06 - 4/30/11, $205,000 annual direct costs.
2. NIH/NIDDK 1 R01 DK54740-10 (PI) 30% effort, "PAX2 Interacting Proteins in Development and Disease," 1/15/99 - 3/31/13, $225,000 annual direct costs.
3. NIH/NIDDK R01 DK071929 (Deneen Wellik, P.I, Co-I - 7.5% effort), "Molecular Genetics of Hox Genes and Kidney Development," 5/1/06 - 4/30/11, $208,000 annual direct costs.
4. Mentor, NRSA training award to Dr. Kristopher Schwab, "Analysis of Pax2 target genes involved in metanephric kidney development," $147,000 total costs.

B. PROJECTS UNDER STUDY
1. The identification of co-factors required for Pax protein mediated transcription activation.
2. The development of novel methods for identifying genes regulated by Pax proteins.
3. The role of PTIP in histone methylation, differentiation, and aging.
4. The role of novel TGF-beta inhibitors in renal development and fibrotic disease.
5. PTIP mediated chromatin dynamics in developing and adult tissues.

IV. Administrative Activities

A. DEPARTMENTAL
1. Department of Pathology - Curriculum Committee

B. INSTITUTIONAL
1. Center for Organogenesis-Steering Committee, Training Grant Review Committee, Advisory Committee
2. MSTP Oversight Committee
3. UCUCAAnimal Protocol Review Committee

C. REGIONAL/NATIONAL/INTERNATIONAL
1. NIDDK, GUDMAP Advisory Board
2. Center for Scientific Review, UKGD, Ad-hoc
3. American Society of Nephrology, Basic Science Committee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Board
   a. *Developmental Dynamics*
   b. *Journal of the American Society of Nephrology*
2. Manuscript Reviewer
   a. *Developmental Cell*
   b. *Nature Genetics*
   c. *Nature Medicine*
   d. *Science*
   e. *Development*
   f. *Proceedings of the National Academy of Sciences*
   g. *Developmental Dynamics*
   h. *Developmental Biology*
   i. *Journal of the American Society of Nephrology*
   j. *American Journal of Physiology*
   k. *Journal of Clinical Investigation*
   l. *Molecular and Cellular Biology*
   m. *Genes & Development*
   n. *Kidney International*
   o. *Journal of Cell Biology*
   p. *American Journal of Pathology*

B. INVITED LECTURES/SEMINARS
1. What Makes a Renal Epithelial Stem Cell? The Kidney: Development, Repair, and Regeneration. Kidstem International Conference, Liverpool, UK, September 17, 2008.
2. Epigenetics and Renal Development: From Flies to Mice and Back, McGill Cancer Center, McGill University, Montreal, Canada, October 9, 2008.
3. Epigenetics and Renal Development: From Flies to Mice and Back, Keynote Address, Harvard Stem Cell Institute Kidney Disease Program Colloquim, Boston, MA., January 21, 2009
4. The Specifications and Maintenance of Renal Cell Types by Epigenetic Factors, O'Brien Renal Center, Washington University, St. Louis, MO, Aprill 29, 2009.
5. Molecular Regulations of Renal Epithelial Stem Cells, World Congress of Nephrology, Milan Italy May 25, 2009
.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Societyof Nephrology
2. Society forDevelopmental Biology
3. University of Michigan Comprehensive Cancer Center
4. Center forOrganogenesis, University of Michigan

D. HONORS AND AWARDS
1. PATENTS
   a. Procedure for the Differentiation of Stem cells into Renal Epithelial Cells. US Patent Application No.60/700234

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. **Dressler, G.R.** (2008) Another Niche for Notch. *Kidney Int.* 73, 1207-1209.
2. **Dressler, G.R.** (2008) Epigenetics, development, and the kidney. *J. Am. Soc. Nephrol.* 19, 2060-2067.
3. Fang, M., Ren, H,, Liu, J., Cadigan, K.M., Patel, S.R. and **Dressler, G.R.** (2009) Drosophila PTIP is essential for anterior/posterior patterning in development and interacts with the PcG and TrxG pathways. *Development* 136, 1929-1938.
4. Wu, J., Prindle, M.J., **Dressler, G.R.** and Yu, X. (2009) PTIP regulates 53BP1 and phospho-ATM accumulation at the DNA damage sites. *J. Biol. Chem.* 284, 18078-18084.
5. Kim, D. Patel, S.R., Xiao, H. and **Dressler, G.R.** (2009) An essential role for PTIP in maintaining embryonic stem cell pluripotency. *Stem Cells*, July in press.
6. **Dressler, G.R.** (2009) The specification and maintenance of renal cell types by epigenetic factors. *Organogenesis*, in press.
7. **Dressler, G.R.** (2009) New insights into kidney specification and development. *Development*, in press.

B. BOOKS/CHAPTERS IN BOOKS
1. **Dressler, G. R.** (2009) Cell lineages and stem cells in the embryonic kidney. In: Essentials of Stem Cell Biology (R. Lanza, ed.), 2nd edition, Elsevier Science, San Diego, CA, p227-236.

Colin S. Duckett, Ph.D.

Associate Professor of Pathology
Associate Professor, Mechanisms of Disease Program

I. Clinical Activities – None

II. Teaching Activities

A. GRADUATE STUDENTS

1. Graham Brady, MSTP Student, Pathology Program

B. HOUSE OFFICERS AND FELLOWS

1. Stefanie Galbán, Ph.D., Postdoctoral Fellow
2. Kristin Landis-Piwowar, Ph.D., Postdoctoral Fellow
3. Kelly Walkovich, M.D., Fellow, Pediatric Hematology/Oncology

C. LECTURES

1. Pathology 852
2. Pathology 581
3. Course Director, Immunology 815
4. Postdoctoral Research Training Program
5. Immunology 851
6. Course Director, Cancer Biology 553

III. Research Activities

A. SPONSORED SUPPORT

1. NIGMS, R01 GM067827-01, (PI) 30% effort, "Control of Apoptosis and Signaling by XIAP", 2005 - 2010, $175,770 per annum, $883,080 total direct costs.
2. The American Asthma Foundation Program for Asthma Research, Senior Investigator Award, (PI) 0% effort, "IAP Proteins as Novel Molecular Targets for the Treatment of Asthmatic Diseases," 2007 - 2010, $150,000 per annum, $450,000 total direct costs.

3. FELLOWSHIP AWARDS SERVINGS AS MENTOR
   a) DOD, "The role of X-linked Inhibitor of Apoptosis in Breast Cancer", $30,000 per annum, $90,000 total direct costs.
   b) DOD, "Role of the XIAP-copper axis in prostate cancer", $30,000 per annum, $90,000 direct costs.

B. PENDING PROJECTS
1. NIH/NHLBI, R01 RCA142809A-01 (PI) 25% effort, "Signal Transduction Pathways in CD30-positive Lymphomas".

C. PROJECTS UNDER STUDY
1. X-linked IAP (XIAP) as a regulator of apoptosis
2. XIAP in cancer
3. E3 ubiquitination properties of XIAP
4. Caspase-independent signaling properties of XIAP
5. X-linked lymphoproliferative disorder (XLPD) and XIAP
6. Role of XIAP in copper homeostasis and metabolism
7. c-IAPs: Key intracellular signaling molecules with diverse roles in neoplasia and inflammation
8. IAP antagonists: Apoptotic sensitizers and signaling modulators

IV. Administrative Activities

A. DEPARTMENTAL
1. Pathology Graduate Program, Prelim Committee

B. INSTITUTIONAL
1. Associate Director, Molecular Mechanisms of Disease Program
2. Co-Director, Division of Cancer Cell Biology, Comprehensive Cancer Center
3. Course Director, Cancer Biology 553 Training Course
4. Immunology Graduate Program, Graduate Student Affairs Committee
5. Immunology Graduate Program, Prelim Committee
6. Immunology Graduate Program, Curriculum Review Committee
7. Cellular and Molecular Biology Graduate Program, Prelim Committee

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Scientific Advisory Board, Aegera Therapeutics
2. NIH Cellular and Molecular Immunology -B Study Section
3. Selected Member of the 2007-2009 Defense Science Study Group (DSSG) Administered by the Institute for Defense Analyses (IDA), sponsored by the Defense Advanced Research Projects Agency (DARPA)
4. Ad hoc Reviewer, Cancer Research UK Science Funding Committee

5. Ad hoc Reviewer, Breakthrough Breast Cancer Research Center Program (UK)
6. Ad hoc Reviewer, NIH ZRG OBT-A (58) ARRA (Challenge Grant) Special Emphasis Panel
7. Ad hoc Reviewer, NIH Tumor Cell Biology (TCB) Study Section
8. Consultant, Science and Technology Division, Institute for Defense Analyses, Alexandria, VA
9. Consultant, Joint Advanced Warfighting Division, Institute for Defense Analyses, Alexandria, VA

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Associate Editor: *Biochemical Journal*
2. Editorial Board: *Cell Death and Differentiation*
3. Ad hoc Reviewer (selected journals shown)
   a) *Cancer Cell*
   b) *Cell*
   c) *Cell Death and Differentiation*
   d) *Current Biology*
   e) *Developmental Cell*
   f) *EMBO Journal*
   g) *EMBO Reports*
   h) *Genes and Development*
   i) *Immunity*
   j) *Journal of Clinical Investigation*
   k) *Molecular Cell*
   l) *Nature Cell Biology*
   m) *Nature Reviews Cancer*
   n) *Nature Reviews Molecular Cell Biology*
   o) *Oncogene*
   p) *Proceedings of the National Academy of Sciences USA*
   Science

B. INVITED LECTURES/SEMINARS

1. "Diverse intracellular roles of IAP proteins in hematopoietic signaling," Duke University Medical Center, Durham, NC, September 9, 2008.
2. "Signal transduction pathways utilized by CD30, a Hodgkin's/ALCL associated cell surface receptor. Burnham Institute for Medical Research, La Jolla, CA, April 27, 2009.
3. "IAP proteins as novel molecular targets for the treatment of asthmatic disease." American Asthma Foundation Annual Meeting, San Francisco, CA, May 15, 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Association for Cancer Research
2. American Society of Cell Biology
3. American Society of Microbiology
4. American Society for Biochemistry and Molecular Biology
5. American Association for the Advancement of Science
6. American Gastroenterological Association
7. Biochemical Society

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Bauler, L.D, J.M., **Duckett, C.S.** and O'Riordan, M.X.D. XIAP regulates cytosol-specific innate immunity to Listeria infection. *PLOS Pathogens* **4**:e1000142, (2008).
2. Rumble, J.M., Bertrand, M.J.M., Csomos, R.A., Wright, C.W., Albert, L., Mak, T.W., Barker, P.A. and **Duckett, C.S.** Apoptotic sensitivity of murine IAP-deficient cells. *Biochem J.* **415**:21-25, (2008).
3. Wright, C.W. and **Duckett, C.S.** New insights into the function of IAP proteins: modulation of the MYC/MAX/MAD network. *Dev. Cell* **14:**3-4, (2008).
4. O'Riordan, M.X.D., Bauler, L.D., Scott, F.L. and **Duckett, C.S.** Inhibitor of apoptosis (IAP) proteins in eukaryotic evolution and development: a model of thematic conservation. *Dev. Cell* **15**:497-508, (2008).
5. Rumble, J.M. and **Duckett, C.S.** Diverse functions within the IAP family. *J. Cell. Sci*. **121**:3505-3507, (2008).
6. Galbán, S., Brady, G.F. and **Duckett, C.S.** Caspases and IAPS: A dance of death ensures cell survival. *Mol. Cell* **32:**462-463, (2008).
7. Wright, C.W. and **Duckett, C.S.** ARNT modulates CD30-mediated NF- k B transactivation through regulation of RelB. *Science* 323:251-255, (2009).
8. Galbán, S., Hwang, C., Rumble, J.M., Oetjen, K.A., Wright, C.W., Boudreault, A., Durkin, J., Gillard, J.W., Jaquith, J.B., Morris, S.J. and **Duckett, C.S.** Cytoprotective effects of IAPs revealed by a small molecule antagonist. *Biochem J*. **417**:765-771, (2009).
9. Csomos, R.A., Wright, C.W., Galbán, S., Oetjen, K.A. and **Duckett, C.S.** Two distinct signalling cascades target the NF- k B regulatory factor c-IAP1 for Degradation. *Biochem J* **420:**83-91, (2009).
10. Brady, G. F. and **Duckett, C.S.** A caspase homolog keeps CED-3 in check. *Trends Biochem. Sci.* **34**:104-107, (2009).
11. Choi, Y.E., Butterworth, M., Malladi, S., **Duckett, C.S.**, Cohen, G.M., and Bratton, S.B. The E3 ubiquitin ligase CIAP1 binds and ubiquitinates caspases-3 and -7 via unique mechanisms at distinct steps in their processing. *J. Biol. Chem* **284:**12772-12782, (2009).

Kojo S. J. Elenitoba-Johnson, M.D.

Professor of Pathology
Director of Translational Pathology
Director of Molecular Diagnostics Laboratory

I. Clinical Activities

A. MOLECULAR DIAGNOSTICS LABORATORY
1. Director of Laboratory
2. Signout Molecular Diagnostics Lab - 16 weeks
3. Development and implementation of new molecular tests - (8 new tests)

B. HEMATOPATHOLOGY CONSULT SERVICE – 5 weeks

II. Teaching Activities

A. UNDERGRADUATE STUDENTS
1. Eric Poole, MedSOAR Program

B. GRADUATE STUDENTS
1. Bioinformatics 551 Course Lecturer
2. Chunchao Zhang, Ph.D. Preliminary Exam Committee - Bioinformatics Program

C. HOUSE OFFICERS AND FELLOWS
1. Sign-out teaching of Pathology House Officers and Hematopathology Fellows
2. Resident slide conference
3. Postdoctoral fellows
4. Molecular Genetic Pathology Program
5. Molecular Genetic Pathology Internal Review
6. Molecular Genetic Pathology Program Accredidation Site Visit

D. LECTURES
1. Lectures to Pathology House Officers in Anatomic and Clinical Pathology
2. Lectures to Hematopathology Fellows

III. Research Activities

A. SPONSORED SUPPORT

1. NIH/DHHS/PHS R01 grant (PI), "Mass Spectrometry-driven systems biologic analysis of Salivary MALT Lymphoma: A systems Approach to Salivary Gland Biology" 2008-2012, $1,545,000 total direct costs.
2. NIH/DHHS/PHS R01 Grant (PI) "Proteomic analysis of api2-MALT1 postitve gastric MALTl lymphoma" 2009 – 2014, $1,436,205 total direct costs.
3. Leukemia and Lymphoma Society of America, SCOR, (Director, Mass Spectrometry Based Proteomics Core) "Consortium for the study of chromatin biology and epigenetic targeting in hematological malignancy". 2007-2012 $50,000 annual direct costs.
4. NIH/NDHHS/PHS R21Grant (Co-I) "Sjogren's syndrome associated salivary gland lymphomagenesis" 2008-2010 $159,957 annual direct costs.
5. NIH/DHHS/PHS R01 Grant (Co-I) "Converting an oncogene to an apoptotic factor by manipulating signal sequences." 2008-2012, $207,000 annual direct costs.
6. University of Michigan Cancer Center Discovery Research Fund, (PI) "IGF1R as target for transformed follicular lymphoma therapy". 2008-2009, $49,000.

B. PENDING PROJECTS

1. NIH/DHHS/PHS. RC1 Grant (PI) "Integrated Mass Spectrometry-Based System for Identification of SCF Ubiquitin Ligase Substrates".
2. NIH/DHHS/PHS S10 Grant (PI) "Purchase of a high throughput 2D-LC MALDI TOF/TOF mass spectrometer system".
3. NIH/DHHS/PHS RC1 grant (PI) “Simple reader-free platform for identification of recurrent chromosomal fusions in cancer”.
4. NIH/DHHS/PHS RC2 grant (PI) "Glycoproteomic Profiles of Human Malignant Lymphomas".
5. NIH/DHHS/PHS R01grant (PI Lim, Co-I) "Proteomic Biomarkers of ALK positive anaplastic large cell lymphoma".
6. NIH/DHHS/PHS R01grant (PI Duckett, Co-I) "Signal transduction pathways in CD30-positive Lymphomas".
7. NIH/DHHS/PHS R01grant (PI Paulson, Co-I) "Integrating Quality Control: Studies of CHIP in Age-related Neurodegeration".
8. NIH/DHHS/PHS R01grant (PI Paulson, Co-I) "Mechanisms of Polyglutamine Neurodegeneration".
9. NIH/DHHS/PHS.S10 Grant for High-End Instrumentation "Helicos Genetic Analysis System" (P.I. Palanisamy, Co-I).

C. PROJECTS UNDER STUDY

1. Biologic events underlying lymphoma pathogenesis and progression

2. Identification of protein substrates of ubiquitin ligases involved in cell cycle deregulation and cancer pathogenesis
3. Development of novel mass spectrometry-based proteomics techniques for large scale interrogation of complex mixtures
4. Novel molecular technologies for molecular diagnosis of hematopoietic malignancies
5. Identification deregulation of deregulated candidates for growth factor receptors in lymphoma therapy
6. Proteomic profiling of human malignant lymphomas

IV. Administrative Activities

A. DEPARTMENTAL

1. Director -Division of Translational Research Mass spectrometry-based Proteomics Resource
2. Director -Molecular Diagnostics Laboratories
3. Director - Molecular Genetic Pathology Fellowship Training Program
4. Interviewer - Candidates for faculty, fellows, house officer and postdoctoral positions.

B. INSTITUTIONAL

1. Member, Pathology - Program in Biomedical Sciences (PIBS)
2. Member, Program in Cell and Molecular Biology
3. Member, Michigan Comprehensive Cancer Center
4. Michigan Cancer Center Pilot grant review committee
5. MICHR Executive Committee Member

C. REGIONAL/NATIONAL/INTERNATIONAL

1. Chairman, Hematopathology Division, Association for Molecular Pathology (AMP)
2. Scientific Advisory board, Lymphoma Research Foundation
3. Association for Molecular Pathology Abl Mutation Working Committee (AMP)
4. Food and Drug Administration (FDA) Medical Devices Advisory Committee Panel on Molecular/Clinical Genetics Devices

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Associate Editor, *Journal of Hematopathology*
2. Reviewer
   a. *Journal of Pathology*
   b. *Proteomics Journal*
   c. *BLOOD*
   d. *Cancer Research*
   e. *American Journal of Pathology*
   f. *American Journal of Surgical Pathology*
   g. *American Journal of Clinical Pathology*

h. Modern Pathology
i. *Cancer*
j. American Journal of Hematology
k. Journal of Molecular Diagnostics
l. Molecular Diagnostics and Therapy
m. Proteomics
n. Association for Molecular Pathology (2008), Abstract Reviewer

B. INVITED LECTURES/SEMINARS

1. Mass spectrometry-Based Proteomics in Pathology Research, Invited Presenter, 18th Annual Symposium on Molecular Pathology, Beaumont Hospital. Troy, MI, September 2, 2008.
2. Convener, Symposium Organizer and Speaker: International Academy of Pathology, Proteomics Symposium. Athens, Greece, October 14, 2008.
3. Invited Presenter, National Cancer Institute, Translational Science Meeting, Washington, DC, Washington, DC, November 7-9, 2008.
4. Invited Speaker, New York University Cancer Institute Seminar Series - Molecular pathogenesis of follicular lymphoma transformation, New York, NY, November 12, 2008.
5. Invited Speaker New York University, Department of Pathology. Mass spectrometry-driven proteomics. New York, NY, November 13, 2008.
6. Invited Speaker, University of Nebraska Medical Center, Omaha, Nebraska. Omaha, NE, December, 2008.
7. Proteomics for Pathologists, USCAP Short Course, Boston, MA, March 11, 2009.
8. Visiting Professor at Washington University, School of Medicine, Department of Pathology: Molecular Pathogenesis of Follicular Lymphoma Transformation. St. Louis, MO. May 11, 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. Member, A. James French Society
2. Michigan Society of Pathologists
3. American Society of Clinical Pathology
4. United States and Canadian Academy of Pathologists
5. Association of Molecular Pathologists
6. American Society of Hematology
7. American Society for Investigative Pathology
8. American Society for Biochemistry and Molecular Biology
9. Lymphoma Research Foundation

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Balague-Ponz O, Ott G, Hasserjian RP, **Elenitoba-Johnson KSJ,** de Leval L, de Jong D. Aggressive B-cell Lymphomas. Commentary on the WHO classification of tumors of lymphoid tissues, 2008. *J Hematopathol* (in press).
2. Hasserjian RP, Ott G, **Elenitoba-Johnson KSJ**, Balague-Ponz O, de Jong D, de Leval L. Gray zone lymphomas overlapping with Burkitt lymphoma or classical Hodgkin lymphoma. Commentary on the WHO classification of tumors of lymphoid tissues, 2008. *J Hematopathol* (in press).
3. Ott G, Balague-Ponz O, de Leval L, de Jong D, Hasserjian RP, **Elenitoba-Johnson KSJ**. Indolent B-cell lymphomas. Commentary on the WHO classification of tumors of lymphoid tissues, 2008. *J Hematopathol* (in press).
4. Frescas D, Guardavaccaro D, Kuchay SM, Kato H, Poleshko A, Basrur V, **Elenitoba-Johnson KS**, Katz RA, Pagano M. KDM2A represses transcription of centromeric satellite repeats and maintains the heterochromatic state. *Cell Cycle*. 2008 Nov 15;7(22):3479-80. PMCID: PMC2636745.
5. Everton KL, Abbott DR, Crockett DK, **Elenitoba-Johnson KSJ**, Lim MS. Quantitative proteomic analysis of follicular lymphoma cells in response to rituximab. *J. of Chomatogr*. PMID: 19010092.
6. Miles RR, Seiler CE, Smith LB, Teruya-Feldstin J, Hsi ED, **Elenitoba-Johnson KSJ**, Lim MS. Expression of Grb2 distinguishes classical Hodgkin lymphomas from primary mediastinal B-cell lymphomas and other diffuse large B-cell lymphomas. *Hum Pathol* In press.
7. Abbott DR, Abbott RT, Jenson SD, Fillmore GC, **Elenitoba-Johnson, KSJ**, Lim MS. Induction of apoptosis by a Bcl-2 interacting small molecule HA14-1: in vitro study of t(14:18) positive lymphoma cells. *J. of Hematopath*. In press.
8. Lim MS, Carlson ML, Crockett DK, Fillmore GC, Abbott, DR, Elenitoba-Johnson OF, Tripp SR, Rassidakis GZ, Medeiros LJ, Szankasi P, **Elenitoba-Johnson, KSJ**. The proteomic signature of NPM/ALK reveals deregulation of multiple cellular pathways. *BLOOD* In press.
9. Abbott DR, Abbott RT, Jenson SD, Fillmore GC, **Elenitoba-Johnson, KSJ**, Lim MS. Induction of apoptosis by a Bcl-2 interacting small molecule HA14-1: in vitro study of t(14:18) positive lymphoma cells. *J. of Hematopath*. In press.
10. Jones D, Kamell-Reid S, Bahler D, Dong H, **Elenitoba-Johnson KSJ**, et al. Special Article, Laboratory Practice guidelines for Detecting and Reporting BCR-ABL Drug Resistance Mutations in Chronic Myelogenous Leukemia and Acute Lymphoblastic Leukemia. Association for Molecular Pathology, ABL Mutation Working Group, Clinical Practice Committee. *Journal of Molecular Diagnostics*, Vol. 11, No. 1, January, 2009.

B. BOOKS/CHAPTERS IN BOOKS

1. **Elenitoba-Johnson KSJ**. High-thoughput analysis of complex protein mixtures by mass spectrometry. In: High-Throughput Analysis in the Pharmaceutical Industry. Ed (Perry G. Wang) Taylor & Francis, Boca Raton, FL (2008).
2. Lim MS, Miles RR, **Elenitoba -Johnson KSJ.** Proteomics of Human Malignant Lymphoma. In: Molecular Pathology of Hematolymphoid Diseases Ed: Dunphy CH. Springer Inc. (2008).
3. Lim MS, Miles RM, **Elenitoba-Johnson KSJ**. (2009) Proteomics of hematologic malignancies (C. Dunphy ed.) Springer Molecular Hematopathology.
4. **Elenitoba-Johnson KEJ**, Lim MS, Kjeldsberg CR (2009) Practical Hematologic Diagnosis (Kjeldsberg CR ed) American Society of Clinical Pathology Press. Introduction to Non-Hodgkin lymphomas.
5. **Elenitoba-Johnson KEJ**, Lim MS, Kjeldsberg CR (2009) Practical Hematologic Diagnosis (Kjeldsberg CR ed) American Society of Clinical Pathology Press. Mature B-cell neoplasms with primary tissue manifestations.
6. **Elenitoba-Johnson KEJ**, Lim MS, Kjeldsberg CR (2009) Practical Hematologic Diagnosis (Kjeldsberg CR ed) American Society of Clinical Pathology Press. T-cell and NK-cell neoplasms.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Jones D, Kamel-Reid S, Bahler D, Dong H, **Elenitoba-Johnson KSJ**, et al. Special Article, Laboratory Practice guidelines for Detecting and Reporting BCR-ABL Drug Resistance Mutations in Chronic Myelogenous Leukemia and Acute Lymphoblastic Leukemia. Association for Molecular Pathology, ABL Mutation Working Group, Clinical Practice Committee. *Journal of Molecular Diagnostics*, Vol. 11, No. 1, January, 2009.
2. Chiselite MD, Fermin D, Basrur V, Conlon KP, Seiler C, Waxman I, Cairo MS, **Elenitoba-Johnson KSJ**, Lim MS. Quantitative Proteomic Identification of Novel Diagnostic Biomarkers and Therapeutic Targets for Classical Hodgkin Lymphoma. ASH Annual Meeting 2008.
3. Lee H, Shereck E, Cairo MS, Seiler III CE, Basrur V, Fermin D, **Elenitoba-Johnson KSJ**, Lim MS. Proteomic analysis for the identification of disease biomarkers and therapeutic targets in natural killer cell lymphoma. ASH 2008.
4. Fontaine J-M, **Elenitoba-Johnson KSJ**, Lim MS. PI3K/AKT-and JAK3-Dependent Regulation of SKP2 Expression Is Mediated by E2F1 in Anaplastic Large Cell Lymphoma. ASH Annual Meeting 2008.
5. Mankey CC, Tripp S, Perkins SL, **Elenitoba-Johnson KSJ**, Lim MS. Expression of B Cell Signaling Proteins (PLC- ˙ and Grb2) and EBV status correlate with expression of CD20 In classical Hodgkin lymphoma. USCAP Annual Meeting 2009.

6. Chiselite MD, Teruya-Feldstein J, **Elenitoba-Johnson KSJ**, Lim MS. Differential expression of L-plastin in primary mediastinal B-cell lymphoma (PMBCL) and classical Hodgkin lymphoma (HL). USCAP Annual Meeting 2009.
7. Farmen SL, Seiler C, McCallister-Lucas L, Lucas P, Conlon KP, Farmin D, Basrur V, Lim MS, **Elenitoba-Johnson KEJ**. Quantitative Proteomic Analysis of *API2-MALT1* Expression Signature by Isobaric Tags and High-Energy C-TRAQ Dissociation Tandem Mass Spectrometry. USCAP Annual Meeting 2009.
8. Lim MS, Fontaine JM, **Elenitoba-Johnson KSJ**. SKP2 expression is mediated by E2F1 in anaplastic large cell lymphoma. 3rd International Symposium on Childhood, Adolescent and Young Adult Non-Hodgkin Lymphoma, Frankfort, Germany, June 12, 2009.
9. Lim MS, Tygeson J, Seiler C, Crockett DK, Satwani P, Perkins SL, Cairo MS, **Elenitoba-Johnson KSJ**. Proteomic Analysis of Denileukin Diftitox (Ontak) as a Potential Therapeutic Agent for ALCL. 3rd International Symposium on Childhood, Adolescent and Young Adult Non-Hodgkin Lymphoma, Frankfort, Germany, June 12, 2009.
10. Lim MS, Lee H, Shereck E, Cairo MS, Seiler III CE, Basrur V, Fermin D, **Elenitoba-Johnson KSJ**. Identification of biomarkers and therapeutic targets in natural killer cell lymphoma using quantitative mass spectrometry. 3rd International Symposium on Childhood, Adolescent and Young Adult Non-Hodgkin Lymphoma, Frankfort, Germany, June 12, 2009.
11. Waxman I, Xie D, Van de Ven C, Ayello JP, Day N, Papapanou PN, Lim M, Fermin D, Basrur V, Conlon K, **Elenitoba-Johnson KSJ**, Perkins S, Cairo MS. Identification of Altered Protein Expression in Primary Mediastinal B-Cell Lymphoma (PMBL) after Treatment with NF-κB Inhibitor ML120B and Bortezomib (BTZ). Frankfort, Germany, June 12, 2009.
12. El-Mallawany NK, Ayello J, Van de Ven C, Conlon K, Fermin D, Basrur V, **Elenitoba-Johnson K,** Lim M, Cairo M. Global Proteomic Profiling of Endemic versus Sporadic Epstein-Barr Virus (EBV) Positive Burkitt's Lymphoma. Frankfort, Germany, June 12, 2009.

Joseph C. Fantone III, M.D.

Godfrey D. Stobbe Professor in Pathology Education
Director of Pathology Education
Associate Dean for Medical Education

I. Clinical Activities

A. AUTOPSY SERVICE (10 weeks)

II. Teaching Activities

A. MEDICAL STUDENTS

1. Course Director; Pathology Teaching Laboratories
2. Laboratory Instructor; M1 Histopathology
3. Laboratory Instructor; M2 Pathology Labs
4. Lecturer and small group leader; M1 Immunology Course
5. Small group leader, M1 & M2 Longitudinal Cases
6. Medical Student Advisor (3rd and 4th year)

B. DENTAL STUDENTS

1. Lecturer, Dental Pathology IMS-1 Course

C. HOUSE OFFICERS AND FELLOWS

1. Director; Resident Training Program
2. Resident teaching, Autopsy Service

III. Research Activities

A. SPONSORED SUPPORT

1. NIH Cellular and Molecular Biology in Pediatrics Training Program, Steering Committee, 3% effort, 9/30/98 – 4/30/13, $299,922 annual direct costs.
2. Co-investigator: Proposal for the Center of Medical Education at Peking Union Medical College, China Medical Board, 2009-2010.

B. PROJECTS UNDER STUDY
1. Outcomes measures of undergraduate medical education
2. Curriculum development in medical student education

IV. Administrative Activities

A. DEPARTMENTAL
1. Director, Pathology Educational Programs
2. Director, Resident Training Program
3. Department ACAPT Committee
4. Faculty Sexual Harassment Contact Person

B. INSTITUTIONAL
1. Associate Dean for Medical Education
2. CD/ACD Education Committee (Chair)
3. Curriculum Policy Committee (Chair)
4. Medical Student Basic Science Academic Review Board (Chair)
5. Medical Student Clinical Academic Review Board (Chair)
6. Medical School Academic Hearing Committee (Chair)
7. Faculty Group Practice, Finance Committee
8. Co-director, Open Educational Resources (OER) program
9. ENCORE Planning Group: 2008-present
10. Provost Forum on Education and Assessment, 2009

C. REGIONAL/NATIONAL/INTERNATIONAL
1. National Board of Medical Examiners: Member
2. USMLE, Step 1 IRC Test Committee
3. USMLE, Strategic Planning Committee
4. USMLE, International Collaborations Advisory Committee
5. ACGME: Pathology Residency Review Committee: Consultant
6. Pathology Resident Directors Committee (PRODS)

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. USMLE Stemmler Fund Review Committee

B. INVITED LECTURES/SEMINARS
1. Invited Speaker, PUMC Medical Education Reformation Symposium. Peking Union Medical College, Beijing, China, 2009.
2. University of Michigan: Michigan-China University Leadership Forum, May, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Association of Investigative Pathologists
2. American Association for the Advancement of Science
3. The United States and Canadian Academy of Pathology
4. American Association of Immunologists
5. American Medical Association

D. HONORS AND AWARDS
1. National Board of Medical Examiners Edithe J. Leavit Distinguished Service Award (2008)

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Kumagai, A**.**K., White, C.B., Ross, P.T., Perlman, R.L**., Fantone, J.C**. Impact of facilitation of small group discussions of psychosocial topics in medicine on faculty growth and development. *Academic Medicine*, 2008; 83:976-981.
2. White, C.B., Kumagai, A.K**.**, Ross, P.T., and **Fantone, J.C**. A qualitative exploration of how the conflict between the formal and informal curriculum influences student values and behaviors. *Academic Medicine*, 2009; 84, 597-603.

Eric R. Fearon, M.D., Ph.D.

Emanuel N. Maisel Professor of Oncology
Professor of Internal Medicine, Human Genetics and Pathology
Associate Director and Deputy Director for Basic Science, U of M Comprehensive Cancer Center

I. Clinical Activities – None

II. Teaching Activities

A. MEDICAL STUDENTS

1. Medical School Interviews
2. Medical Admissions Executive Committee
3. Medical Scientist Training Program – interviewed prospective MSTP students

B. GRADUATE STUDENTS

1. Andrew Kaczorowski; CMB Thesis Student; May 1, 2006 - August 31, 2008
2. Tamar Feinberg; PIBS Rotation Student; July 1 - September 30, 2008
3. Aaron Burberry, PIBS Rotation Student, January 5 - April 30, 2009

C. LECTURES

1. Pathology 582 - Nov 17, 19, 24, 26, 2008 (1 hr lecture/seminar)
2. Pharmacology 502 - Spring 2008 (1.5 hr/seminar X 6 weeks)
3. Cancer Biology 553 - October 14, 2008 (1.5 hr/seminar)
4. Pathology 582 - November 17, 19, 24, 26 and December 1, 2008 (1 hr/lecture/seminar)
5. Pharmacology 502 – Spring 2009 (1.5 hr/seminar X 6 weeks)

III. Research Activities

A. SPONSORED SUPPORT

1. NIH/NCI 2 P30 CA46592-21; (PI - Wicha, Fearon - salary support only) 25% effort, “University of Michigan Comprehensive Cancer Center Core Grant"; Basic Sci Dir & Dep Dir. 6/1/06 - 5/31/11, $3,261,927 total direct costs.
2. NIH/NCI 2 P30 CA46592-21; (PI - Wicha, Fearon - salary support only) 5% effort, "University of Michigan Comprehensive Cancer Center Core Grant"; Program Co-Leader 6/1/06 - 5/31/11, $3,261,927 total direct costs.
3. NIH/NCI 1RO1 CA82223-10; (PI - Fearon) 20% effort, "CDX-2 Tumor Suppressor Pathway Defects in Colon Cancer", 08/15/99 - 05/31/10, No cost extension.
4. NIH/NCI 1 RO1 CA85463-09; (PI – Fearon) 20% effort, "The Role of Beta-catenin/Tcf Pathway Defects in Cancer", 06/01/00 - 05/31/10, $181,340 year 10 direct costs.

5. NIH/NCI 2R01 CA94172-06; (PI - Cho, Fearon Co-I, salary support only) 2.5% effort, "Molecular Pathogenesis of Ovarian Endometrioid Adenocarcinomas (OEAs)", 07/01/07 - 06/30/12, $187,250 year 8 direct costs.
6. NIH/NCI 1R01 C116516-02A1; (PI - Weiss, Fearon Co-I, salary support only) 5% effort, "Snail-Dependent Regulation of EMT in Cancer", 09/20/06 - 07/31/11, $159,750 annual direct costs.
7. NIH/NCI 2 P50 CA093990-07A1; (PI - Ross, Fearon - salary support only) 5% effort; “In Vivo Imaging of Neoplasia”, 09/22/08 - 03/31/13, $1,961,165 annual costs.
8. NIH/NCI U54 CA136429-01; (PI - Wang, Fearon - salary support only) 5% effort; “In Vivo Detection of Neoplasia in the Digestive Tract”, 10/01/08 - 01/30/13, $63,763 (Project 1).
9. DOD W81XWH-09-2-0014; (PI - Wicha, Fearon - Project Leader, Project #1) 5% effort; “National Functional Genomics Center”, 03/25/09 - 04/24/10, $267,776 direct costs for Project #1.

B. PENDING PROJECTS
1. NIH/NCI 2RO1 CA082223-11; (PI - Fearon) 15% effort, “CDX2 Tumor Suppressor Pathway Defects in Colon Cancer”, 04/01/11 - 05/31/15, $250,000 annual direct costs.

IV. Administrative Activities

A. INSTITUTIONAL
1. Assoc Dir Basic Sci and Deputy Dir, Univ Michigan Comp Cancer Ctr
2. Prog Co-leader, Cancer Genetics, Univ Michigan Comp Cancer Ctr
3. Chair, University of Michigan Biological Sciences Program Search Committee
4. Vice-Chair, Admissions Executive Committee, University of Michigan School of Medicine
5. Member, CTSA Initial Review Group
6. Member, Admissions Committee, University of Michigan School of Medicine
7. Member, University of Michigan School of Medicine Space Policy Committee
8. Member, Strategic Research Committee
9. Member, University of Michigan School Chair Search Committee
10. Member, Internal Medicine Chair Search Committee
11. Member, Executive Vice President for Medical Affairs (EVPMA) Search Committee
12. Member, ULAM Oversight Advisory Committee
13. Member, Associate Director of Clinical Research Search Committee, UM Cancer Ctr.
14. Co-Chair, UM Research Assessment Team
15. Member, University of Michigan Medical School North Campus Expansion Research Planning Committee

B. REGIONAL/NATIONAL/INTERNATIONAL
1. External Advisory Committee, Mayo Cancer Center
2. External Advisory Committee (Chair), UT-Southwestern & UT-MD Anderson Cancer Center Lung Cancer SPORE
3. Clinical Science Program External Advisory Committee, Fred Hutchinson Cancer Research Center
4. Scientific Advisory Committee, Fox Chase Cancer Center
5. External Scientific Advisory Committee, Norris Cotton Cancer Center, Dartmouth Medical School

6. External Scientific Advisory Board, Albert Einstein College of Medicine Cancer Center
7. External Advisory Board, Herbert Irving Cancer Center at Columbia University
8. Vanderbilt-Ingram Cancer Center, Jim Ayers Institute for Precancer Detection and Diagnosis

V. Other Relevant Activities

A. EDITORIAL BOARDS
1. *Cancer Research*
2. *Current Biology*
3. *Clinical and Translational Science*
4. *Genes Chromosomes and Cancer*
5. *Journal of Biological Chemistry*
6. *Journal of Clinical Investigation*
7. *Laboratory Investigation*
8. *Molecular Cancer Research Neoplasia*
9. *Translational Oncology*

B. INVITED LECTURES/SEMINARS
1. "Molecular Pathogenesis of Colorectal Cancer", UT Southwestern Cancer Center Grand Rounds, Southwestern Medical Center, Dallas TX; September 5, 2008.
2. "Molecular Pathogenesis of Colorectal Cancer", Wayne State Medical School, Department of Pharmacology Research Seminar, Detroit MI; October 10, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Society for Clinical Investigation
2. Association of American Physicians
3. American Association for the Advancement of Science
4. American Association for Cancer Research

D. HONORS AND AWARDS
1. Co-organizer, January 2009 Keystone Symposium on "Emerging Themes in Tumor Suppressors: Function and Clinical Implications in the Post-Genomic Era"

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Whiteman EL, Liu CJ, **Fearon ER**, Margolis B. The transcription factor snail represses. Crumbs3 expression and disrupts apico-basal polarity complexes. *Oncogene* 2008 27:3875-9.
2. Akyol A, Hinoi T, Feng Y, Bommer GT, Glaser TM, **Fearon ER**. Generating somatic mosaicism with a Cre recombinase-microsatellite sequence transgene. *Nat Methods*. 2008 Mar;5(3):231-3.
3. Sangha N, Wu R, Kuick R, Powers S, Mu D, Fiander D, Yuen K, Katabuchi H, Tashiro H, **Fearon ER**, Cho KR. Neurofibromin 1 (NF1) defects are common in human ovarian serous carcinomas and co-occur with TP53 mutations. *Neoplasia* 2008, 10:1362-72.
4. Rowe RG, Li XY, Hu Y, Saunders TL, Virtanen I, Garcia de Herreros A, Becker KF, Ingvarsen S, Engelholm LH, Bommer GT, **Fearon ER**, Weiss SJ. Mesenchymal cells

reactivate Snail1 expression to drive three-dimensional invasion programs. *J Cell Biol* 2009 184:399-408.

5. Wang L, Heidt DG, Lee CJ, Yang H, Logsdon CD, Zhang L, **Fearon ER**, Ljungman M, Simeone DM. Oncogenic function of ATDC in pancreatic cancer through Wnt pathway activation and beta-catenin stabilization. *Cancer Cell* 2009 15:207-19.
6. Vilar E, Mukherjee B, Kuick R, Raskin L, Misek DE, Taylor JM, Giordano TJ, Hanash SM, **Fearon ER**, Rennert G, Gruber SB. Gene expression patterns in mismatch repair-deficient colorectal cancers highlight the potential therapeutic role of inhibitors of the phosphatidylinositol 3-kinase-AKT-mammalian target of rapamycin pathway. *Clin Cancer Res* 2009 15:2829-39.

B. BOOKS/CHAPTERS IN BOOKS

1. **Fearon ER**, Bommer GT. Progressing from gene mutations to cancer. In: Abeloff M, Armitage J, Niederhuber J, Kastan M, McKenna G, eds. *Clinical Oncology*. 4th Edition. Philadelphia: Elsevier, 2008, pp. 207-222.

David O. Ferguson, M.D., Ph.D.

Assistant Professor of Pathology

I. Clinical Activities

A. BOARD CERTIFIED IN CLINICAL PATHOLOGY - 2002

B. MOLECULAR DIAGNOSTICS (15% effort)

II. Teaching Activities

A. GRADUATE STUDENTS

1. Doctoral committee (6 hours total)
   a. Devin Horton (CMB)
   b. Ryan Ragland (Genetics)
   c. Mike Steinbaugh (CMB)
2. Chair - Preliminary exam committee - Molecular and Cellular Pathology Graduate Program, 19 hours total (3-4 hours per student)
   a. John Prenser (4 hours)
   b. Bryon Peterson (4 hours)
   c. Matt Smith (4 hours)
   d. Matt VanBeek (3 hours)
   e. Peng Zhang (4 hours)
   f. Ting Yu (4 hours)
3. Program Committee Member - Cellular and Molecular Biology Program (2 hours per month)
4. CMB curriculum sub-committee faculty co-chair (2 hours total).
5. Graduate Students in Research Laboratory
   a. Todd Festerling (Toxicology) 2 years
   b. Elizabeth Spehalski (MCP) 1 year
   c. Aaron Burberry 1.5 months

B. HOUSE OFFICERS AND FELLOWS

1. Resident Training
   a. Molecular Diagnostics (6 contact hours per month)

2. Postdoctoral Fellows (Full time lab members)
    a. Yipin Wu Ph.D. (4 years)
    b. Jeffrey Buis Ph.D. (2 years)
    c. Maria Dinklemann Ph.D. (2 years)

C. LECTURES
1. Pathology 581 (1 hour)
2. Pathology 850 - graduate student seminar "feedback teaching" (2 hours)
3. CMB 850 - graduate student seminar "feedback teaching" (2 hours)

III. Research Activities

A. SPONSORED SUPPORT
1. NIH/NHLBI R01 5-HL079118-05 (Ferguson) 50% effort, Roles of Mre11 in lymphocyte development and DNA repair, 4/1/2005 - 3/31/2010, $250, 000 annual direct costs.
2. NIH R21 AI068749-02 (Dunnick) 5% effort, Normal and Aberrant Switch Recombination to the Murine Alpha Heavy Chain Gene, 9/17/2007 - 8/31/2009 $186,880 annual direct costs.
3. Leukemia and Lymphoma Society Scholar Award (Ferguson), 9/1/2009 - 8/31/2014, $110,000 annual direct costs.

B. PENDING PROJECTS
1. R01 5-HL079118 ARRA supplement
2. NIH/NHLBI R01 5-HL079118-05 (Ferguson) 50% effort, 4/1/2010 - 3/31/2015 Competitive Renewal.
3. NIH/NCI R01 CA082223-11 (Fearon) 5% effort, CDX2 Tumor Suppressor Pathway Defects in Colon Cancer, 07/01/2009 - /30/2014.

C. PROJECTS UNDER STUDY
1. Roles of Mre11 in lymphocyte development and DNA repair
2. To investigate roles of Mre11 in development through generation of a mouse lines harboring partial loss of function and conditional alleles of Mre11
3. Genomic Instability in Cancer: Mechanisms of Gene Amplification and Roles of Mre11
4. To investigate roles of Mre11 in gene amplification and cancer
5. Roles of the MRN complex in endoreduplication and breast cancer

IV. Administrative Activities

A. DEPARTMENTAL
1. Chair - Pathology graduate program student preliminary exam committee
2. Pathology student recruitment activities (lunch, dinners, poster sessions, meetings)

3. Faculty candidate interviews and recruitment

B. INSTITUTIONAL
1. Member - Program Committee for Graduate Program in Cellular and Molecular Biology
2. Member - Schembechler Adrenal Cancer Program Advisory Board
3. Member, MSTP Advisory Panel
4. Faculty candidate interviews and recruitment (Medicine, Genetics)
5. PIBS student recruiting activities
6. Member, Comprehensive Cancer Center, Division of Cancer Genetics

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Ad hoc reviewer
   a. *Nature*
   b. *Cell*
   c. *Molecular and Cellular Biology*
   d. *Molecular Cell*
   e. *PLOS Genetics*

B. INVITED LECTURES/SEMINARS
1. Washington University in St. Louis; DNA Repair Seminar Series. St. Louis, MO.
2. University of Michigan Department of Pathology Seminar.
3. FASEB Summer Research Conference: DNA Palindromes. Saxtons River, VT.
4. Academy of Clinical Laboratory Physicians & Scientists (ACLPS). 43rd Annual Meeting, University of Pennsylvania School of Medicine. Philadelphia, PA.
5. Gordon Conference on Mammalian DNA Repair, Ventura, CA.
6. Keystone Symposium on DNA Repair and Genomic Stability. Taos, New Mexico.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Association for the Advancement of Science
2. Association for Molecular Pathology
3. American Medical Association
4. American Society for Microbiology

D. HONORS AND AWARDS
1. Leukemia and Lymphoma Society Scholar Award

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Buis J, Wu Y, Deng Y, Leddon J, Westfield G, Eckersdorff M, Sekiguchi JM, Chang S, **Ferguson DO**. Mre11 Nuclease Activity has Essential Roles in DNA Repair and Genomic Stability Distinct from ATM Activation. *Cell*. 2008 Oct 3; 135(1):85-96.
2. Giblin W, Chatterji M, Westfield G, Masud T, Theisen B, Cheng HL, DeVido J, Alt FW, **Ferguson DO**, Schatz DG, Sekiguchi J. Leaky severe combined immuno-deficiency and aberrant DNA rearrangements due to a hypomorphic RAG1 mutation. *Blood*. 2009 Mar 26;113(13):2965-75.
3. Else, T, Trovato, A, Kim, AC, Wu, Y, **Ferguson, DO**, Kuick, RD, Lucas, PC, Hammer, GD. Genetic p53 deficiency partially rescues the adrenocortical dysplasia (acd) phenotype at the expense of increased tumorigenesis. *Cancer Cell* 2009 Jun 2;15(6):465-76.
4. Deng, Y, Guo, X, **Ferguson, DO**, Chang, S. Multiple roles for Mre11 at uncapped telomeres. *Nature,* In Press 2009.
5. Dinkelmann,M*, Spehalski* E, Stoneham, T, Buis, J, Wu Y, Sekiguchi JM, **Ferguson DO**. Multiple functions of MRN in end-joining pathways during isotype class switching. *Nature Structural and Molecular Biology*. In Press 2009.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Roles of the MRN Complex in Class Switch Recombination. Midwest DNA Repair Symposium. Oral Presentation, Ann Arbor, MI. May 15 - 17, 2009.
2. Roles of the MRN Complex in Class Switch Recombination. EI Spehalski, M Dinkelmann,T Stoneham, G Westfield, J Sekiguchi, **D O Ferguson**. Keystone Symposia: Genome Instability and DNA Repair, Poster Presentation, Taos, NM, March 1-6, 2009.
3. Roles of the MRN Complex in DNA Repair and Lymphoma. EI Spehalski, M Dinkelmann, T Stoneham, **DO Ferguson**. University of Michigan Pathology Symposium, Poster Presentation, October 17, 2008.

William G. Finn, M.D.

Associate Professor of Pathology
Associate Director, Clinical Pathology Laboratories

I. Clinical Activities

A. ASSOCIATE DIRECTOR, DIVISION OF CLINICAL PATHOLOGY

B. HEMATOPATHOLOGY
1. Director, Clinical Hematology Laboratory
2. Diagnostic Hematopathology (Bone marrow biopsies, lymph nodes, blood smears, body fluids)
3. Hematopathology Consultation Cases (including M-Labs)
4. Hemoglobin analysis interpretation (HPLC/electrophoresis)

C. CLINICAL FLOW CYTOMETRY LABORATORY

II. Teaching Activities

A. MEDICAL STUDENTS
1. M-2 Hematology Sequence: Section leader for laboratory sessions (8 hours)
2. M-2 Hematology sequence: "Pathology and Classification of Lymphoma" (1 hour lecture)

B. DENTAL STUDENTS
1. Dental and Graduate Students: Pathology 580/630: "Pathology of White Blood Cells" (1.5 hour lecture)

C. GRADUATE STUDENTS
1. Ph.D. Dissertation Committee, Kevin M. Carter, Dept of Electrical Engineering and Computer Science (Alfred O. Hero, Ph.D., chair)

D. HOUSE OFFICERS AND FELLOWS
1. Leukemia conference/biweekly
2. Lymphoma conference/weekly

3. Hematology conference/biweekly
4. Sign-out of bone marrow biopsies, aspirates, blood smears, and body fluids in Hematology Laboratory
5. Sign-out of lymph node biopsies and review of hematopathology consultation material
6. Flow Cytometry sign-out
7. Hemoglobinopathy signout
8. Clinical Pathology Grand Rounds
9. Clinical Pathology Case Conference/weekly
10. Hematopathology Education Conference/weekly

E. LECTURES
1. "Myelodysplastic Syndromes." Clinical Pathology Grand Rounds
2. Teaching Fellows to be Laboratory Directors." Hematopathology Education Conference

III. Research Activities

A. PROJECTS UNDER STUDY
1. Analysis of flow cytometry data by embedding on statistical manifolds (collaboration with Prof. Al Hero, EECS)

IV. Administrative Activities

A. DEPARTMENTAL
1. Associate Director of Clinical Pathology
2. Director, Clinical Hematology Laboratory
3. Departmental Advisory Committee on appointment, promotion, and tenure (ACAPT) (pathology) (Henry Appelman, M.D., Chair.)
4. Departmental Residency Selection Committee (Joseph Fantone, M.D., Chair)
5. Pathology Quality Assurance Committee (Jeffrey Warren, M.D., Chair)
6. A. James French Society of Pathologists - Member Board of Directors - Secretary/Treasurer

B. INSTITUTIONAL
1. Member, Hospital Credentialing Committee. (James Ellis, M.D., Chair)

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Board of Directors, American Society for Clinical Pathology
2. Chair, Commission on Membership, American Society for Clinical Pathology
3. American Society for Clinical Pathology Task Force on Transition
4. Immediate Past President, Michigan Society of Pathologists
5. Board of Trustees, Michigan Society of Pathologists
6. Chair, Nominating Committee, Michigan Society of Pathologists

7. Executive Committee, Society for Hematopathology
8. Board of Directors, International Society for Laboratory Hematology
9. Program Committee, International Society for Laboratory Hematology

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Co-Editor-in-Chief, *International Journal of Laboratory Hematology*
2. Editorial Board, *Cytometry Part B: Clinical Cytometry*
3. Editorial Board, *American Journal of Clinical Pathology*
4. Editorial Advisory Board, Laboratory Medicine
5. Ad-hoc, editoral reviewer
   a) *Blood*
   b) *Archives of Patholgy & Laboratory Medicine*

B. INVITED LECTURES/SEMINARS

1. “Problem Cases in Hematopathology." American Society for Clinical Pathology Annual Meeting, Baltimore, MD, October 2008.
2. “Non-Neoplastic Hematopathology of Bone Marrow for the Practicing Pathologist." Educational Course, American Society for Clinical Pathology Annual Meeting, Baltimore, MD, October 2008.
3. "Assessment of Red Blood Cell Morphology." International Society for Laboratory Hematology, XXII International Symposium on Technological Innovations in Laboratory Hematology, Las Vegas, NV, May 11, 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. American Society of Clinical Pathologists
2. Society for Hematopathology
   a) Executive Committee Member-at-Large
3. United States and Canadian Academy of Pathology
4. American Society of Hematology
5. A. James French Society of Pathologists
   a) Member, Board of Directors
   b) Secretary/Treasurer
6. University of Michigan Comprehensive Cancer Center
7. College of American Pathologists
8. Michigan Society of Pathologists
   a) Member, Board of Trustees, Immediate Past President
9. International Society for Laboratory Hematology
   a) Member, Board of Directors

10. International Society for Analytical Cytology (ISAC)
11. Clinical Cytometry Society

D. HONORS AND AWARDS
   1. "Best Doctors in America." Best Doctors, Inc.
   2. Marquis "Who's Who in America"

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
   1. Mitchell KA, **Finn WG**, Owens SR: Differences in germinal center and non-germinal center phenotype in gastric and intestinal diffuse large B-cell lymphomas. *Leuk Lymphoma* 2008; 49(9):1717-1723.
   2. **Finn WG**, Carter KM, Raich R, Stoolman LM, Hero A: Analysis of clinical flow cytometric immunophenotyping data by clustering on statistical manifolds: treating flow cytometry data as high dimensional objects. *Cytometry Part B* 2009; 76B:1-7. (Lead article—featured on journal cover.)
   3. Carter KM, Raich R, **Finn WG**, Hero AO: Information preserving component analysis: data projections for flow cytometry analysis. *IEEE J Sel Top Sign Proces* 2009; 3(1):148-158.
   4. Carter KM, Raich R, **Finn WG**, Hero AO: FINE: Fisher information nonparametric embedding. *IEEE Trans Pattern Anal Machine Intel*, in press.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
   1. Hero AO, Carter K, Raich R, **Finn W**: Method and apparatus for clustering and visualization of multicolor cytometry data. US Patent and Trademark Office, application #20090097733, filed October 1, 2008.
   2. **Finn WG**: Beyond gating: capturing the power of flow cytometry (editorial). *Am J Clin Pathol* 2009; 131:313-314.
   3. **Finn WG**, Carter KM, Raich R, Harrington A, Kroft SH, Hero AO: Flow cytometric evaluation of reactive and dysplastic granulocyte maturation by a novel method of high dimensional data analysis (abstract). Platform presentation, US and Canadian Academy of Pathology Annual Meeting, Boston, 2009. *Mod Pathol* 2009; 22(suppl 1):381A.

Andrew Flint, M.D.

Professor of Pathology

I. Clinical Activities

A. SURGICAL PATHOLOGY ROTATIONS - 11 Months

B. OPHTHALMIC PATHOLOGY SERVICE

C. FROZEN SECTION COVERAGE, CARDIOVASCULAR CENTER

D. THORACIC TUMOR BOARD

E. INTERSTITIAL LUNG DISEASE CONFERENCE

II. Teaching Activities

A. MEDICAL STUDENTS

1. M4 Student elective mentor, May 2008 - October 2008, November 2008 - December 2008, February. 2009 - March 2009, April 2009 - May 2009
2. Course Director, M4 Student Pathology Clerkships, 2008-09
3. Laboratory Instructor, August 2008 - March 2009
4. Pathology Student Tutorials August 2008 - March 2009
5. Medical Students Question and Answer sessions, August 2008 - April 2009
6. Cardiovascular Pathology Lab Review for Medical Students, September 2008
7. Pulmonary Pathology Lab Review for Medical Students, September 2008
8. Musculoskeletal Pathology Lab Review for Medical Students, November 2008
9. Neuropathology Pathology Lab Review for Medical Students, November 2008
10. Introduction to Musculoskeletal Pathology lecture - November 2008
11. Attended CRLT seminars, February 2009, April 2009
12. Gastrointestinal Pathology Lab Review for Medical Students, February 2009
13. Endocrine Pathology Lab Review for Medical Students, March 2009
14. Reproductive Pathology Lab Review for Medical Students, March 2009
15. USMLE Pathology Review, April 2009

B. HOUSE OFFICERS AND FELLOWS
   1. Consult Conference December 2008
   2. Consult Conference May 2009

C. LECTURES
   1. Pulmonary Infections lecture, September 2008
   2. Pulmonary Neoplasms lecture, September 2008
   3. Ophthalmic Pathology April 2009, Pathology 600

III. Research Activities

A. SPONSORED SUPPORT
   1. Investigating Student Learning, Center for Research on Learning and Teaching, University of Michigan (PI) 03/01/08 - 02/28/09, $3,000.
   2. NIH/NHLBI K23 HL077719-01 (PI Lama) Consultant, 0% effort Fibroproliferation in Bronchiolitis Obliterans Syndrome.

B. PROJECTS UNDER STUDY
   1. Histologic predictors of obliterative bronchiolitis in lung transplant patients
   2. Investigating Student Learning in the Pathology Laboratory

IV. Administrative Activities

A. INSTITUTIONAL
   1. Faculty Advisor, Michigan Medical School Community Service Day, May 2009

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
   1. *Journal of Neuro-Ophthalmology*
   2. *Ophthalmic Plastic and Reconstructive Surgery*

B. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
   1. International Association of Medical Science Educators

C. HONORS AND AWARDS
   1. Elizabeth C. Crosby Award, 2009

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
   1. **Flint A** and Elner VM: Problems in the Pathologic Interpretation of Temporal Artery Biopsy Samples. *J. NeuroOphth*. (in press).

2. Koreen IV, **Flint A**, Nelson CC, Frueh BR, Elner VM. Non-diagnostic conjunctival map biopsies for sebaceous carcinoma. *Arch Ophthalmol* (in press).
3. Pribila J, Cornblath W, Ramocki J, Marentette L, **Flint A**, Elner VM. Glomus cell tumor of the orbit. *Arch Ophthalmol* (in press).
4. Elner VM, Newman-Casey PA, Patil AJ, **Flint A**, Moroi SE, Edward DP. Aberrant wound healing response in mitomycin C-treated blebs: a histopathologic study. *Arch Ophthalmol* (in press).

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Walker NM, Badri LN, Ohtsuka T, Thannickal VJ, **Flint A**, Lama VN: Fibrotic Differentiation Potential of Lung Resident Mesenchymal Stem Cells. *Pro Am Thor Soc* 2009; A3680:B97.
2. Lama VN, Badri L, Pinsky DJ, Toews GB, **Flint A**, Ohtsuka T: Engraftment Potential of Lung Resident Mesenchymal Stem Cells. *Pro Am Thor Soc* 2008; 177, A723.

Douglas R. Fullen, M.D.

Associate Professor of Pathology and Dermatology
Director of Histology

I. Clinical Activities

A. DERMATOPATHOLOGY SERVICE - 12 months
1. Dermatopathology Consultation Service - 12 months
2. Immunofluorescence evaluation of skin and mucosal biopsies - 12 months

B. **Teaching Activities**
1. MEDICAL STUDENTS
   a. Dermatopathology, Pathology Clerkship, MS IV
   b. Dermatopathology, Dermatology Clerkship, MS IV

C. HOUSE OFFICERS AND FELLOWS
1. Dermatopathology sign-out (dermatology and pathology residents and dermatopathology fellow)
2. Review of dermatopathology consultation cases
3. Dermatopathology teaching conference (pathology residents - monthly)
4. Dermatopathology teaching conference (dermatology residents - weekly)
5. Dermatopathology lectures for dermatology residents (one lecture)
6. Review of immunofluorescence on skin and mucosal biopsies (interesting cases)

D. LECTURES
1. Cutaneous adnexal tumors, dermatology resident conference, 6/09

E. OTHER
1. Diagnostic Conference, Department of Dermatology (weekly)
2. Multidisciplinary Merkel Cell Carcinoma Tumor Board (bimonthly)

II. Research Activities

A. PENDING PROJECTS

1. IDEA Grant, University of Michigan Cancer Center. HMGA2 is predictive of regional metastases in primary cutaneous melanoma, (PI)

B. PROJECTS UNDER STUDY

1. University of Michigan (UMMC 2000-0713): Molecular, biochemical and cellular basis of melanoma and other melanocytic lesions: Tissue Bank
2. Comparative genomic hybridization and fluorescence in situ hybridization on spitzoid melanocytic tumors
3. Molecular, biochemical and cellular basis of Merkel cell carcinoma
4. Cancer stem cells in melanoma
5. Immunohistochemical analysis of bowenoid transformation in seborrheic keratosis and comparison to Bowen's disease and clonal seborrheic keratosis
6. Diagnostic value of CD33 by immunohistochemistry in leukemia cutis

III. Administrative Activities

A. DEPARTMENTAL

1. Director, Dermatopathology Fellowship
2. Anatomic Pathology Project Funding Committee Member
3. Anatomic Pathology Operations Committee Member

B. INSTITUTIONAL

1. University of Michigan Medical School Admissions Committee Member

C. REGIONAL/NATIONAL/INTERNATIONAL

1. Abstract Review Board Member, Dermatopathology Section, United States and Canadian Academy of Pathology

IV. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Ad hoc reviewer
   a. *Journal of Cutaneous Pathology*
   b. *Journal of the American Academy of Dermatology*
   c. *Cancer*
   d. *Archives of Pathology and Laboratory Medicine*
   e. *Medical Science Monitor*
   f. *British Journal of Dermatology*

B. INVITED LECTURES/SEMINARS
1. "Deep penetrating nevus," Dermatopathology Case Presentation, New Frontiers in Diagnostic Pathology, A. James French Society Meeting, Ann Arbor, MI, September, 2008.
2. "Criteria for diagnosis of pigmented lesions," Slide Conference, Munson Medical Center, Traverse City, MI, May, 2009.
3. "Melanocytic tumors: an update on pathologic reporting, treatment, and future directions," Medical Staff Grand Rounds, Munson Medical Center, Traverse City, MI, May, 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Member, United States and Canadian Academy of Pathology
2. Fellow, American Society of Dermatopathology
3. Member, American Academy of Dermatology
4. Founding Member, Society for Melanoma Research
5. Member, Michigan Dermatological Society

V. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. **Fullen DR**, Garrisi AJ, Sanders D, Thomas D: S100A6 expression in a spectrum of cutaneous tumors using tissue microarrays. *J Cutan Pathol* 35 Supp 2: 28-34, 2008.
2. Pouryazdanparast P, Yu L, Cutlan JE, Olsen SH, **Fullen DR**, Ma L. Diagnostic value of CD163 in cutaneous spindle cell lesions. *J Cutan Pathol* Nov 17 [Epub ahead of print], 2008.
3. Demirci H, Nelson CC, Frueh BR, Musch D, **Fullen DR**, Johnson TM. Management of periocular cutaneous melanoma with a staged excision technique and permanent sections: the "square procedure." *Ophthalmology* 115: 2295-2300, 2008.
4. Quintana E, Shackleton M, Sabel MS, **Fullen DR**, Johnson TM, Morrison SJ. Efficient tumor formation by single human melanoma cells. *Nature* 456: 593-598, 2008.
5. Carvalho J, **Fullen D**, Lowe L, Su L, Ma L. Comparison of CD23 staining patterns in Merkel cell carcinoma and non-cutaneous small cell carcinoma. *J Cutan Pathol* 36: 206-210, 2009.
6. Ludgate MW, **Fullen DR**, Lee J, Lowe L, Bradford C, Geiger J, Johnson TM. The atypical Spitz tumor of uncertain biologic potential: a series of 67 patients from a single institution. *Cancer* 115: 631-641, 2009.
7. Olsen SH, Ma L, Schnitzer B, **Fullen DR**. Clusterin expression in cutaneous CD30-positive lymphoproliferative disorders and their histologic simulants. *J Cutan Pathol* 36: 302-307, 2009.

8. Shackleton M, Quintana E, **Fullen DR**, Sabel MS, Morrison SJ, Johnson TM. Melanoma - do we need a hatchet or a scalpel? *Arch Dermatol* 145: 307-308, 2009.
9. Pouryazdanparast P, Yu L, Johnson TM, **Fullen D**. An unusual squamo-melanocytic tumor of uncertain biologic behavior: a variant of melanoma? *Am J Dermatopathol* (in press).
10. Pouryazdanparast P, Yu L, Dalton VK, Haefner HK, Mandell SH, Cho KR, **Fullen DR**. Intravascular histiocytosis presenting with extensive vulvar necrosis. *J Cutan Pathol* (in press).
11. Cutlan JE, Saunders N, Olsen SH, **Fullen DR**. White sponge nevus presenting as genital lesions in a 28-year-old female. *J Cutan Pathol* (in press).
12. Ludgate MW, **Fullen DR**, Lee J, Rees R, Sabel MS, Wong SL, Johnson TM. Animal-type melanoma: a clinical and histopathological study of 22 cases from a single institution. *Br J Dermatol* (in press).
13. Griffin GR, Munns J, **Fullen D**, Moyer JS. Auricular tophi as the initial presentation of gout. *Otolaryngology-Head and Neck Surgery* (in press).

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Pouryazdanparast P, Yu L, Cho K, Haefner H, **Fullen DR**. Intravascular histiocytosis presenting with extensive vulvar and perineal necrosis. Platform presentation, Duels in Dermatopathology, 45th Annual Meeting, American Society of Dermatopathology, San Francisco, CA, October, 2008.
2. Cutlan JE, Ma L, Lucas DR, Pouryazdanparast P, **Fullen DR**. CD13 and CD14 expression in paraffin sections of normal skin and fibrohistiocytic lesions support bone marrow origin of dermal dendrocytes. Poster presentation, 45th Annual Meeting, American Society of Dermatopathology, San Francisco, CA, October, 2008.
3. Cutlan JE, Saunders N, Olsen SH, **Fullen DR**. White sponge nevus presenting as a genital lesion in a 28-year-old female. Poster presentation, 45th Annual Meeting, American Society of Dermatopathology, San Francisco, CA, October, 2008.
4. Kim D, Mehra R, Han B, Palinsamy N, Dhansekaran SM, Chinnaiyan A, **Fullen DR**. FISH screening reveals recurrent ETV1 amplication in melanoma. Poster presentation, 45th Annual Meeting, American Society of Dermatopathology, San Francisco, CA, October, 2008.
5. Yu L, Pouryazdanparast P, Kim D, Ma L, **Fullen DR**. Evaluation of nodal in melanocytic lesions. Poster presentation, 45th Annual Meeting, American Society of Dermatopathology. San Francisco, CA, October, 2008.
6. Ma L, Kim D, Cutlan J, Ross C, Lim M, **Fullen D**. Diagnostic value of CD33 by immunohistochemistry in leukemia cutis. Platform presentation, United States and Canadian Academy of Pathology Meeting, Boston, MA, March, 2009.
7. Habib L, Cutlan J, Bichakjian C, Reynolds RK, Olsen S, **Fullen D**. Plaque-type syringoma of the vulva. Platform presentation, 12th Joint Meeting, International Society of Dermatopathology, San Francisco, CA, March, 2009.

Jason Gestwicki, Ph.D.

Assistant Professor of Pathology
Research Assistant Professor, LSI

I. Clinical Activities - None

II. Teaching Activities

A. UNDERGRADUATE STUDENTS
1. Anthony Bainor (BioMed. Engineering)
2. Daniel Overbeek (CMB)
3. Han Yiau (Sharon) Seh (UROP)
4. Kamya Sankar (UROP)

B. GRADUATE STUDENTS
1. Paul Marinec (4th year, Mol. Cell. Pathology)
2. Srikanth Patury (4th year, Mol. Cell Pathology)
3. Christopher G. Evans (4th year, Chemical Biology)
4. Jerome Quintero (4th year, Biophysics)
5. Ashley Rienke (3rd year, Biol. Chem.)
6. Lyra Chang (3rd year, Chemical Biology)
7. Yohinari Miyata (2nd year Chemical Biology)
8. Matthew Smith (2nd year Mol. Cell. Pathology)
9. Andrea Thompson (2nd year, Chemical Biology and MSTP)

C. POSTDOCTORAL FELLOWS
1. Susanne Wisen, Ph.D.
2. Gladis M. Walter, Ph.D.

D. LECTURES
1. CHEMBIO 502 (12 contact hrs, 23 students, course coordinator)
2. MCDB 408 (3 contact hrs, 25 students)
3. ANAT 504 (6 contact hrs, 21 students)
4. PATH 582 (6 contact hrs, 7 students)

E. RESEARCH ROTATIONS
1. Garrett Gibbons (Mol. Cell. Pathology)
2. Christopher Walzcak (Biol. Chem.)
3. Malloree Tarnowski (Pharmacology)
4. Brian DeVrees (Chem. Biol.)

5. Claudia McDonald (Biol. Chem.)
6. Fardokht Abulwerdi (Med. Chem.)

F. CANDIDACY COMMITTEES
1. John Presner (Mol. Cell. Pathology)
2. Bryan Peterson (Mol. Cell. Pathology)
3. Mat VanBeek (Mol. Cell. Pathology)
4. Jane Tan (Mol. Cell. Pathology)
5. Peng Zhang (Biological Chemistry)

G. THESIS COMMITTEES
1. Kelly Damm, Ph.D. 2007 (Med. Chem.)
2. Ananda Herath, Ph. D. 2008 (Chemistry)
3. Jingjie Mo, Ph.D. 2008 (Chemistry)
4. Yuefeng Pang, Ph.D. 2008 (Med. Chem.)
5. Neal Hammer, Ph.D. 2009 (MCDB)
6. Karolyn Oetjen, Ph.D. 2009 (MSTP, MCP)
7. Graham Brady (MCP)
8. Yousong Ding (Med. Chem.)
9. Shengying Li (Med. Chem.)
10. Steve Kawamoto (Med. Chem.)
11. Tasha Francis (Chemical Biology)
12. Jody Lancia (Chemical Biology)
13. David Thal (Chemical Biology)
14. Jonas W. Hojfeldt (Chemical Biology)
15. Candice Paulsen (Chemical Biology)
16. Jamie Moser (Chemical Biology)
17. Yi-Chen Chen (Med. Chem.)
18. Akaterina Rousaki (Biophysics)
19. Wenjing Chen (Chemical Biology)
20. Jamie Van Etten (Chemical Biology)
21. John Androsavich (Chemical Biology)
22. Katerina Lexa (Med. Chem.)
23. Peter Ung (Med. Chem.)

III. Research Activities

A. SPONSORED SUPPORT
1. NIH/NINDS R01 NS059690-01, (PI), “Chaperones and Small Molecules” 2/1/08 - 1/31/13, $196,875 annual direct costs.
2. NSF CAREER Development Award, (PI), “Understanding the logic of protein folding in cells”, 9/1/09 - 8/30/14, $100,000 annual direct costs.
3. NIRG-08-89471 (PI), “Chemical Probes for Selective Recognition of Amyloid Oligomers” Alzheimer’s Association, 10/1/08 - 9/30/13, $44,700 annual direct costs.
4. Thermo-Fisher Corp. Collaborative Pilot Projects, (PI), “Fluorophore-Coated Microtiter Plates for Converting Absorbance Assays to 384-Well, High Throughput Format” 2/1/08 - 1/31/10, $53,500 annual direct costs.
5. The McKnight Foundation Neuroscience of Brain Disorders Award (aubaward), (Co-I), “Treatment of a polyglutamine neurodegenerative disease with synthetic

bifunctional compounds that target misfolded proteins" 1/1/07 - 12/31/09, $33,000 annual direct costs.
6. NIH/NIGMS, U01 GM086873-01, (Co-I), "Public/Private Collaboration for High-Quality Protein-Ligand Data" 10/1/08 - 9/30/13, $11,000 annual direct costs (subaward).
7. Alzheimer's Association, IIRG-07-60067, (Co-I), "Drug-protein complexes as inhibitors of Abeta aggregation" 5/1/08 - 4/30/11, $13,600 annual direct costs (subaward).
8. UM Center for Comp. Med. Biol. (CCMB), (Co-I), "New mechanism of inhibiting HIV-1 protease" 2/1/08 - 1/31/10 $33,535 annual direct costs (subaward).
9. CurePSP Foundation, CBD Grant, (Co-I), "Targeting Hsp70 as a Therapeutic Strategy for Corticobasal Degeneration and Other Tauopathies" 12/1/08 - 11/30/10, $25,000 annual direct costs (subaward).
10. NIH / NCI, R01-CA124540, (Co-I), "Multiple roles of the aPI2 moiety in AP12-MALT1-mediated lymphomanagenesis", 9/1/08 - 7/1/13, $5,200 annual direct costs (subaward).

B. PENDING PROJECTS
1. NIH/NIA R03 (A1 pending; A0 scored 30th percentile) (PI), "Conformation-Selective Chemical Probes for Amyloid Beta".
2. NIH/NINDS RC1 (submitted May 2009) (Co-I), "Hsp70 ATPase Inhibitors as Treatment for Polyglutamine Diseases".
3. NIH / NINDS R01 (submitted June, 2009) (PI), "Chemical Targeting of the Hsp70 Complex".

IV. Administrative Activities

A. DEPARTMENTAL
1. Department of Pathology
   a. Graduate Advisory Committee, Molecular and Cellular Pathology (MCP)
   b. Preliminary Exam Committee, Mol. Cell. Pathology (MCP)
   c. Admissions Committee, Program in Biological Sciences (PIBS)
2. Life Science Institute (LSI)
   a. Member, Faculty Search Committee (LSI - Chemistry)
   b. Member, LSI Equipment Task Force
   c. Organizing Committee, 4th Floor Chemical Biology Symposium
   d. Chair, LSI NMR Facility Committee
   e. Member, Executive Committee of the Center for Chemical Genomics (CCG)

B. INSTITUTIONAL
1. Member, Graduate Program in Medicinal Chemistry
2. Member, Graduate Program in Chemical Biology
3. Member, Graduate Program in Biological Sciences (PIBS)
4. Member, Biogerentology and Biology of Aging Training Program
5. Member, Pharmaceutical Sciences Training Program
6. Member, Cellular Biotechnology Training Program
7. Member, Department of Biological Chemistry
8. Program Committee, Chemical Biology Ph.D. Program
9. Publicity Committee, Cellular Biotechnology Training Program

10. University of Michigan Drug Discovery Institute, Exploratory Committee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Grant Review
   a. Research Corporation
   b. Netherlands Organization for Scientific Research
   c. Alzheimer's Association
   d. Alzheimer's and Related Diseases Research Fund
2. Editorial Review Boards
   a. *Chemical Biology and Drug Design*
3. Manuscript Peer-Review
   a. *Nature Chem. Biol.*
   b. *Proc. Natl. Acad. Sci.*
   c. *J. Am. Chem. Soc.*
   d. *Bioorganic Med. Chem.*
   e. *Bioorganic Med. Chem. Lett.*
   f. *ACS Chem. Biol.*
   g. *PLoS One*
   h. *J. Org. Chem.*
   i. *Angew. Chem.*
   j. *Molecular Biosystems*
   k. *Nanomedicine*
   l. *Chem. Rev.*
   m. *Chemistry & Biology*
   n. *J. Bioscience Bioengineer*
   o. *J. Med. Chem.*

B. INVITED LECTURES/SEMINARS

1. Invited Seminars (Internal)
   a. "Molecular Chaperones and Neurodegenerative Disease", Chemical Biology Ph.D. Program Symposium, August 27, 2008.
   b. "Pharmacological Manipulation of Hsp70 Reveals Its Roles in Neurodegenerative Disease", MiNIMBS Seminar Series, March 7, 2009.
   c. "Chemical Modifiers of HSP70 Reveal Its Roles in Protein Quality Control", Biogerontology and Aging Seminar Series, April 6, 2009.
   d. "New Pharmacological Tools Reveal a Role for Heat Shock Protein 70 (HSP70) in Neurodegenerative Disease", Neurodegenerative Disease Seminar Series, June 17, 2009.
2. Invited Seminars (External)
   a. "Allosteric Control Over Heath Shock Protein 70 and Its Roles in Neurodegenerative Disease", Transatlantic Frontiers in Chemistry Conference, Cheshire, UK, July 31, 2008.
   b. "Synthetic Co-Chaperones for the Heat Shock Protein 70 (Hsp70)", ACS National Meeting, Philadelphia, PA, August 22, 2008.
   c. "Allosteric Control Over Heat Shock Protein 70 and Its Roles in Neurodegenerative Disease", Department of MMBB, University of Idaho, Moscow, ID, September 16, 2008.

d. “Pharmacological Control Over Hsp70 Reveals Its Role in Neurodegenerative Disease”, Department of Pharmaceutics, Wayne State University, Detroit, MI, December 10, 2008.
e. “Pharmacological Inhibitors of Heath Shock Protein 70”, Department of Molecular Medicine, University of South Florida, Tampa, FL, January 24, 2009.
f. “Pharmacological Control Over Hsp70 Reveals Its Roles in Neurodegenerative Disease”, Department of Biochemistry, Boston University, Boston, MA, March 3, 2009.
g. “Hsp70 As a Potential Therapeutic Target in Neurodegenerative Disease”, LINK Medicine, Boston, MA, March 4, 2009.
h. Pharmacological Control Over Hsp70 Reveals Its Roles in Nuerodegenerative Disease”, Boston Biomedical Research Institute (BBRI), Boston, MA, March 5, 2009.
i. “Pharmacological Manipulation of Hsp70 Reveals Its Rolesi Nuerodegenerative Disease”, ThermoFisher, Sci., Rockford, IL, March 18, 2009.
j. “Allosteric Control Over Hsp70 Reveals Its Roles in Neurodegenerative Disease”, Central Regional Meeting of the American Chemical Society (CERMACS), Cleveland, OH, May 22, 2009.
k. “Chemical Modifiers of Hsp70 Reveals Its Roles in Protein Quality Control”, Annual Meeting of the American Aging Association (AGE), Scottsdale AZ, May 29, 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Association for the Advancement of Science
2. American Chemical Society

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Bertelsen, E. B., Chang. L., **Gestwicki, J. E.**, Zuiderweg, E. R. P. “Solution conformation of wild-type E. coli Hsp70 (DnaK) chaperone complexed with ADP and substrate” 2009, *Proc. Natl. Acad. Sci.* 106:8471-8476.
2. Patury, S., Geda, P., Dobry, C. J., Kumar, A., **Gestwicki, J.E.** “Conditional nuclear import and export of yeast proteins using a chemical inducer of dimerization” 2009, *Cell Biochem. Biophys*. 53:127-134.
3. Marinec, P. S., Chen, L., Barr, K. J., Mutz, M. W., Crabtree, G. R., **Gestwicki, J. E.** “FK506-binding protein partitions a modified HIV protease inhibitor into blood cells and prolongs its lifetime in vivo” 2009, *Proc. Natl. Acad. Sci.* 106(5):1336-1341.
4. Damm, K. L., Quintero, J. J., **Gestwicki, J. E.**, Carlson, H. A. "Clarifying allosteric control of flap conformations in HIV-1 protease" 2009, *Proteins* 74:872-880.
5. Geda, P., Patury, S., Ma, J., Barucha, N., Dobry, C. J., Lawson, S. K., **Gestwicki, J. E.**, Kumar, A. “A small molecule-directed approach to control protein localization and function” 2008, *Yeast* 25:577-594.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. **Gestwicki, J. E.** “The Interface of Chemistry and Biology is Actually a Continuum (Meeting Report)” 2008, *ACS Chem. Biol.* 3(6):328-333.

Donald Giacherio, Ph.D.

Associate Professor of Pathology
Director, Clinical Chemistry

I. Clinical Activities

A. Director, Chemical Pathology Section Laboratories.

B. Direct the operation of blood gas/electrolyte analyzers, coagulation testing meters and hematology analyzers in the University Hospital Emergency Department and in the operating rooms of Main, Mott, Kellogg Hospitals and the Cardiovascular Center.

C. Direct Point-of Care testing group for Ambulatory Care Health Centers.

D. Technical Director for laboratories at four U-M Health Center off-site clinics (East Ann Arbor Health Center, Brighton Health Center, Canton Health Center, and Livonia Surgery Center).

E. Review and sign out of Quad Marker Prenatal Screen results from maternal serum testing.

F. Sign out and interpretation of lipoprotein electrophoresis results.

G. Sign out and interpretation of hemoglobinopathy evaluation cases.

H. Oversee performance of intra-operative-PTH testing at University Hospital and East Ann Arbor Surgery Center.

I. Planning group of new Brighton Health Care Facility.

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS

1. Clinical Pathology Grand Rounds (2 lectures)
2. Coordinator, Pathology House Officer rotation through Chemistry Section Labs
3. Review sign-out and interpretation of lipoprotein electrophoresis results

4. Review of selected topics in Clinical Chemistry with Block B residents
5. Review hemoglobinopathy cases with Block B residents

B. LECTURES
1. Medical Technology Continuing Education Conferences for Chemistry Laboratory (3 lectures)

III. Research Activities

A. SPONSORED SUPPORT
1. NIH 5P60 DK20572, WH Herman, PI, Chemistry Core Lab Director within the Measurement Core of the Michigan Diabetes Research and Training Center (7.5 % effort), Measurement Core, 12/1/2007 - 1/31/2013, $127,696 annual; $713,000 per 5 years; MDRTC $1,810,457 annual; total of $ 8,912,285 per 5 years.

B. PROJECTS UNDER STUDY
1. “Evaluation of automated, multiplex chemiluminescent immunoassay technology for the performance of Epstein Barr viral serology testing and confirmatory testing for ANCA”.
2. Dorje, PI, $50,000 award from Cardiovascular Center Inaugural Grants fund, Nutrient deficiency and ATP depletion after surgery for aortic dissection.
3. Development of a microfluidic point of care device for the measurement of Apolipoproteins A1 and B for assessment of risk for cardiovascular disease, (with Alan Hunt, Biomedical Engineering and Robert Brook, Cardiology).
4. Pancreatic function testing in patients with chronic pancreatitis and impaired glucose tolerance (with DiMagno and Piraka).
5. Relationship of obesity, sex hormone levels, and PSA in screening for prostate cancer (with Beebe-Dimmer, Cooney).
6. Evaluation of methods for bioavailable testosterone.

IV. Administrative Activities

A. DEPARTMENTAL
1. Quality Assurance Committee
2. Director, Chemistry Laboratory
3. Director, Point of Care Testing

B. INSTITUTIONAL
1. Michigan Diabetes Research and Training Center Prevention and Control Division Executive Committee

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Treasurer, Michigan Section AACC.
2. Executive Committee and Program Committee 2008, Michigan Section AACC.

3. Abstract review committee, AACC National Meeting 2008.

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Ad hoc reviewer, *Clinical Chemistry*

B. INVITED LECTURES/SEMINARS

1. “Good Cholesterol, Bad Cholesterol, Dysfunctional Cholesterol”. Clinical Pathology Grand Rounds, September 18, 2007.
2. “Apolipoprotein measurement and clinical utility.” Clinical Pathology Grand Rounds, September 25, 2007.
3. “Issues with the standardization of clinical chemistry tests.” Michigan Society for Clinical Laboratory Science Annual Meeting, Kalamazoo, MI, April 4, 2008.
4. “HDL, Measurement, metabolism, and role in atherosclerosis.” Michigan Society for Clinical Laboratory Science Annual Meeting, Kalamazoo, MI, April 4, 2008.
5. “Laboratory issues for the endocrinologist.” University of Michigan Division of Metabolism, Endocrinology, and Diabetes Resident and Fellows Conference, May 22, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. American Association for Clinical Chemistry, Program Chair for Michigan Section.

D. HONORS AND AWARDS

1. Pathology Residents Teaching Award 2008.

VI. Publications - None

Thomas Giordano, M.D., Ph.D.

Professor of Pathology

I. Clinical Activities

A. SURGICAL PATHOLOGY
1. Room 1, BE, and GYN - 13 weeks
2. Endocrine Surgical Pathology, Departmental and Outside Consultation - 12 months
3. M-Labs Surgical Pathology Consultation - 12 months
4. Frozen section call - 4 weeks

II. Teaching Activities

A. MEDICAL STUDENTS
1. Sequence Co-Coordinator - Component II Endocrine Sequence
2. Component II Endocrine Sequence - 2 lectures on Endocrine Pathology
3. Endocrine Pathology Laboratories - 2 laboratories

B. HOUSE OFFICERS AND FELLOWS
1. General Surgical Pathology - 3.0 months
2. Endocrine Surgical Pathology - 12 months

C. LECTURES
1. Lecture to Genetic Counseling Students, "Pathology of Cancer"
2. Lecture to Molecular Biology Graduate Students, "Pathology of Cancer"

D. OTHER
1. Juliane Bauersfeld, Visiting Pathology Resident, Zurich, Switzerland
2. Endocrine Tumor Board - weekly

III. Research Activities

A. SPONSORED SUPPORT

1. NIH 5 P30 CA46592 (PI - Wicha) Tissue Core Director, 17.5% effort, "Cancer Center Support Grant", 6/01/06 - 5 /31/11, $3,415,190 annual direct costs.
2. University of Michigan AACR Clinical Research Initiatives (PI), 5% effort, "Improved Clinical Evaluation of Thyroid Nodules by Molecular Profiling" 05/01/06 - 05/01/08, $75,000 total directs costs.
3. NIH/NCI 5R01CA081488-08 (PI - Gruber, Co-I), 10% effort "Molecular Epidemiology of Colorectal Cancer", 4/1/99 - 3/31/2009, $761,843 annual direct costs.
4. NIH/NIAID 2 RO1 AI 37141-09A1 (PI - Baker, Co-I), 5% effort, "Apoptosis in Thyroiditis", 5/01/04 - 4/30/2009, $225,000 annual direct costs.
5. NIH/NHLBI N01-HR-46162 (PI - Martinez, Co-I), 5 % effort, "Lung Tissue Research Consortium", 02/01/04 - 01/31/09, $413,032 annual direct costs.
6. NIH/NCI 2RO1 CA072877-07A1 (PI - Petty, Co-I), 3.5% effort, "Role of SEPT9 in cell proliferation and oncogenesis"12/1/2005 - 11/30/2010, $250,000 annual direct costs.

B. PENDING PROJECTS

1. NIH/NCI (PI Brenner, Biosample Core Director), 22.5% effort GI Spore, “Translational Research in GI Cancer", 2008 - 2013, $8,677,266 total direct costs.
2. NIH/NCI (Co-PI), 20% effort, "Metabolomic and Gene Expression Predictors of Response to IGF-1R Targeted Inhibition in Adrenocortical Carcinoma" NIH Challenge Grant 2009 - 2011, $1,000,000 total costs.
3. NIH/NCI (Co-I), 10% effort, "Thyroid Cancer Cell Lines", NIH Challenge Grant 2009 - 2011, $1,000,000 total costs.
4. NIH/NCI (Co-I), 2.5% effort, "The Cancer Metabolome: a comparative study of similarities and differences" Challenge Grant 2009 - 2011, $1,000,000 total costs.
5. NIH/NCI (Co-I), 5% effort, "Molecular characterization of a human salivary gland tumor xenograft bank" NIH Challenge Grant 2009 - 2011, $1,000,000 total costs.

C. PROJECTS UNDER STUDY

1. Principal Investigator, "Molecular Studies of Adrenal Cortical Neoplasms"
2. Principal Investigator, "Molecular Studies of Thyroid Neoplasms"
3. Principal Investigator, "Molecular Studies of Adrenomedullary Neoplasms"
4. Principal Investigator, "Molecular Studies of Pancreatic Endocrine Neoplasms"
5. Co-Investigator with Dr. David Beer, "Molecular Studies of Lung and Esophageal Neoplasms"
6. Co-Investigator with Drs. Steve Gruber, Eric Fearon, and Joel Greenson "Molecular Studies of Colorectal Carcinoma"
7. Co-Investigator with Drs. Frank Worden and Ron Koenig, "Clincal Trial of Gleevec for Anaplastic Thyroid Carcinoma"

IV. Administrative Activities

A. DEPARTMENTAL
   1. Pathology House Officer Candidate Interviews
   2. Pathology Faculty Candidate Interviews
   3. Member, Anatomic Pathology Funding Review Committee
   4. Director, Molecular Pathology Research Laboratory

B. INSTITUTIONAL
   1. Sequence Co-Coordinator – Component II Endocrine Sequence
   2. Director, UMCCC Tissue Core
   3. Medical Institutional Review Board (IRB-Med), ad hoc member
   4. MSTP Career Advisory Panel G
   5. Member, MICHR Executive Review Committee for Multi-disciplinary Grants
   6. ACCR Committee
   7. Cancer Research Committee

C. REGIONAL/NATIONAL/INTERNATIONAL

D. Exam Reviewer, 2007 Pathology Subject Examination, Step 1, National Board of Medical Examiners

E. Grant Reviewer, National Institutes of Health, National Cancer Institute, Challenge Grants

F. Editorial Board, Pathology Research International

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
   1. Editorial Board
      a. *Endocrine Pathology*
   2. Ad hoc manuscript reviewer
      a. *Journal of Clinical Endocrinology and Metabolism*
      b. *Journal of Molecular Diagnostics*
      c. *Nature Clinical Practice Endocrinology & Metabolism*
      d. *Endocrine Pathology*
      e. *Proteomics*
      f. *Clinical Cancer Research*
      g. *Disease Markers and Cancer Biomarkers*
      h. *Molecular Cancer Therapeutics*
      i. *Modern Pathology*
      j. *Endocrine Reviews*
      k. *Archives of Pathology and Laboratory Medicine*

B. INVITED LECTURES/SEMINARS
   1. Invited Speaker, "In situ antigen detection in tissue sections using automated quantitative analysis (AQUA)," XXVIIth International Congress of the International Academy of Pathology, Athens, Greece, October 14, 2008.
   2. Invited Speaker, "Familial papillary thyroid carcinoma: Are we there yet?," XXVIIth International Congress of the International Academy of Pathology, Athens, Greece, October 17, 2008.
   3. Invited Speaker, "Expression array analysis of sporadic thyroid cancer," Ernest L. Mazzaferri Thyroid Cancer Conference, The Ohio State University Comprehensive Cancer Center, Columbus, OH, November 7, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
   1. American Association for the Advancement of Science
   2. American Society of Clinical Pathologists
   3. United States and Canadian Academy of Pathology
   4. University of Michigan Comprehensive Cancer Center
   5. American Society for Investigative Pathology
   6. A. James French Society of Pathology
   7. Association for Molecular Pathology
   8. American Association for Cancer Research
   9. Michigan Society of Pathologists
   10. American Society of Clinical Oncology
   11. International Society for Biological and Environmental Repositories

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
   1. Pu RT, **Giordano TJ**, Michael CW. Utility of cytology microarray constructed from effusion cell blocks for immunomarker validation. *Cancer Cytopathol* 2008:114;300-306.
   2. Zhuang D, Mannava S, Grachtchouk V, Tang W-H, Patil S, Atanasovski M, **Giordano TJ**, Shtil AA, Berman AE, Prochownik EV, Soengas MS, Nikiforov MA. C-MYC overexpression is required for continuous suppression of oncogene-induced senescence in melanoma cells. *Oncogene* 2008:27;6623-34.
   3. Ding L, Getz Gad, Wheeler DA, **Giordano T**,.Lander ES, Gibbs RA, Meyerson M, Wilson RK. Somatic mutations affect key pathways in lung adenocarcinoma. *Nature* 2008:455;1069-75.
   4. Albertus D, Seder CW, Chen G, Wang X, Hartojo W, Lin L, Silvers A, Thomas DG, **Giordano TJ**, Chang AC, Orringer MB, Bigbee WL, Chinnaiyan AM, Beer DG. AZGP1 autoantibody predicts survival and histone deacetylase inhibitors increased expression in lung adenocarcinoma. *J Thorac Oncol* 2008:3;1236-44.

5. Sisson JC, **Giordano TJ**, Raymond VM, Doherty GM, Gruber SB. First description of parathyroid disease in Multiple Endocrine Neoplasia 2A Syndrome. *Endocr Pathol* 2008:19;289-293.
6. Barlaskar FM, Spalding AC, Heaton JH, Kuick R, Kim AC, Thomas DG, **Giordano TJ,** Ben-Josef E, Hammer GD. Preclinical targeting of the type 1 insulin-like growth factor receptor in adrenocortical carcinoma. *J Clin Endocrinol Metab* 2009:94;204-212.
7. Perner S, Wagner P, Soltermann A, LaFargue C, Tischler V, Weir BA, Weder W, Meyerson M, **Giordano TJ**, Moch H, Rubin MA. TTF1 expression non-small cell lung carcinoma: association with TTF1 gene amplification and improved survival. *J Pathol* 2009:217;65-72.
8. **Giordano TJ**, Kuick R, Else T, Gauger PG, Vinco M, Bauersfeld J, Sanders D, Thomas DG, Doherty G, Hammer G. Molecular classification and prognostication of adrenocortical tumors by transcriptome profiling. *Clin Cancer Res* 2009:15;668-678.
9. Vilar E, Mukherjee B, Kuick R, Raskin L, Misek DE, Taylor JMG, **Giordano TJ**, Hanash SM, Fearon ER, Rennert G, Gruber SB. Gene expression patterns in mismatch repair deficient colorectal cancers highlights the potential therapeutic role of inhibitors of the PI3K-AKT-mTOR pathway. *Clin Cancer Res* 2009:15;2829-39.
10. Sisson JC, Dewaraja YK, Wizauer EJ, **Giordano TJ**, Avram AM. Thyroid carcinoma infringement on brain: treatment with radioiodine. *Thyroid* 2009:19;297-303.
11. Seder CW, Hartojo W, Lin L, Silvers AL, Wang Z, Thomas DG, **Giordano TJ**, Chen G, Chang AC, Orringer MB, Beer DG. INHBA overexpression promotes cell proliferation and may be epigenetically regulated in esophageal adenocarcinoma. *J Thorac Oncol* 2009:4;357-63.
12. Seder CW, Hartojo W, Lin L, Silvers AL, Wang Z, Thomas DG, **Giordano TJ**, Chen G, Chang AC, Orringer MB, Beer DG. Upregulated INHBA expression may promote cell proliferation and is associated with poor survival in lung adenocarcinoma. *Neoplasia* 2009:11;388-96.
13. Hodish I, **Giordano TJ**, Starkman MN, Schteingart DE. Location of ectopic adrenocortical hormone-secreting tumors causing Cushing's Syndrome in the paranasal sinuses. *Head & Neck* 2009:31;699-706.
14. Wang Y, Wu R, Cho KR, Thomas DG, Gossner G, Liu JR, **Giordano TJ**, Shedden KA, Misek DE, Lubman DM. Differential protein mapping of ovarian serous adenocarcinomas: identification of potential markers for distinct tumor stage. *J Proteome Res* 2009:8;1452-1463.
15. Wang R, Morris DS, Tomlins SA, Lonigro RJ, Tsodikov A, Mehra R, **Giordano TJ**, Kunju PL, Lee CT, Weizer AZ, Chinnaiyan AM. Development of a multiplex quantitative PCR signature to predict progression in non-muscle-invasive bladder cancer. *Cancer Res* 2009:69;3810-3818.

B. BOOKS/CHAPTERS IN BOOKS

1. Myers JL and **Giordano TJ**. Benign lung tumors. Murray and Nadel's Textbook of Respiratory Medicine.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Ha HT, Lee JS, Urba S, Keonig RJ, Sisson J, **Giordano T**, Worden F. Phase II trial evaluating Gleevec in patients with anaplastic thyroid carcinoma.
2. Simon DP, **Giordano TJ**, Hammer GD. The role of Jagged1-dependent notch signaling in adrenocortical carcinogenesis.
3. Nucera C, Porrello A, Antonello Z, Finn S, Priolo, **Giordano T**, Jarzab B, Trimarchi F, Pontecorvi A, Nose V, Lawler J, Parangi S. Thrombospondin-1 is modulated by the B-RafV600E Pathway in Papillary Thyroid Carcinoma. *Mod Pathol* 2009:22;118A-119A.
4. Wagner PL, Perner S, Soltermann A, LaFargue CL, Tischler V, Weir BA, Weder W, Meyerson M, **Giordano TJ**, Moch H, Rubin MA. TTF1 expression in non-small cell lung carcinoma: association with TTF1 gene amplification and improved survival. *Mod Pathol* 2009:22;363A.
5. Bauersfeld J, Thomas DG, Kuick R, Vinco M, Sanders D, **Giordano TJ**. Genomic identification of biomarkers of behavior of pancreatic endocrine tumors. *Mod Pathol* 2009:22:367A.
6. **Giordano TJ**, Kuick R, Thomas DG, Else T, Vinco M, Sanders D, Hammer G. Interogation of WNT signaling pathway activation in adrenocortical carcinoma by transcriptome profiling. *Mod Pathol* 2009:22:371A.
7. Kim A, **Giordano TJ**, Kuick R, Serecky K, Hammer GD. Wnt / beta-catenin signaling in adrenocortical stem/progenitor cells: implications for adrenocortical carcinoma. *Ann Endocrinol* (Paris) 2009:70;156.

David Gordon, M.D.

Professor of Pathology
Associate Dean for Diversity and Career Development

I. Clinical Activities

A. AUTOPSY SERVICE ATTENDING

B. CARDIOVASCULAR PATHOLOGY
1. Cardiac biopsies
2. Cardiovascular consultant for surgical and autopsy pathology
3. Referral cases from outside our institution

II. Teaching Activities

A. MEDICAL STUDENTS
1. Cardiovascular Sequence lecturer (4 cardiovascular pathology lectures) for M2 medical students
2. Co-developer of the cardiovascular pathology teaching laboratories for the M2 medical student Cardiovascular Sequence (work with Andy Flint)
3. Instructor for M2 medical student Pathology teaching laboratories

B. DENTAL STUDENTS
1. Lecturer for the Dental School Pathology Course (2 lectures)

C. GRADUATE STUDENTS
1. Lecturer for the Pathology Department Graduate Student course on general pathology (one lecture and teaching laboratory session)

D. HOUSE OFFICERS AND FELLOWS
1. Occasional lecturer on cardiovascular pathology for our pathology residents, plus teaching residents on autopsy service
2. Present pathology at monthly Pediatric Cardiology Pathology Conference

III. Research Activities

A. SPONSORED SUPPORT

1. NIH PO1 HL57346, (PI: D. Ginsburg; Morphology Core Director: D. Gordon) (5%) "Molecular Genetics Coagulation Disorders" 4/1/09 – 3/31/14; $74,878 annual direct costs.
2. Howard Hughes Medical Institute: Health Occupations Partners in Education (HOPE), HHMI Precollege Science Education Initiative, (PI); 9/1/03 – 8/31/08, $538,574, no-cost time extension until August 31, 2009.
3. NIH / NCRR UL1 RR024986 (K. Pienta, PI) D. Gordon: co-Director, Community Engagement Component (5% effort) 09/17/2007 – 05/31/2012
   KL2 RR024987 (Mentored Career Development Component)
   TL1 RR024988 (Predoctoral Training Grant Component)
   Michigan Institute for Clinical and Health Research (MICHR) $54,619,564 total direct cost.
4. Blue Cross Blue Shield of Michigan Foundation (PI) 5% effort,1122.RFP.PD "Encouraging Physicians to Practice in Underserved Communities: Medical School Rotation Strategy", 09/01/06 to 08/31/09, $48,735 annual direct costs.

B. PENDING PROJECTS

1. The Blue Cross Blue Shield of Michigan Foundation grant mentioned above is being submitted for renewal this year.

C. PROJECTS UNDER STUDY

1. Morphology Core support for projects focusing on the interaction between coagulation factors and vascular pathobiology.
2. Mentoring of He Wang (Pathology Resident) interested in academic cardiovascular pathology.
3. Ways to improve the participation of minority groups in clinical research.
4. Assisting pediatric cardiologists in assessing a new ultrasound heart tissue ablation tool (manuscript submitted).

IV. Administrative Activities

A. INSTITUTIONAL

1. Medical School Dean's Office
   a. Associate Dean for Diversity and Career Development
   b. Assistance with Faculty Affairs
   c. Assistance with Office of Student Programs
   d. Medical School Admissions Committee
   e. Work with UMHS Human Resources on leadership development and diversity
2. Univ. of Michigan
3. Member University of Michigan Diversity Council (regular and steering committees)

4. Member of the National Center for Institutional Diversity

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. *Cardiovascular Pathology*

B. INVITED LECTURES/SEMINARS

1. "Addressing Diversity in Graduate Medical Education: Challenges and Perspectives" Panel discussion at the annual Association of American Medical Colleges meeting, San Antonio, Texas; November 4, 2008.
2. "Rock the Match: strengthening your ERAS application" Talk to medical students at Wayne State University, Detroit, Michigan, November 10, 2008.
3. "Rock the Match: strengthening your ERAS application" Talk to medical students at the regional Student National Medical Association, Cleveland, Ohio, November 14, 2008.
4. "Rock the Match: strengthening your ERAS application" Talk to medical students at the national Student National Medical Association, New Orleans, Louisiana, April 10, 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. Society for Cardiovascular Pathology
2. American Society for Investigative Pathology
3. A. James French Society
4. National Medical Association
5. Ann Arbor Metro Medical Association
6. Association of American Medical Colleges Group on Student Affairs-Minority Affairs Section
7. Association of American Medical Colleges Council of Deans Fellow

VI. Publications - None

Joel K. Greenson, M.D.

Professor of Pathology

I. Clinical Activities

A. GASTROINTESTINAL AND HEPATIC PATHOLOGY

1. On Service - 14 weeks
2. Consultation Service - 18 weeks.
3. Surgical Pathology Call - 4 weeks
4. Liver Transplant Call - 14 weeks

II. Teaching Activities

A. MEDICAL STUDENTS

1. GI Pathology Sequence, In charge of sequence exam (ten contact hours).
2. GI Pathology Sequence, 2 hours full class lecture, 10 hours of lab instruction

B. DENTAL STUDENTS

1. Pathology 630-631 one full class lecture (one contact hour).

C. HOUSE OFFICERS AND FELLOWS

1. Surgical pathology diagnosing room instruction for house officers -14 weeks.
2. One didactic lecture on gastrointestinal pathology - September, 2009.
3. Gastrointestinal and hepatic pathology tutoring - 18 weeks.
4. Two consultation conferences.
5. GI pathology teaching sessions with GI fellows/residents - one hour/month.

D. LECTURES

1. 1 hour lecture to public health students in Epidiemiology 631 on Molecular Pathology of Colon Cancer

E. OTHER

1. Liver biopsy conference - one hour every 3 months
2. Multidisciplinary GI tumor board - 1.5 hour every third week

III. Research Activities

A. SPONSORED SUPPORT

1. NIH R01CA81488-01(Co-I) 5% effort, "Molecular Epidemiology of Colorectal Cancer", April 2004 - March 2009, $4,547,772 total direct costs.
2. NIH RO1 CA 118875-01A2 (Co-I), 2.5% effort, "Hedgehog signaling in upper digestive tract malignancy", July 2007 - June 2012, $250,000 annual direct costs.
3. FDA OOPD grant, (Co-I) 2.5% effort, Phase III treatment trial of Tetrathiomolybdate in PBC.

B. PROJECTS UNDER STUDY

1. Study of PBC with Fred Askari in Division of Gastroenterogy
2. NIH study of HCV with Anna Lok in Division of Gastroenterology
3. NIH study of the Molecular Epidemiology of Colon Cancer in Israel
4. Study of molecular genetic changes in pancreas and colon cancer in Egypt with Amr Soloman (New grant submitted)
5. Study of Barrett's dysplasia with Thomas Wang
6. Study of pancreas cancer with Mark Zalupski and Diane Simeone
7. Study of Collagenous Sprue with International Study Group
8. NIH study of Hedgehog signaling in uppper digestive tract tumors with Andrzej Dlugosz
9. Study of HNPCC adenomas with GI path fellow
10. Study of celiac disease biopsies with Path resident (Suntrea Hammer)
11. Study of molecular pathology of colon polyps with Eric Fearon

IV. Administrative Activities

A. DEPARTMENTAL

1. Member, Residency Selection Committee
2. Member AP research funding committee

B. INSTITUTIONAL

1. Member, Medical School Admissions Committee
2. Billing Compliance Officer for Department of Pathology

C. REGIONAL/NATIONAL/INTERNATIONAL

1. American Board of Pathology, Test Question Committee
2. NIH Colon Cancer Family Registry, Advisory Committee
3. Member, Education Committee of ASCP

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Board
   a. *Human Pathology*
   b. *American Journal of Surgical Pathology*
   c. *American Journal of Clinical Pathology*
2. Reviewer
   a. *Cancer*
   b. *Archives of Pathology and Laboratory Medicine*
   c. *Gastroenterology*
   d. *Human Pathology*
   e. *American Journal of Surgical Pathology*
   f. *American Journal of Pathology*
   g. *Modern Pathology*
   h. *Cancer Research*
   i. *American Journal of Gastroenterology*
   j. *British Journal of Cancer*
   k. *Journal of Clinical Oncology*
   l. *Histopathology*
   m. *American Journal of Clinical Pathology*

B. INVITED LECTURES/SEMINARS

1. Invited Speaker, DDW update on Gastroenterology, Petoskey, Michigan July, 2008.
2. Invited Speaker, New Frontiers, CME course, Ann Arbor, MI, Sept. 2008.
3. Invited Speaker, GI slide seminar, IAP Meeting, Athens, Greece Oct. 2008.
4. Moderator, GI slide seminar, IAP Meeting, Athens, Greece Oct. 2008.
5. Invited Speaker, Symposium on intraepithelial lymphocytes in the gut. IAP Meeting, Athens, Greece Oct. 2008.
6. Visiting Professor, University of Indiana, Indianapolis Indiana, Feb, 2009.
7. Faculty Member, ASCP Workshop - Surgical Pathology of the Gastrointestinal Tract, Annapolis Maryland June 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. Arthur Purdy Stout Society
2. USCAP
3. ASCP
4. AGA
5. CAP
6. GIPS
7. Hans Popper Hepatopathology Society

8. A.J. French Society

D. HONORS AND AWARDS
   1. One of Americas Best Doctors
   2. One of Americas Best Cancer Doctors

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Owens SR, **Greenson JK**. Coeliac disease and other intraepithelial lmphocytic disorders of the upper gastrointestinal tract. *Diagnostic Histopathology* 14:419-426, 2008.
2. Polydorides AD, Mukherjee B, Gruber SB, McKenna BJ, Appelman HD, **Greenson JK**. Adenoma-infiltrating lymphocytes are a potential marker of HNPCC. *Am J Surg Pathol* 32:1661-1666, 2008.
3. **Greenson JK**, Huang S-C, Herron C, Moreno V, Bonner JD, Tomsho LP, Ben-Izhak O, Cohen HI, Trougouboff P, Bejhar J, Sova Y, Pinchev M, Rennart G, Gruber SB. Pathologic predictors of microsatellite instability in colorectal cancer. *Am J Surg Pathol*, Sept. 2008 E-pub, 33:126-133, 2009.
4. Li HC, Schmidt L, **Greenson JK,** Chang AC, Myers JL. Primary pulmonary adenocarcinoma with intestinal differentiation mimicking metastatic colorectal carcinoma: case report and review of literature. *Am J Clin Pathol* 131(1):129-33, 2009.
5. Lok AS, Everhart JE, Chung RT, Kim H-Y, Everson GT, Hoefs JC, **Greenson JK**, Sterling RK, Lindsay KL, Lee WM, Di Bisceglie AM, Bonkovsky HL, Ghany MG, Morishima C, and the HALT-C Trial Group. Evolution of hepatic steatosis in patients with advanced hepatitis C: results from the HALT-C trial. *Hepatology* 49:1828-1837, 2009.
6. Zalupski M, Colleti L, Chang A, Simeone D, **Greenson JK**, Ben-Josef, E, Lawrence T, Hampton J, Francis I, Griffith K. Gemcitabine-Based Combination Chemotherapy followed by Radiation with Capecitabine as Adjuvant Therapy for Resected Pancreas Cancer. Accepted to *International Journal of Radiation Oncology, Biology, Physics*.
7. Maguire A, O'Donoghue D, **Greenson JK**, Lauwers GY, Ginsburg RE, Williams GT, Brown IS, Riddell RH, Sheahan K. Collagenous Sprue- A clinico-pathologic study of twelve cases. Accepted to *Am J Surg Pathol.*

B. BOOKS/CHAPTERS IN BOOKS

1. **Greenson JK**, Lamps LR, Montgomery E, Lauwers G, Owens SR, Bihlmeyer S, Purdy J, Srivastava A. Diagnostic Pathology: Gastrointestinal, First Edition, Ed: Greenson J. Amirsys Corp. Salt Lake City, Utah, 2009 In Press.

2. **Greenson JK**, Odze RD. Inflammatory Diseases of the Large Intestine, In: Surgical Pathology of the GI Tract, Liver, Biliary tract, and Pancreas, Second edition. Ed: Robert D. Odze, John R. Goldblum. Elsevier, Philadelphia, PA. 2009, pp. 355-394.

Jay L. Hess, M.D., Ph.D.

Carl V. Weller Professor and Chair

I. Clinical Activities

A. PERSONAL HEMATOPATHOLOGY CONSULTATION CASES - 12 months

B. HEMATOPATHOLOGY SIGNOUT - 6 weeks

C. ADMINISTRATIVE OVERSIGHT OF ALL CLINICAL LABORATORIES - 12 months

II. Teaching Activities

A. GRADUATE STUDENTS

1. Sara Monroe (PIBS, Ph.D. Candidate, Thesis Committee)
2. Stephanie Jo (M.D./Ph.D. Candidate, Thesis Committee)
3. Jiaying Tan (PhD Candidate, Thesis Committee)
4. Yongsheng Huang, (PhD Candidate, Thesis Committee)
5. Jiaying Wang (PhD Student)
6. Daniel Sanders (Undergraduate Student)

B. HOUSE OFFICERS AND FELLOWS

1. Jim Connelly, M.D.
2. Andrew Muntean, Ph.D.

C. OTHER

1. Corrado Caslini, Ph.D. - Mentor
2. Kajal Sitwala, M.D., Ph.D. - Mentor

III. Research Activities

A. SPONSORED SUPPORT

1. NIH R01-CA116570-01A1 (PI) 20% effort - "Mechanisms of Hox Protein Mediated Transformation", 7/1/2006 - 6/30/2011, $172,353 annual direct costs.

2. LLS SCOR, (PI Project 1) 10% effort, "Consortium for the Study of Chromatin Biology and Epigenetic Targeting in Hematologic Malignancies", 10/1/2007 - 9/30/2012, $150,000 annual direct costs.
3. NIH R01 CA 922251A1-01 (PI) 20% effort, "Transcriptional Deregulation by MLL Fusion Proteins", 9/27/2007 - 8/31/2012, $177,293 annual direct costs.
4. CCMB (Co-PI) 0% effort, "Identification of Effectors of Hox Protein Mediated Leukemogenesis", 1/1/09 - 12/31/09, $50,000 annual direct costs.
5. NIH 1F30HL095280-01 Training Grant (Stephanie Jo) - "The Role of the MLL Partner Associated Complex (MPAC) in Leukemia".

B. PENDING PROJECTS
1. NIH R01-CA142818-01 (Co-PI) 20% effort, "Protein Interactions Required for MLL Leukemogenesis", 9/1/09-8/30/014, $250,000 annual direct costs.
2. NIH C06, (PI Woolliscroft, Co-I) 0% effort, "Michigan Institute for Personalized Medicine", 12/01/2009 - 6/30-2013, $15,000,000 facilities grant.

C. PROJECTS UNDER STUDY
1. Mechanisms of transcriptional regulation and transformation by the mixed-lineage leukemia protein, MLL
2. Mechanisms of stem cell expansion and transformation by Hoxa9 and Meis1

IV. Administrative Activities

A. DEPARTMENTAL
1. Chair, Department of Pathology
2. Chair, Lean Implementation Steering Committee
3. Chair, Marketing Oversight Committee
4. Director, Division of Sponsored Research, Department of Pathology
5. Chair, MLabs Executive Committee

B. INSTITUTIONAL
1. University of Michigan Comprehensive Cancer Center Executive Committee
2. VA Dean's Advisory Comittee Member
3. Endowment for the Basic Sciences Initiative in Protein Chemistry, Committee Member
4. Senior Leadership Council Member
5. Dean's Advisory Committee Member
6. Medical Scientist Training Program Policy Committee
7. Biomedical Sciences Scholars Program Selection Committee
8. Faculty Group Practices Board - Voting Member
9. Faculty Group Practices Board Reorganization Finance Subcommittee Member
10. Faculty Group Practice Budget and Finance Executive Committee
11. Medical School Executive Committee

12. Medical School Executive Committee Business Subcommittee
13. Michigan Center for Translational Pathology Executive Committee
14. Medical School Compensation Committee
15. Dean's Standing Search Committee for Department Chairs
16. Chair, Department of Internal Medicine Chair Search Committee
17. Chair, Pfizer Advisory Finance Committee
18. Drug Discovery Institute Committee

C. REGIONAL/NATIONAL/INTERNATIONAL
1. American Society of Hematology Abstract Review Committee, Coordinating Reviewer
2. Association of Pathology Chairs Research Committee
3. National Cancer Institute of Canada, Grant Reviewer
4. Wellcome Trust Grant Reviewer
5. American Society of Hematology Career-Development Lunch Leader
6. Chair, NIH Basic and Translatinal (OBT) IRG
7. Reviewer, NIH Challenge Grants in Health and Science Research
8. NIH Molecular Oncogenesis Study Section, Ad Hoc Reviewer
9. MLL Summit Workshop, Stowers Institute, Kansas City, MO, Co-Organizer
10. NIH Biological Chemistry and Macromolecular Biophysics Study Section, Ad Hoc Reviewer
11. Leukemia Research Fund, University of Minnesota Medical School, Grant Reviewer

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Board
   a. *American Journal of Clinical Pathology*
   b. *International Journal of Clinical and Experimental Pathology*
   c. *Clinical and Translational Science*
   d. *Experimental Hematology*
2. Reviewer
   a. *Proceedings of the National Academy of Sciences, U.S.A.*
   b. *Blood*
   c. *Cancer Investigation*
   d. *Leukemia*
   e. *EMBO Journal*
   f. *Cancer Cell*
   g. *Genes, Chromosomes and Cancer*
   h. *Modern Pathology*
   i. *Human Pathology*
   j. *American Journal of Clinical Pathology*
   k. *Experimental Hematology*

l. *DNA and Cell Biology*
m. *Oncogene*
n. *Gene*
o. *Molecular and Cellular Biology*
p. *Nature Cell Biology*

B. INVITED LECTURES/SEMINARS

1. "Mechanisms of Transformation by MLL Fusion Proteins", Conference Co-Organizer and Chair, Session III, Stowers Institute for Medical Research, Kansas City, MO, September 6, 2008.
2. "Epigenetic Dysregulation in Acute Leukemia", Association for Molecular Pathology 2008 Annual Meeting, plenary speaker, Gravevine, TX, October 31, 2008.
3. "Identification of New Therapeutic Targets in Acute Leukemia", Department of Pathology, University of Pittsburgh Medical Center, February 11, 2009.
4. "Epigenetic Dysregulation in Acute Leukemia", Molecular Mechanisms of Normal and Malignant Hematopoiesis, Sonderforschungsbereich 684, Munich, Germany, April 23, 2009.
5. "Mechanisms of Hox Gene Dysregulation in Acute Leukemia", Department of Pathology Grand Rounds, Harvard Medical School, Boston, MA, May 4, 2009.
6. "AML Diagnosis in the 21st Century", Ramzi Cotran Lectureship, New England Society of Pathologists, Boston, MA, May 5, 2009.
7. "Mechanisms of Epigenetic Dysregulation in Acute Leukemia", Robert H. Lurie Comprehensive Cancer Center, Northwestern University, Chicago, IL, May 7, 2009.
8. "Mechanisms of Epigenetic Dysregulation in Acute Leukemia", Department of Pathology, University of Chicago, Chicago, IL, May 8, 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. College of American Pathologists
2. American Society of Hematopathologists
3. United States and Canadian Academy of Pathology
4. American Society of Hematology
5. American Association for Cancer Research
6. Association of Pathology Chairs
7. Association of Pathology Chairs Research Committee
8. Pluto Society
9. Michigan Society of Pathologists
10. A. James French Society
11. American College of Physician Executives
12. International Society of Experimental Hematology
13. American Society of Investigative Pathology
    a. Meritourious Awards Committee (2009-Present)

D. HONORS AND AWARDS
   1. Madison Who's Who Among Executives and Professionals Honors Edition

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
   1. Sitwala, K.V., Dandekar, M.N., **Hess, J.L.** Hox proteins and leukemia, *Intl J Clin and Exp Path* 1:461-74, 2008.
   2. Muntean, A., **Hess, J.L**. MLL-AF9 induced leukemia: Hardwired or taking cues from the microenvironment? *Cancer Cell* 13:46507, 2008.
   3. **Hess, J.L.** What Hematopathology tells us about the Future of Pathology Informatics. *Arch Path Med* 133:908-11, 2009.
   4. Milne, T.A., Zhao, K., **Hess, J.L.** Chromatin Immunoprecipitation for Analysis of Histone Modifications and Chromatin-Associated Proteins. *Mol Biol* 538:409-423, 2009.
   5. Muntean, A.G., **Hess, J.L.** Epigenetic Dysregulation in Cancer. *Am J Pathol* (in press).
   6. Caslini, C. Connelly, J.A., Serna, A., Broccoli, D., **Hess, J.L.** MLL associates with telomeres and regulates telomeric repeat-containing RNA transcription. *MCB* published online ahead of print, 15 June 2009.

B. BOOKS/CHAPTERS IN BOOKS
   1. Maillard, I, **Hess, J.L.** The role of menin in hematopoiesis, K. Balogh and A Patocs, Eds. In "SuperMEN1: Pituitary, Parathyroid and Pancrease", Landes Bioscience Intelligence Unit, 2009.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
   1. Monroe, S., Jo, S.Y., Basrur, V., Elenitoba-Johnson, K.S., Slany, R.K., **Hess, J.L.** Identification and Characterization of an MLL Fusion Partner-associated Complex: MPAC. American Association for Cancer Research, Cancer Epigenetics, Boston, MA, May 28-31, 2008.
   2. **Hess, J.L.** Epigenetic Dysregulation in Mixed Lineage Leukemia. Molecular Mechanisms of Normal and Malignant Hematopoiesis, Sonder forschungsbereich 684, Munich, Germany, April 23, 2009.

Cory M. Hogaboam, Ph.D.

Associate Professor

I. Clinical Activities - Not applicable

II. Teaching Activities

A. GRADUATE STUDENTS

1. PhD Dissertation Committees
   a. Andrew Shreiner (Graduate Immunology Program)
   b. Adam Hartigan (Graduate Immunology Program)
   c. Hemanth Ramaprakesh (Graduate Immunology Program)
2. Undergraduate Students
   a. Daniel Fong, U of Michigan
   b. Rikki Hullinger, U of Michigan
   c. Sameer Oak, U of Michigan
3. PIBS Graduate Student Laboratory Rotations, University of Michigan
4. Preliminary Examiner for Ph.D. Programs: Molecular and Cellular Pathology and other Graduate Programs, University of Michigan
   a. Mr. Bryan Peterson
   b. Ms. Liz Spehalski
   c. Mr. Matt Vanbeek
   d. Ms. Jane Tan
   e. Mr. Matt Smith
5. Formal Teaching
   a. Pathology 582: Inflammation and Tissue Repair. Infectious basis of tissue fibrosis U of Michigan

B. HOUSE OFFICERS AND FELLOWS

1. Post-doctoral fellows
   a. Ana Paula Moreira, Ph.D.
   b. Glenda Trujillo, Ph.D.
   c. Amrita Joshi, Ph.D.
   d. Ugar Burcin Ismailoglu, Ph.D.
   e. Yosuke Matsuno, MD, Ph.D.

C. LECTURES
1. On the clinical progression of IPF: can we blame the innate immune system?' Charles Hales Lung Conference, Baltimore, MD.

D. OTHER
1. Chimeric molecule for the treatment of Th2-like cytokine mediated disorders. Filed March 1, 2002, Docket Number 015280-448000, Serial Number: 10/497,804, Patent rights licensed to NeoPharm Incorporated, June 11, 2007, US Patent Number: 7,541,040 (June 4, 2009).

III. Research Activities

A. SPONSORED SUPPORT
1. NIH R01 DK053224 (PI - Colletti) CXC chemokines and liver regeneration, 02/01/05 -04/30/10, $250,000 annual direct costs.
2. RFP-HR-04-08 (PI - Martinez) Lung Tissue Research Consortium: Clinical Centers 01/30/04 - 08/29/09, $3,060,407 total costs.
3. NIH P01HL31963 (PI of Program Project, Kunkel) Inflammatory Cells and Lung Injury, Project 4 (PI - Lukacs), Cockroach allergen-induced airway inflammation, 12/01/04 - 11/30/09, $225,000 annual direct costs.
4. NIH R01 U10 HL080371 (PI - Martinez) Novel Therapeutic Approaches in IPF, 4/01/05 - 03/31/10, $548,655 annual direct costs.
5. Novartis Institute for Biomedical Research (PI) Identification and validation of novel therapeutic targets and biomarkers for idiopathic pulmonary fibrosis, 02/01/07 - 01/31/10, $515,898 annual direct costs.
6. Novartis Institute for Biomedical Research (PI) Master Agreement for Services: Target validation in a SCID model of pulmonary fibrosis, Agreement: testing antibodies directed against CCL19, CCL21, and CCR7, $75,041.
7. Array BioPharma (PI).Test the efficacy of pharmacological inhibitors of inflammatory pathways, 10/31/07 - 12/31/08, $63,872 annual direct costs.
8. Promedior, Inc. (PI), SAP, CRP, and PTX3 in pulmonary fibrotic conditions, 10/31/07 - 9/45/08, 332,590 annual direct costs.
9. Signal Pharmaceuticals, Celgene Corporation (PI) Adoptive fibroblast transfer in SCID mice, 09/01/07 - 08/31/08, $151, 227 annual direct costs.
10. Neopharm (PI) Effect of Pseudomonas infection or PE38 exposure on the therapeutic efficacy of IL13-PE in bleomycin-induced pulmonary fibrosis, 02/01/2008 - 01/31/2009, $111,943 annual direct costs.
11. Centocor Research and Development, Inc. (PI), Protective and therapeutic targeting of TLR3 during acetaminophen-induced liver injury, 05/31/08 - 06/01/09, $49,000 annual direct costs.
12. Centocor Research and Development, Inc. (PI) CCL17 Program Grant, 10/01/08 - 09/31/11, $2,520,605 total costs.
13. Centocor Research and Development, Inc. (PI) Role of ST2 in asthma and M2 macrophage activation, 10/01/08 - 09/31/09, $245,000 annual direct costs.

B. PENDING PROJECTS
1. NIH/NIAID R01 HL69865 (PI) Role of TREM-1 in innate and adaptive immune responses to Aspergillus fumigatus, 07/01/09 - 06/30/14, $250,000 annual direct costs.

2. NIH/NHLBI R01 HL095369 (PI) Molecular Phenotypes of Longitudinal Disease Course in IPF, 9/30/09 - 09/29/13, $300,000 annual direct costs.
3. NIH/NHLBI RC1 HL099622-01 (PI) Identification and validation of miRNA biomarkers in idiopathic pulmonary fibrosis, 9/30/09 - 10/01/1, $500,000 annual direct costs.
4. DOD 09013005 (PI) Department of the Army Therapeutic strategies targeting combat-related thoracic injury, 12/01/09 - 11/30/12, $330,000 annual direct costs.

C. PROJECTS UNDER STUDY
1. Role of chemokines in airway remodeling due to allergic airway disease and asthma
2. Role of chemokine receptors in airway remodeling due to allergic airway and asthma
3. Role of chemokines and chemokine receptors in human interstitial fibrotic disease
4. Novel approaches to targeting IL-4 and IL-13 in chronic allergic airway disease
5. Role of IL-4 and IL-13 in chronic interstitial fibrotic disease
6. Novel approaches to targeting IL-4 and IL-13 in human interstitial fibrotic disease
7. Regulation of fibroblast activities during idiopathic interstitial pneumonias
8. Role of chemokines and SCF in liver regeneration
9. Role of CC chemokines in acute and chronic pulmonary inflammation
10. Role of IL-4 and IL-13 in pulmonary silicosis
11. Role of bone marrow-derived macrophages in chronic allergic airway and asthma
12. Identification of novel pattern recognition receptors involved in pulmonary antifungal responses
13. Pattern recognition receptor involvement in acute and chronic inflammatory diseases of the gut, liver, and lung
14. M2 activation events in asthma and cancer
15. Role of toll like receptors in acute exacerbation triggers in chronic lung disease
16. Regulation of hematopoietic stem cells by chemokine receptors

IV. Administrative Activities

A. DEPARTMENTAL
1. Member, Preliminary Examination Committee
2. Research Incentive Compensation Committee

B. INSTITUTIONAL
1. Member, Graduate Student Affairs Committee (GSAC), Graduate Program in Immunology
2. Member, Committee on Student Biomedical Research (CSBR)
3. Member, Mentorship group in the Student Biomedical Research Program (SBRP)
4. Member, Institutional Biosafety Committte

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Center for Scientific Review, ZRG1 IMB (01) Fellowship (F32) and R15 Review
2. Committee member, Experimental Medicine, Canadian Institutes of Health Research (CIHR)
3. Abstract programming co-chair, Immediate Hypersensitivity, Asthma, and Allergic Responses, AAI Annual Meeting 2009
4. Keystone Symposia: Chair of joint plenary session entitled: 'Allergy, asthma and remodeling'

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Board Member
   a. *Current Immunology Review*
   b. *BMC Immunology*
   c. *The Open Immunology Journal*
   d. *Section Editor of Pulmonary Diseases, Fibrogenesis and Tissue Repair*
   e. *Am. J. Resp. Crit. Care Med*
2. Journal peer-review
   a. *Journal of Immunology*
   b. *American Journal of Physiology*
   c. *American Journal of Pathology*
   d. *Journal of Clinical Investigation*
   e. *Journal of Leukocyte Biology*
   f. *Journal of Clinical Immunology*
   g. *American Journal of Respiratory Cell and Molecular Biology*
   h. *Infection and Immunity*
   i. *Blood*
   j. *Journal of Experimental Medicine*
   k. *Nature*
   l. *Trends in Microbiology*
   m. *Clinical Cancer Research*
   n. *Arthritis and Rheumatism*
   o. *Nature Medicine*
   p. *Critical Care Medicine*
   q. *Respiratory Research*
   r. *Clinical and Diagnostic Laboratory Immunology*
   s. *International Archives of Allergy and Immunology*
   t. *American Journal of Respiratory and Critical Care Medicine*
3. Grant peer-review
   a. National Institutes of Health, National Heart, Lung and Blood Institute
   b. Department of Veterans Affairs, Merit Review
   c. University of Michigan Office of the Vice President for Research
   d. Canadian Institutes for Health Research
   e. The Wellcome Trust
   f. British Lung Foundation
   g. Wayne State School of Medicine

B. INVITED LECTURES/SEMINARS

1. Dynamic interplay between chemokine receptors and pathogen recognition receptors during innate immunity. Ribeirao Preto, Brazil, March 14, 2008.
2. Serum amyloid P attenuates pulmonary fibrosis. Agua de Lindoia, Brazil, October 17, 2008.
3. Lung injury, repair, and remodeling.6th Lung Science Conference, Estoril, Portugal, October 20, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Association of Immunologists (AAI)
2. American Society for Investigative Pathology (ASIP)
3. American Thoracic Society (ATS)

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Ishii M., **Hogaboam C.M.**, Joshi A., Fong D., Kunkel S.L. CC chemokine receptor 4 modulates Toll-like receptor 9-mediated innate immunity and signaling. *Eur. J. Immunol.*, 38(8): 2290-2302. Jul 15 Epub ahead of print, 2008.
2. Meneghin A., Choi E.S., Evanoff H.L., Kunkel S.L., Martinez F.J., Flaherty K.R., Toews G.B., **Hogaboam C.M.** TLR9 is expressed in idiopathic interstitial pneumonia and its activation promotes in vitro myofibroblast differentiation. *Histochem. Cell Biol.*, Jul 17 Epub ahead of print, 2008.
3. Buckland K.F., O'Connor E., Murray L.A., **Hogaboam C.M.** Toll like receptor-2 modulates both innate and adaptive immune responses during chronic fungal asthma in mice. *Inflamm. Res.*, 57(8): 379-387, 2008.
4. Jeyanathan M., Mu J., Kugathasan K., Zhang X., Damjanovic D., Small C., Divangahi M., Petrof B.J., **Hogaboam C.M.**, Xing Z. Airway delivery of soluble mycobacterial antigens restores protective mucosal immunity by single intramuscular plasmid DNA tuberculosis vaccination: role of proinflammatory signals in the lung. *J. Immunol.* 181(8): 5618-5628, 2008.
5. Cavassani K.A., Lincoln P., Wen H., Lukacs N.W., **Hogaboam C.M.**, Kunkel S.L. TLR3 is an endogenous sensor of tissue necrosis. *J. Exp. Med.*, 205: 2609-2621. October 6th, Epub ahead of print, 2008.
6. Murray L.A., Knight D., McAlonan L., Argentieri R., Joshi A., Shaheen F., Jordan J., San Mateo L.R., Cunningham M., Alexopolou L., Flavell R.A., Sarisky R. T., **Hogaboam C.M.** Deleterious role of TLR3 during hyperoxia-induced acute lung injury. *Am. J. Respir. Crit. Care Med.*, 178: 1227-1237. October 10th Epub ahead of print, 2008.
7. Ramaprakash H., Ito T., Standiford T.J., Kunkel S.L., **Hogaboam C.M.** TLR9 modulates immune responses to Aspergillus fumigatus conidia in immunodeficient and allergic mice. *Infect. Immun.*, 77: 108-119. October 20th Epub ahead of print, 2008.
8. Joshi A.D., Schaller M., Lukacs N.W., Kunkel S.L., **Hogaboam C.M.** Toll like receptor 3 modulates immunopathology during Th2-driven immune responses in the lung. *Eur. J. Immunol.*, November 13th Epub ahead of print, 2008.
9. Ito T., Schaller M., **Hogaboam C.M.**, Standiford T.J., Sandor M., Lukacs N.W., Chensue S.W., Kunkel S.L. TLR9 regulates the mycobacteria-elicited pulmonary granulomatous immune response in mice through DC-derived Notch ligand delta-like 4. *J. Clin. Invest.* December 15, Epub ahead of print, 2008.
10. Joshi A.D., Fong D.J., Oak S.R., Trujillo G., Flaherty K.R., Martinez F.J., **Hogaboam C.M.** IL-17 mediated immunopathogenesis in experimental hypersensitivity pneumonitis. *Am. J. Respir. Crit. Care Med.*, 179: 705-716, Jan. 16th, Epub ahead of print, 2009.

11. Glass W., Argentieri R., Bracht M., Farrell F.X., Das A.M., Del Vecchio A.M., **Hogaboam C.M.**, Murray L.A. Generation of bleomycin-induced lung fibrosis is independent of IL-16. *Cytokine*, 46: 17-23, Feb 14th, Epub ahead of print, 2009.
12. Martins V., Valenca S.S., Farias-Filho F.A., Molinaro R., Simoes R.L., Ferreira T.P., E Silva P.M., **Hogaboam C.M.**, Kunkel S.L., Fierro I.M., Canetti C., Benjamim C.F. ATLa, an aspirin-triggered lipoxin A4 synthetic analog, prevents the inflammatory and fibrotic effects of bleomycin-induced pulmonary fibrosis. *J. Immunol.*, 182: 5374-5381, 2009.
13. Daley E., Emson C., Guignabert C., Louten J., de Waal Malefyt R., Kurup V.P., **Hogaboam C.**, Taraseviciene-Stewart L., Voelkel N.F., Rabinovitch M., Grunig E., Grunig G. IL-13 and pulmonary smooth muscle biology. *Proc. Am. Thorac. Soc.* 6: 330-331, 2009.
14. Ishii M., Wen H., Liu T., Corsa C.A.S., Coelho A.L., Allen R.M., Lincoln P.M., Carson W.F., Cavassani K.A., Lukacs N.W., **Hogaboam C.M.**, Dou Y., Kunkel S.L. Epigenetic regulation of the alternatively activated macrophage phenotype. *Blood*, in press, 2009.
15. Hartigan A.J., Westwick J., Jarai G., **Hogaboam C.M.** CCR7 deficiency on dendritic cells enhances fungal clearance in a murine model of pulmonary invasive aspergilliosis. *J. Immunol.*, in press, 2009.
16. Kamio K., Liu X.D., Sugiura H., Togo S., Kawasaki S., Wang X., Ahn Y., **Hogaboam C.**, Rennard S.I. Statins inhibit MMP release from lung fibroblasts. *Eur. Respir. J.*, in press, 2009.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Ito T., Schaller M., **Hogaboam C.M.**, Stolberg V., Chensue S.W., Kunkel S.L. TLR9 activation is the key event for the maintenance of a mycobacterial antigen-elicited pulmonary granuloma. *FASEB J* 22: A675.7, 2008.
2. Ishii M., **Hogaboam C.M.**, Standiford T.J., Kunkel S.L. Immunoregulatory role of Toll like receptor 9 in septic peritonitis. *FASEB J* 22: A672.5, 2008.
3. Trujillo G., Hartigan A.J., O'Connor E.C., **Hogaboam C.M.** CCR4-deficient mice are susceptible to CpG challenge in an acute exacerbation model of bleomycin-induced fibrosis as a result of phenotypic changes in macrophage polarization. *FASEB J* 22: lb425, 2008.
4. Ishii M., Wen H., Corsa C.A.S., **Hogaboam C.M.**, Dou Y., Kunkel S.L. Epigenetic modifications control the phenotype of alternatively activated macrophages. *J. Immunol.* 182: 136.4, 2009.
5. Schaller M.A., Coelho A.L., Lindell D.M., Lincoln P., Carson W.F., Ito T., Cavassani K.A., Chensue S.W., **Hogaboam C.M.**, Lukacs N.W., Kunkel S.L. Notch ligands jagged-1 and delta-like 4 differentially regulate effector and memory CD4+ T cell expansion during Th2 inflammation. *J. Immunol.* 182: 90.21, 2009.
6. Ito T., Schaller M.A., **Hogaboam C.M.**, Lukacs N.W., Chensue S.W., Kunkel S.L. TLR9 activation is an important mechanism of antigen-induced chronic lung inflammation. *J. Immunol.* 182: 135.19, 2009.
7. Ramaprakash H., **Hogaboam C.M.** Intranasal CpG therapy attenuated experimental fungal asthma in a TLR9-dependent and independent manner. *J. Immunol.* 182:140.4, 2009.

8. Adapala R.K., Smith M.R., Narala V.R., **Hogaboam C.M.**, Standiford T.J., Reddy R.C. Curcumin inhibits fibrosis-related effects in IPF fibroblasts and in mice following bleomycin-induced lung injury. *Am J Respir Crit Care Med* 179: A3473, 2009.
9. Han M.K., **Hogaboam C.M.**, Murray S., Flaherty K.R., Toews G.B., Martinez F.J. Plasma relaxin predicts FVC in IPF. *Am J Respir Crit Care Med* 179: A3014, 2009.
10. Silva P.M.R., Ferreira T.P.T., Arantes A.C.S., Rocco P.R.M., Puri R., **Hogaboam C.M.**, Martins M.A. Therapeutic attenuation of silica induced pulmonary fibrosis by immunotoxin chimeric molecule IL13-PE. *Am J Respir Crit Care Med* 179: A4001, 2009.
11. Pechkovsky D.V., Hackett T.L., Shaheen F., **Hogaboam C.M.**, Selman M., McNulty R.J., Laurent G.J., Mutsaers S.E., Knight D.A. Altered level of STAT3 basal activity influences lung fibroblast Thy-1 and alpha v beta 3 integrin expression. *Am J Respir Crit Care Med* 179: A3444, 2009.

Naohiro Inohara, Ph.D.

Research Assistant Professor

I. Clinical Activities – None

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS

1. Postdoctral Fellow
   a. Mizuho Hasegawa, Ph.D.
   b. Hitoyuki Tada, Ph.D.

B. LECTURES

1. Lectures in biochemistry at the University of Yamanashi, Japan, 90 hours
2. Lecture on molecular immunology at the University of Yamanashi, Japan, 3 hours
3. Lecture on cellular biology at the University of Yamanashi, Japan, 3 hours

III. Research Activities

A. SPONSORED SUPPORT

1. NIH/NIDCR R01 DE018503-02 (PI) 50% effort, "Regulation of Oral Bacteria by Pattern Recognition Receptors" 03/01/08 – 02/28/13, $236,680 annual direct costs.

B. PROJECTS UNDER STUDY

1. Immune responses mediated by Nod proteins and related disease
2. Regulation of oral microflora by innate immunity

IV. Administrative Activities

None

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Manuscript Reviews
   a. *Nature Immunology*
   b. *Infection and Immunity*
   c. *International Immunology*
   d. *IAI*

B. INVITED LECTURES/SEMINARS
1. Invited lecture in Japanese Society for Bacteriology, Kyoto, Japan, March 26, 2008.

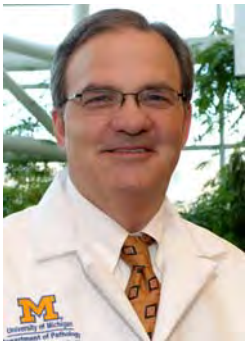
C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Society of Biochemistry and Molecular Biology
2. American Society of Cell Biology
3. Japanese Society of Immunology
4. Japanese Society of Biochemistry

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Huang W, Payne TJ, Ma JZ, Beuten J, Dupont RT, **Inohara N**, Li MD. Significant Association of ANKK1 and Detection of a Functional Polymorphism with Nicotine Dependence in an African-American Sample. *Neuropsychopharmacology*. 2008 Mar 19; [Epub ahead of print].
2. Kim YG, Park JH, Shaw MH, Franchi L, **Inohara N**, Núñez G. The Cytosolic Sensors Nod1 and Nod2 Are Critical for Bacterial Recognition and Host Defense after Exposure to Toll-like Receptor Ligands. *Immunity*. 2008 Feb;28(2):246-57. Epub 2008 Feb 7.
3. Srimathi T, Robbins SL, Dubas RL, Hasegawa M, **Inohara N**, Park YC. Monomer/Dimer Transition of the Caspase-Recruitment Domain of Human Nod1. *Biochemistry*. 2008 Feb 5;47(5):1319-1325. Epub 2008 Jan 11.
4. Hasegawa M, Fujimoto Y, Lucas PC, Nakano H, Fukase K, Núñez G, **Inohara N** A critical role of RICK/RIP2 polyubiquitination in Nod-induced NF-kappaB activation. *EMBO J.* 2008 Jan 23;27(2):373-83. Epub 2007 Dec 13.

B. BOOKS/CHAPTERS IN BOOKS
1. **Inohara, N.** Molecular mechanisms for Nod signaling. *Biochem* (Tokyo), in press.
2. **Inohara, N.** Stimulation of immunity from bacteria without infection and human related diseases. *J Yamanashi Univ.*, in press.
3. **Inohara, N.** Tale of Nod2. *Mol Gasteroent*, in press.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. Ting JP, Lovering RC, Alnemri ES, Bertin J, Boss JM, Davis BK, Flavell RA, Girardin SE, Godzik A, Harton JA, Hoffman HM, Hugot JP, **Inohara N**, Mackenzie A, Maltais LJ, Nunez G, Ogura Y, Otten LA, Philpott D, Reed JC, Reith W, Schreiber S, Steimle V, Ward PA. The NLR gene family: a standard nomenclature. *Immunity*. 2008 Mar; 28(3): 285-7.



Jeffrey M. Jentzen, M.D.

Professor of Pathology,
Director of Autopsy and Forensic Services

I. Clinical Activities

A. AUTOPSY SERVICE

1. Provides 30-40% autopsy coverage for UM hosptial service. Autopsies: 75
2. Provides coverage for Washtenaw County medical examiner every Friday and every other weekend. Autopsies: 46
3. Courtroom appearances: 3

II. Teaching Activities

A. MEDICAL STUDENTS

1. Supervise second year student's autopsy experience and review reports
2. Mentor Medsoar Student: 2 months

B. HOUSE OFFICERS AND FELLOWS

1. Provide supervision and teaching for residents on the autopsy service
2. Autopsy Supervision and Sign-out, daily 1-4 hours
3. Coordinate Gross Autopsy Conference, weekly 1 hour

C. LECTURES

1. Gross autopsy conference (weekly)
2. Entended gross conference (monthly)
3. General forensic pathology conference (monthly)
4. Multidisplinary forensic pathology case review (monthly)

III. Research Activities – None

IV. Administrative Activities

A. DEPARTMENTAL

1. Director of Autopsy and Forensic Services

B. REGIONAL/NATIONAL/INTERNATIONAL
   1. Medical Examiner Office Inspections: Kansas City, Miami, San Juan (Puerto Rico)

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
   1. *American Journal of Forensic Sciences*

B. INVITED LECTURES/SEMINARS
   1. "Deer-Vehicular Collisions in the Upper Midwest, a Public Health Problem." Presented at the Annual Meeting of the National Association of Medical Examiners, Louisville, KY, September 2008.
   2. "Position Paper on Fatal Abusive Head Injuries in Infants and Young Children," Present at the Annual Meeting of the National Association of Medial Examiners, Louisville, KY, September 9-10, 2008.
   3. "What's in a NAME?: Position Paper on Abusive Head Injuries of the National Association of Medical Examiners, Presented at Seventh North American Conference on Shaken Baby Syndrome, October 5-7, 2008.
   4. "Beyond Vital Statisitics: The Medical Examiner and Public Health," Invited Lecture, UM School of Public Health, (Dr. Paula Lantz).February 2009.
   5. Decision Consortium, "Reasonable Medical Certainty," University of Michigan, Mathematics Department, September 25, 2008.
   6. 2008 ASIP National Conference "Infants at Risk" Dearborn, MI, October 2008.
   7. Workshops "Investigation of Unexpected Childhood Deaths," and "The Role of the Medical Examiner in Childhood Death Investigations," Riyadh, Saudi Arabia, March 3-4, 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
   1. National Assoication of Medical Examiners (NAME)
      a. President, 2008
      b. Chairman of the Board (NAME) 2009
      c. Chairman, Inspection and Accreditation Committee (NAME) 2009

VI. Publications

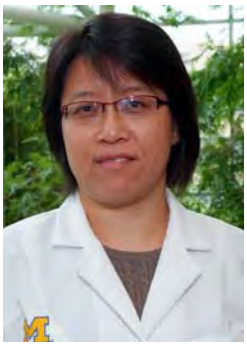
A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
   1. Prahlow J, Hanzlick R**, Jentzen J**, "Selecting Forensic Pathology as a Career: A Survey of the Past with an Eye on the Future," *Am J Forensic Med Pathol,* 2008 29 (2): 114-22.
   2. Alexander, R., **Jentzen J.** "Artifactual Neck Hemorrhage in a Drowning Victim" *Am J Forensic Med Pathol)* accepted for publication.

B. BOOKS/CHAPTERS IN BOOKS

1. **Jeffrey Jentzen**, Death Investigation in America: Medical Examiners, Coroners and the Quest for Reasonable Medical Certainity, Cambridge: Harvard University Press, 2009 (October 2009).

Xin Jing, M.D.

Clinical Lecturer



I. Clinical Activities

A. CYTOLOGY SERVICE - 23 weeks

B. BREAST SERVICE - 3 weeks

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS

1. Cytopathology conference for residents - monthly
2. Microscopic conference for Cytopathology fellows and faculty - weekly
3. Cytopathology consensus conference - daily
4. Cytopathology journal club - monthly
5. Cytopathology research conference - monthly

B. OTHER

1. Cytopathology conference sessions with the cytotechnologists - monthly

III. Research Activities

A. PROJECTS UNDER STUDY

1. Follow-up of thyroid nodules with cytologic diagnosis of follicular cell lesions
2. Cytologic diagnosis of medullary thyroid carcinoma, case report and literature review
3. Evaluation of institutional criteria for on-site assessment of fine needle aspiration of thyroid
4. Manual Read of Breast Tissue H&E slides, Performance Characteristics (PI: Dan Visscher, M.D.)
5. Comparison of flow cytometry and morphologic examination to diagnose CSF dissemination in hematologic malignancies (PI: Larry Junck, M.D.)

IV. Administrative Activities – None

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Manuscript Reviews
   a. *Journal of Cytology*
   b. *Journal of Pancreas*

B. INVITED LECTURES/SEMINARS

1. FNA of thyroid. University of Michigan New Frontiers in Pathology Breakout session. 10/2008.
2. An approach to FNA diagnosis of thyroid lesions: Diagnostic challenges and pitfalls. Teleconference Network of Texas. 04/2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. United States and Canadian Academy of Pathology
2. College of American Pathologists

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. **Jing, X**, Wamsteker E, Li H, PU RT. Combining fine needle aspiration with brushing cytology has improved yields in diagnosing pancreatic ductal adenocarcinoma. *Diagn Cytopathol*. 2009 (March).
2. Yu L, Olsen S, Lowe L, Michael C, **Jing X**. Fine needle aspiration cytology of metastatic eccrine porocarcinoma. *Diagn Cytopathol*. 2009 (April).
3. **Jing, X**, McHugh JB, Pu, RT. The Cytologic diagnosis of Rosai-Dorfman disease: a differential diagnostic approach. *ASCP CheckSample*. 2009; in press.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Cookingham C, **Jing X**, Visscher D. Outcome of papillary carcinoma of breast, one institutional experience. USCAP Annual Meeting Abstract. 2009.
2. Yu L, Olsen S, Pouryazdanparast P, Lowe L, **Jing X**: Widespread Metastatic Eccrine Porocarcinoma: Histology and Cytology. American Society of Dermatopathology 45th Annual Meeting.2008.

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Kent J. Johnson, M.D.

Professor of Pathology

I. Clinical Activities

A. RENAL PATHOLOGY

B. DIRECTOR, MORPHOLOGY CORE

C. AUTOPSY COVERAGE

II. Teaching Activities

A. MEDICAL STUDENTS

1. Laboratory Instructor-Second year Pathology Course

B. HOUSE OFFICERS AND FELLOWS

1. Pathology Residents Renal Rotation

C. LECTURES

1. Lecturer Genitourinary Pathology - Second Year Pathology Course
2. Lectures on Renal Pathology - Nephrology Fellows
3. Lectures on Renal and Skin Immunopathology - Pathology Residents
4. Lectures on Genitourinary Pathology - Dental Pathology Course
5. Pathophysiology of Renal Disease-Schering Plough Biopharma
6. Review of Proteomic Studies-Roche Bioscience

D. OTHER

1. Transplant Renal Pathology Conference – quarterly
2. Transplant Surgeons and Nephrologists

III. Research Activities

A. SPONSORED SUPPORT

1. NIH (PI) "Inflammatory Cells and Lung Injury", Core C, 02/1/05-01/31/10, $299,985 annual direct costs.
2. Pfizer, Inc. (PI) "Studies on Biomarkers of Animal and Human Vasculitis" 7/01/03-12/31/06, $160,149 annual.direct costs.
3. Pfizer, Inc. (PI) "Development of Human and Mouse Microarrays", 1/15/06-6/15/09, $534,040 annual direct costs.
4. Pfizer, Inc. (PI) "Application of Protein Expression Technologies to Identify Biomarkers of Disease", 1/15/06/1/15/09, $592,500 annual direct costs.
5. DNAX, Inc. (PI) "Biological Samples from Patients with Cancer or Inflammatory Diseases", 1/25/06-12/31/09, $133,267 annual direct costs.
6. NIH (PI Kreutzler, Co-I) "Genetic Analysis of Glomerulonephritis".
7. NIH (PI Wiggins, Co-I) " George R. OBrien Renal Center".

B. PENDING PROJECTS

1. NIH (PI) "Diagnosis of Renal Allograft Dysfunction by Proteomic Analysis of Urine and Blood", $400,000 total for two years.
2. NIH (Co-I) "Diagnosis of Vasculitis by Antibody Arrays" $169,000 total for two years.

C. PROJECTS UNDER STUDY

1. Proteomic studies in biofluids of patients with inflammatory diseases
2. Oxidant and protease interaction in inflammation
3. Pathogenesis of vasculitis
4. Pathogenesis of viral pneumonitis
5. Pathogenesis of pancreatitis and pancreatitis induced ARDS
6. Adhesion molecules and cytokines in inflammation
7. Cyclosporin-induced nephrotoxicity
8. Role of heme oxygenase in renal injury

IV. Administrative Activities

A. DEPARTMENTAL

1. Director, Immunopathology Fellowship Program
2. Director, Morphology Core
3. Renal Pathology Conference - Biweekly
4. Space Utilization Committee
5. Stobbe Funds Committee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Boards

a. Associate Editor - *Laboratory Investigation*

2. Manuscript Reviewer
   a. *American Journal of Pathology*
   b. *American Review of Respiratory Diseases*
   c. *American Journal of Respiratory Cell and Molecular Biology*
3. Consultant/Grant reviewer for the Veteran's Administration
4. NIH NHLBI Ad Hoc Study Section

B. INVITED LECTURES/SEMINARS
1. Invited Speaker Pfizer Research and Development
2. Invited Speaker Roche Bioscience
3. Invited Speaker Schering Plough Biopharma

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. College of American Pathology
2. American Society for Investigative Pathology
3. American Association of Immunologists

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Warner, RL., Bhagavathula, N., Nerusu, K., Hanosh, A., McClintock, SD., Naik, MK., **Johnson, KJ**., Varani, J. MDI 301 a non-irritating retinoid improves abrasion wound healing in damaged/atrophic skin. *Wound Repair Regen*. 2008:16:117-24.
2. Sawalha, AH., Jeffries, M., Webb, R., Lu, Q., Gorelik, G., Ray, D., Osban, J., Knowlton, N., **Johnson, KJ.**, Richardson, B.: Defective T-cell ERK signaling induces interferon-regulated gene expression and overexpression of methylation sensitive genes similar to lupus patients. *Genes and Immunity*. 2008;9:368-78.
3. Williams, JA., Andersson, T., Andersson, TB., Blanchard, R., Behm, MO., Cohen, N., Edeki, Tlk Franc, M., Hillgren, KM., **Johnson, KJ.**, Kata, DA, Milton, Mn., Jurray, BP., Polli, JW., Ricci, D., Shipley, LA., Vangala, S., Wrighton, SA: PhRMA white paper on ADME pharmacogenomics. *J. Clin Pharmacol*. 2008.
4. Hard, GC,. **Johnson, KJ.**, Cohen, SM.:A comparison of rat chronic progressive nephropathy (CPN) with human renal disease. Implications for human risk assessment. *Critical Reviews in Toxicology*. 39:332-346. 2009.
5. Bhagavathula N, Warner RL, DaSilva M, McClintock SD, Barron AG, Aslam MN, **Johnson KJ**, Varani J: A combination of curcumin and ginger extract improves abrasion wound healing in corticosteroid-damaged hairless rat skin. *Wound Repair. Regen.* 17:360-66. 2009.
6. Varani J, DaSilva M, Warner RL, O'Brien Deming M, Barron AG, **Johnson KJ**, Swartz R: Effects of gadolinium-based magnetic resonance imaging contrast agents

on human skin in organ culture and human skin fibroblasts. *Invest. Radiol.* 44:74-81. 2009.

7. Bhagavathula N, DaSilva M, Aslam MN, Dame MK, Warner RL, Xu Y, Fisher GJ, **Johnson KJ**, Swartz R, Varani J: Regulation of collagen turnover in human skin fibroblasts exposed to a gadolinium-based contrast agent. *Invest. Radiol*. In press.
8. Bhagavathula N, Nerusu K, Hanosh A, Aslam MN, Sundberg TB, Opipari AW,Jr, **Johnson KJ**, Kang S, Glick GD, Varani J; Bz-423, a benzodiazepine, suppresses kerationcyte proliferation and has antipsoriatic activity in human skin-severe combined immunodeficient mouse transplant model. *J. Pharm. Exp. Therapeut*. In press.

B. BOOKS/CHAPTERS IN BOOKS

1. Ward, PA., **Johnson, KJ.** Integrating academic laboratories into pharmaceutical development. In: Biomarkers in Drug Development. A Handbook of Practice, Application and Strategy. Rahbari, R., Jurima-Romet, M., Carini, C., Bleavins, M. (eds.) John Wiley and Sons, 2009.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

D. Amr, H., Sawalha, MD., **Johnson, KJ.** Defective T-cell ERK signaling induces interferon-regulated gene expression and overexpression of methylation sensative genes similar to lupus patients. Clinical Immunology Conference. 2008.

E. Cibrik, DM., Warner, RL., Bickel, D., **Johnson, KJ.** Antibody microarray of renal transplant patients. American Transplant Congress. 2008.

F. Bickel, D., Warner, RL., **Johnson, KJ.** Antibody microarray longevity study: How long-terms storage affects the dynamic range of printed slides. *Faseb J*. 2008:22:898.8.

G. Warner, RL., Bhagavathula, N., Hanosh, A., McClintock, SD., Naik, MK., **Johnson, KJ.**, Varani, J. MDI 301, a non-irritating retinoid improves abrasion wound healing in both aged and diabetic skin. *Faseb J*. 2008:22:1121.3.

H. McClintock, SD., Barron, A., Warner, RL., **Johnson, KJ** Murine model of occupational injury induced by chronic exposure to oak dust. *Faseb J*. 2008.22:710.10.

I. Barron, A., Warner, RL., Bhagavathula, N., **Johnson, KJ**., Varani, J.: Determination of rodent tropoelastin in the skin by competitive ELISA. *Faseb J*. 2008:22:1121.4.

J. DaSilva M, Warner RL, Bhagavathula N, Bemb JB, Weber SL, **Johnson KJ**, Varani, J MMP-1 reduced in organ cultured human skin and dermal fibroblasts by ginger and curcumin. *Faseb J*. 2009 23:469.4.

K. Warner RL, Bhagavathula N, DaSilva M, McClintoc SD, Barron A, Aslam MN, **Johnson KJ**, Varani J Curcumin and ginger extract improves abrasion wound healing in damaged skin. *Faseb J*.2009 23:469.3.

Paul D. Killen, M.D., Ph.D.

Associate Professor of Pathology

I. Clinical Activities

A. RENAL PATHOLOGY
   1. Chief Renal Consultant
   2. Diagnostic Renal Biopsy Service (210 days on service)

B. DIRECTOR, ELECTRON MICROSCOPY SERVICE

C. IMMUNOPATHOLOGY SERVICE (15 days on service)

D. ENDOMYOCARDIAL BIOPSY SERVICE (41 days on service)

E. AUTOPSY SERVICE (10 days on call)

II. Teaching Activities

A. MEDICAL STUDENTS
   1. M2 Renal Sequence Co-coordinator (40 non-contact hours)
   2. M2 Renal Sequence Lecturer (10 contact hours/15 non-contact hours)
   3. M2 Renal Sequence Lab (12 contact hours/15 non-contact hours)

B. HOUSE OFFICERS AND FELLOWS
   1. Autopsy Supervision and signout (5 hours)
   2. Case Review (Autopsy Service and GU Service, 12 hours)
   3. Medical Renal Pathology Resident Rotation (126 hours)
   4. Nephrology Board Review (8 hours)
   5. Case Review with Nephrology Fellows (40 hours)

C. OTHER
1. Nephrology Basic/Clinical Conference (12 hours)

III. Research Activities

A. SPONSORED SUPPORT
1. George M. O'Brien Kidney Research Core Center at the University of Michigan, 1P30-DK081943-01 (Co-I) 3% effort, 09/01/08-07/31/13, $535,538 annual direct costs.

B. PROJECTS UNDER STUDY
1. Glomerular podocyte reaction to injury
2. Podocyte depletion as a predictor of renal progression
3. Zebrafish KO model of focal segmental glomerulosclerosis

IV. Administrative Activities

A. DEPARTMENTAL
1. AP-Operations Committee

B. INSTITUTIONAL
1. IRBMED A1 Committee
2. Component II Curriculum Development, M2 Urinary System

V. Other Relevant Activities - None

VI. Publications - None

Celina G. Kleer, M.D.

Harold A. Oberman Collegiate Professor of Pathology
Associate Professor of Pathology

I. Clinical Activities

A. BREAST PATHOLOGY
1. Sign out sessions – 9 weeks/year
2. Breast Care Conference (BCC) 18 weeks/year
3. Breast pathology consult cases, approximately 3 hours/week

B. SURGICAL PATHOLOGY
1. On call for surgical pathology frozen sections, 4 weeks/year

II. Teaching Activities

A. GRADUATE STUDENTS
1. Heather Krueger, Cellular and Molecular Biology (CMB) program student
2. Sarah Fogoros, Cellular and Molecular Pathology (CMP) program
3. Sharon Hensley Alford, Graduate Student, School of Public Health
4. Elizabeth Kantor, Graduate Student, School of Public Health

B. HOUSE OFFICERS AND FELLOWS
1. Cynthia Cookingham, M.D., Breast Pathology Fellow
2. Breast pathology diagnostic room instruction for house officers and Surgical Pathology fellows 8 weeks
3. Slide seminar on interesting cases in breast pathology 1 contact hour
4. One didactic lecture on breast pathology 1 contact hour

C. POST-DOCTORAL FELLOWS
1. Wei Huang, M.D., Ph.D., Post-Doctoral Fellow
2. Anupama Pal, Ph.D., Post-Doctoral Fellow

D. OTHER
1. Matthew DuPrie, Undergraduate Student

2. Glenn Wozniak, Undergraduate Student

III. Research Activities

A. SPONSORED SUPPORT

1. NIH/NCI RO1 CA107469 (PI) "Role of EZH2 in Breast Cancer Progression" 2/01/05 - 1/31/10
2. Avon Foundation N009672 (PI) "Enhancer of Zeste 2 as a Biomarker of Preneoplastic Progression in the breast", 01/01/2008 - 12/31/2009
3. NIH/NCI R01CA125577 (PI) "Role of CCN 6 (WISP3) in the Progression and Metastasis of Breast Cancer" 09/01/08 - 07/31/13
4. Post-doctoral fellowship grant to Anupama Pal (Kleer, C.G., mentor) Cancer Biology Training Program-University of Michigan 07/01/08 - 12/31/09

IV. Administrative Activities

A. DEPARTMENTAL

1. Director, Breast Pathology Program and Fellowship
2. Planning Committee for EAA, member

B. INSTITUTIONAL

1. Member, Breast Care Center Task Force
2. Member and Director of the Breast Tissue Bank, Breast Oncology Program
3. Member, Cancer Research Committee, Comprehensive Cancer Center
4. Member, Cellular and Molecular Pathology Graduate Program
5. Member, Cellular and Molecular Biology (CMB) Graduate Program

C. REGIONAL/NATIONAL/INTERNATIONAL

1. Member of the Michigan Cancer Consortium Breast Cancer Advisory Committee, University of Michigan
2. Member of the Breast Cancer Panel on the CAP (College of American Pathologists) Cancer Committee
3. Member of the Education Committee of the USCAP (United States and Canadian Academy of Pathology)

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Boards
   a) Human Pathology
   b) The American Journal of Patholology

B. GRANT REVIEWS

1. Ad Hoc reviewer, NIH Molecular Pathways in Cancer, ZRG1 ONC-X (03) M
2. Permanent member, NIH Tumor Progression and Metastasis Study Section (TMP)

3. Member, NIH ZRG1 OBT-A (58) R, and NIH ZRG1 OBT-S Study Sections

C. INVITED LECTURES/SEMINARS
1. "Insights into CCN 6 function in Breast Tumorigenesis ", Visiting Professor, Department of Pathology, Wayne State University, Detroit, MI, November 15, 2008.
2. Moderator at USCAP Breast Pathology Platform Sessions, USCAP meeting, Boston March 7-12, 2009.
3. Difficult Topics in Breast Pathology: Columnar Lesions and Micrometastasis" Distinguished Lecturer, 8th Congress of Mastology, Rosario, Argentina, April 24-25, 2009.
4. ”Molecular Classification of Breast Cancer" Distinguished Lecturer, 8th Congress of Mastology, Rosario, Argentina, April 24-25, 2009.
5. ”Breast Cancer and Genes: New molecular tests in the clinic" Distinguished Lecturer, 8th Congress of Mastology, Rosario, Argentina, April 24-25, 2009.
6. "Tumor suppressor functions of CCN6 in the Mammary Gland", Distinguished Visiting Professor, Universidad National de Ciencias Quimicas, Universidad Nacional de Cordoba, Argentina.
7. "New insights into the function of EZH2 in Breast Tumorigenesis" Visiting Professor, Translational group, Department of Cancer Biology, UMass Worcester, May 13, 2009.
8. "Molecular Pathobiology of Breast Cancer" Lecture at the 2009 Summer Academy of the ASIP (American Society for Investigative Pathology), Arlington, VA, June 5-8, 2009.

D. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Member, United States and Canadian Academy of Pathology
2. Member, American Association of Clinical Pathologists
3. Member, American Medical Association
4. Member, College of American Pathologists
5. Member, A. James French Society of Pathologists
6. Member, American Association for Cancer Research
7. Member, CCN Proteins Society
8. Member, Southwest Oncology Group (SWOG)
9. Member, American Society for Investigative Pathology
10. Member, American Society for Clinical Oncology

E. HONORS AND AWARDS
1. Harold Oberman Collegiate Professor of Pathology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Hayes, MJ*, Thomas, D*, Emmons A, Giordano TJ, and **Kleer, CG**. Genetic Changes of Wnt Pathway Genes are Common Events in Metaplastic Carcinomas of the Breast. *Clinical Cancer Research* 14(13): 4038-44, 2008.
2. Kunju L, Ding Y, **Kleer CG**. Convergence between breast flat epithelial atypia and atypical ductal hyperplasia: validity and limitations. *Human Pathol*. Sept 15, 2008.
3. **Kleer CG ***, Bloushtain-Qimron N*, Chen Y-H, Carrasco D, Hu M, Yao J, Kraeft S, Collins LC, Sabel MS, Argani P, Gelman R, Schnitt SJ, Krop IE, Polyak K. Epithelial and stromal cathepsin K and CXCL14 expression in breast tumor progression. *Clinical Cancer Research*, 14: 5357-5367, 2008.
4. Kunju LP, Ding Y, and **Kleer CG**. Tubular carcinoma and grade 1 (well-differentiated) invasive ductal carcinoma: Comparison of flat epithelial atypia and other intra-epithelial lesions. *Pathology International* 58(10): 620-5, 2008.
5. Kilbride KE, Lee MC, Nees AV, Cimmino VM, Diehl KIM, Sabel MS, Hayes DF, Schott AF, **Kleer CG**, Chang AE, Newman LA. Axillary Staging Prior to Neoadjuvant Chemotherapy for Breast Cancer: Predictors of Recurrence. *Ann Surg Oncol.* 15(11):3252-8, 2008.
6. Cao Q, Yu J, Dhanasekaran SM, Kim JH, Mani RS, Tomlins SA, Mehra R, Laxman B, Cao X, Yu J, **Kleer CG**, Varambally S, Chinnaiyan AM. Repression of E-cadherin by the polycomb group protein EZH2 in cancer. *Oncogene* 27(58):7274-84, 2008.
7. Sabel MS, Rogers K, Griffith K, Jagsi R, **Kleer CG**, Diehl KA, Breslin TM, Cimmino VM, Chang AE, Newman LA. Residual disease after re-excision lumpectomy for close margins. *J Surg Oncol.* 99(2):99-103, 2009.
8. Gonzalez ME, Li X, Toy K, DuPrie M, Banerjee M, Ljungman M, Merajver SD, **Kleer CG.** Downregulation of Enhancer of Zeste-2 decreases growth of estrogen receptor negative invasive breast carcinoma and requires BRCA1. *Oncogene* 28(6):843-53, 2009.
9. Lester SC, Bose S, Chen YY, Connolly JL, de Baca ME, Fitzgibbons PL, Hayes DF, **Kleer CG**, O'Malley FP, Page DL, Smith BL, Weaver DL, Winer E; Members of the Cancer Committee, College of American Pathologists. Protocol for examination of specimens from patients with ductal carcinoma in situ of the breast. *Arch pathol Lab Med.* 133(1):15-25, 2009.
10. Lo AC, Georgopoulos A, **Kleer CG**, Banerjee M, Omar S, Khaled H, Eissa S, Hablas A, Omar HG, Douglas JA, Merajver SD, Soliman AS. Analysis of RhoC expression and lymphovascular emboli in inflammatory vs. non-inflammatory breast cancers in Egyptian patients. *Breast* 18(1):55-9, 2009.
11. Sparano JA, Moulder S, Kazi A, Coppola D, Negassa A, Vahdat L, Li T, Pellegrino C, Fineberg S, Munster P, Malafa M, Lee D, Hoschander S, Hopkins U, Hershman D, Wright JJ, **Kleer CG**, Merajver S, Sebti SM. Phase II trial of tipifarnib plus

neoadjuvant doxorubicin-cyclophosphammide in patients with clinical stage IIB-IIIC breast cancer. *Clin Cancer Res* 15(8):2942-8, 2009.

12. Witkiewicz AK, Dasgupta A, Sotgia F, Mercier I, Pestell RG, Sabel M, **Kleer CG**, Brody JR, Lisanti MP. An absence of stromal caveolin-1 expression predicts early tumor recurrence and poor clinical outcome in human breast cancers. *The American Journal of Pathology* 174(6):2023-34, 2009.
13. Witkiewicz AK, Casimiro MC, Dasgupta A, Mercier I, Wang C, Bonuccelli G, Jasmin JF, Frank PG, Pestell RG, **Kleer CG**, Sotgia F, Lisanti MP. Towards a new "stromal-based" classification system for human breast cancer prognosis and therapy. *Cell Cycle* 8(11):1654-8.
14. Rhodes DR, Ateeq B, Cao Q, Tomlins SA, Mehra R, Laxman B, Kalyana-Sundaram S, Lonigro RJ, Helgeson BE, Bhojani MS, Rehemtulla A, **Kleer CG**, Hayes DF, Lucas PC, Varambally S, Chinnaiyan AM. AGTR1 overexpression defines a subset of breast cancer and confers sensitivity to losartan, an AGTR1 antagonist. *Proc Natl Acad Sci USA* 106(25):10284-9, 2009.
15. Li X, Gonzalez ME, Toy K, Filzen T, Merajver SD and **Kleer CG**. Targeted Overexpression of EZH2 in the Mammary Gland Disrupts Ductal Morphogenesis and Causes Epithelial Hyperplasia. *The American Journal of Pathology*, in press.

B. BOOKS/CHAPTERS IN BOOKS

1. **Kleer, C.G.** CCN6 (WISP3) as a regulator of EMT: Implications in breast cancer metastasis. Human Epithelial Tumor Cell Plasticity: Implications for Cancer Progression and Metastasis 59-68, 2008. Editor: Paul J. Higgins. Research Signpost, India.

Stewart M. Knoepp

Assistant Professor

I. Clinical Activities

A. CYTOPATHOLOGY 23 weeks
   1. Cytopathology Consultation Service: 9 weeks.

B. GYNECOLOGIC SURGICAL PATHOLOGY 6 weeks

II. Teaching Activities

A. MEDICAL STUDENTS
   1. Instruction in the performance and interpretation of fine needle aspirates and sign-out of gynecologic and non-gynecologic cytology cases - 6 weeks.

B. HOUSE OFFICERS AND FELLOWS
   1. Sign-out: Gynecologic and Non-Gynecologic Cytology Cases - 9 weeks
   2. Instruction in the Performance and Interpretation of Fine Needle Aspirates -14 weeks
   3. Sign-out: Gynecologic Surgical Pathology cases - 6 weeks
   4. Cytopathology Resident Conference - 3 Slide Review/lectures
   5. Weekly Cytopathology Fellowship Conference - 12 months
   6. Daily Cytopathology Consensus Conference - 12 months
   7. Monthly Cytopathology Journal Club - 12 months
   8. Monthly Cytopathology Research Conference - 12 months

C. LECTURES
   1. Resident Cytopathology Conference - 3 lectures

III. Research Activities

A. SPONSORED SUPPORT - None

B. PROJECTS UNDER STUDY
   1. A Cytologic/Histologic Review of Thyroid Follicular Lesions

IV. Administrative Activities

A. DEPARTMENTAL
1. Director, Monthly Cytopathology Research Conference

B. REGIONAL/NATIONAL/INTERNATIONAL
1. College of American Pathology
   a. Spokesperson 2007 - 2010
   b. Mentoring Program (2008 - 2009)

V. Other Relevant Activities

A. INVITED LECTURES/SEMINARS
1. "Papillary Thyroid Carcinoma" New Frontiers in Pathology, University of Michigan. September, 2008.
2. "Unusual Epithelial Metastases in Effusion Cytology" Teleconference Network of Texas. The University of Texas Health Science Center at San Antonio. June 23, 2009.

B. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. United States and Canadian Academy of Pathology, Member
2. College of American Pathologists
   a. Fellow (2008 - Present)
   b. Spokesperson (2007 - Present)
3. American Society of Cytopathology, Member
4. Papanicolaou Society of Cytopathology, Member

C. HONORS AND AWARDS
1. Diplomate of American Board of Pathology in Cytopathology (2008)

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Jorns, JM, and **Knoepp, SM.** (2009) Occult Fallopian Tube Carcinoma detected in Routine Pelvic Washing Specimens Submitted for Staging: Another Justification for Pelvic Washing Cytology? *Diagnostic Cytopathology*. In press.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. **Knoepp, SM,** McDonald, AG, Mino-Kenudson, M, and Balassanian, R. (2008) Distinguishing Squamous Cell Carcinoma from Adenocarcinoma in Lung Fine Needle Aspiration Biopsy: A Cytologic/Histologic Review of 109 Cases. American Society of Cytopathology National Conference. Orlando, Fl.
2. **Knoepp, SM.** (2009) "Cytology: High-risk HPV Testing." Advances for Laboratory Directors. In press.

Chandan Kumar-Sinha, Ph.D.

Research Assistant Professor

I. Clinical Activities – None

II. Teaching Activities

A. GRADUATE STUDENTS
1. Noah Wolfson (PhD Candidate)
2. Joshua Regale (MD PhD Candidate)

B. UNDERGRADUATE STUDENTS
1. UROP students
   a. Haala Hai (6 months)
   b. Balreet Kehlon (6 months)
2. Volunteer Students
   a. Mahjabeen Sidra Siddiqui (3 months)
   b. Peter Fullen (3 months- ongoing)
   c. Nikita Consul (3 months- ongoing)

C. VISITORS
1. Nandan Deshpande, PhD Student, Macguire University, Australia (2 weeks)
2. Dr Kumar Prabhash, Assoc Prof. Medical Oncology, Tata Memorial Hospital, India (2 weeks)

III. Research Activities

A. SPONSORED SUPPORT
1. Lustgarten Foundation (PI) Discovery of Recurrent Gene Fusions in Pancreatic Cancer using High-throughput Sequencing, 02/01/09 – 01/31/2010, $100,000 annual direct costs.
2. DOD (PI: Wicha, Co-I) National Functional Genomics Center, 03/01/09 – 08/31/13, $350,000 annual direct costs.
3. DOD BCO75023 (PI: Chinnaiyan, Co-I) A Search for Gene Fusions/Translocations in Breast Cancer, 09/01/08 – 08/31/13.

B. PENDING PROJECTS
1. NIH Challenge Grant RFA-OD-09-003 (PI) High Throughput Transcriptome Sequencing for Systematic Detection of Recurrent Gene Fusions and Transcript Aberrations in Pancreatic Cancer, Aug 2009 - July 2011.

C. PROJECTS UNDER STUDY
1. Transcriptome Sequencing and Characterization of Breast Cancer and pancreatic Cancer

IV. Administrative Activities - None

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Reviewer
   a. *Cancer Research*
   b. *Clinical Cancer Research*

B. INVITED LECTURES/SEMINARS
1. Invited presentation, Poster presentation and Poster Discussion talk, Prostate Cancer Program Retreat, Baltimore, MD, March 25-27, 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Association for Cancer Research, Active Member

D. HONORS AND AWARDS
1. The Lustgarten Foundation for Pancreatic Cancer Research Award 2009: Discovery of Recurrent Gene Fusions in Pancreatic Cancer using High-Throughput Sequencing

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Varambally S, Cao Q, Mani RS, Shankar S, Wang X, Ateeq B, Laxman B, Cao X, Jing X, Ramnarayanan K, Brenner JC, Yu J, Kim JH, Han B, Tan P, **Kumar-Sinha C**, Lonigro RJ, Palanisamy N, Maher CA, Chinnaiyan AM. Genomic loss of microRNA-101 leads to overexpression of histone methyltransferase EZH2 in cancer. *Science*. 2008 Dec 12;322(5908):1695-9. Epub 2008 Nov 13. PMID: 19008416.
2. Maher CA*, **Kumar-Sinha C***, Cao X, Kalyana-Sundaram S, Bo Han B, Jing X, Sam L, Barrette T, Palanisamy N, & Arul M. Chinnaiyan. Transcriptome sequencing to detect gene fusions in cancer. *Nature*. 2009 Jan 458(7234):97-101. NIHMSID 103039.
3. Maher CA, Palanisamy N, Brenner JC, Cao X, Kalyana-Sundaram S, Luo S, Khrebtukova I, Barrette TR, Quist C, Yu J, Lonigro RJ, Schroth G, **Kumar-Sinha C** and Arul M. Chinnaiyan. Chimeric transcript discovery by paired-end transcriptome sequencing. PNAS 2009 (in press).

Lakshmi P. Kunju, M.D.

Assistant Professor of Pathology

I. Clinical Activities

A. GENERAL SURGICAL PATHOLOGY: 4 weeks

B. GENITO-URINARY PATHOLOGY
1. Diagnostic Service: 14 weeks
2. Consultation Service: 22 weeks
3. Review of Urology cases to be presented at Multidisciplinary Tumor Conference, biweekly

C. BREAST PATHOLOGY
1. Diagnostic Service : 4 weeks

D. INTRA-OPERATIVE CONSULTATION (on-call): 4 weeks

E. CVC FROZEN SECTION CONSULTATION: 5-8 half-days/month

II. Teaching Activities

A. MEDICAL STUDENTS
1. M2 Didactic Lecture, Renal sequence, entire class: Pathology of Urinary Bladder (1 contact hour)
2. M1 Histopathology Sequence, Laboratory Instructor (22 contact hours)
3. M-2 GU Pathology Lab Sequence, Laboratory Instructor, (4 contact hours)
4. Senior Elective in Pathology: Supervising during diagnostic sign-out

B. DENTAL STUDENTS
1. Didactic full class lecture "Pathology of Male Reproductive System" (328), IMS III, School of Dentistry (1 contact hour)

C. HOUSE OFFICERS AND FELLOWS
1. General Surgical, Breast and GU Pathology Diagnostic Room Instruction for HO & Fellows: 22 weeks
2. GU Path Slide (Consult) Conferences: Two conferences (1 hour each)
3. GU Path Fellow: TS and Consult cases Teaching: 22 weeks
4. Didactic Lecture on Testicular Germ Cell Tumors (1 hour)

D. LECTURES
1. Invited Speaker at New Frontiers in Diagnostic Pathology (French Society Meeting). Talk on "Cystic Neoplasms of Kidney in Adults" (30 minutes)
2. Invited Speaker at New Frontiers in Diagnostic Pathology (French Society Meeting). "Select Rare and Recently Described Variants of Renal cell Carcinoma", GU Break-Out Session (45 minutes)

E. OTHER
1. Multidisciplinary Urology Tumor Conference: 1 hour, weekly

III. Research Activities

A. PROJECTS UNDER STUDY
1. Utility of novel immunohistochemical markers including Pax-2 and p63 in distinguishing collecting duct renal cell carcinoma from its morphological mimics
2. Review of Urothelial carcinoma with Divergent (mixed histology) in TURBT performed at outside (TS) institutions - emphasis on incidence, morphologic types and awareness of diagnosis amongst community pathologists
3. Morphologic and Clinico-pathologic analysis of Unclassified type RCC diagnosed at our institution over the last decade- Can some of these tumors be re-classified into a recognized category using current criteria?
4. Aperio Study (Project Pink): Comparison of diagnosis of 150 breast cases (routine and challenging) with virtual web-based Spectrum microscope and conventional microscope, evaluation of Performance characteristics
5. A phase II study of intravesical BCG followed by sunitinib for the treatment of high risk non-muscle invasive lower urinary tract urothelial carcinoma
6. 5-hydroxyprostaglandin dehydrogenase expression (PGDH) contributes to bladder cancer progression- Comaprison of PGDH and EZH2 expression in urothelial carcinoma- is there an inverse relationship between these markers?
7. Evaluation of ADAM 10 and ADAM 15 (metalloproteinases) in urothelial carcinoma- do they contribute to progression of urothelial carcinoma?
8. Breast carcinoma with neoadjuvant chemotherapy- Can Wnt pathway get activated in residual cells?
9. A phase II study of intravesical BCG followed by sinitinib for the treatment of high-risk non-muscle invasive lowere urinary tract urothelial carcinoma

10. A comparative PET/CT vs. Diagnostic CT for the detection of clear cell RCC in pre-surgical patients with Renal mass using Iodine-124 labelled chimeric G 250

IV. Administrative Activities

A. DEPARTMENTAL

1. Histology Committee, member (1hour/week)
2. Review of Frozen Section Concordance, Quality Assurance for Histology Committee Weekly Dashboard, 1.5 hours/week
3. Lean Accession Re-design Committee(LARC)
4. Surgical Pathology Fellow Candidate Interviews
5. GU Path Fellow candidate interviews
6. Pathology Residency Program Candidate Interviews
7. Surgical Pathology Faculty Candidate Interviews

B. INSTITUTIONAL

1. Medical School Admission Committee Member

C. REGIONAL/NATIONAL/INTERNATIONAL

1. Member, RISE (Resident In-Service Examination) Committee, American Society of Clinical Pathology (ASCP)

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Adhoc manuscript reviewer
   a. *International Journal of Cancer*
   b. *Indian Journal of Urology*
   c. *Human Pathology*

B. INVITED LECTURES/SEMINARS

1. Expression of Stem Cell Markers ALDH-1 and EZH2 in Triple Negative Breast Carcinomas. Podium Presentation at 98th United States and Canadian Academy of Pathology Meeting, Boston, MA, Mar 2009.
2. ER/PR Positive and ER/PR Negative DCIS: Morphologic Characterization in a Cohort of Age-Matched Cases. Poster Presentation at 98th United States and Canadian Academy of Pathology Meeting, Boston, MA, Mar 2009.
3. Invited Speaker at New Frontiers in Diagnostic Pathology (French Society Meeting). Talk on "Cystic Neoplasms of Kidney in Adults"
4. Invited Speaker at New Frontiers in Diagnostic Pathology (French Society Meeting). "Select Rare and Recently Described Variants of Renal cell Carcinoma", GU Break Out Session

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Urologic Association (AUA)
2. United States and Canadian Academy of Pathology (USCAP)
3. American Socieity of Clinical Pathology (ASCP)
4. American Medical Association (AMA)
5. Michigan Society of Pathologists
6. Assosiation of Indian Pathologists of North America (AIPNA)

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Development of a Multiplex Quantitative PCR Signature to Predict Progression in Non-Muscle-Invasive Bladder Cancer. Wang, R; Morris, D; Tomlins S; Lonigro R; Tsodikov A; Mehra R; Giordano T; **Kunju LP**; Lee C; Weizer A; Chinnaiyan A; *Cancer Res*. 2009 May 1;69(9):3810-8.
2. Should Multiple Cores with Prostate Cancer Submitted in the Same Container Be Assigned Individual Gleason Scores? **LP Kunju**, S Daignault, JT Wei and RB Shah. *Hum Pathol.* 2009 Apr;40(4):558-64.
3. A Comparison of Lymphovascular Invasion in Urothelial Cancer in Matched TURBT and Radical Cystectomy Specimens. **LP Kunju**, L You, Y Zhang, S Daignault, JE Montie and CT Lee. *J Urol* Nov 2008: 180: 1928-32.
4. Renal Cell Carcinoma in Children and Young Adults: Analysis of Clinicopathologic, Immunohistochemical and Molecular Characteristics with an Emphasis on the Spectrum of Xp11.2 Translocation Associated and Unusual Clear Cell Subtypes. A Wu., **LP. Kunju**, L Cheng, RB Shah. *Histopathology*. 2008 Nov;53(5):533-44.
5. Tubular Carcinoma and Grade 1 (Well Differentiated) Invasive Ductal Carcinoma: Comparison of Associated Flat Epithelial Atypia and Other Intra-Epithelial Lesions. **LP Kunju**, Y Ding and CG Kleer. *Pathology International*, 2008 Oct; 58(10):620-5.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. Letter to Editor. "Convergence between breast flat epithelial atypia and atypical ductal hyperplasia: validity and limitations- Reply". **LP Kunju**, Y Ding, and CG. Kleer. *Hum Pathol*, Sep 2008.
2. Expression of Stem Cell Markers ALDH-1 and EZH2 in Triple Negative Breast Carcinomas. **LP Kunju**, K Toy, D Thomas, Y Ding and CG Kleer. *Mod Pathol* 2009:22(1):52A (225).
3. ER/PR Positive and ER/PR Negative DCIS: Morphologic Characterization in a Cohort of Age-Matched Cases. **LP Kunju** and CG Kleer. *Mod Pathol* 2009:22(1):52A (226).

4. Significance of tertiary pattern 5 in prostate needle biopsies with Gleason score of 3+4 or 4+3 prostate cancer: Pathologic correlation following radical prostatectomy. Shah RB, Daignault S, **Kunju LP**, Wood DP Jr., Wei JT. *Mod Pathol* 2009:22(1): 193A (873).
5. Analysis of novel immunohistochemical markers with a cluster analysis approach to define an optimal panel for differential diagnosis of renal epithelial neoplasms with eosinophilic cytoplasm. M Wasco, J Carvalho, **LP Kunju**, DG Thomas, RB Shah. *Mod Pathol* 2009:22(1):201A (911).

Steven L. Kunkel, Ph.D.

Endowed Professor of Pathology Research
Co-Director of Sponsored Research
Senior Associate Dean for Research

I. Clinical Activities - None

II. Teaching Activities

A. MEDICAL STUDENTS
1. MSTP Program (interviewing)
2. MSTP student rotation (Michael Mashiba)

B. GRADUATE STUDENTS
1. Mike Mashiba
2. Doctoral Thesis Committee Member/Orals Committee
   a. Lara Kallal (Pathology)
   b. Adam Hartigan (Immunology)
   c. Mohamad Fallahi (Chemical Engineering)
   d. Aasia Obaid (Dentristy)
   e. Andrea Waite (CMDB)
   f. Matt Hyman (CMB)
   g. Susan Faust (Immunology)
   h. Penghui Shou (Immunology)

C. THESIS COMMITTEES
1. Ana Lucia Coelho
2. Toshihiro Ito
3. Makoto Ishii
4. Karen Cavassani De Souza

D. UNDERGRADUATE STUDENTS
1. Alex Dean
2. Danielle Borgerding
3. Hannah Logue
4. Pavel Godfrey
5. Ellen Walsh
6. Ally Knight
7. Dan Fong
8. Hannah Logue

9. Alex Dean

E. HOUSE OFFICERS AND FELLOWS
   1. Grand rounds: Pediatrics

III. Research Activities

A. SPONSORED SUPPORT
   1. NIH 2 RO1 HL-31237; (PI) 12% effort, Monokine Gene Expression/Regulation in Lung Injury, 01/01/2009 - 12/31/2013, $233,000 annual direct costs.
   2. NIH 1R01 HL-089216; (PI) 12% effort, Cytokine Phenotypes Alter the Host's Response During Chronic Lung Inflammation, 12/1/2008 - 11/30/2013, $250,000 annual direct costs.
   3. NIH 5 P01-31963 (PI) 5% effort, Inflammatory Cells and Lung Injury; Program Project2/1/2005 - 1/31/2010, $1,287,717 annual direct costs.
   4. NIH 1 R33 HL092845 (PI) 12% effort, A Multi-scale and Multi-system Approach to Understand Granuloma Formation in TB, 7/15/08 - 5/31/2010, $150,000 annual direct costs.
   5. NIH 2 T32 A1007413 (PI) 3% effort, Research Training in Experimental Immunology Training Grant, 9/1/2008 - 8/31/2013, $347,104 annual direct costs.

B. PROJECTS UNDER STUDY
   1. Role of cytokines in acute and chronic inflammation
   2. Regulation of chemokine gene expression
   3. Macrophage-lymphocyte interactions in the initiation, maintenance, and resolution of chronic inflammation
   4. Epigenetic regulation of cytokine gene expression

IV. Administrative Activities

A. DEPARTMENTAL
   1. Co-Director Division of Sponsored Research
   2. Operating Committee Pathology Graduate Program
   3. Interview candidates for Graduate Program
   4. Member, Department of Pathology ACAPT committee
   5. Director, Research Training in Experimental Immunology Training Program (Pathology)

B. INSTITUTIONAL
   1. Academic Advisor, Immunology Graduate Program
   2. Operating Committee Graduate Program in Immunology
   3. Member, Lung Immunopathology Post-doctoral Training Program (Pathology)
   4. Member, Pulmonary Cellular and Molecular Biology Training Program
   5. Member, Pediatric Training Grant "Cellular and Molecular Biology in Pediatrics"
   6. Member, Systems and Integrative Biology Training Program (Physiology)
   7. Member, Hematology Training Grant
   8. Member, Multidisciplinary Training Program in Lung Disease
   9. Member MMP Microbiology Molecular mechanisms in Microbial Pathogenesis Training Program
   10. Member, Graduate Teaching Award Review Committee
   11. Director, Immunology Program (BSRB)

12. Member, Committee on Medical Student Research
13. Medical Scientist Training Program interviewer
14. Member, Michigan Cancer Center
15. Grant reviewer, Biomedical Research Council
16. .Member, Advisory Committee Cancer Center Animal Core
17. CMB Advisory Committee
18. Member, Medical School Space Committee
19. Member, Provost Promotion Committee
20. Senior Associate Dean for Research, Medical School

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Grant Reviewer, The Arthritis Society
2. Grant Reviewer, Veterans Administration
3. National Institutes of Health Study Section, ad hoc Institute of Aging
4. Chair, Board of Scientific Counselors, NIAID, NIH
5. Scientific Advisory Board Committee 9th World Congress on Inflammation
6. INBRE; NIH Advisory Board

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Boards
   a. Associate Editor, *Experimental and Molecular Pathology*
   b. Associate Editor, *Shock*
   c. Editorial Board, *Mediators of Inflammation*
2. Reviewer
   a. *American Journal of Pathology*
   b. *American Review of Respiratory Disease*
   c. *Circulation*
   d. *Infection and Immunity*
   e. *Laboratory Investigation*
   f. *Science*
   g. *Journal of Immunology*
   h. *American Journal of Respiratory Cell and Molecular Biology*
3. Review panel Genoma Espana

B. INVITED LECTURES/SEMINARS
1. Speaker, Toll-like receptors and Notch ligand in inflammation, Barcelona, Spain June 2008.
2. Session chair/speaker. Gordon Conference on Chemotactic Cytokines, Aussois, France September 2008.
3. Speaker-Keynote, Immunology/Microbiology Annual Scientific Retreat, Kellogg Biological Station October 2008.
4. Speaker, XXXIII Congress of the Brazilian Society for Immunology, Ribeirao Preto, Brazil, October 2008.
5. Speaker, NIH 6th Symposium on the Functional Genomics of Critical Illness & Injury Bethesda, MD, November 2008.
6. Speaker, miRNA and Epigenetic Regulations of the Immune Response, NIH, Bethesda, MD December 2008.
7. Keynote Speaker, North Dakota Academy of Science, Fargo, ND April 30, 2009.

8. Plenary lecture, Pediatric Academic Societies, Baltimore, MD, May 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Society for Microbiology
2. American Society of Investigative Pathology
   a. Member, Nominating Committee, 2006-2009
3. American Association of Immunology
4. American Association for the Advancement of Science
5. American Thoracic Society
6. Shock Society
7. American Society for Clinical Investigation
8. Association of University Pathologist (PLUTO Society)

D. HONORS AND AWARDS
1. Senior Fellow, Michigan Society of Fellows
2. AAAS Fellow

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Ishii M, Hogaboam CM, Joshi A, Ito T, Fong DJ, **Kunkel SL**. CC chemokine receptor 4 modulates Toll-like receptor 9-mediated innate immunity and signaling. *Eur J Immunol* 2008; 38:2290-2302, PMID 18624303.
2. Cavassani, KA, Ishii M, Wen H, Schaller MA, Lincoln PM, Lukacs NW, Hogaboam CM, **Kunkel SL**. TLR3 is an endogenous sensor of tissue necrosis during acute inflammatory events *J Exp Med* 2008; 205:2609-2621, PMID 18838547.
3. Meneghin A, Choi ES, Evanoff HL, **Kunkel SL**, Martinex FJ, Flaherty KR, Toews GB, Hogaboam CM. TLR9 is expressed in idiopathic interstitial pneumonia and its activation promotes in vitro myofibroblast differentiation. *Histochem Cell Biol* 2008 130:979-992, PMID 18633634.
4. Joshi AD, Schaller MA, Lukacs NW, **Kunkel SL**, Hogaboam CM. TLR3 modulates immunopathology during a Schistosoma mansoni egg-driven Th2 response in the lung. *Eur J Immunol* 2008. 38:3436-3449, PMID: 19009529.
5. Ramaprakash H, Ito T, Standiford TJ, **Kunkel SL**, Hogaboam CM. TLR9 modulates immune responss to Aspergillus fumigatus conidia in immunodeficient and allergic mice. *Infect Immun* 2009 77:108-119, PMID 18936185.
6. Ito T, Schaller M, Hogaboam CM, Standiford TJ, Sandor M, Lukacs NW, Chensue SW, **Kunkel SL**. TLR9 regulates the mycobacteria-elicited pulmonary granulomatous immune response in mice through DC-derived Notch ligand Delta-like 4. *J Clin Invest* 2009 119:33-46, PMID 19075396.
7. Raghavendran K, Notter RH, Davidson BA, Kelinski JD, **Kunkel SL**, Knight PR. Lung contusion: Inflammatory mechanisms and interactions with other injuries. *Shock* 2009 (ePub), PMID19174738.
8. Mortaz E, Kraneveld AD, Smit KK, Kool M, Lambrecht BN, **Kunkel SL**, Lukacs NW, Nijkamp FP, Folkerts G. Effect of cigarette smoke extract on dendritic cells and their impact on T-cell proliferation. 2009 *PLoS One* e4946, PMID 19293939.
9. Mukherjee S., Schaller MA, Neupane R., **Kunkel SL**, Lukacs NW. Regulation of T cell activation by notch ligand, DLL4, promotes IL-17 production and rorc activation. *J. Immunol* 2009. 182:7381-7388, PMID 19494260.

10. Benjamim C, **Kunkel SL**. ATL-1, an aspirin-triggered lipoxin A4 synthetic analog, prevents the inflammatory and fibrotic effects of bleomycin-induced pulmonary fibrosis. *J Immunol.* 2009. 182:5374-5381, PMID 19380784.
11. Ishii M., Wen H, Corsa C, Liu T, Allen R, Caerson WF, Cavassani KA, Li X, Lukacs N, Hogaboarm CM, **Kunkel SL**. Epigenetic regulation of the alternatively activated macrophage phenotype. *Blood*. (In press).

Andrew P. Lieberman, M.D., Ph.D.

Associate Professor of Pathology

I. Clinical Activities

A. NEUROPATHOLOGY

1. Diagnostic surgical neuropathology, 10 weeks
2. Autopsy evaluation of brains submitted to the Michigan Alzheimer's Disease Research Center

II. Teaching Activities

A. MEDICAL STUDENTS

1. Lecturer (2 hrs) and laboratory instructor (3 laboratories, 6 hrs), M2 Pathology, Neuroscience Sequence

B. GRADUATE STUDENTS

1. Full-time laboratory trainees
   a. Zhigang Yu, M.D. (postdoctoral fellow)
   b. Christopher Pacheco (thesis student)
   c. Adrienne Wang (thesis student)
   d. Matthew Elrick (thesis student)
   e. Ting Yu (thesis student)
2. Rotating graduate students
   a. Garrett Gibson, Molecular and Cellular Pathology Graduate Program
   b. Jason Chua, Neuroscience Graduate Program
3. Thesis committee member
   a. Cole Ferguson, Neuroscience Graduate Program
   b. Kristine Ito, Cellular and Molecular Biology Graduate Program
   c. Ashley Reinke, Biological Chemistry Graduate Program
4. Preliminary examination committee member
   a. Jamie Lane, Cellular and Molecular Biology Graduate Program
5. Teaching in Graduate School courses
   a. Lecturer and laboratory instructor, "Neuropathology", Pathology 581

b. Faculty evaluator of student presentations, CMB 850
c. Lecturer and discussion section leader, "Polyglutamine diseases and ALS", Neuroscience 602
d. Poster session judge, Cellular and Molecular Biology 28th Annual Research Symposium

C. UNDERGRADUATE STUDENTS
1. Christopher Ware
2. Adam Dziuba

D. HOUSE OFFICERS AND FELLOWS
1. House Officers
   a. Slide conferences (2) on neurodegenerative disease, pathology house officers
   b. Course director and instructor, Introduction to Neuropathology, Pathology 858
2. Postdoctoral Fellows advisory committee
   a. Stacey Sakowski, Department of Neurology
   b. Mary Heng, Department of Neurology

E. LECTURES
1. Invited presentation and laboratory instructor, "Autopsy diagnosis of dementia", Advanced Course in Dementia Care, Eastern Michigan University, Ann Arbor, Michigan, June 2009.

III. Research Activities

A. SPONSORED SUPPORT
1. NIH/NIA P50 AG08671 (PI Gilman, Core PI), "Michigan Alzheimer's Disease Research Center" 6/1/05 - 5/31/10, 1.2 months effort $137,587 annual direct costs for Neuropathology Core.
2. McKnight Endowment Fund, Brain Disorders Award (PI), "Treatment of a polyglutamine neurodegenerative disease with synthetic bifunctional compounds that target misfolded proteins" 2/1/07 - 1/31/10, 0 months effort, $100,000 annual direct costs.
3. NIH R01 NS055746-A1 (PI), "Mechanisms of motor neuron toxicity in Kennedy disease", 3/1/07 - 1/31/12, 3 months effort, $218,750 annual direct costs.
4. NIH R03 NS057150-A1 (PI), "A conditional null mutant of the mouse Npc1 gene", 5/1/07 - 4/30/09, 0.6 months effort, $50,000 annual direct costs.
5. NIH/NINDS R01 NS063967-A1 (PI), "Unraveling mechanisms of Niemann-Pick C neuropathology with mouse models", 9/1/09 - 8/31/1, 3.6 months effort, $250,000 annual direct costs.
6. NIH/NINDS F31 NS51143 (Pacheco; Lieberman sponsor), "Understanding Niemann-Pick C with cell and mouse models" 6/1/05-– 9/30/08, 0 effort.

7. Schering-Plough Biopharma, No number (Johnson, K.; Lieberman, subcontract), "Neuroinflammation in Alzheimer Disease", 4/1/08 - 12/31/08, 0 effort, $30,000 total costs (for Lieberman subcontract).

B. PENDING PROJECTS
1. Muscular Dystrophy Association, No grant number (PI), "Modulating protein quality control pathways with methylene blue to treat SBMA", 7/1/09 - 6/30/12, 1.1 months effort, $81,000 annual direct costs.
2. NIH/NINDS R01 NS055746-A1 (PI), "Administrative Supplement", 9/01/09 - 8/31/11, 0 months effort, $76,786 annual direct costs.
3. NIH/NINDS Challenge Grant (Albin, Paulson), "HSP70 ATPase inhibitors as treatment for polyglutamine diseases", 9/30/09 - 9/29/11,1.2 months effort, $326,085 annual direct costs for entire project.
4. NIH/NIH P50 AG08671 (Gilman), "Michigan Alzheimer's Disease Research Center", 6/1/10 - 5/31/15, 1.2 months effort, $137,587 annual direct costs for Neuropathology Core (Lieberman, Core PI).
5. NIH/NINDS F30 NS065662-A1 (Elrick), "Disease modifying pathways in Niemann-Pick C disease", 12/1/09 - 5/31/13, 0 months effort, $42,242 annual direct costs, Role: Sponsor.

C. PROJECTS UNDER STUDY
1. Mechanisms of neurodegeneration in Kennedy disease
2. Mechanisms of neurodegeneration in Niemann-Pick type C disease

IV. Administrative Activities

A. DEPARTMENTAL
1. Chair, Pathology Graduate Program Admissions Committee
2. Member, Pathology Graduate Program Advisory Committee
3. Member, Anatomic Pathology Project Review and Funding Committee
4. Pathology residency training program and faculty candidate interviews

B. INSTITUTIONAL
1. Membership in graduate programs
   a. Molecular and Cellular Pathology
   b. Neuroscience
   c. Cellular and Molecular Biology
2. Director, Neuropathology Core, Michigan Alzheimer's Disease Research Center
3. Member, Medical Scientist Training Program Advisory Committee
4. Member, Awards Committee, Cellular and Molecular Biology graduate program symposium
5. PIBS and MSTP student interviews

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Member, Scientific Review Board, Kennedy's Disease Association
2. Member, American Federation for Aging Research Scientific Advisory Council
3. Faculty evaluation for appointment, Department of Pathology, Stanford University School of Medicine
4. Faculty evaluation for appointment, Department of Comparative Medicine, Stanford University School of Medicine

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Board member
   a. *Journal of Alzheimer's Disease*
   b. *Journal of Neuro-Ophthalmology*
   c. *Journal of Neuropathology and Experimental Neurology*
2. Manuscript review (ad-hoc)
   a. *Autophagy*
   b. *EMBO Reports*
   c. *Developmental Neurobiology*
   d. *Laboratory Investigation*
   e. *Annals of Neurology*
   f. *Human Molecular Genetics*
   g. *Molecular and Cellular Biology*
   h. *Molecular and Cellular Neuroscience*
   i. *Nature Chemical Biology*
3. Grant review
   a. Alzheimer's Association
   b. american Federation for Aging Research
   c. ALS Society of Canada
   d. NIH Cellular and Molecular Biology of Neurodegeneration Study Section and ZRG1 MDCN-T special emphasis panel
   e. Office of Vice President for Research, University of Michigan Medical School
   f. University of Michigan Medical Extending Bridging Review Panel
   g. The Advocacy for Neuroacanthocytosis
   h. Telethon Foundation of Italy

B. INVITED LECTURES/SEMINARS
1. Invited participant and panel discussant, Kennedy's Disease Association meeting, Baltimore, MD November 2008.
2. "Androgen receptor toxicity in Kennedy disease", invited presentation, Department of Neurology Research Seminar, University of Michigan, Ann Arbor, January 2009.

3. "Autophagy in the pathogenesis of Niemann-Pick type C disease", invited presentation, Lysosomal Disease Network WORLD Symposium 2009, San Diego, CA, February 2009.
4. "Autophagy in the pathogenesis of Niemann-Pick type C disease", invited presentation, Nephrology basic science series, University of Michigan, Ann Arbor, February 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Member, American Association of Neuropathology
2. Member, American Society of Human Genetics
3. Member, College of American Pathologists
4. Member, Society for Neuroscience

D. HONORS AND AWARDS
1. McKnight Foundation Neuroscience of Brain Disorders Award
2. Elected, American Society for Clinical Investigation

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Pacheco CD, **Lieberman AP**. The pathogenesis of Niemann-Pick type C disease: A role for autophagy? *Expert Rev Mol Med*, 10:e26, 2008, PMCID: PMC2662713.
2. Jordan CL, **Lieberman AP**. Spinal and bulbar muscular atrophy: A motorneuron or muscle disease? *Current Opinion Pharmacology*, 8:752-758, 2008, PMCID: PMC2603477.
3. Morishima Y, Wang AM, Yu Z, Pratt WB, Osawa Y, **Lieberman AP**. CHIP deletion reveals functional redundancy of E3 ligases in promoting degradation of both signaling proteins and expanded glutamine proteins. *Hum Mol Genet*, 17:3942-3952, 2008, PMCID: PMC2605787.
4. Pacheco CD, Elrick MJ, **Lieberman AP**. Tau deletion exacerbates the phenotype of Niemann-Pick C mice and implicates autophagy in pathogenesis. *Hum Mol Genet*, 18;956-965, 2009, PMCID: PMC2646181.
5. Mukherjee S, Thomas M, Dadgar N, **Lieberman AP**, Iniguez-Lluhi. SUMO modification of the androgen receptor attenuates polyglutamine-mediated aggregation. *J Biol Chem*, in press.
6. Johansen JA, Yu Z, Kaiguo M, Monks DA, **Lieberman AP**, Breedlove SM, Jordan CL. Recovery of function in a myogenic mouse model of spinal bulbar muscular atrophy. *Neurobiol Dis*, 34:113-120, 2009.
7. Pacheco CD, Elrick MJ, **Lieberman AP**. Tau normal function influences Niemann-Pick type C disease pathogenesis in mice and modulates autophagy in NPC1-deficient cells. *Autophagy*, 5:548-550, 2009. NIHMSID #104560.

8. Yu Z, Wang A, Robbins DM, **Lieberman AP**. Altered RNA splicing contributes to skeletal muscle pathology in Kennedy disease knock-in mice. *Dis Model Mech*, in press.

B. BOOKS/CHAPTERS IN BOOKS

1. **Lieberman AP**, D'Amato C. Neural inflammation, Alzheimer disease and stroke. In Fundamentals of Inflammation (Serhan C, Ward P, Gilroy D, eds) Cambridge University Press, in press.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Mukherjee S, Thomas M, **Lieberman AP**, Iniguez-Lluhi JA. Sumoylation of the androgen receptor prevents polyglutamine expansion induced aggregation. Nuclear Receptors: Bench to Beside, Cold Spring Harbor Laboratory, August 2008.
2. Yu Z, Wang AM, Robins DM, **Lieberman AP**. RNA missplicing is a component of skeletal muscle pathology in Kennedy disease knock-in mice. Society for Neuroscience meeting, Washington, D.C., November 2008. (Selected for oral presentation)
3. Kemp MQ, Johansen JA, Breedlove SM, **Lieberman AP**, Jordan CL. Deficits in retrograde transport in male knock-in and myogenic mouse models of spinal and bulbar muscular atrophy. Society for Neuroscience meeting, Washington, D.C., November 2008.
4. **Lieberman AP**. Autophagy in the pathogenesis of Niemann-Pick type C disease. Lysosomal Disease Network WORLD Symposium 2009, San Diego, CA, February 2009.
5. **Lieberman AP**, Pacheco CD, Elrick MJ. Tau deletion exacerbates the phenotype of Niemann-Pick type C mice and implicates autophagy in pathogenesis. Keystone Symposia on Neurodegenerative Diseases, Keystone, CO, February 2009. (Selected for oral presentation)
6. Elrick MJ, Pacheco CD, Yu T, Ware C, **Lieberman AP**. Conditional Npc1 deletion leads to cell autonomous patterned Purkinje cell death in mice. 2009 Scientific Conference on Niemann-Pick type C Disease, Tuscon, Arizona, May 2009. (Selected for oral presentation)
7. Troxell SM, Johansen JA, Kemp MQ, **Lieberman AP**, Breedlove SM, Jordan CL. Androgen receptor antagonist increases lifespan and motor function in mouse models of SBMA. Society for Neuroscience meeting, Chicago, IL, October 2009.

Richard W. Lieberman, M.D.

Assistant Professor of Pathology and Ob/Gyn.

I. Clinical Activities

A. GYNECOLOGIC PATHOLOGY
1. Gynecologic Pathology Consultation - 12 months.
2. Gynecologic Pathology sign-out - 12 months (14 weeks)
3. Gynecologic Oncology Semimonthly Tumor Planning Conference - 12 months
4. Gynecologic Oncology – Colposcopy Clinic, one half day/week,12 months.

B. AUTOPSY SERVICE – 12 months (8 weekends)

C. PLACENTAL PATHOLOGY – 12 months

II. Teaching Activities

A. MEDICAL STUDENTS
1. M3 - Teaching during weekly Colposcopy Clinic
2. M4 - Shadow for 4th year interested in Gyn Pathology

B. DENTAL STUDENTS
1. D2, Reproductive Sequence - two hours

C. GRADUATE STUDENTS
1. University of Michigan School of Public Health, Mentor to Master Student: Sarah Adams

D. HOUSE OFFICERS AND FELLOWS
1. Ob/Gyn Residents and Gynecologic Oncology Fellow
   a. Semimonthly Tumor Planning Conference - 12 months
   b. Colposcopy clinic staff - one-half day/week (12 months)
   c. Operating Room Instruction - one-half day/week
   d. Lectures in Gynecologic Pathology to Gyn Oncology Service - two/year
   e. Gyn Pathology Rotation for 3rd year Gyn Oncology Fellow - one month
   f. Placental Pathology Lectures - 2 hours

g. Core lectures in Ob/Gyn - 2 hours
h. Core lecture-LEEP lab in Ob/Gyn - 1 hour

2. Pathology Residents
   a. Sign-out - Gynecologic Pathology, Placentas, and Autopsy cases
   b. Review cases and supervise presentation of semimonthly Gynecologic Oncology Tumor Planning Conference - 12 months
   c. Instruction in the Gross Examination, frozen section diagnosis, and processing of Gynecologic Surgical specimens and Placentas, July-November
   d. Instruction and supervision in the performance, presentation and sign-out of autopsy cases
   e. Teaching Conferences- lecture in Gyn Pathology, October
   f. Consult Case Conference - two/year
   g. Resident resource web page in Gyn Pathology – Web access to Gyn Pathology Grossing Manual, lecture slides, "Blue Book" Online guide to Gynecologic Oncology, and other resources at Ob/Gyn Departmental Website
   h. Morbidity and Mortality Conferences – Internal Medicine, General Surgery, and Obstetrics & Gynecology

E. LECTURES
1. M2, Obstetrics & Gynecology Sequence: Five hours Gynecologic Pathology lectures; preparation of lectures and examination questions
2. M2, Obstetrics & Gynecology Sequence: Laboratory preparation and instruction
3. M2 resource web page in Gyn Pathology (Web access to Gyn Pathology laboratory, lecture slides, and other resources)
4. M3 Teaching during weekly Colposcopy Clinic

III. Research Activities

A. SPONSORED SUPPORT
1. Identification of Viral Pathogens in the Evaluation of Placental Chronic Villitis with Drs. Richard Lieberman, Dafydd Thomas, and Duane Newton, PhD. Approved for funding $9910.

B. PROJECTS UNDER STUDY
1. Correlation of colposcopic stereoscopic photography (colpography) and Hyperspectral Diagnostic Imaging (HSDI, developed by STI -Medical: Science and Technology International) with the underlying cervical LEEP histopathology-2007-2009.

IV. Administrative Activities

A. DEPARTMENTAL
1. Placenta Service

2. AP Ops, Placenta Subcommittee (July-August) - Development and Approval of SOP for Placenta Specimens

B. REGIONAL/NATIONAL/INTERNATIONAL
   1. Gynecologic Oncology Group
      a. Member, Medical Informatics Committee
      b. Member, Pathology Committee
      c. Member, Tissue Utilization Committee
   2. Member, National Comprehensive Cancer Network (NCCN) Cervical/Endometrial Cancer Screening Panel

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
   1. Editorial Reviewer, *Obstetrics and Gynecology*

B. INVITED LECTURES/SEMINARS
   1. Case Presentation: Influenza A in First Trimester with Second Trimester Loss. Frontiers in Pathology, University of Michigan. September 2008.
   2. ASCCP Basic Colposcopy Course: Multiple Lectures and Workshops. Tucson, Arizona, October 16-19, 2008.
   3. Case Studies in Cervical Cytology: Diagnosis and Management" "Update in Women's Health Care, Towsley Center, University of Michigan, April 2, 2009.
   4. ASCCP Vulvar and Vaginal Diseases: Multiple Lectures and Workshops, Orlando, Florida, April 16-19, 2009.

C. SOFTWARE DEVELOPMENT
   1. Placental Imaging Project – Imaging and Bar Code Schema for Image Capture
   2. Placental Pathology Requisition and registry– Development of On-Line Form

D. PATENT PENDING
   1. Precision Tissue Tome and Needle Guide - Collaboration with STI, Honolulu, HI

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
   1. Li W,Venkataraman S, Gustafsson U, Oyama JC, Ferris DG, **Lieberman RW**. Using acetowhite opacity index for detecting cervical intraepithelial neoplasia. *J Biomed Optics*, 14(1):014020, Jan-Feb 2009.
   2. Partidge E, Abu-Rustum N, Campos S,Fahey P, Greer B, LeLe S, **Lieberman R**, Lipscomb G, Morgan M, Nava M, Reynods R, Singh D, Smith-McCune K, Teng N, Trimble C, Valea F, Wilczynski S. Cervical cancer screening. *J National Comp*

Cancer Network 2008;6(1):58-82.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Vulva: Benign and Inflammatory Conditions. Haefner, H (editor), **Lieberman, R** (Web Editor/developer), et al. http://www.asccp.org/edu/practice/vulva.shtml.
2. Vulva: HPV and VIN. Haefner, H (editor), **Lieberman, R** (Web Editor/developer), et al. http://gynonc.path.med.umich.edu/ASCCP/HPV_VIN/default.htm.
3. Vulva: HPV and VIN. Haefner, H (editor), **Lieberman, R** (Web Editor/developer), et al. http://gynonc.path.med.umich.edu/ASCCP/HPV_VIN/default.htm.
4. On-line Gynecologic Pathology Manual. GOG Pathology Committee: Benda J (Chair), **Lieberman R** (Web Editor) http://www.gog.org.

Megan S. Lim, M.D.

Associate Professor of Pathology
Director of Hematopathology

I. Clinical Activities

A. HEMATOPATHOLOGY
1. Director, Hematopathology Service
2. Signout of hematopathology cases- 14 weeks, 26.6 services covered, 10 weekends on call
3. Coordinator of Hematopathology Service Schedule

II. Teaching Activities

A. MEDICAL STUDENTS
1. Undergraduate Student Research Supervision
   a. Andrea Sulavik, undergraduate student, 2009

B. GRADUATE STUDENTS
1. Graduate Student Research Supervision
   a. Candidacy Examination Committee for: Huy Vuong, Department of Materials Science and Engineering
   b. Scott McDonnell
      i. MSC, Winter Research Laboratory Rotation, PIBS
      ii. Ph.D student May 2009-Present

C. HOUSE OFFICERS AND FELLOWS
1. Pathology House Officers
   a. Cohra Mankey, M.D. - Research supervision
   b. Sarah Farmen, M.D., Ph.D. - Research supervision
2. Hematopathology Fellows
   a. Diane Hall, M.D., Ph.D.
   b. Jitakshi De, M.D.
3. Researsh Fellow
   a. Mihaela Chiselite, M.D.

b. Carla McNeil, M.D.

D. LECTURES
1. Hematopathology Educational Conference Lectures to Fellows and Residents
2. CP Grand Rounds - Peripheral T-cell Lymphoma

E. OTHER
1. HJ, Lee. Identification of potential therapeutic targets for natural killer cell lymphoma using quantitative proteomic analysis. 2007 - 2009
2. Kathrina Kubatzhky. Phosphosynthetic peptides as affinity reagents to study NPM/ALK signaling. 2008 - 2009

III. Research Activities

A. SPONSORED SUPPORT
1. NIH/DHHS Public Health Service R33 Grant, (Co-I) 1.2 calendar mo. effort, Proteomic analysis of transformed follicular lymphomas. 2006 - 2009, $1,267,365 total costs.
2. NIH/DHHS Public Health Service RO1 DE (Co-I), 1.2 calendar mo effort, "Mass Spectrometry-driven systems biologic analysis ofSalivary MALT Lymphoma: A systems Approach to Salivary Gland Biology" 2008 - 2012 $1,545,000 total costs
3. NIH/DHHS Public Health Service R01 Grant, (Co-I) 1.2 calendar mo. effort, "Proteomic analysis of api2-MALT1 postitve gastric MALTl lymphoma". 2009 - 2014, $1,436,205 total costs.
4. National Childhood Cancer Foundation, Clinical Study Funding Rider (PI) 0.6 calendar mo. effort, 2008 - 2009 $13,994 total costs.
5. Max Kade Foundation for Visiting Scholar Fellowship (Supervisor) $40,000.

B. PENDING PROJECTS
1. NIH/DHHS PA-07-070 Public Health Service (PI) Proteomic Biomarkers of ALK positive anaplastic large cell lymphoma 7/1/09 - 6/20/14.
2. NIH/DHHS Public Health Service RC2 (PI) Glycoproteomic Profiles of Human Malignant Lymphomas.
3. NIH/DHHS Public Health Service - RC1) (PI) Integrated Mass Spectrometry-Based System for Identification of SCF Ubiquitin Ligase Substrates.
4. NIH/DHHS Public Health Service (Co-I) Signal transduction pathways in CD30-positive Lymphomas.
5. NIH/DHHS Public Health Service (RC1) (Co-I) Simple reader-free platform for identification of recurrent chromosomal fusions in cancer.

IV. Administrative Activities

A. DEPARTMENTAL

1. Director, Hematopathology Service
2. Director, Hematopathology Fellowship Training Program
3. Interviewer, Candidates for faculty, fellows, house officer, postdoctoral, and graduate student positions
4. Co-cordinator of call schedule, both weekend and weekday
5. Member, Department of Pathology Peer Review Committee
6. Evening Case Conference combined HP & AP Committee

B. INSTITUTIONAL

1. Seminar Series Organizing Committee, Center for Computational Medicine and Biology

C. REGIONAL/NATIONAL/INTERNATIONAL

1. Children's Oncology Group
   a. Vice-Chair, Young Investigator Committee, April 2008-present
   b. Co-Chair, NHL Biology Working Group, September 2008-present
2. American Society for Clinical Pathology
   a. Commission on Publication, September 2008-present
3. Association for Molecular Pathology, Member,
   a. Teaching and Education Committee, November 2008-present
4. Society of Hematopathology, Member
   a. Teaching and Education Committee, March 2009-present
5. Organizing Committee for 3rd International Symposium on Non Hodgkin Lymphoma of Childhood and Young Adolescents, June 2009

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Boards
   a. *Laboratory Investigation*
   b. *Open Proteomic Journal*
   c. *Journal of Hematopathology*
   d. *Journal of Korean Laboratory Medicine*
2. Manuscript Reviews
   a. *Journal of Molecular Diagnostics*
   b. *Leukemia*
   c. *Blood*
   d. *Proteomics*
   e. *Expert Reviews in Proteomics*
   f. *Leukemia and Lymphoma*

g. *Experimental Hematology*
h. *Archives of Pathology and Laboratory Medicine*
i. *Expert Reviews in Molecular Medicine*
j. *Journal of Cellular and Molecular Medicine*
k. *Translational Research*
l. *Journal of Hematopathology*
m. *Biomed Central*

3. Grant Reviews
   a. University of Michigan Center for Computational Medicine and Biology Research Grant Application
   b. Multiple Myeloma Research Foundation Fellowship Grant Application
   c. National Institutes of Health Ad-hoc member in Special Emphasis Study Section
   d. Cancer Research UK Research Grant Application
   e. National Science Foundation Grant application
   f. National Institutes of Heal Ad-hoc member ARRA Grant Review

B. INVITED LECTURES/SEMINARS
   1. Department of Histopathology, University of Calgary, Visiting Speaker, Calgary, Alberta July 3, 2008.
   2. Comparative proteomic analysis of primary mediastinal large cell lymphoma and Hodgkin lymphoma using iTRAQ-labeling and tandem mass spectrometry. EAHP Lymphoma Symposium, Bordeaux, France.September, 23, 2008.
   3. Anaplastic large cell lymphoma and novel therapeutic target identification. Cephalon Symposium, Chicago, Oct 2008.
   4. Proteomics Symposium at the International Association for Pathology Congress Athens Greece, October 14, 2008.
   5. Children's Oncology Group Fall Meeting, Pathology Discipline Invited Speaker. Proteomic approaches in the identification and validation of disease biomarkers for pediatric lymphoma. Denver, Colorado, October 24, 2008.
   6. Mass Spectrometry-Based Proteomic Approaches for the Discovery of Disease Biomarkers for Lymphoma. NCI, IMAT Keynote Speaker. Boston, Massachusetts, October 27, 2008.
   7. Proteomics for Pathologists, USCAP Short Course, Boston, MA March 11, 2009.
   8. Mass Spectrometry-Based Proteomic Approaches for the Discovery of Lymphoma Biomarkers. Symposium Speaker, PepCon, Seoul, Korea April 2, 2009.
   9. Mass spectrometry-driven proteomic strategies for the identification of therapeutic targets and biomarkers for human lymphoma. St. Louis University Cancer Center Invited Speaker, May 11, 2009.
   10. Translating mass-spectrometry based proteomics to biobarker discovery of anaplastic large cell lymphoma. UM Cancer Center Hematologic Malignany Group May 26, 2009.

11. International Pediatric and Young Adolescent NHL Symposium, Weisbaden, Germany June 10-13, 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
   1. United States and Canadian Academy of Pathology Annual Meeting
      a. Abstract Review Committee
   2. 3rd International Symposium on Non Hodgkin Lymphoma of Childhood and Young Adolescents

D. HONORS AND AWARDS
   1. Trainee: College of American Pathologists Foundation Scholarship 2009 Mihaela Chiselite MD – Role of BST-2 in the biology of primary mediastinal B-cell lymphoma.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
   1. Everton KL, Abbott DR, Crockett DK, Elenitoba-Johnson KSJ, **Lim MS.** Quantitative proteomic analysis of follicular lymphoma cells in response to rituximab. *J. of Chomatogr*. PMID: 19010092.
   2. **Lim MS**. Unraveling ALK signaling through phosphoproteomics. *Blood*. 2009 Mar 19;113(12):2615-6 PMID: 19299651.
   3. Abbott DR, Abbott RT, Jenson SD, Fillmore GC, Elenitoba-Johnson, KSJ, **Lim MS**. Induction of apoptosis by a Bcl-2 interacting small molecule HA14-1: in vitro study of t(14:18) positive lymphoma cells. *J. of Hematopath.* In press.
   4. Schmidt L, **Lim MS**. Peripheral T-Cell Lymphoma Associated with Anti TNF- a Antibody Therapy for Ulcerative Colitis. *J. Hematopath.* In press.
   5. **Lim MS**, de Leval L, Quintanilla-Martinez L. Commentary on Mature T- and NK-cell Neoplasms. *J. Hematopath.* In press.
   6. **Lim MS**. Commentary on accessory cell tumors and histiocytic tumors. *J. Hematopath*. In press.
   7. Miles RR, Seiler CE, Smith LB, Teruya-Feldstin J, Hsi ED, Elenitoba-Johnson KSJ, **Lim MS**. Expression of Grb2 distinguishes classical Hodgkin lymphomas from primary mediastinal B-cell lymphomas and other diffuse large B-cell lymphomas. *Hum Pathol*. In press.
   8. **Lim MS**, Carlson ML, Crockett DK, Fillmore GC, Abbott, DR, Elenitoba-Johnson OF, Tripp SR, Rassidakis GZ, Medeiros LJ, Szankasi P, Elenitoba-Johnson, KSJ. The proteomic signature of NPM/ALK reveals deregulation of multiple cellular pathways. *BLOOD* In press.

B. BOOKS/CHAPTERS IN BOOKS
   1. **Lim MS**, Miles RM, Elenitoba-Johnson KSJ. (2009) Proteomics of hematologic malignancies (C. Dunphy ed.) Springer Molecular Hematopathology.

2. **Lim MS** (2009) in Practical Hematologic Diagnosis (Kjeldsberg CR ed) American Society of Clinical Pathology Press. *Mastocytosis* Dec 31, 2008.
3. **Lim MS** (2009) Practical Hematologic Diagnosis (Kjeldsberg CR ed) American Society of Clinical Pathology Press. Post-transplant lymphoproliferative disorders.
4. **Lim MS** (2009) Practical Hematologic Diagnosis (Kjeldsberg CR ed) American Society of Clinical Pathology Press. Histiocytic and dendritic cell tumors.
5. Elenitoba-Johnson KEJ, **Lim MS**, Kjeldsberg CR (2009) Practical Hematologic Diagnosis (Kjeldsberg CR ed) American Society of Clinical Pathology Press. Introduction to Non-Hodgkin lymphomas.
6. Elenitoba-Johnson KEJ, **Lim MS**, Kjeldsberg CR (2009) Practical Hematologic Diagnosis (Kjeldsberg CR ed) American Society of Clinical Pathology Press. Mature B-cell neoplasms with primary tissue manifestations.
7. Elenitoba-Johnson KEJ, **Lim MS**, Kjeldsberg CR (2009) Practical Hematologic Diagnosis (Kjeldsberg CR ed) American Society of Clinical Pathology Press. T-cell and NK-cell neoplasms.
8. **Lim MS**. (2009) Practical Hematologic Diagnosis (Kjeldsberg CR ed) American Society of Clinical Pathology Press. Post-transplant lymphoproliferative disorders.
9. **Lim MS** (2009) Clinical and Experimental Hematopathology (Dan Jones ed) Springer-Humana Press. Proteomic profiling and target identification in T-cell lymphomas.
10. **Lim MS**. Proteomics in Pathology Connections: Becton-Dickinson

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Chiselite MD, Fermin D, Basrur V, Conlon KP, Seiler C, Waxman I, Cairo MS, Elenitoba-Johnson KSJ, **Lim MS**. Quantitative Proteomic Identification of Novel Diagnostic Biomarkers and Therapeutic Targets for Classical Hodgkin Lymphoma. ASH Annual Meeting 2008.
2. Lee H, Shereck E, Cairo MS, Seiler III CE, Basrur V, Fermin D, Elenitoba-Johnson KSJ, **Lim MS**. Proteomic analysis for the identification of disease biomarkers and therapeutic targets in natural killer cell lymphoma. ASH 2008.
3. Fontaine J-M, Elenitoba-Johnson KSJ, **Lim MS**. PI3K/AKT-and JAK3-Dependent Regulation of SKP2 Expression Is Mediated by E2F1 in Anaplastic Large Cell Lymphoma. ASH Annual Meeting 2008.
4. Mankey CC, Tripp S, Perkins SL, Elenitoba-Johnson KSJ, **Lim MS**. Expression of B Cell Signaling Proteins (PLC- g and Grb2) and EBV status correlate with expression of CD20 In classical Hodgkin lymphoma.USCAP Annual Meeting 2009.
5. Ma L, Gogner P, Tripp S, Perkin SL, Abbott D, **Lim MS**. Expression of mTOR Pathway Proteins in Cutaneous Lymphomas. USCAP Annual Meeting 2009.
6. Ma L, Kim D, Cutlan J, Ross C, **Lim MS**, Fullen D. Diagnostic Value of CD33 by immunohistochemistry in Leukemia Cutis. USCAP Annual Meeting 2009.

7. Ma L, Abbott D, Kim D, **Lim MS**. The Expression Grb2 in Cutaneous T- and B-cell Lymphomas. USCAP Annual Meeting 2009.
8. Chiselite MD, Teruya-Feldstein J, Elenitoba-Johnson KSJ, **Lim MS**. Differential expression of L-plastin in primary mediastinal B-cell lymphoma (PMBCL) and classical Hodgkin lymphoma (HL). USCAP Annual Meeting 2009.
9. Farmen SL, Seiler C, McCallister-Lucas L, Lucas P, Conlon KP, Farmin D, Basrur V, **Lim MS**, Elenitoba-Johnson KEJ. Quantitative Proteomic Analysis of API2-MALT1 Expression Signature by Isobaric Tags and High-Energy C-TRAQ Dissociation Tandem Mass Spectrometry. USCAP Annual Meeting 2009.
10. Day NS, Shereck E, Ayello J, McGuinn C, Satwani P, Lewis D, van de Ven C, Wapner RJ, **Lim MS**, Cairo MS. Global Pathway Profiling in Cord Blood (CB) versus Peripheral Blood (PB) CD56dim NK cells: Implication for involvement of Apoptotic, PI, MAPK, and NOTCH signaling pathways in the Difference in Neonatal vs Adult Innate Immunity. *BMT* 2009.
11. Shereck R, Day NS, Ayello J, McGuinn C, Satwani P, Lewis D, van de Ven C, Wapner RJ, **Lim MS**, Cairo MS. Differential Genomic Expression of NK Receptor (NKR) in Cord Blood (CB) CD56 dim versus Peripheral Blood (PB) CD56 dim NK cells: Implication for Immaturity in Cord Blood NK CD56 dim Innate Immunity. AACR 2009.
12. **Lim MS**, Fontaine JM, Elenitoba-Johnson KSJ. SKP2 expression is mediated by E2F1 in anaplastic large cell lymphoma. 3rd International Symposium on Childhood, Adolescent and Young Adult Non-Hodgkin Lymphoma, Weisbaden, Germany, June 12, 2009.
13. **Lim MS**, Tygeson J, Seiler C, Crockett DK, Satwani P, Perkins SL, Cairo MS, Elenitoba-Johnson KSJ. Proteomic Analysis of Denileukin Diftitox (Ontak) as a Potential Therapeutic Agent for ALCL. 3rd International Symposium on Childhood, Adolescent and Young Adult Non-Hodgkin Lymphoma, Weisbaden, Germany, June 12, 2009.
14. **Lim MS**, Lee H, Shereck E, Cairo MS, Seiler III CE, Basrur V, Fermin D, Elenitoba-Johnson KSJ. Identification of biomarkers and therapeutic targetsin natural killer cell lymphoma using quantitative mass spectrometry. 3rd International Symposium on Childhood, Adolescent and Young Adult Non-Hodgkin Lymphoma, Weisbaden, Germany, June 12, 2009.
15. Smith LB, Mody R, Schnitzer B, **Lim MS**. Post-transplant lymphoproliferative disorders in children and adolescents: A single institution experience. 3rd International Symposium on Childhood, Adolescent and Young Adult Non-Hodgkin Lymphoma, Weisbaden, Germany, June 12, 2009.
16. Waxman I, Xie D, Van de Ven C, Ayello JP, Day N, Papapanou PN, **Lim M**, Fermin D, Basrur V, Conlon K, Elenitoba-Johnson KSJ, Perkins S, Cairo MS. Identification of Altered Protein Expression in Primary Mediastinal B-Cell Lymphoma (PMBL) after Treatment with NF-κB Inhibitor ML120B and Bortezomib (BTZ). Weisbaden, Germany, June 12,2009.

17. El-Mallawany NK, Ayello J, Van de Ven C, Conlon K, Fermin D, Basrur V, Elenitoba-Johnson K, **Lim M**, Cairo M. Global Proteomic Profiling of Endemic versus Sporadic Epstein-Barr Virus (EBV) Positive Burkitt's Lymphoma. Weisbaden, Germany, June 12, 2009.
18. Hammer STG, **Lim MS**. Retroperitoneal Fibrosis Associated with Widely Disseminated ALCL Identified at Autopsy.College of American Pathology Annual Meeting, Washington DC Oct 2009.
19. Hummel J, Hall D, **Lim MS**. Diagnosis of Hodgkin Lymphoma in a Young Child Contributing to a Diagnosis of Ataxia Telangiectasia. College of American Pathology Annual Meeting, Washington DC Oct 2009.

Lori Lowe, M.D.

Professor of Pathology and Dermatology
Director of Dermatopathology

I. Clinical Activities

A. DERMATOPATHOLOGY
1. Dermatopathology Service - 12 months
2. Dermatopathology Consultation Service - 12 months

II. Teaching Activities

A. MEDICAL STUDENTS
1. Lecturer, MS II Dermatology Sequence
2. Dermatopathology laboratory director, MS II Dermatology Sequence
3. Dermatopathology, Pathology Clerkship, MS I and MS IV students
4. Dermatopathology, Dermatology Clerkship, MS IV students

B. DENTAL STUDENTS
1. Lecturer, Skin Integument Model, "Introduction to Clinical Dermatology with Histopathologic Correlates", Parts I and II (2 Hours)

C. HOUSE OFFICERS AND FELLOWS
1. Dermatopathology sign-out (Pathology and Dermatology Residents)
2. Review of dermatopathology consultation material
3. Dermatopathology teaching conference, Department of Dermatology

D. LECTURES
1. Department of Dermatology, Dermatopathology resident teaching conference (1-2/month)
2. Department of Dermatology, Diagnostic Conference, (1-2/month)
3. Department of Dermatology, Director of Diagnostic Conference (1/month)
4. Department of Internal Medicine, Division of Rheumatology, Rackham Arthirits Research Unit lecture series, "Cutaneous Manifestations of Rheumatologic Disease" (1 lecture)
5. "Introduction to Dermatopathology", Department of Dermatology, 1 lecture

6. "Dermatopathology Review", Department of Dermatology, 3 lectures

E. OTHER
1. Hospital Conferences:
   a. Multidisciplinary Melanoma Tumor Board
   b. Multidisciplinary Merkel Cell Carcinoma Tumor Board

III. Research Activities

A. SPONSORED SUPPORT
1. NIH KO7 CA11653-01A2. (PI Lao, Co-I Lowe) 0% effort Development of a Melanoma Chemoprevention Model, 1/1/08 - 8/30/11, $688,500 total direct costs.

B. PROJECTS UNDER STUDY
1. University of Michigan (UMCC 2007-136, HUM00017617): Feasiblity of a human melanoma chemoprevention model using dysplastic nevi. Principal investigator: Christopher Lao, M. D., Co-Investigator: Lori Lowe, M.D. (2008 - ongoing).
2. University of Michigan (HUM000015861): Comparison of clinical, histologic and immunohistochemical findings in rosacea and photoaged skin. Principal investigator: Yolanda Helfrich, M. D., Co-Investigator: Lori Lowe, M.D. (2007- ongoing).
3. University of Michigan (UMCC 2005-130): Multicenter Selective Lymphadenctomy Trial II (MSLT-II). Local principal investigator: Michael Sabel, M.D., Co-Investigator: Lori Lowe, M.D. (2007- ongoing).
4. University of Michigan (UMMC 2000-0713): Molecular, biochemical, and cellular basis of melanoma and other melanocytic lesions: Tissue Bank. Principal Investigator: Timothy M. Johnson, M.D., Co-Investigator: Lori Lowe, M. D. (2001 - ongoing).
5. University of Michigan (UMCC 2-15): A phase III randomized double-blind pivotal trial of immunotherapy with BCG plus a polyvalent melanoma vaccine, CancerVaxTM vaccine versus BCG plus a placebo as a post-surgical treatment for Stage III melanoma. Principal Investigator: Michael Sabel, M.D. (2003 - ongoing).

IV. Administrative Activities

A. DEPARTMENTAL
1. Director, Dermatopathology Service, Department of Pathology
2. Member, Advisory Committee on Appointments, Promotions, and Tenure (ACAPT) Department of Pathology
3. Member, Residency Review Committee, Department of Dermatology
4. Interviewer, Pathology House Officer Candidates
5. Interviewer, Dermatology House Office Candidates

B. INSTITUTIONAL
   1. Member, Melanoma Tissue Core Distribution Committee (IRBMED #2004-0618)
   2. Member, Multidisciplinary Melanoma Program, University of Michigan Comprehensive Cancer Center
   3. Member, Multidisciplinary Merkel Cell Carcinoma Program, University of Michigan Comprehensive Cancer Center

C. REGIONAL/NATIONAL/INTERNATIONAL
   1. Member, Amercian Academy of Dermatology
   2. Member, American Society of Dermatopathology
   3. Member, North American Melanoma Pathology Study Group
   4. Member, American Medical Women's Association Mentorship Program
   5. Member, American Academy of Dermatology's Minority Medical Student Mentor Program
   6. Member, Women's Dermatologic Society
   7. Member, Michigan Dermatologic Society

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
   1. Editorial Board
      a. Skin Cancer Section Editor, *Cancer*
      b. *Journal of the American Academy of Dermatology*
   2. Manuscript Reviews
      a. *Journal of Cutaneous Pathology*
      b. *Dermatologic Surgery*
      c. *Human Pathology*
      d. *Archives of Dermatology*

B. INVITED LECTURES/SEMINARS
   1. “Desmoplastic Melanoma," New Frontiers in Pathology: Update for Practicing Pathologists 2nd Annual Meeting, Ann Arbor, MI, October 2008.
   2. Breakout Session Faculty, "Dermatopathology," New Frontiers in Pathology: Update for Practicing Pathologists 2nd Annual Meeting, Ann Arbor, MI, October 2008.
   3. Basic Self-Assessment Course in Dermatopathology, Faculty, American Academy of Dermatology Annual Meeting, San Francisco, CA, March 2009.
   4. Clinical Pathologic Conference, Faculty, American Academy of Dermatology Annual Meeting, San Francisco, CA, March, 2009.
   5. American Society of Clinical Pathology, 2009 Resident Review Course, Faculty, "Dermatopathology," Hoffman Estates, IL, April, 2009.
   6. "Practical Considerations and Potential Pitfalls of Melanoma: A Dermatopathology Perspective," invited lecturer, Wayne State University, Dermatology Grand Rounds,

Detroit, MI, May 20, 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Member, Amercian Academy of Dermatology
2. Member, American Society of Dermatopathology
3. Member, North American Melanoma Pathology Study Group
4. Member, American Medical Women's Association Mentorship Program
5. Member, American Academy of Dermatology's Minority Medical Student Mentor Program
6. Member, Women's Dermatologic Society
7. Member, Michigan Dermatologic Society

D. HONORS AND AWARDS
1. Listed in Consumers' Research Council of America Guide to America's Top Dermatologists, 2008 edition
2. Listed in America's Top Doctors for Cancer, 4th edition by Castle Connolly Medical Ltd., 2008.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Kaul DR, **Lowe L**, Visvesvara, Farmen S, Khaled YA, Yanik GA. Acanthamoeba infection in patient with chronic graft versus host occcurring during treatment with voriconazole. *Transpl Infect Dis* 10: 437-441, 2008.
2. Frankel TL, Griffith KA, **Lowe L**, Johnson TM, Wong SL, Chang AE, Cimmino VM, Bradford CR, Rees RS, Sabel MS. Do micromorphometric features of metastatic deposits within sentinel nodes predict non-sentinel lymph node involvement in melanoma? *Ann Surg Oncol* 15:2403-2411, 2008.
3. Ludgate MW, Fullen DR, Lee J, **Lowe L**, Bradford C, Geiger J, Schwartz J, Johnson TM. The atypical spitz tumor of uncertain biologic potential: A series of 67 patients from a single institution. *Cancer* 15: 631-641, 2009.
4. Carvalho J, Fullen D, **Lowe L**, Su L, Ma, L. Comparison of CD23 staining patterns in Merkel cell carcinoma and non-cutaneous small cell carcinoma. *J Cutan Pathol* 36: 206-210, 2009.
5. Yu L, Olsen S, **Lowe L**, Michael C, Jing X. Limin Yu, M.D. Fine needle aspiration cytology of metastatic eccrine porocarcinoma. *Diag Cytopathol* April 2009 (epub).
6. Elbuluk N, Bichakjian CK, **Lowe L**. A woman with trunk and arm nodules. *Cutis* 2009 (in press).
7. Gajdos C, Griffith KA, Wong SL, Johnson TM, Chang AE, Cimmino VM, **Lowe L**, Bradford CR, Rees RS, Sabel MS. Is there a benefit to sentinel lymph node biopsy in patients with T4 melanoma? *Cancer* 2009 (in press).

8. Ghaferi AA, Wong SL, Johnson TM, Chang AE, Cimmino VM, **Lowe L**, Bradford CR, Rees RS, Sabel MS. Prognostic significance of a positive non-sentinel lymph node in cutaneous melanoma. *J Surg Oncol* 2009 (in press).

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Ammori J, Bichakjian C, **Lowe L**, Johnson TM, Sabel M, Wong S, Sondak V, Cimmino V. Results of a multi-disciplinary approach to dermatofibrosarcoma protuberans at a single institution. Frederick A. Coller Surgical Society Annual Clinical Meeting, Indianapolis, IN, September, 2008.
2. Yu L, Olsen S, Pouryazdanparast P, **Lowe L**, Jing X. Widespread metastatic eccrine porocarcinoma: histology and cytology. American Society of Dermatopathology Annual Meeting, San Francisco, CA, October, 2008.
3. Ammori JB, Bichakjian CK, **Lowe L**, Johnson TM, Sabel MS, Wong SL, Sondak VK, Cimmino VM. Dermatofibrosarcoma protuberans: Results of a multi-disciplinary approach at a single institution. Society of Surgical Oncology Annual Meeting, Phoenix, AZ, March, 2009.
4. Ludgate MW, Fullen DR, **Lowe L**, Johnson TM. Nodal melanocytic deposits in atypical Spitz tumors. (Letter) *Cancer*, 2009 (in press).

David R. Lucas, M.D.

Associate Professor of Pathology

I. Clinical Activities

A. SURGICAL PATHOLOGY - 26 weeks

B. BONE AND SOFT TISSUE CONSULTATION - 50 weeks

C. SARCOMA TUMOR BOARD - 50 weeks

II. Teaching Activities

A. MEDICAL STUDENTS

1. Pathology mentorship, 5 PGY4 students - 1 month

B. DENTAL STUDENTS

1. Pathophysiology 540, 100 PGY2 students - 2 lecture hours

C. HOUSE OFFICERS AND FELLOWS

1. Surgical pathology sign-out - 26 weeks
2. Bone and soft tissue pathology elective-9 house officers, 1 month each
3. Lectures in bone and soft tissue pathology - 4 hours
4. Consultant conferences - 4 hours

III. Research Activities

A. PROJECTS UNDER STUDY

1. RTOG 0630. A phase II trial of image guided preoperative radiotherapy for primary soft tissue sarcomas of the extremity
2. UMCC 2008.049 Phase II study of oral cyclophosphamide and sirolimus (OCR) in advanced sarcoma
3. Evaluation of CD13 and CD14 in normal skin and histiocytic/fibrohistiocytic infiltrates of the skin
4. Quantitative MR Biomarkers for Sarcoma Treatment
5. SARC 009: UMCC 2006.127: A Phase II Trial of Dasatinib in Advanced Sarcoma

6. UMCC 2008.081 An Open-label, Multi-center, Phase 2 Study of Denosumab in Subjects with Giant Cell Tumor of Bone

IV. Administrative Activities

A. DEPARTMENTAL
1. Anatomic pathology funding committee
2. Residency, fellowship, and faculty candidate interviews

B. INSTITUTIONAL
1. Medical director, immunohistochemistry laboratory
2. Anatomic pathology operations committee
3. SCATT lean team

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Radiation Therapy Oncology Group, sarcoma committee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Manuscript Reviews
   a. *Journal of Surgical Oncology*
   b. *Archives of Pathology Laboratory Medicine*
   c. *Cancer*
   d. *Cancer Journal of Neurosurgery*
   e. *Pathology Research Practices*
   f. *Oncologist*
   g. *Cytopathology*

B. INVITED LECTURES/SEMINARS
1. Radiation-associated Angiosarcoma. New Frontiers in Pathology. Ann Arbor, MI, September 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. United States and Canadian Academy of Pathologists
2. Michigan Society of Pathology
3. Connective Tissue Oncology Society
4. Southwest Oncology Group
5. Radiation Therapy Oncology Group
6. A. James French Society of Pathologists
7. Arthur Purdy Stout Society of Surgical Pathologists

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Badarov S, Michael C, **Lucas D**, Pang Y, Pu R. Fine needle aspiration biopsy of metastatic melanoma resembling a malignant peripheral nerve sheath tumor. *Diagn Cytopathol.* 2008; 36(10): 754-7.
2. Walsh M, Jacobson JA, Kim SM, **Lucas DR**, Morag Y, Fessell DP. Ultrasound of fat necrosis involving the extremity and torso with MRI and histologic correlation. *J Ultrasound Med*. 2008;27(12):1751-1757.
3. Fox C, Husain ZS, **Lucas DR**, Saleh HA. Chondroblastic Osteosarcoma of the Cuboid: A Literature Review and Report of a Rare Case. *J Foot Ankle Surg* 2009;48(3):388-93.
4. McHugh JB, SK, **Lucas DR**. Sino-orbital osteoma: a clinicopathogical study of 45 surgically treated cases with emphasis on tumors with osteoblastoma-like features. *Arch Pathol Lab Med* (In Press).
5. Carvalho JC, Thomas DG, **Lucas DR**. Cluster analysis of diagnostic immunohistochemical markers in leiomyosarcoma delineates specific anatomic and gender subgroups. *Cancer* (In Press).
6. **Lucas DR**. Angiosarcoma, radiation-associated angiosarcoma, and atypical vascular lesion. *Arch Pathol Lab Med* (In Press).
7. Mankey CC, McHugh JB, Thomas DG, **Lucas DR**. Can Lymphangiosarcoma Be Resurrected? A Clinicopathological and Immunohistochemical Study of Lymphatic Differentiation in of 49 Angiosarcomas. *Histopathol* (In Press).

B. BOOKS/CHAPTERS IN BOOKS

1. Dermal Nerve Sheath Myxoma, Diagnostic Pathology of Soft Tissue, Amirsys (In Press).
2. Extrskeletal Myxoid Chondrosarcoma, Diagnostic Pathology of Soft Tissue, Amirsys (In Press).
3. Synovial Chondromatosis, Diagnostic Pathology of Soft Tissue, Amirsys (In Press).

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Thomas D, Hoban C, **Lucas D**, Baker L. Assessment of enzymes of chemotherapy r esistance (EOR) concentration in Ewing's s arcoma (ESFT) by quantitative immunofluorescence predicts chemotherapy failure. CTOS, 14th Annual Meeting, London, UK, November 2008.
2. Thomas D, Hoban C, **Lucas D**, Baker L. Glutathione s-transferase (GST) and cytochrome p450 3a (CYP 3a): possible prognostic factors in Ewing's sarcoma family of tumors. CTOS, 14th Annual Meeting, London, UK, November 2008.

3. Hoban C, Smith M, Thomas D, **Lucas D**, Pienta K, Baker L. Immune mediated mechanims in Ewing's sarcoma. CTOS, 14th Annual Meeting, London, UK, November 2008.
4. Hoban C, Thomas D, **Lucas D**, Baker L. Growth factors and pathway activation in chordoma. CTOS, 14th Annual Meeting, London, UK, November 2008.
5. Gluck I, Griffith KA, Biermann JS, Feng FY, **Lucas DR**, Ben-Josef E. Postoperative and definitive radiotherapy for desmoid tumors. ASTRO.

Peter C. Lucas, M.D., Ph.D.

Assistant Professor of Pathology

I. Clinical Activities

A. SURGICAL PATHOLOGY
1. Diagnostic surgical pathology (room BE); 10 weeks
2. Diagnostic surgical pathology (extramural consultations); ad hoc

B. INTERDISCIPLINARY BREAST CARE CLINIC (BCC)
1. Pathology Representative, weekly BCC Tumor Board; 14 weeks

C. AUTOPSY PATHOLOGY
1. Staff pathologist for microscopic sign out only; ad hoc

II. Teaching Activities

A. MEDICAL STUDENTS
1. M4 Pathology Course Mentor (6 students); 1 month rotation
2. M2 Pathology Laboratory Instructor; 5 labs (10 hours)

B. DENTAL STUDENTS
1. Integrated Medical Sciences-III Course Instructor; 1 lecture (1 hour)

C. GRADUATE STUDENTS
1. Thesis committee member
   a. Chiron Graves (Cellular & Molecular Biology)
   b. Aasia Rehman (Cellular & Molecular Biology)
   c. Tyler Prestwich (Cellular & Molecular Biology)
   d. Heather Ames (MSTP)
2. Mentor and thesis committee chair
   a. Phillip Delekta (Cellular & Molecular Biology)
   b. Matthew Van Beek (Molecular and Cellular Pathology)
3. PIBS 850 Seminar Course; Mentor and seminar evaluator
4. Pathology Graduate Program Seminar Series; Seminar evaluator

D. HOUSE OFFICERS AND FELLOWS
1. Mentoring of breast pathology fellow; 10+ weeks
2. Room BE sign-out of breast pathology, with resident instruction; 10 weeks
3. Autopsy microscopic signout with resident instruction; ad hoc
4. AP consult conference (unknown slide conference); 1 hour
5. AP grand rounds; 1 hour

E. LECTURES
1. U of M New Frontiers in Diagnostic Pathology CME course; Fall '08 Case report
2. U of M New Frontiers in Diagnostic Pathology CME course; Fall '08 Break-out session on breast pathology
3. AP grand rounds; Spring '09

F. OTHER
1. Faculty advisor for students in Mechanical Engineering (course ME450); Fall '08

III. Research Activities

A. SPONSORED SUPPORT
1. NIH/NHLBI R01 HL082914 (PI) 30% effort, "Angiotensin II Signaling Through a Novel NF-kB Pathway" 2/1/08-1/31/13, $250,000 annual direct costs.
2. NIH/NIDDK R01 DK079973 (PI) 25% effort, "A Novel Signaling Pathway Mediating Hypertension- and Obesity-dependent Insulin Resistance", 6/1/09-5/31/14, $240,000 annual direct costs.
3. NIH/NCI R01 CA124540 (PI McAllister-Lucas, Co-I) 10% effort, "Multiple Roles of the API2 Moeity in API2-MALT1-mediated Lymphomagenesis" 9/1/09-7/31/13, $207,500 annual direct costs.
4. U of M Comprehensive Cancer Center Breast Oncology Research Award, (PI) 0% effort, "The Angiotensin II Receptor as a Novel Oncogene in Breast Cancer" 6/1/08-5/31/09, $50,000 total costs.
5. Michigan Institute for Clinical and Health Research (MICHR) (PI Teitelbaum, Co-I) 0% effort, "Blockade of Angiotensin II Signaling Pathway in the Treatment of Inflammatory Bowel Disease", 4/01/09-3/31/10, $44,914 total costs.

B. PENDING PROJECTS
1. NIH/NIDDK R43 DK083074 (PI Hilfinger, Co-I) 5% effort, “Development of orally delivered, non-absorbable AT1 receptor antagonists for inflammatory bowel disease" 07/01/09-6/30/10, $100,000 annual direct costs.
2. Department of Defense (DOD) Breast Cancer Predoctoral Trainee-ship Award (Mentor) "The impact of Angiotensin II Type I receptor overexpression on breast cancer cell signaling and progression" 1/01/10-12/31/12, $128, annual direct costs.

C. PROJECTS UNDER STUDY

1. Characterization of signaling pathways involved in Angiotensin II dependent vascular inflammation.
2. Characterization of signaling pathways mediating obesity and hypertension related insulin resistance.
3. Molecular mechanisms responsible for MALT lymphoma tumorigenesis.
4. Biochemical properties of the API2-MALT1 fusion protein, the product of a t(11;18) translocation in MALT lymphoma.
5. Molecular mechanisms underlying AGTR1-dependent breast cancer tumorigenesis.
6. Use of non-absorbable Angiotensin receptor blockers in the treatment of inflammatory bowel disease.
7. ACOSOG Z-1031 Breast Cancer Clinical Trial (co-investigator).
8. UMCC 2006.010 Breast Cancer Neoadjuvant Chemotherapy Trial (co-investigator).
9. Development of pathology slide and block management/storage solutions.

IV. Administrative Activities

A. DEPARTMENTAL

1. Member, Pathology Graduate Program Preliminary Exam Committee
2. Member; Pathology Department Research Incentive Compensation Committee
3. Quality assurance for the breast pathology service
4. Pathology residency training program candidate interviews
5. Surgical/breast pathology fellow candidate interviews

B. INSTITUTIONAL

1. Career Advisory Panel, Medical Scientist Training Program
2. Member; PIBS Graduate Program Admissions Committee
3. Member; Cellular and Molecular Biology (CMB) Graduate Program
4. Member; Michigan Comprehensive Cancer Center
5. Ad hoc Member; CMB Graduate Program Preliminary Exam Committee
6. Member; UM School of Dentistry Search Committee, Cancer Biology Faculty Recruitment

C. REGIONAL/NATIONAL/INTERNATIONAL

1. Member; Michigan Cancer Consortium (MCC), Breast Cancer Advisory Committee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Manuscript Reviews
   a. *Nature Immunology*
   b. *Oncogene*
   c. *Cancer Research*
2. NIH Diabetes Research and Training Center (DRTC) Pilot/Feasibility Grant Reviewer

3. Member; Cancer Center Research Committee (Internal grant review committee)

B. INVITED LECTURES/SEMINARS
1. "The CARMA3-Bcl10-MALT1 signalosome as a mediator of Angiotensin II-dependent NFkB activation and atherogenesis", Keystone Symposium on Metabolism and Cardiovascular Risk, Breckenridge, CO: September 2008.
2. "Oncogene discovery in breast cancer"University of Michigan Cancer Center, External Advisory Board Meeting, October 2008.
3. "Oncogene discovery in breast cancer", University of Michigan Cancer Center, Breast Medical Oncology Mini-retreat January 2009.
4. "GPCR-dependent NFkB signaling in vascular pathophysiology", Michigan State University, Depts of Physiology and Pathology Seminar Series, East Lansing, MI, March 2009.
5. "GPCR-dependent NFkB signaling in vascular, metabolic, and neoplastic disease University of Michigan, Dept of Pathology Research Seminar Series May, 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Member; Central Society for Clinical Research (CSCR)

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. McAllister-Lucas, L.M., and **Lucas, P.C.** (2008) Finally, MALT1 is a caspase! *Nature Immunol*. 9:231-233.
2. Else, T., Trovato, A., Kim, A.C., Wu, Y., Ferguson, D.O., Kuick, R.D., **Lucas, P.C.**, and Hammer, G.D. (2009) Genetic p53 deficiency partially rescues the adrenocortical dysplasia phenotype at the expense of increased tumorigenesis. *Cancer Cell* 15:465-476.
3. Rhodes, D.R., Ateeq, B., Cao, Q., Tomlins, S.A., Mehra, R., Laxman, B., Kalyana-Sundaram, S., Lonigro, R.J., Helgeson, B.E., Bhojani, M.S., Rehemtulla, A., Kleer, C.G., Hayes, D.F., **Lucas, P.C.**, Varambally, S., and Chinnaiyan, A.M. (2009) AGTR1 overexpression defines a subset of breast cancer and confers sensitivity to losartan, an AGTR1 antagonist. *Proc. Natl. Acad. Sci. USA*, Epub ahead of print.
4. Oravecz-Wilson, K.I., Philips, S.T., Yilmaz, O.H., Li, L., Sitwala, K., **Lucas, P.C.**, Downing, J.R., Morrison, S.J., and Ross, T.S. (2009) Persistence of leukemia-initiating cells in a novel mouse model of Imatinib-responsive myeloid leukemia. *Cancer Cell*, in press.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Jin, X., Gu, S., McAllister-Lucas, L.M., and **Lucas, P.C.** (2008) The CARMA3-Bcl10-MALT1 signalosome as a mediator of angiotensin II-dependent NF-kB activation and atherogenesis. Keystone Symposium on Metabolism and Cardiovascular Risk, Breckenridge, CO.
2. Farmen, S.L., Seller, C., McAllister-Lucas, L.M., **Lucas, P.C**., Conton, K.P., Fermin, D., Basrur, V., Lim, M.S., and Elenitoba-Johnson, K.S.J. (2009) Quantitative proteomic analysis of API2-MALT1 expression signature by isobaric tags and high-energy C-TRAP dissociation tandem mass spectrometry. USCAP Annual Meeting, Boston, MA.
3. Okawada, M., Koga, H., Larsen, S.D., Showalter, H.D., **Lucas, P.C.**, and Teitelbaum, D.H. (2009) Use of enterally-delivered angiotensin II type 1a receptor antagonists to reduce the severity of colitis. Digestive Disease Week Annual Meeting, Chicago, IL.

Nicholas W. Lukacs, Ph.D.

Professor of Pathology

I. Clinical Activities – None

II. Teaching Activities

A. DENTAL STUDENTS

1. 1st year students- Lectures on Inflammation, cytokines and Chemokines (3 hrs)

B. GRADUATE STUDENTS

1. Pathology 643, Course Director, Immune mechanisms of Disease, Fall, 2008
2. Pathology 581, Inflammation and Immune responses, Winter, 2009

III. Research Activities

A. SPONSORED SUPPORT

1. NIH PPG (PI), 25% effort, “Cockroach allergen-induced airway inflammation” Project IV; S.L Kunkel, Ph.D., Program Director 3/1/99 - 2/28/10. $325,000 annual direct costs.
2. NIH R01 (PI) 15% effort, “Role of C-C chemokines in eosinophil airway inflammation”, 8/1/96 - 11/30/12. $372,000 annual direct costs.
3. NIH R01 (PI) 15% effort, "TLR and Notch ligand in RSV-induced Disease", 12/1/07 - 11/30/12, $372,000 annual direct costs.
4. NIH T32 (PI), 5% effort, "Immunopathology Pulmonary Training Grant", 10/1/07 - 9/30/12, $324,000 annual direct costs.
5. NIH R01 (PI-Standiford, Co-I), 5% effort, "Role of TLR9 in bacterial pneumonia", 6/1/07 - 5/31/12, $350,000/yr annual direct costs.
6. NIH Special Centers of Research (SCOR) grant (Co-I), 5% effort, “Acute Lung Injury”, Project 2, with Steven L. Kunkel, Ph.D., Theodore Standiford, M.D. SCOR Director. 12/01/98 - 11/30/08; $305,400 annual direct costs.
7. NIH RO1 GM067827 (PI- Duckett, Co-I), 5% effort, "Control of Apoptosis and Signaling by XIAP", 4/2005 - 3/2010; $242,000/yr. annual direct costs.
8. NIH R01 (PI-Hershenson, Co-I), 5% effort, "Rhinovirus and airway epithelial cell Responses", 4/1/06 - 3/31/10, $372,000/yr annual direct costs.
9. (PI-Woods, Co-I), "Development of Esterases for the treatment of Cocaine overdose and abuse" 4/1/06 - 3/31/11, $582,268/yr annual direct costs.
10. NIH R21 (PI-Hershenson, Co-I), 5% effort "Quercetin Treatment of Airway Inflammation", 9/05 - 8/08.

11. NanoBio “RSV vaccine development using a nanoemulsion”. 8/1/08 - 7/31/09. $101,059 total costs.
12. Novartis "Testing compounds specific for CxCR2 in a model of RSV-induced disease" $47,000 total costs.

B. PENDING PROJECTS
1. Principal Investigator, “SCF in eosinophil-induced airway disease”. 5/1/99-4/30/08. $325,000/yr. In Revision for competitive renewal.
2. Consortium PI, 5% effort with Benaroya Institute, Seattle, WA. TSLP, Respiratory Syncytial Virus and Lung Inflammation. $115,875 annual direct costs.

C. PROJECTS UNDER STUDY
1. Role of chemokines and their receptors in pulmonary T cell immune responses (allergic and viral).
2. Viral activation of TLRs in determining the pulmonary immune environment and pathophysiology
3. The role of stem cell factor (SCF) and c-kit in the development of chronic pulmonary disease.
4. The signal transduction of chemokine and toll-like receptors on immune and non-immune cell populations.
5. Role of Notch ligands in activation of the mucosal immune system and T cell differentiation.

IV. Administrative Activities

A. DEPARTMENTAL
1. Director of Molecular and Cellular Pathology Graduate Program
2. Departmental representative- Curriculum Committee for PIBS
3. Steering Committee- Immunology Graduate Program in PIBS
4. Curriculum Committee for Pathology Graduate Program

B. INSTITUTIONAL
1. Immunology Training Grant T-32 (NIAID) Steering Committee
2. Institutional Biosafety Committee (IBC)
3. Associate Chairs of Research Committee for the Medical School-Pathology Representative
4. Assistant Dean of Faculty Affairs for Research Faculty

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Grant Reviews
   a. NIBIB. T32 grant review committee. 1/09
   b. NIAID. K99/R00 grant reviews 3/21/09

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Manuscript Reviews
   a. Journal of Immunology
   b. *American Journal of Pathology*
   c. *American Journal of Respiratory Cell and Molecular Biology*
   d. *Journal of Experimental Medicine*

e. *Journal of Leukocyte Biology*
f. *Journal of Clinical Investigation*
g. *Journal of Allergy and Clinical Immunology*
h. *Nature Journals*
i. *Immunity*
j. *Journal of Leukocyte Biology*

2. Editorial Duties
   a. Section Editor - *Journal of Interferon & Cytokine Research*
   b. Editorial Board - *Laboratory Investigation*
   c. Editorial Board - *American Journal of Pathology*

B. INVITED LECTURES/SEMINARS

1. Plasmacytoid DC regulates immunity during pulmonary disease responses. Immunopathology of pulmonary disease seminar series. University of Michigan Medical School. September 15, 2008.
2. Chemokines and chronic diseases. Session Chair. Chemotactic Cytokines Gordon Conference. Aussiou, France. September 23, 2008.
3. Innate and acquired immune responses during viral-induced immune responses. Brown University, Dept. of Immunology/Microbiology. October 4, 2008.
4. Chronic pulmonary disease during allergen and viral-induced immune responses. UCLA. Pulmonary Grand Rounds. October 24, 2008.
5. The role of Innate and Acquired immune responses in chronic lung disease. Benaroya Research Institute, Seattle, WA. February 26, 2009.
6. The role of Notch ligand, Dll4, in the differentiation of T cells during disease. Pluto Club. Los Suenos, Costa Rica. March 6, 2009.
7. A Notch in T cell activation. Dll4 notch ligand differentially controls Th2 and Th17 activation. AAAAI Annual Meeting, Washington, DC. March 15, 2009.
8. Opportunities for Ph.D. scientists in academic Pathology Departments. Experimental Biology, 2009, New Orleans, LA. April 10, 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. American Association of Immunologists
2. American Society of Investigative Pathologists
3. Society for Leukocyte Biology
4. Society for Interferon and Cytokine Research
5. Society for Mucosal Immunology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. **Nicholas W. Lukacs**, Joost J. Smit, Matthew A. Schaller, and Dennis M. Lindell. Regulation of immunity to RSV by DCs, TLRs, and Notch. *Viral Immunology*. 2:115-22, 2008.
2. Newcomb DC, Sajjan US, Nagarkar DR, Wang Q, Nanua S, Zhou Y, McHenry CL, Hennrick KT, Tsai WC, Bentley JK, **Lukacs NW**, Johnston SL, Hershenson MB. Human Rhinovirus 1B Exposure Induces PI 3-kinase-dependent Airway Inflammation in Mice. *Am J Respir Crit Care Med*. 15:177:1111-21. 2008.

3. Lindell DM, Lane TE, and **Lukacs NW**. CXCL10/CXCR3-mediated responses promote immunity to respiratory syncytial virus infection by augmenting dendritic cell and CD8(+) T cell efficacy. *Eur. J. Immunol.* 2008, 8:2168-79.
4. Lindell, D.M., Berlin, A.A., Schaller, M.A., and **Lukacs, N.W.** B cell antigen presentation promotes Th2 responses and immunopathology during chronic allergic lung disease. *PloS One* 3:e3129, 2008.
5. **Lukacs, NW**, Berlin, AA, Franz-Bacon, K, Sasik, R, Sprague, LJ, Ly, TW, Hardiman, G, Boehme, SA, and Bacon, KB. CRTH2 antagonism significantly ameliorates airways hyperreactivity, and down-regualtes inflammation-induced genes in a mouse model of airway inflammation. *Am J Physiol Lung Cell Mol Physiol*. 2008.
6. Karen A. Cavassani, Makoto Ishii, Haitao Wen, Matthew A. Schaller, Pamela M. Lincoln, **Nicholas W. Lukacs**, Cory M. Hogaboam, and Steven L. Kunkel. TLR3 is an endogenous sensor of tissue necrosis during acute inflammatory events. 2008. *J. Exp. Med.* 205:2609-21.
7. Joshi, AD, Schaller, M.A., **Lukacs, NW**, Kunkel, SL and Hogaboam, CM. TLR3 modulates immunopathology during a Schistosoma mansoni egg-driven Th2 response in the lung. 2008. *Eur. J. Immunol.* 38:3436-49.
8. Ito, T., Schaller, M., Hogaboam, CM, Standiford, TJ, Sandor, M., **Lukacs, NW**, Chensue, SW, and Kunkel, SL. TLR9 regulates the mycobacteria-elicited pulmonary granulomatous immune response through DC-derived Notch ligand delta-like 4. 2009. *J. Clin. Invest.* 119:33-46.
9. Dolgachev, VA, Ullenbuch, MR, **Lukacs, NW**, and Phan SH. Role of Stem Cell Factor and bone marrow-derived fibroblasts in airway remodeling. 2009. *Am. J. Pathol.* 174:390-400.
10. Moore ML, Chi MH, Luongo C, **Lukacs NW**, Polosukhin VV, Huckabee MM, Newcomb DC, Buchholz UJ, Crowe JE Jr, Goleniewska K, Williams JV, Collins PL, Peebles RS Jr. A chimeric A2 strain Respiratory Syncytial virus (RSV) with the fusion protein of RSV strain line 19 exhibits enhanced viral load, mucus, and airway dysfunction. *J. Virol.* 2009.
11. Ko MC, Narasimhan D, Berlin AA, **Lukacs NW**, Sunahara RK, Woods JH. Effects of cocaine esterase following its repeated administration with cocaine in mice. *Drug Alcohol Depend.* 2009. 101:202-9.
12. Mortaz E, Kraneveld AD, Smit JJ, Kool M, Lambrecht BN, Kunkel SL, **Lukacs NW**, Nijkamp FP, Folkerts G. Effect of cigarette smoke extract on dendritic cells and their impact on T cell proliferation. *PloS ONE*. 2009. 4:e4946.
13. Mukherjee, S., Schaller, MA, Neupane, R, Kunkel, SL, and **Lukacs, NW**. Regulation of T cell activation by Notch ligand, DLL4, promotes IL-17 production and Rorc activation. 2009. *J. Immunol.* 182:7381-88.

B. BOOKS/CHAPTERS IN BOOKS

1. **Nicholas W. Lukacs** and Peter A. Ward. Leukocyte accumulation in pulmonary disease. IN: Fishman's Pulmonary Diseases and Disorders, 4th Edition. Ed. AP Fishman, JA Elias, JA Fishman, MA Grippi, LR Kaiser, and RM Senior. McGraw-Hill.
2. **Lukacs, NW**, Smit, J, Lindell, D, and Schaller, M. Repiratory syncytial virus-induced pulmonary disease and exacerbation of allergic asthma. *Contrib Microbiol*. 14:68-82, 2007.
3. Kallal, LE and **Lukacs, NW**. The role of chemokiens in virus-associated asthma exacerbations. *Curr Allergy Asthma Rep*. 2008. 38:2168-79.

4. Vladislav Dolgachev and **Nicholas W. Lukacs**. Acute and chronic inflammation induces disease pathogenesis. Molecular Pathology. Ed. William B. Coleman. Elsevier Press. 2009.

Linglei Ma, M.D.

Assistant Professor of Pathology and Dermatology

I. Clinical Activities

A. DERMATOPATHOLOGY

1. University Hospital cases, transfer cases, M-Labs consultation service - 12 months
2. Dermatology Grand Rounds - once per month
3. Cutaneous lymphoma conference -- once per month

II. Teaching Activities

A. MEDICAL STUDENTS

1. Dermatopathology elective rotations
2. M2 Pathology, dermatopathology

B. HOUSE OFFICERS AND FELLOWS

1. Dermatology and Pathology resident rotations
2. Dermatopathology Teaching Conferences
   a. Dermatology residents
   b. Pathology residents
3. Dermatopathology fellows -daily sign-out, consultation cases reviews and journal club
4. Annual Michigan Dermatological Society Case Presentations-(1 per year)

C. LECTURES

1. M2 Pathology for medical student, dermatopathology

III. Research Activities

A. SPONSORED SUPPORT

1. NIH Training Grant T32-AR017979-26 (PI-Elder) Training Grant in Cell and Molecular Dermatology Secondary Preceptor; no salary, 05/01/07 - 04/30/12, $190,084 annual direct costs

2. University of Michigan, Pathology Department, Anatomic Pathology Project Fund (PI-Ma) CD13, CD14 and CD163 expression in cutaneous fibrohistiocytic lesions, 7/07-present, $9,300 one time cost, no salary.
3. University of Michigan, Pathology Department, Anatomic Pathology Project Fund (PI-Ma) The involvement of mTOR pathway protein in cutaneous lymphomas 3/08-present, $5,300 one time cost, no salary.
4. University of Michigan, Pathology Department, Anatomic Pathology Project Fund (PI-Fullen, Co-I) Expression of Cripto-1 and Nodal in cutaneous melanocytic lesions 02/08-present, $5,200 one time cost.

B. PROJECTS UNDER STUDY
1. Principal Investigator, “Expression of IMP -3 in melanomas and nevi”.
2. Principal Investigator, “Expression of CD163, CD13, and CD14 in Leukemia Cutis”.
3. Principal Investigator, “CD33 expression in cutaneous leukemia”.
4. Principal Investigator, “mTOR and erb2 pathway molecules in cutaneous lymphoma”.
5. Co-investigator, “ Expression of Cripto-1 and Nodal in cutaneous melanocytic lesions”.
6. Co-investigator, “The prevalence of gastrointestinal tumors in patients with sebaceous neoplasm”.
7. Co-investigator, “Expression of IMP -3 in nodal melanomas and nevi”.

IV. Administrative Activities

A. DEPARTMENTAL
1. Dermatopathology fellowship program candidate interviews
2. Pathology faculty candidate interviews
3. AP extramural strategy group

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Manuscript Reviews
   a. *Human Pathology*
   b. *Indian Journal of Pathology and Microbiology*

B. INVITED LECTURES/SEMINARS
1. Course speaker, “Clinicopathological correlation of skin diseases”, Up-date-dermatology/urology conference, Genesys Regional Medical Center, Flint, MI, July 9, 2008.
2. Course faculty/speaker, Lentigo maligna melanoma forum, “Histology of lentigo maligna”, American Academy of Dermatology 67th annual meeting, San Francisco, CA, March 7, 2009.
3. Platform speaker, “Diagnostic value of CD33 in leukemia cutis”, United States and Canadian Academy of Pathology annual meeting, Boston, MA, March 10, 2009.

4. Invited speaker, “Fibrous and fibrohistiocytic proliferations of the skin I”, internet pathology lecture series, China, September 20, 2008.
5. Invited speaker, “Fibrous and fibrohistiocytic proliferations of the skin II”, internet pathology lecture series, China, November 29, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. College of American Pathology
2. American Society of Clinical Pathology
3. United States and Canadian Academy of Pathology
4. American Society of Dermatopathology
5. American Association of Dermatology
6. International Society of Dermatopathology
7. Chinese American Pathologists Association
8. Association of Chinese American Physicians
9. Member, University of Michigan Comprehensive Cancer Center

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Wasco M, Pu R, Yu L, Su LD, **Ma L.** Expression of gamma-H2AX in melanocytic lesions. *Human Pathol.* 2008; 39(11): 1614-20.
2. Carvalho J, Lowe L, Fullen DR, Su LD, **Ma L.** Comparison of CD23 staining patterns in Merkel cell carcinoma and non-cutaneous small cell carcinoma. *Journal of Cutaneous Pathology*. 2009; 36:206-210.
3. Olsen SH, **Ma L**, Schnitzer B, Fullen DR. Clusterin expression in cutaneous CD30-positive lymphoproliferative disorders and their histologic simulants. *Journal of Cutaneous Pathology*. 2009; 36(3):302-7.
4. Pouryazdanparast P, Yu L, Cutlan J, Fullen DR, **Ma L**. Diagnostic value of CD163 in cutaneous spindle cell lesions. *Journal of Cutaneous Pathology* 2008 [Epub ahead of print].

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. Cutlan J, Pouryazdanparast P, **Ma L**, Lucas D, Fullen DR. CD13 and CD14 expression in paraffin sections of normal skin and fibrohistiocytic lesions support bone marrow origin of dermal dendrocytes. 45th Annual Meeting of the American Society of Dermatopathology, San Francisco, CA, October, 2008.
2. Yu L, Pouryazdanparast P, **Ma L**, Fullen DR. Evaluation of nodal in melanocytic lesions. 45th Annual Meeting of the American Society of Dermatopathology, San Francisco, CA, October, 2008.

3. **Ma L**, Kim D, Cutlan, J et al. Diagnostic value of CD33 by immunohistochemistry in leukemia cutis. Annual meeting of the USCAP (platform presentation), Boston, MA, March, 2009.
4. **Ma L**, Harms P, Gogner P, Lim MS et al. The expression of mTOR pathway proteins in cutaneous lymphomas. Annual meeting of USCAP, Boston, MA, March, 2009.
5. Chiselite MD, **Ma L**, Lim MS et al. Expression of Growth factor receptor-bound protein 2 (Grb2) in T cell lymphomas. Annual meeting of USCAP, Boston, MA, March, 2009.

Steven H. Mandell, M.D.

Assistant Professor of Pathology
Director of MLabs Program
Director of Reference Laboratory Sendouts and Central Distribution

I. Clinical Activities

A. MLABS
1. Medical Director, MLabs Division (65%)
2. MLabs Surgical Pathology and Consultations, MLabs, 36 weeks (10%)
3. Medical Director, Sendouts (Reference Laboratory Testing) (10%)

B. SURGICAL PATHOLOGY
1. UMHS Surgical Pathology Placental Service, 5 weeks (5%)
2. UMHS Electron Microscopy Signout, Immotile Cilia Syndrome Evaluations (5%)

C. LEAN LABORATORY IMPLEMENTATION, Lead (5%)

D. MEDICAL DIRECTOR Forest Health Medical Center and University Health Service Laboratories
1. Coverage for Dr. Rodolfo Rasche

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS
1. Resident Orientation – MLabs and Lean in the Department of Pathology (2.0 hours)

B. LECTURES
1. Lunch and Learn for Medical Technology Students. Lean Six Sigma. April 24 2009.
2. "Implementation of Lean Concepts in Pathology." Clinical Pathology Grand Rounds, August 3, 2008, Ann Arbor, MI.

C. OTHER
1. Lean Office for Pathology Professional Assistants. Ann Arbor, September 9, 2008
2. Lunch and Learn for Medical Technology Students. Lean Six Sigma. April 24, 2009

III. Research Activities

A. SPONSORED SUPPORT

1. Fostering Innovation Grant from the University of Michigan Health System, $26,000, for the Development of a Novel, Unit-Based, Laboratory Specimen Drop Box Using Lean Design Techniques. March 2008.

IV. Administrative Activities

A. DEPARTMENTAL

1. Departmental Division Directors' Meeting
2. Laboratory Personnel, Operations and Improvements Meetings, MLabs, Sendouts Laboratory Quality Assurance Committee
3. MLabs Connect (Atlas LabWorks) Web Portal Implementation, Lead
4. Departmental Lean Initiatives, Coach and Coach Mentor
5. External Consultations Strategic Workgroup, Special Project with Dr. Jeffrey Myers Ann Arbor VA Medical Center Site Visit - Lean
6. Mayo Medical Laboratories, Reference Lab Liaison
7. Clinical Pathology Faculty Meetings
8. Anatomic Pathology Faculty Meetings
9. Department Combined Faculty Meetings Anatomic Pathology Operations Committee and Anatomic Pathology Gemba Walks

B. INSTITUTIONAL

1. Joint Venture Hospital Laboratories, UMHS Delegate Emerging Leaders Project, "The Human Factors," Developing a Corporate "Wiki" for UMHS.
2. Laboratory Sendout Formulary Committee

C. REGIONAL/NATIONAL/INTERNATIONAL

1. Michigan Quality System Representative, Michigan Lean Consortium

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Technical Editor, MLabs Spectrum, a supplement to the MLabs Handbook

B. INVITED LECTURES/SEMINARS

1. Leadership Lessons for Success In Your Laboratory. 26th MLabs Symposium, Ann Arbor, April 25, 2009.
2. Lean Chops – Getting to the Meat of the Lean Matter, Michigan Society of Histotechnologists, Royal Oak, MI, January 31, 2009.
3. Lean Thinking for Leadership. University of Michigan Ambulatory Care Leadership Meeting, Ann Arbor, May 5, 2009.

4. Evolution of the Michigan Quality System and Lessons for Leadership, ValuMetrix Executive Roundtable, Washington D.C., March 5, 2009.
5. Lean Workshop for Molecular Diagnostics and Cytogenetics Laboratories, Ann Arbor, November 15, 2008.
6. The Michigan Quality System and Lean in the Laboratory. Mexican Congress of Pathology, Acapulco, October 29, 2008.
7. Going Lean in Pathology – Lean Thinker's Series University of Michigan Health System. Ann Arbor, October 7, 2008.
8. Specimen Processing Lean Six Sigma Workshop for Laboratory Assistants, Customer Service Representatives and Medical Technologists. Ann Arbor, July 19, 2008.
9. Evolution of the Michigan Quality System, ValuMetrix Performance Excellence in Healthcare. Boston MA, September 17, 2009.
10. Lean Office for Pathology Professional Assistants. Ann Arbor, September 9, 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. College of American Pathologists
2. American Society of Clinical Pathologists
3. US and Canadian Academy of Pathologists
4. American Medical Association
5. Washtenaw County Medical Society
6. Michigan State Medical Society
7. Michigan Society of Pathologists
8. Washtenaw Toastmasters

VI. Publications

A. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. **Mandell S**, Elenitoba-Johnson K, Betz B. "Molecular Diagnostics and Pharmacogenetics: Personalizing chronic myelogenous leukemia therapy by detection of specific abl1 gene mutations." MLabs Spectrum, Vol 22, No 2, July 2008. http://mlabs.umich.edu/spectrum/Spectrum_Jul08.pdf.
2. **Mandell S.** "What are my physician office's regulatory requirements for performing waived testing?" MLabs Spectrum Q and A, Vol 22, No 2, July 2008. http://mlabs.umich.edu/spectrum/Spectrum_Jul08.pdf.

Jonathan B. McHugh, M.D.

Assistant Professor of Pathology

I. Clinical Activities

A. SURGICAL PATHOLOGY
1. General surgical pathology (Room I): 8 weeks
2. Genitourinary surgical pathology (GU Room): 8 weeks
3. Gastrointestinal surgical pathology (GA Room): 8 weeks
4. Pediatric surgical pathology (IP Room): 8 weeks
5. Surgical pathology frozen section on call: 5 weeks
6. Cardiovascular Center frozen section on call

B. HEAD AND NECK PATHOLOGY
1. Head and neck pathology consultations: 250 cases
2. Head and Neck tumor board conference – weekly
3. Pediatric Pathology Head and Neck pathology case reveiw – quarterly

II. Teaching Activities

A. MEDICAL STUDENTS
1. M1 Histopathology Sequence Lab Instructor (24 contact hours)
2. Senior Elective in Pathology: Supervising during diagnostic sign-out

B. HOUSE OFFICERS AND FELLOWS
1. Surgical pathology diagnostic room (general, pediatric, genitourinary and gastrointestinal) instruction for pathology house officers and fellows (25 weeks)
2. Pathology house officer Consult (Head and Neck pathology) Conference (5 contact hours)
3. AP Grand Rounds (3 contact hours)
4. Otorhinolaryngology house officer and fellow pathology board review (4 contact hours)
5. Bi-monthly oral-maxillofacial surgery resident case review

III. Research Activities

A. SPONSORED SUPPORT

1. NIH (PI-Wolf, Co-I) 10% effort, “Collaberative inter-SPORE HIV/head and neck cancer study” $1,623,629.
2. NIH (PI-Carey, Co-I) 4.5% effort, “Biomarkers to Guide Treatment and Improve Survival in Oral/Oropharyngeal Cancer” $225,000.

B. PENDING PROJECTS

1. Co-Investigator: Phase II trial of dasatinib (BMS354825) for recurrent or metastatic c-Kit expressing adenoid cystic carcinoma and non-adenoid cystic malignant salivary tumors, P.I. Francis Worden, M.D.
2. Co-Investigator: Phase II trial of preoperative soy isoflavone supplementation and molecular markers in the prevention of head and neck squamous carcinoma, P.I. Gregory Wolf, M.D.

C. PROJECTS UNDER STUDY

1. Tobacco use is associated with risk of distant metastases, tumor recurrence, and death in patients with HPV-positive (+) squamous cell cancer of the oropharynx
2. Solitary fibrous tumors of the head and neck
3. Salivary gland myoepitheliomas and the significane of clear cell morphology
4. HPV-related nasopharyngeal non-keratinizing squamous cell carcinoma
5. Perivascular epithelioid cell tumors (PEComas) of the head and neck
6. Lobular capillary hemangiomas of the sinonasal cavity
7. Imaging predictors of rupture in Wilms tumor and clear cell sarcoma of the kidney
8. Radiologic comparison between HPV and non-HPV orpharyngeal squamous cell carcinoma
9. Xanthogranulomatous pyelonephritis in children with radiologic-surgical pathologic correlation

IV. Administrative Activities

A. DEPARTMENTAL

1. Surgical Pathology Fellow candidate interviews
2. Pathology Resident candidate interviews

B. REGIONAL/NATIONAL/INTERNATIONAL

1. Committee Member American Society of Clinical Pathology: Resident In-Service Examination (RISE) Committee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Manuscript Reviews
   a. *Archives of Pathology and Laboratory Medicine, Head and Neck Pathology*
   b. *Archives of Otolaryngology - Head and Neck Surgery, Head and Neck Pathology*

B. INVITED LECTURES/SEMINARS
   a. New Frontiers in Pathology: An Update for Practicing Pathologists. Cystic neck metastases and HPV-related oropharyngeal squamous cell carcinoma, Ann Arbor, MI.
   b. American Society for Clinical Pathology Education Course: Surgical pathology of the head and neck, Las Vegas, NV

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
   1. American Society of Clinical Pathology – RISE Committee Member
   2. College of American Pathologists
   3. Michigan Society of Pathologists
   4. North American Society for Head and Neck Pathology
   5. Rodger C. Haggitt Gastrointestinal Pathology Society
   6. United States and Canadian Academy of Pathology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
   1. Gemmete JJ, Ansari SA, **McHugh J**, Gandhi D. Embolization of vascular tumors of the head and neck. *Neuroimaging Clinics of North America*. 19(2): 181-198, 2009.
   2. **McHugh JB**, Mukherji SK, Lucas DR. Sino-orbital osteoma: A clinocpathological study of 45 surgically treated cases with emphasis on tumors with osteoblastoma-like features. *Archives of Pathology and Laboratory Medicine*. In Press.
   3. Dillman JR, Pernicano PG, **McHugh JB**, Attili AK, Mourany B, Pinsky RW, Strouse PJ, Kazerooni EA. Cross-sectional imaging of primary thoracic sarcomas with histopathologic correlation: a review for the radiologist. *Current Problems in Diagnostic Radiology.* In Press.
   4. Birman MV, **McHugh J**, Hayden RJ, Jebson PJL. Pilomatrixoma of the upper extremity: A case report. *Iowa Orthopaedic Journal*. In Press.
   5. **McHugh JB**. Association of cystic neck metastases and human papillomavirus-positive oropharyngeal squamous cell carcinoma. *Archives of Pathology and Laboratory Medicine*. In Press.
   6. **McHugh JB**, Visscher DW, Barnes EL. Update on selected salivary gland neoplasms. *Archives of Pathology and Laboratory Medicine.* In Press.
   7. Mankey CC, **McHugh JB**, Thomas DG, Lucas DR. Can lymphangiosarcoma be resurrected? A clinicopathological and immunohistochemical study of 49 cases. *Histopathology*. In Press.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
   1. Garcia JJ, Hunt JL, Weinreb I, **McHugh JB**, Barnes EL, Cieply K, Dacic S, Seethala RR. Fluorescent in-situ hybridization for detection of MAML2 rearrangements in oncocytic mucoepidermoid carcinoma: Utility as a diagnostic test. 98th Annual Meeting of the USCAP, Boston, MA, March 2008. Poster presentation.
   2. Smith EA, Dillman JR, Wan J, Styn N, **McHugh J**, Strouse PJ. Xanthogranulomatous pyelonephritis: an uncommon pediatric renal "mass." 52nd Annual Meeting of the Society for Pediatric Radiology, La Costa, CA, April 2009. Poster presentation.

3. Worden F, Hooton J, Kumar B, Feng F, Lee J, Eisbruch A, Wolf G, Prince M, Moyer J, Teknos T, Chepeha D, Stoerker J, Walline H, **McHugh J**, Cordell K, Ward P, Bradford C, Carey T. Tobacco use is associated with risk of distant metastases, tumor recurrence, and death in patients with HPV-positive squamous cell cancer of the oropharynx. 2009 Annual Meeting of the ASCO, Orlando, FL, May 2009. Platform presentation.

Paul E. McKeever, M.D., Ph.D.

Professor of Pathology

I. Clinical Activities

A. NEUROPATHOLOGY

1. Surgical Neuropathology, 24/7 on call
2. Brain Tumor Board, weekly
3. Review of neurosurgical, neuroradiologic, neuropathologic and clinical-pathologic correlation, 23 weeks. Surgical neuropathology case load is over four times the national average.
4. Diagnostic neuropathology consultant, Veterans Administration Hospital
5. Autopsy Neuropathology
6. Brain Cutting Conference, fifty-three brains were examined

B. AUTOPSY SERVICE

1. General autopsies, 26 days

II. Teaching Activities

A. MEDICAL STUDENTS

1. M2 Neuropathology: Neuroscience Sequence, 8 hours
2. Mentor M4 Students in Neuropathology
   a. Katie Kwam
   b. Ariana Nelson
3. Clinical Mentor, Medical Scientist Training Program

B. DENTAL STUDENTS

1. Three lectures per year to Dental Students on Neuropathology

C. GRADUATE STUDENTS

1. Johanna Buchstaller, Ph.D. from laboratory of Sean Morrison, Ph.D.
2. Nancy Joseph, M.D., Ph.D., student from laboratory of Sean Morrison, Ph.D.
3. Surgical Pathology Fellows - neurosurgical frozen section and cytologic biopsies

D. HOUSE OFFICERS AND FELLOWS
   1. Brain cutting, sampling, microscopic examination and special stain instruction of pathology and clinical House Officers
   2. Individual instruction of Pathology, Neurology, and clinical House Officers on neurosurgical biopsy material, 28 weeks
   3. Review neurosurgically removed material with Pathology Residents. Thursday Specialty Conferences rotated with other faculty, monthly conference
   4. Invited presentations of neuropathologic observations at various clinical conferences Medical Grand Rounds and CPC conferences
   5. One month House Officer Elective, with Dr. Cohra Mankey
   6. Autopsy call, Pathology Gross Conference
   7. Neuropathology half to one month rotations for senior residents
      a. Bryan Coffing
      b. Jonathan Cutlan
      c. Sara Farmen
      d. Luzette Habib
      e. Suntrea Hammer
      f. Jingmei Lin
      g. David Moons
      h. Julianne Purdy
      i. Elizabeth Wey

E. LECTURES
   1. Neuroscience Sequence, Neuropathology for Second Year Medical Students
      a. Prepared two laboratories and two lectures on brain tumors
      b. Toxic, metabolic, demyelinating and infectious diseases, four laboratories

F. OTHER
   1. Brain Tumor Board, CPC, and other conferences

III. Research Activities

A. SPONSORED SUPPORT
   1. Principal Investigator, Dr. Sean Morrison, "Isolation and characterization of neural cancer stem cells".
   2. NIH 5 PO1 CA085878-06 (PI-Ross) 8% effort, "Project 1 - Brain Tumor Efficicacy of Quantitative MRI", 5/24/07-3/31/12, $8,399.709.
   3. NIH 5 PO1, CA085878 (PI-Chevevert) 3% effort, "Project 3 - Brain Tumor Therapeutic Efficacy by Quantitative MRI", 5/24/07-3/31/12, $8,399,709.
   4. NIH P50, CA093990-07A1 (PI-Ross),5% effort "Project 3 - In Vivo Imaging of Neoplasia", 9/22/08-3/31/13, $6,332,832.

5. NIH 1RO1 NS053900 (PI-Yuan) Consultant, 1% effort, "Cellular and molecular basis of malignant astrocytoma:", 7/1/06-5/31/11,,125.000.
6. Principal Investigator, Dr. Byron G. Thompson, "Correlation of MIB-1 and tumor progression of resected meningiomas".
7. Principal Investigator, Dr. Jason Heth, "CNS Tumor Registry". This project is essentially funded by Neurosurgery department funds.
8. Northwest Biotherapeutics (PI-Hess, Co-I) "A Phase II Clinical Trial Evaluation DCVax Brain, Autologous Dendritic Cells Pulsed with Tumor Lysate Antigen for the Treatment of Glioblastoma Multiforme", 10/15/07-8/31/11, $419,093.

IV. Administrative Activities

A. DEPARTMENTAL

1. Chief, Section of Neuropathology
2. Director, Neuropathology Residency Training. Full accreditation from the Accreditation Council for Graduate Medical Education obtained in 1996, status inactive.

B. INSTITUTIONAL

1. Organization and scheduling of Pathology, Neurology, Neuroradiology and Neurosurgery House Officer Neuropathology teaching conferences, individual instruction and consultation review
2. Organization of call logistics, specimen handling, and schedules for coverage of diagnostic neuropathology by staff
3. Interaction with Chiefs and Staff of other clinical services, particularly Neurosurgery, Neurology, Nuclear Medicine, Radiation Oncology, Neuro-oncology and Neuroradiology
4. Quality control of microscopic, ultrastructural and immunodiagnostic neuropathology. This included numerous ad hoc reviews requested by faculty and staff
5. M-Labs Neuropathology Services

C. REGIONAL/NATIONAL/INTERNATIONAL

1. Member, Brain Tumor/EMF Study Scientific advisory Panel, National Cancer Institute, Jonathan Samet, Chairman.
2. Primary Review Pathologist, Children's Cancer Study Group CCG 9897 nationwide study of childhood low grade gliomas.

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Board
   a. *Journal of Neuropathology and Experimental Neurology*
2. Manuscript Reviews
   a. *Journal of Neuropathology and Experimental Neurology*

b. *Journal of Histochemistry and Cytochemistry*
c. *American Journal of Pathology*
d. *Archives of Pathology and Laboratory Medicine*

B. INVITED LECTURES/SEMINARS
1. “New Methods of Brain Tumor Analysis": AFIP Kenneth M. Earle Memorial Neuropathology Reviews, Armed Forces Institutes of Pathology, Bethesda, Maryland, 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Member, U.S. & Canadian Academy of Pathology
2. Member, Alpha Omega Alpha, Eta Chapter
3. Member, American Association of Neuropathologists
4. Member, Constitution Committee
   a. Committee Chair
5. Member, Society of Neuroscience
6. Member, Children's Cancer Study Group
   a. Pathology Committee, 1989 - present.
7. Member, Histochemical Society
   a. Constitution Advisor 1996
   b. Councilor, 1994 - 1998
   c. Publications Committee 1995 - 1998
8. Lieutenant Colonel, U.S. Army Reserve Medical Corps, 1997 - 2007.
   a. Duty station AFIP, 1997 - 2005
   b. Duty station Pathology Dept., Walter Reed Army Medical Center, 2005 - 2007
   c. Honorable discharge at retirement age

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Joseph NM, Mosher JT, Buchstaller J, Snider P, **McKeever PE**, Lim M, Conway SJ, Parada LF, Zhu Y, Morrison SJ. The loss of Nf1 transiently promotes self-renewal but not tumorigenesis by neural crest stem cells. *Cancer Cell* 13(2):129-40, 2008.
2. Abul-Kasim K, Thurnher MM, **McKeever PE**. Intradural spinal tumors: Current Classification and MRI features. *Neuroradiology* 50(4):301-14, 2008.
3. Sundren PC, Nagesh B, Elisas A, Tsien C, Junck L, Hassan G, Lawrence DM, Chevevert TL, Rogers L, **McKeever PE**, Cao Y. Metabolic alterations: a biomarker for radiation-induced normal brain injury-an MR spectroscopy study. *Journal of Magnetic Resonance Imaging* 29(2):291-7, 2009.

B. BOOKS/CHAPTERS IN BOOKS

1. **McKeever PE**: Immunohistochemistry of the nervous system. In: Diagnostic Immunohistochemistry, 3rd edition. Dabbs DJ (Ed). Churchill Livingstone, Philadelphia, PA (in press).
2. **McKeever PE**: New Methods of Brain Tumor Analysis. American Registry of Pathology Syllabus, Washington, DC 2009, pp. 1-51 & illus. pp. 1-30.
3. **McKeever PE**: The brain, spinal cord and meninges. In: Sternberg's Diagnostic Surgical Pathology, 5th edition. Mills SE et al (Ed). Lippincott William & Wilkins (in press).
4. Jarzembowski J, **McKeever P**. The Pathologic Perspective on the Pituitary Adenomas present with a variety of clinical and pathologic manifestations, which may cause difficulty in identification and management. Review of Endocrinology, March 2008.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Sundgren P, Tsien C, Ten Haken R, **McKeever P**, Gomez Hassan D, Junck L, Rogers L. Correlation of MRI morphologic abnormalities and radiation treatment dose-volumes in histologically proven cerebral radiation necrosis. Abstracts of European Society of Neuroradiology (ESNR) Annual Meeting, 2008.

Barbara J. McKenna, M.D.

Professor of Pathology

I. Clinical Activities

A. GENERAL SURGICAL PATHOLOGY - 2 weeks
   a. General anatomic pathology on call -4 weeks

B. GASTROINTESTINAL AND HEPATIC PATHOLOGY
   1. On services - 3 months
   2. Gastrointestinal and liver consultation services - 4 months
   3. GI and hepatic pathology on call - 12 weekends

II. Teaching Activities

A. MEDICAL STUDENTS
   1. Pathology 600 - laboratory 2-4 hours per 6 weeks
   2. Senior Elective in Pathology: supervising during diagnostic signout

B. HOUSE OFFICERS AND FELLOWS
   1. Surgical pathology diagnosing rooms and consult service instruction for assigned house officer/fellow 8 months
   2. Lectures in gastrointestinal and liver pathology - 4 hours
   3. Consult conferences - 4 hours
   4. House officer orientation lecture -1 hour
   5. Hepatology fellows conference - 4 hours
   6. Gastroenterology fellows conference - 3 hours
   7. Morgue rounds and cytology fellows conference - 6 hours

C. LECTURES
   1. Lectures in GI and liver pathology - 4 hours
   2. House officer orientation lecture - 1 hour

III. Research Activities

A. SPONSORED SUPPORT

1. Research Award, Univ. of Michigan - Coulter Translational Research Partnership Program (BME PI: Mycek; Clinician PI's: McKenna, Scheiman, Simeone) "Method for Optical Detection of Pancreatic Cancer" 2009-2010, $120,000
2. NIH R21 (PI-Houssain) 5% effort "MRI Quantification and Display of Hepatic Fat in Hepatitis C and Non-Alcoholic Liver Disease (NAFLD) patients".
3. NIH R01 Dk073992-02, (PI-Zimmermann) 4% effort, Detection of inflammation vs Intestinal fibrosis in Crohn's disease.

B. PENDING PROJECTS

1. Hepatitis B Network Participant, 2.5% effort beginning September 2009

C. PROJECTS UNDER STUDY

1. Magnetization transference MRI as a noninvasive method of assessing fibrotic intestinal strictures in Crohn's disease: and in vivo study of human imaging, with E Zimmermann and other.
2. "MRI Quantification and Display of Hepatic Fat in Hepatitis C and Non-Alcoholic Liver Disease (NAFLD) patients" with Hero Hussain.
3. Nonalcoholic steatohepatitis: is leptin deficiency an etiologic factor with E Oral and others from Endocrinology, Gastroenterology and Radiology.
4. Radiology/pathology correlation of small bowel mural fat in patients with Crohn's disease, with Adler, Al-Hawry, Dillman, Kurlander, Platt, Sonda, and Zimmermann.
5. Non-invasive predictor of steatohepatitis and fibrosis in non-alcoholic fatty liver disease, with Kang, Lok.
6. Histologic features of relapsing ulcerative colitis complicated by Clostridium difficile infection, with Zimmermann, Katakuri, Hammer.
7. Prevalence and diagnostic features of autoimmune gastritis, with Appelman, Purdy
8. Chronic mycophenolate colitis, with Coffing, Bihlmeyer.
9. Liver histology in HBV patients with normal or minimally elevated ALT, with Lok, Degertekin.
10. Mathematical modeling of reflectance and intrinsic fluorescence for early cancer detection in human pancreatic tissue, with Wilson, Chandra, Scheiman, Simeone, Purdy, Mycek.
11. Hepatitis B Network (Multi-insitutional, multispecialty).

IV. Administrative Activities

A. DEPARTMENTAL

1. Program Director, Surgical Pathology Fellowship
2. Residency Program Committee

3. Surgical Pathology Fellowship Committee

B. REGIONAL/NATIONAL/INTERNATIONAL
   1. American Society for Clinical Pathology
      a. President
      b. Member, Board of Directors
      c. Maintenance of Certification Committee
   2. Rodger C. Haggitt Gastrointestinal Pathology Society
      a. President-elect
   3. United States and Canadian Association of Pathologists
      a. Ambassador

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
   1. Editorial Board
      a. *Human Pathology*
      b. *Modern Pathology*
   2. Manuscript Reviews
      a. *American Journal of Clinical Pathology*

B. INVITED LECTURES/SEMINARS
   1. "The Pathology and Laboratory Medicine Workforce Shortages: an Impending Perfect Storm" at the Southeast Section of the Association of Pathology Chairs meeting, Kiawah Island, SC, February 6, 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
   1. American Society for Clinical Pathology
      a. President, member Board of Directors
   2. United States and Canadian Academy of Pathology
      a. Ambassador
   3. Gastrointestinal Pathology Society
      a. President-elect
   4. A. James French Society of Pathologists
   5. College of American Pathologists

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
   1. Purdy JK, Appelman HD, Golembeski CP, **McKenna, BJ**. Lymphocytic esophagitis: a chronic or recurring pattern of esophagitis resembling allergic contact dermatitis. *Am J Clin Pathol*. 2008 Oct; 130(4):508-13.

2. Polydorides AD, M.D., Mukherjee B, Gruber SB, **McKenna BJ**, Appelman HD, Greenson JK. Adenoma-Infiltrating Lymphocytes (AILs) Are a Potential Marker of Hereditary Non-Polyposis Colorectal Cancer. *Am J Surg Pathol*. 2008 Nov; 32(11):1661-6.
3. R. H. Wilson, M. Chandra, J. Scheiman, D. Heidt, D. Simeone, **B. McKenna**, and M.-A. Mycek: Modeling reflectance and fluorescence spectra of human pancreatic tissues for cancer diagnostics, *Frontiers in Optics, OSA Technical Digest* (CD) (Optical Society of America), FTuK5 (1 pg.) (2008).
4. R.H. Wilson, M. Chandra, J. Scheiman, D. Simeone, **B. McKenna**, J. Purdy, and M.-A. Mycek: Mathematical modeling of reflectance and intrinsic fluorescence for cancer detection in human pancreatic tissue, *Proceedings of SPIE Photonics West, Biomedical Optics Symposium*, Vol.7187, 71870H (9 pages) (2009).
5. M. Chandra, R.H. Wilson, J. Scheiman, D. Simeone, **B. McKenna**, J. Purdy, and M.-A. Mycek: Optical spectroscopy for clinical detection of pancreatic cancer, *Proceedings of SPIE-OSA European Conference on Biomedical Optics* (ECBO) to be published summer, 2009.

B. BOOKS/CHAPTERS IN BOOKS
1. **McKenna, BJ**, Bihlmeyer SG. Primary liver carcinomas: HCC and cholangiocarcinoma. Contemporary Issues in Cancer Imaging: Hepatocellular Carcinoma and Cholangiocarcinoma, Hussain HK, and Francis I, eds, Reznek RH and Husband JE, series editors: Cambridge University Press, in press.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. Oral EA, Boullion A, Bajrovic V, **McKenna B**, Hussain H, Chenevert T, Grekin R, Conjeevaram H, Burant C. Leptin for the treatment of nonalcoholic steatohepatitis in the setting of relatively low leptin levels, presented at American Diabetes Association, 2008.
2. Kurlander JE, Adler J, **McKenna BJ**, Dillman JR, Al-Hawary MM, Sonda PL, Zimmermann EM. Fat halo sign in small bowel Crohn's disease: histologic, radiographic, and clinical correlates. 2009:136(5): A-367.
3. Degertekin B, Chotiyaputta W, **McKenna BJ**, Samala N, Fontana RJ, Conjeevaram HJ, Lok AS. Which patients with chronic Hepatitis B (CHB) are biopsied? Accepted for presentation at EASL meeting.

Claire W. Michael, M.D.

Professor of Pathology
Director of Cytopathology

I. Clinical Activities

A. CYTOPATHOLOGY
1. On service - 17 weeks
2. Thoracic Multidiscipline Conference - 4 months
3. Breast Cancer Clinic, Cytopathology - 12 months (troubleshooting and consulting)
4. Cytopathology Consultation Service, Department of Pathology - 12 months

B. NECROPSY SERVICE - 3 weekends

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS
1. Sign out; Gynecologic and Non-Gynecologic Cytology cases (17 weeks)
2. Instruction in the performance and interpretation of fine needle aspirates (9 weeks)
3. Cytopathology Resident Conference (2/year)
4. Weekly Cytopathology Fellowship Conference (12 months)
5. Consult Case Conference (2/year)
6. Anatomic Pathology Conference: 2/year-Review of Cytopathology
7. Cytopathology positive case review/consensus conference: daily (12 months)
8. Cytopathology Journal Club (12/year)
9. Cytopathology Research conference (12/year)

B. OTHER
1. Developing slide and written test for competency evaluation of residents and fellows
2. Cytotechnologists - Cytopathology Slide Conferences (2/year)
3. Developed "Onsite slide preparation and adequacy assessment of thyroid FNA" teaching curriculum for Endocrinologists and Medical Assistants

III. Research Activities

A. SPONSORED SUPPORT

1. The Fostering Innovation Grants (FIGs) (Co-PI-Jaffe and Michael) 0% effort, "UMH Web Based Thyroid Assessment" 15,000 Total directs.

B. PROJECTS UNDER STUDY

1. Atef Hanna and Claire Michael: The role of Napsin-A in the workup of effusions and its comparison with TTF-1.
2. Mohammad Soltani and Claire Michael: The cytologic features of urothelial carcinoma in effusions and how to distinguish it from other malignant effusions.
3. Elizabeth Wey, Claire Michael, and Xin Jing: Evaluation of onsite adequacy criteria set by the University of Michigan for thyroid ultrasound guided adequacy.

IV. Administrative Activities

A. DEPARTMENTAL

1. Director, Cytopathology Laboratory
2. Director, Cytopathology Fellowship
3. Member, Residency Review Board
4. Member, AP Operations Group

B. REGIONAL/NATIONAL/INTERNATIONAL

1. Member, American Society of Cytopathology, Progressive Evaluation of Competency Task Force. Also serve as the leader for the resident PEC component.
2. Papanicolaou Society of Cytopathology – Chairperson, Research Task Force.

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Boards
   a. *Diagnostic Cytopathology*
2. Manuscript Reviews
   a. *Diagnostic Cytopathology*
   b. *Cancer Cytopathology*
   c. *European Journal of Oncology*
   d. *International Journal of Obstetrics and Gynecology*
   e. *Medical Science Monitor*
   f. *Archives of Pathology and Laboratory Medicine*
   g. *Cytopathology*
   h. *Journal of Clinical Pathology*
   i. *Annals of Surgical Oncology*
   j. *International Journal of Obstetrics and Gynecology*

k. *Archives of Laboratory Medicine*

B. INVITED LECTURES/SEMINARS
1. Error management in the Cytopathology laboratory. Teleconference, American Society of Clinical Pathology. September 2008 given with Kalyani Naik, MS, CT.
2. Thyroid case presentation. New Frontiers in Pathology: An update to practicing pathologists. September 20, 2008.
3. The help of immunocytochemistry in the differential diagnosis of pleural and peritoneal effusions. Presented with V. Hofman from Nice, France and Ben Davison from Oslo, Norway as part of "Symposium of Cytopathology", International Academy of Pathology, Athens, Greece. October 15, 2008.
4. Error Management in the Cytopathology Laboratory. Teleconference, Teleconference Network of Texas. November 25, 2008.
5. Error Management in the Cytopathology Laboratory. Teleconference, Ili Research, Inc. January 28, 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. College of American Pathologists
2. Papanicolaou Society of Cytopathology
3. United States and Canadian Academy of Pathology
4. American Society of Cytopathology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Wilson R, Glaros S, Brown RK, **Michael C**, Reisman. Complete radiographic response of primary pulmonary angiosarcomas following gemcitabine and taxotere. *Lung Cancer* 2008 Jul;61(1):131-6.
2. Layfield LJ, Abrams J, Cochand-Priollet B, Evans D, Charib H, Greenspan F, Henry M, LiVolsi V, Merino M, **Michael CW**, Wang H, Wells S. Post-thyroid FNA testing and treatment options: a synopsis of the National Cancer Institute Thyroid Fine Needle Aspiration State of the Science Conference. *Diagn Cytopathol.* 2008 Jun;36(6):442-8.
3. Bardarov S, **Michael CW**, Lucas D, Pang Y, Pu R. Fine needle aspiration biopsy of metastatic malignant melanoma resembling a malignant peripheral nerve sheath tumor. *Diagnostic Cytopathol.* 2008 Oct;36(10):754-7.
4. Pang Y, Smola B, Pu R, **Michael CW**. Restoring satisfactory status in ThinPrep Pap Test specimens with too few squamous cells and containing microscopic red blood cells. *Diagn Cytopathol.* 2008 Oct;36(10);696-700.
5. Pu R, Giordano T, **Michael CW**. Utility of cytology Microarray from effusion cell blocks for immunomarker validation. *Cancer*. 2008 Oct 25;114(5):300-6.

6. Bardarov S, **Michael CW**, Pu R, Pang Y. Computer assisted image analysis of amyloid deposits in abdominal fat aspiration biopsies. *Diagn Cytopathol.* 2009 Jan; 37(1):30-5.
7. Patel Divya A, Shih Yang-Jen, Newton Duane W, **Michael CW**, Oeth Paul A, Kane Michael D, Opipari Anthony W, Ruffin Mack T, Kalikin Linda M, Kurnit David M. Development and Evaluation of a PCR and Mass Spectroscopy-based (PCR-MS) Method for Quantitative, Type-specific Detection of Human Papillomavirus. *J Virol Methods*. 2009 May 3. EPub ahead of print.
8. Ellis Carla L, Burroughs Frances SCT, **Michael CW**, Li Qing Kay. Cytology of Metastatic Renal Medullary Carcinoma in Pleural Effusion: A Study of Two Cases. 2009 June 12. EPub ahead of print.
9. Yu Limin, Olsen Stephen, Lowe Lori, **Michael CW**, Jing Xin. Fine-Needle Aspiration Cytology of Metastatic Eccrine Porocarcinoma. *Diagn Cytopathol.* 2009 Apr 29. EPub ahead of print.

Richard A. Miller, M.D., Ph.D.

Professor of Pathology

I. Clinical Activities - None

II. Teaching Activities

A. GRADUATE STUDENTS
1. Scott Leiser (thesis student, Cellular and Molecular Biology)
2. Mike Steinbaugh (thesis student, Cellular and Molecular Biology)

B. POSTDOCTORAL FELLOWS
1. Liou Sun
2. Bill Swindell
3. Ayesha Rahman
4. Min Wang

C. UNDERGRADUATE AND MEDICAL STUDENTS
1. Katie Koelzer, LSA-4

D. THESIS COMMITTEE MEMBER
1. George Nicholas Llewellyn, Immunology Program
2. Grace Yu, Immunology Program

E. OTHER
1. Amir A. Sadighi-Akha (Research Investigator, Pathology)
2. James Harper (Research Investigator, Pathology)
3. Gonzalo Garcia (Research Investigator, Pathology)

F. LECTURES
1. Lecturer, Pathology 581, Cellular and Molecular Basis of Disease

III. Research Activities

A. SPONSORED SUPPORT
1. NIH/NIA T32 AG000114-24 (PI), "Biomedical Research Training in the Biology of Aging," 5/05 - 4/10, $378,495 annual direct costs.
2. NIH R01-AG019619-06 (PI), "Activation Defects in T Cells of Aged Mice," 9/1/07 - 8/31/12, $205,000 annual direct costs.

3. NIH/NIA R01-AG11687-14 (PI), "Genetics of Longevity and Age-Sensitive Traits in Mice," 9/1/04 - 8/30/09, $308,986 annual direct costs.
4. NIH/NIA U19-AG023122-04 (Project Director), "A Consortium to Study the Genetics of Longevity," 10/1/04 - 6/30/09, $162,556 annual direct costs. Program Principal Investigator: Steven Cummings, California Pacific Medical Group. R. A. Miller directs Project 4, "Genetics of stress resistance and aging in mice." Current year direct costs, Project 4, $134,916.
5. NIH P01-AG025164-03 (Project Director), "Genetic Analysis of Hearing Loss, Stress, and Age-Sensitive Traits in Mice." 7/01/05 - 7/31/2010, $163,309 annual direct costs. Principal Investigator, Jochen Schacht, University of Michigan. R. A. Miller directs Project 3, "Genetic analysis of stress resistance and loss of hearing in mice." Current year direct costs: $163,309.
6. NIH R01-AG19899-07 (Project Director), "Gene Expression and Biomarkers in Dwarf Mice," SIU Subcontract 02-17, 9/1/06 - 8/31/11 $44,000 direct costs/year Principal Investigator: Andrzej Bartke, Southern Illinois University.
7. NIH P30-AG024824-04 (PI-Halter, Core Director), "Claude D. Pepper Older Americans Independence Center," 9/1/04 - 7/31/09, $979,318 annual direct costs. R. A. Miller serves as Director, Core Facility for Aged Rodents, direct costs/year $55,245.
8. Keck Foundation NAKFI HS10 (Project Director), "Comparative Biogerontology Initiative," 5/1/08 - 4/31/10, $62,500 annual direct costs.
9. NIH/NIA R21 AG030828-01(PI-Garcia, Co-I), "ERM and Rho Signal Pathways in T Cell Immune Senescence," 9/1/07 - 8/31/09, $102,500 annual direct costs.
10. NIH P30 AG013283-14 (PI), "Nathan Shock Center: Cellular and Molecular Mechanisms of Aging," 7/1/2005 - 6/30/2010, $2,662,860 annual direct costs.
11. NIH/NIA P01-AG031736-01A1 (Project Director), "Somatotrophic Axis and Healthy Aging: A Search for Mechanisms." Project 3: "IGF-I Effects on Stress Resistance and Lifespan." 4/1/09 - 3/31/14 $235,629 annual direct costs.

B. PENDING PROJECTS
1. NIH/NIA U01-AG022303-06 (PI), "Laboratory for Anti-Geric Testing, Evaluation and Research," 7/01/08 - 6/30/13, $499,656 annual direct costs.

C. PROJECTS UNDER STUDY
1. Longevity mutants in mice
2. Anti-aging drugs
3. Mouse gene mapping for age-sensitive traits
4. Comparative biology of aging
5. Aging effects on T cell activation processes
6. Aging and cellular stress resistance

IV. Administrative Activities

A. DEPARTMENTAL
1. Director, Biomedical Research Training in Aging Program

B. INSTITUTIONAL
1. Director, Core Facility for Aging Rodents
2. Member, Cancer Biology Training Program
3. Member, Cell and Molecular Biology Training Program

4. Associate Director for Research, Geriatrics Center
5. Director, Nathan Shock Center for the Biology of Aging

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Center for Scientific Review Study Section (SBIR)
2. National Institute on Aging Biology of Aging Summit (Steering Committee)
3. National Institute on Aging Training Grant Review Subcommittee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Board
   a. Joint Editor-in-Chief: *Aging Cel*l
   b. *Aging: Clinical and Experimental Research*
   c. *Mechanisms of Ageing and Development*
   d. *Experimental Gerontology*
   e. *Journal of Gerontology: Biological Sciences*
2. Manuscript Reviews
   a. *Science*
   b. *PLoS Genetics*
   c. *Journals of Gerontology: Biological Science*
   d. *Nature*

B. INVITED LECTURES/SEMINARS
1. Biogerontology Seminar Series, University of Michigan, Ann Arbor, MI. "How to Give a Research Presentation." September 22, 2008.
2. Cold Spring Harbor Laboratory Conference on the Molecular Genetics of Aging, Cold Spring Harbor, NY. "NIA Interventions Testing Program: Current Status and Future Plans", September 26, 2008.
3. Global Crisis in Aging: Population, Biology, and Social Implications, Ann Arbor, MI. "Extending Human Lifespan: Scientific Prospects and Political Obstacles." October 6, 2008.
4. San Antonio Nathan Shock Center 2008 Conference on Aging, Bandera, TX. "Methionine Restriction and Aging." October 25, 2008.
5. 11th Longevity Consortium Program, Washington, DC. "Comparative Cellular Biogerontology: A New Longevity Consortium Initiative." November 6, 2008.
6. T. Frank Williams Scholars Program, Austin, TX. "How to Write a Winning Grant Application in Aging Research." January 23, 2009.
7. Ohio State University, Columbus, OH "Cellular stress resistance and aging rate: studies in long-lived mutants and species." February 12, 2009.
8. Sirtris Pharmaceuticals, Cambridge, MA. "NIA Intervention Testing Program: current status and future plans." March 3, 2009.
9. University of Michigan Biogerontology Lecture Series. Ann Arbor, MI. "Four ways to extend lifespan in mice: Rapamycin, methionine restriction, MIF, and adopted siblings." March 23, 2009.
10. Keck/National Academies Conference on Comparative Biogerontology, Fort Worth, TX. "Introduction to Comparative Biogerontology." March 30, 2009.
11. University of Michigan Mini-Med School Curriculum. Ann Arbor, MI. "Biology of Aging – Extending the Lifespan" and "Genetics of Aging." April 7, 2009.

12. University of Michigan Mini-Med School Curriculum. Ann Arbor, MI. "Hot Topics in Biogerontology: Update 2009." May 12, 2009.
13. UM Geriatrics Center Research Retreat. Ann Arbor, MI. "Career Tips for Biological Scientists – the Eightfold Way." May 20, 2009.
14. The National Academies: Grand Challenges of Our Aging Society: A Symposium. Washington, DC. "Health Span and Lifespan." May 28, 2009.
15. American Aging Association Annual Meeting, Phoenix, AZ. "Lifespan Extension in Mice via Methionine Restriction or Rapamycin Treatment." May 30, 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Gerontological Society of America
2. American Aging Society

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Swindell, W. R., J. M. Harper and **R. A. Miller**. 2008. How long will my mouse live? Machine learning approaches for prediction of mouse lifespan. *J. Gerontol. Biol. Sci.* 63A: 895 – 906. PMID: 18840793, NIHMS109657.
2. Strong, R. **R. A. Miller**, C. M. Astle, R. A. Floyd, K. Flurkey, K. L. Hensley, M. A. Javors, C. Leeuwenburgh, J. F. Nelson, Ennio Ongini, N. L. Nadon, H. R. Warner, D. E. Harrison. 2008. Nordihydroguaiaretic acid and aspirin increase lifespan of genetically heterogeneous male mice. *Aging Cell* 7:641 - 650. PMID: 18631321.
3. Butler, R. N., **R. A. Miller**, D. Perry, B. A. Carnes, T. F. Williams, C. Cassel, J. Brody, M. A. Bernard, L. Partridge, T. Kirkwood, G. M. Martin, S. J. Olshansky. 2008, New model of health promotion and disease prevention for the 21st century. *British Medical Journal*, 337: 149 – 150.
4. Sun, L., A. A. Sadighi Akha, **R. A. Miller**, and J. M. Harper. 2009. Life span extension in mice by pre-weaning food restriction and by methionine restriction in middle age. J. Gerontol. Biol. Sci. Med. Sci., 64A: 711 – 722, PMID: 19414512.
5. Garcia, G. G. and **R. A. Miller**. Age-related changes in Lck-Vav signaling pathways in mouse CD4 T cells. *Cellular Immunology*, in press.
6. Swindell, W. R., M. M. Masternak, J. J. Kopchick, C. A. Conover, A. Bartke, and **R. A. Miller**. Endocrine regulation of heat shock protein mRNA levels in long-lived dwarf mice. *Mechanisms of Aging and Development*, in press.
7. Harrison, D. E., R. Strong, Z. D. Sharp, J. F. Nelson, C. M. Astle, K. Flurkey, N. L. Nadon, J. E. Wilkinson, K. Frenkel, C. S. Carter, M. Pahor, M. Javors, E. Fernandez, and **R. A. Miller**. 2009. Rapamycin fed from 20 months of age extends lifespan in genetically heterogeneous mice. *Nature*, in press.

B. BOOKS/CHAPTERS IN BOOKS

1. Lithgow, G. J. and **R. A. Miller**. 2008. The determination of aging rate by coordinated resistance to multiple forms of stress. In The Molecular Biology of Aging, L.Guarente, L. Partridge, and D. Wallace, eds. Cold Spring Harbor Press, NY.
2. Butler, R. N., **R. A. Miller**, D. Perry, B. A. Carnes, T. F. Williams, C. Cassel, J. Brody, M. A. Bernard, L. Partridge, T. Kirkwood, G. M. Martin, S. J. Olshansky. 2008. New model of health promotion and disease prevention for the 21st century. *British Medical Journal* 337: 149 – 150.

3. **Miller, R**. A. 2009. Biology of aging and longevity. Chapter 1 in: Hazzard's Geriatric Medicine and Gerontology, 6th Edition, J. B. Halter et al., eds., McGraw-Hill, Inc., NY, pp 3 – 14.
4. **Miller, R. A**. 2009. From aging research to preventive medicine: pathways and obstacles. In: Unnatural Selection: The Challenges of Engineering Tomorrow's People, P. Healey, S. Rayner, eds. Earthscan Press (London).
5. **Miller, R. A**. 2009. Cell stress and aging: new emphasis on multiplex resistance mechanisms. *J Gerontol A Biol Sci Med Sci*. 64:179-82, PMID: 19225033.
6. **Miller, R. A.** 2009. "Dividends" from research on aging – can biogerontologists, at long last, find something useful to do? *J Gerontol A Biol Sci Med Sci*. 64:157-160, PMID: 19225032.

Hedwig S. Murphy, M.D., Ph.D.

Assistant Professor of Pathology

I. Clinical Activities

A. SURGICAL PATHOLOGY AND FROZEN SECTION DIAGNOSIS (17weeks/year)

B. AUTOPSY SERVICE
   1. On call (13 weeks/year)

C. CLINICAL ELECTRON MICROSCOPY (52 weeks/year)

D. UROLOGIC PATHOLOGY
   1. Case presentations at Conferences (weekly)

II. Teaching Activities

A. MEDICAL STUDENTS
   1. Laboratory Instructor, pathology 600 (M2 pathology course, 4 sessions, 10 contact hrs)

B. GRADUATE STUDENTS
   1. Member,Curriculum Committee, Molecular and Cellular Pathology Graduate Program
   2. Course Director: Tissue,Cellular and Molecular Basis of Disease Pathology 581
   3. Lecturer. Tissue, Cellular and Molecular Basis of Disease 47 contact hours Pathology 581
   4. Faculty evaluator for Graduate Research Seminar, Path 850: 1 hr

C. HOUSE OFFICERS AND FELLOWS
   1. Surgical Pathology supervision and instruction, (17 weeks/year)
   2. Instruction in gross examination, processing and frozen section processing and diagnosis (17 weeks/ year)
   3. Autopsy supervision and instruction (13 weeks/year)

4. Urologic Pathology Teaching Conferences: case presentation and discussion 28 hrs (286 reviewed)

D. OTHER
1. Development of Teaching Materials, Pathology 581, UM ctools
2. Urologic Pathology Online Review: a web-based review course for Urology residents
3. Updated 2009: Prostate Pathology; Urinary Bladder Pathology

III. Research Activities

A. SPONSORED SUPPORT
1. Department of Veterans Affairs Research Enhancement Award Program (REAP) (PI Curtis) "Pulmonary Innate Immunity in the Pathogenesis of Tobacco-induced Lung Diseases" 01/05 - 12/08, $1,125,000 total direct costs.
2. Department of Veterans Affairs Research Enhancement Award Program (REAP) (PI). Pilot Project: "Role of the vascular endothelium in a murine model of cigarette smoke induced pulmonary disease". 03/07 - 03/08, $40,000 total costs.
3. Department of Veterans Affairs Research Enhancement AwardProgram (REAP) (PI). Pilot Project: "Role of the vascular endothelium in cigarette smoke induced human pulmonary disease". 03/07 - 03/08, $40,000 total costs.

B. PROJECTS UNDER STUDY
1. Microvascular endothelial cells in smoking induced lung disease
2. Gender and Hormones in autoimmune disease
3. Endothelial cells and their role in inflammation
4. Endothelial cell derived oxidants in signaling and cell injury

IV. Administrative Activities

A. DEPARTMENTAL
1. Member, Curriculum Committee, Molecular and Cellular Pathology Graduate Program

B. INSTITUTIONAL
1. Chief, Anatomic Pathology, Veterans Affairs Ann Arbor Health System, Ann Arbor, MI
2. Chief, Clinical Electron Microscopy, Veterans Affairs Ann Arbor Health System, Ann Arbor, MI

V. Other Relevant Activities

A. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Society for Investigative Pathology (Fellow)
2. American Society of Clinical Pathology (Fellow)
3. American Association of University Women

4. The A. James French Society of Pathologists
5. American Heart Association
6. North American Vascular Biology Organization
7. Michigan Society of Pathologists
8. United States and Canadian Academy of Pathology

B. HONORS AND AWARDS
1. Department of Urology Outstanding Achievement Award, 2009

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Mendez M, Morris SB, Wicoxen S, Du M, Monroy Y, Remmer H, **Murphy HS**, Christensen PJ, Paine, R. Disparate Mechanisms of sICAM-1 Production in the Peripheral Lung: Contrast between Alveolar Epithelial Cells and Pulmonary Vascular Endothelial Cells. *American Journal of Physiology - Lung Cellular & Molecular Physiology*. 294(4):L807-14, 2008 Apr.

B. BOOKS/CHAPTERS IN BOOKS
1. **Murphy, HS**. "Inflammation" Pathology: Clinicopathologic Foundations of Medicine R. Rubin and D. Strayer, ed. Lippincott Williams & Wilkins, 2007 (1st prize in Pathology, 2008 British Medical Assoc. Book Competition).
2. **Murphy, H. S.**, J. Varani and P. A. Ward. "Biology of Endothelial Cells: Role of the Endothelium in Lung Inflammation". Middleton's Allergy: Principles and Practice. N. F. Adkinson. Mosby St Louis. 2008.
3. **Murphy, HS**. "Inflammation" Pathology: Clinicopathologic Foundations of Medicine R. Rubin and D. Strayer, ed. Lippincott Williams & Wilkins, in press. 2009.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. C.M. Freeman, F.J. Martinez, T.Polak, M-L:.K. Han, S.W. Chensue, **H.S. Murphy**, D.A. Arenberg, C. Meldrum , C. Getty, J.L. Curtis. Engagement of TLR3 on CD8+ T cells from COPD patients increases in vitro production of IFNgamma, TNFalpha and perforin. *American Thoracic Society*. 2008.

Jeffrey L. Myers, M.D.

A. James French Professor of Pathology
Director, Division of Anatomic Pathology

I. Clinical Activities

A. SURGICAL PATHOLOGY
   1. Room 1 (5 weeks)
   2. On Call (4 weeks)

B. PEDIATRIC PATHOLOGY (12 weeks)

C. BREAST PATHOLOGY (3 weeks)

D. GU PATHOLOGY (5 weeks)

E. EXTRAMURAL CONSULTATION CASES (1,302)

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS
   1. Electives in pulmonary pathology
      a. Amir Lagstein, Pulmonary Pathology Fellow, 12 months
      b. Jason Carvalho, Surg Path Fellow, 1 month
      c. Angela Wu, Surg Path Fellow, 1 month
      d. Kristen Curlett, Surg Path Fellow, 1 month
      e. Masha Bilic, Medical University of South Carolina, 1 week
      f. Lynette Sholl, Brigham and Women's Hospital, 3 months

B. OTHER
   1. Co-Director, New Frontiers in Pathology, an on-campus 2.5 day CME seminar

III. Research Activities

A. PROJECTS UNDER STUDY
   1. Role of tranbronchial biopsy in evaluating patients suspected of having UIP/IPF
   2. Assessment of potential prognostic factors in IPF patients with atypical findings on imaging studies

3. Autopsy findings in patients with UIP/IPF
4. Role of TLR9 in pathogenesis of UIP/IPF and correlation with microscopic findings
5. prevalence of gonadoblastoma and gonadal dysgenesis in pediatric patients with ovarian dysgerminoma

IV. Administrative Activities

A. DEPARTMENTAL

1. Director, Division of Anatomic Pathology
2. Chair, AP Laboratory Operations Group
3. Faculty Recruitment
4. MLabs Executive Committee Member
5. Division Directors' Committee Member

B. INSTITUTIONAL

1. Member, Executive Committee on Clinical Affairs
2. Associate Director, Medical Innovation Center
3. Co-Chair, Innovation Team of the Research (Scientific) Programming committee for the North Campus Research Complex

C. REGIONAL/NATIONAL/INTERNATIONAL

1. Member, Executive Advisory Board, Archives of Pathology and Laboratory Medicine
2. Member of Council, United States and Canadian Academy of Pathology
3. Member of Council and President-elect, Association of Directors of Anatomic and Surgical Pathology (ADASP)
4. Member, ATS IPF Consensus Statement committee
5. Primary author of pulmonary pathology journal club blog, Pulmonary Pathology Reviews.

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Board
   a. *Human Pathology*
   b. *Advances in Anatomic Pathology*
   c. *American Journal of Clinical Pathology*
2. Manuscript Reviews
   a. *Americal Journal of Respiratory and Critical Care Medicine*
   b. *European Respiratory Journal*
   c. *Chest*
   d. *Human Pathology*
   e. *Archives of Pathology and Laboratory Medicine*
   f. *Modern Pathology*

B. INVITED LECTURES/SEMINARS

1. Invited Speaker and Faculty, USCAP Diagnostic Pathology 2008, Lahaina, HI, July 2008.
2. Invited Speaker, PhenoPath Laboratories Quarterly Immunohistochemistry Conference, Seattle, WA, August 2008.
3. Visiting Professor and Speaker, The University of Calgary, Calgary, Alberta, Canada, September 2008.
4. Invited Speaker and Faculty, The Banff Pathology Course (Thoracic Pathology Update), Banff, Alberta, Canada, September 2008.
5. Co-Director and Speaker, New Frontiers in Pathology, Ann Arbor, MI, September 2008.
6. Invited Speaker and Faculty, Postgraduate Course (Advanced Lung Disease: Current Concepts in Diseases Management), CHEST 2008, Annual Meeting of the American College of Chest Physicians, Philadelphia, PA, October 2008.
7. Invited Speaker and Faculty, State of the Art Symposium (Current Concepts in Lung Cancer): Neuroendocrine Lung Tumors: Islands of Clarity in a Sea of Controvery!, American Society of Cytopathology 56th Annual Scientific Meeting, Orlando, FL, November 2008.
8. Invited Speaker, Innovation: Core Competency in Cytopathology? American Society of Cytopathology 56th Annual Scientific Meeting, Orlando, FL, November 2008.
9. Visiting Professor and speaker, Patient Safety: A Strategic Imperative in Anatomic Pathology, Department of Pathology, Yale University School of Medicine, New Haven, CT, January 2009.
10. Invited speaker, Lymphocytic Disorders of the Lung, Department of Medicine, Division of Pulmonary and Critical Care Medicine Grand Rounds, William Beaumont Hospital, Royal Oak, MI, February 2009.
11. Invited Speaker, Association of Directors of Anatomic and Surgical Pathology (ADASP) Annual Meeting ("Consensus Building Communications"), Boston, MA, March 2009.
12. Invited Speaker, CAP Companion Meeting ("Patient Safety and Next Steps for Improving Quality and Service in Surgical Pathology"), Annual Meeting of the United States and Canadian Academy of Pathology, Boston, MA, March 2009
13. Invited Speaker, Arthur Purdy Stout Companion Meeting ("Large Cell Neuroendocrine Carcinoma versus Small Cell Carcinoma: When, Whether and How to Make the Distinction"), Annual Meeting of the United States and Canadian Academy of Pathology, Boston, MA, March 2009.
14. Faculty and Co-Director, Short Course ("Unusual Lung Lesions: A Potpourri of Interesting Cases for Surgical Pathologists"), Annual Meeting of the United States and Canadian Academy of Pathology, Boston, MA, March 2009.
15. Invited Speaker, Implementing Data-Driven Feedback and Learning Mechanisms in Surgical Pathology, Labinfotech Summit 2009, Las Vegas, NV, March 2009.

16. Keynote Speaker, Errors in Surgical Pathology (…and how YOU can solve them!). 2009 PowerPath Users Conference, Monterey, CA, May 2009.
17. Invited Speaker, Great Cases: Clinical, Radiologic, Pathological Correlations by Master Physicians (Fellows Conference), ATS 2009, Annual American Thoracic Society International Conference, San Diego, CA, May 2009.
18. Invited Speaker and Faculty, Postgraduate Course: Diagnosis of Interstitial Lung Disease: Making the Clinical-Radiologic-Pathologic Correlation. ATS 2009, Annual American Thoracic Society International Conference, San Diego, CA, May 2009.
19. Invited Speaker, Evolving Concepts of Small Airways Disease, Pulmonary Pathology Society 2009 Biennial Meeting, Portland, OR, June 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. United States and Canadian Academy of Pathology
   a. Member
   b. Member of Council
2. American Thoracic Society, Fellow
3. American College of Chest Physicians, Fellow
4. College of American Pathologists, Fellow
5. Association of Directors of Anatomic and Surgical Pathology
   a. Member
   b. Member of Council
   c. President-Elect
   d. Arthur Purdy Stout Society, Member
   e. American Society of Clinical Pathologists, Fellow

D. HONORS AND AWARDS
1. F. K. Mostofi Distinguished Service Award, USCAP

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Attili A, Kazerooni E, Gross B, Flaherty K, **Myers J**, Martinez F. Smoking-related interstitial lung disease: radiologic-clinical-pathologic correlation. *Radiographics* 2008: 28: 1383-96.
2. Katzenstein A-L, Mukhopadhyay S, **Myers J**. Diagnosis of usual interstitial pneumonia and distinction from other fibrosing lung diseases. *Hum Pathol* 2008; 39: 1275-94.
3. **Myers J** and Katzenstein A-L. Beyond a consensus classification for idiopathic interstitial pneumonias: Progress and controversies. *Histopathology* 2009; 54: 90-103.

4. Li C, Schmidt L, Greenson J, Chang A, **Myers J**. Primary pulmonary adenocarcinoma with intestinal differentiation mimicking metastatic colorectal carcinoma. *Am J Clin Pathol* 2009; 131: 129-33.
5. Denning K, Olson P, Maley R, Flati V, **Myers J**, Silverman J. Primary pulmonary follicular dendritic cell neoplasm: a case report and review of the literature. *Arch Pathol Lab Med* 2009; 133: 643-7.

B. BOOKS/CHAPTERS IN BOOKS

1. **Myers J**, Giordano T. Benign lung tumors. IN: Murray and Nadel's Textbook of Respiratory Medicine, Fifth Edition. New York: Elsevier, 2010 (in press).

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Nambiar A, Han M, Schmidt S, **Myers J**, Lagstein A, Flint A, Gross B, Kazerooni E, Sundaram B, Chughtai A, Toews G, Martinez F, Flaherty K. Change in the Composite Physiologic Index Predicts Mortality in Patients with IPF. ATS 2009 International Conference, San Diego, CA, May 2009. *Am J Respir Crit Care Med* 2009; 179: A1115.
2. Schmidt S, Nambiar A, Han M, **Myers J**, Lagstein A, Flint A, Gross B, Kazerooni E, Chughtai A, Sundaram B, Toews G, Martinez F, Flaherty K. Does the Composite Physiology Score Improve the Correlation to the Six Minute Walk Test over Individual Pulmonary Function Tests in Patients with Idiopathic Pulmonary Fibrosis? ATS 2009 International Conference, San Diego, CA, May 2009. *Am J Respir Crit Care Med 2009*; 179: A1116.
3. Ohtani Y, Nambiar A, Schmidt S, Han M, Kazerooni E, **Myers J**, Gross B, Flint A, Sundaram B, Inase N, Yoshizawa Y, Toews G, Martinez F, Flaherty K. Idiopathic Nonspecific Interstitial Pneumonia: Prognostic Value of Hallwalk Distance and Changes in Physiology. ATS 2009 International Conference, San Diego, CA, May 2009. *Am J Respir Crit Care Med* 2009; 179: A1121.
4. Schmidt L, Miller M, Flaherty K, **Myers J**. Autopsy Findings in Patients with UIP/IPF - Comparison of Patients with and without Acute Exacerbation (AE). ATS 2009 International Conference, San Diego, CA, May 2009. *Am J Respir Crit Care Med* 2009; 179: A2985.
5. Sholl L, Trujillo G, Meneghin A, Martinez F, Hogaboam C, **Myers J**. Rapidly Progressive Interstitial Pulmonary Fibrosis is Associated with TLR9 Overexpression but Lacks Unique Histologic Features. Pulmonary Pathology Society 2009 Biennial Meeting, Porland, OR, June 2009.

Bernard Naylor, M.D.

Professor Emeritus of Pathology

I. Clinical Activities

A. CYTOPATHOLOGY - Consultation service

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS

1. Diagnostic consultations

III. Research Activities - None

IV. Administrative Activities - None

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Boards

a. Acta Cytologica

i. Associate Editor

ii. Editorial Advisory Board

iii. North American Review Board

B. INVITED LECTURES/SEMINARS

1. Lectures: Cytotechnology training program - Wayne State University

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. American Society of Cytopathology
2. A. J. French Society
3. British Medical Association
4. British Society for Clinical Cytology

VI. Publications

A. BOOKS/CHAPTERS IN BOOKS

1. **Naylor, B**: Pleural, Peritoneal and Pericardial Effusions: In: Comprehensive Cytopathology, M. Bibbo, D.C. Wilbur eds, 3rd Edition, Philadelphia, Saunders, 2008, pp 515 – 577.

Alexey I. Nesvizhskii, Ph.D.

Assistant Professor of Pathology

I. Clinical Activities - None

II. Teaching Activities

A. GRADUATE STUDENTS
1. Hyung Won Choi (Biostatistics)
2. Datta Mellacheruvu (Bioinformatics)
3. Thesis committee member, Stephanie Joe (Pathology)

B. HOUSE OFFICERS AND FELLOWS
1. Xia Cao, Ph.D., Post-doctoral fellow
2. Ning Kang, Ph.D., Post-doctoral fellow
3. Hyung Won Choi, Ph.D., Post-doctoral fellow

C. LECTURES
1. Path/Bioinfo/Biomed/Chem 551, Proteome Informatics, 3 credit course, Winter 2009 Course Master and Primary Instructor. Developed the curriculum, gave most lectures (16 out of 26), prepared and graded homework, exams, and a term project, coordinated guest speakers.
2. MCDB 408 Genomic Biology, Lecturer (2 lectures)

D. OTHER
1. Member, Bioinformatics Graduate Program
2. Instructor, Proteomics Informatics Course, administered semiannually at the NHLBI Proteomics Center at the Institute for Systems Biology, Seattle. November 2008 and May 2009 workshops (6 hour workshop)
3. Instructor, Genomics and Proteomics Hands-On Workshop: From Sample Preparation to Data Analysis, Denver, Colorado. July 2008 (4 hour workshop, 1 guest speaker lecture)

III. Research Activities

A. SPONSORED SUPPORT
1. NIH R01 (PI) 25% effort, "Analysis and Statistical Validation of Proteomic Datasets", 09/2006 – 08/2010, $322,599 annual total costs.

2. Leukemia and Lymphoma Society of America (PI: Licht, Co-I), 5% effort, "Targeting the MLL Transcription Complex in Acute Myelogenous Leukemia", 01/2007 - 9/2012, $50,000 annuala total costs.
3. Multiple Myeloma Research Foundation (MMRF) (P.I.: Sreekumar, Co-I) 5% effort, "Multiple Myeloma Proteomics Initiative", 03/2008 - 02/2011, $242,834 annual total costs.
4. NIH, R01, (P.I.: Elenitoba-Johnson, Co-I) 10% effort "Mass spectrometry-driven systems biologic analysis of salivary MALT lymphoma", 07/2008 - 06/2012, $250,000.00 annual total costs.
5. NIH, R01, (P.I.: Elenitoba-Johnson, Co-I) 5% effort, "Proteomic analysis of api2-MALT1 positive gastric MALT lymphoma", 06/2009 - 07/2014, $1,436,205 total costs.

B. PENDING PROJECTS
1. NIH RC1 (PI), 15% effort, "Enhancing Proteomics-based Cancer Research using Peptide Mass Spectral Libraries", 2009 - 2011.
2. NIH RC1 (P.I.: Elenitoba-Johnson, Co-I) 5% effort "Integrated Mass Spectrometry-Based System for Identification of SCF Ubiquitin Ligase Substrates", 2009 - 2011.
3. NIH RC2 (P.I.: Lim, Co-I) 5% effort, "Grant Glycoproteomic Profiles of Human Malignant Lymphomas", 2009 - 2011.

C. PROJECTS UNDER STUDY
1. Development of computational methods and tools for analysis of mass spectrometry-based proteomic data.
2. Integrative analysis and mining of proteomic dataset.
3. Computational methods for the analysis of AP/MS data: applications to protein complexes and protein interaction networks.

IV. Administrative Activities

A. DEPARTMENTAL
1. Interviewer, Candidates for Pathology Resident Program
2. Member, Research Insensitive Compensation Committee
3. Supervision of Damian Fermin, Applications Programmer, Mass Spectrometry facility

B. INSTITUTIONAL
1. PIBS Admission Committee (Bioinformatics program)
2. Bioinformatics Program Direct Admission Committee
3. Interviewer, Faculty Candidates, Center for Computational Medicine and Bioinformatics, Medical School

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Grant reviewer, Netherlands Genomics Initiative, February 2009
2. Member, Proteome Informatics Research Group, The Association of Biomolecular Research Facilities

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Boards
   a. Senior Editor, *Proteomics*
   b. Senior Editor, *Proteomics Clinical Applications*

c. Section Editor, *Journal of Amino Acid and Protein Research*
d. Editorial Board, *Molecular and Cellular Proteomics*

2. Manuscript Reviews
   a. *Science*
   b. *Nature Biotechnology*
   c. *Nature Methods*
   d. *Bioinformatics*
   e. *BMC Bioinformatics*
   f. *Molecular and Cellular Proteomics*
   g. *Proteomics*
   h. *Journal of Proteome Research*
   i. *Analytical Chemistry*
   j. *BMC Genomics*

B. INVITED LECTURES/SEMINARS
1. Invited speaker, Genomics and Proteomics Hand-on Workshop, University of Colorado Health Sciences Center and National Jewish Medical and Research Center, Denver, Colorado, July 31 - August 1, 2008.
2. Invited speaker, International Proteomics Data Release and Sharing Policy Summit, Amsterdam, The Netherlands, August 14, 2008.
3. Invited speaker, Model Organisms Workshop, Human Proteome Initiative (HUPO), Amsterdam, The Netherlands, August 16, 2008.
4. Significance Analysis of Spectral Count Data, Protein Biomarkers 2006 Conference, September 29, 2008.
5. Invited seminar, Analysis of protein complexes using label-free mass spectrometry-based proteomics, University of Iowa, Iowa City, December 2, 2008.
6. Invited speaker, Comparison and Optimization of Mass Spectrometric and Bioinformatics Strategies for Phosphopeptide Identification, Pittcon Conference, Chicago, March 12, 2009.
7. Instructor, Protein inference using ProteinProphet, Proteome Informatics Course, Institute for Systems Biology, Seattle, Washington, April 29, 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Member, International Society for Computational Biology
2. Member, American Society for Mass Spectrometry
3. Member, Human Proteome Organization (HUPO)
4. Member, U.S. Human Proteome Organization (US HUPO)

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. H. Choi, and **A.I. Nesvizhskii**, D. Ghosh, S. Qin, Hierarchical hidden Markov model with application to joint analysis of ChIP-chip and ChIP-seq data, *Bioinformatics*, in press (2009).
2. H. Rodriguez, Snyder M, Uhlén M, Andrews P, Beavis RC, Borchers CH, Chalkley R, Cho SY, Cottingham K, Dunn M, Dylag T, Edgar R, Hare P, Heck AJ, Hirsch RF, Kennedy K, Kolar P, Kraus HJ, Mallick P, **Nesvizhskii A**, Ping P, Ponten F, Yang L, Yates JR, Stein SE, Hermjakob H, Kinsinger CR, Apweiler R., *J. Proteome Res*. in press (2009).

3. L. Ho, J.L. Ronan, J. Wu, B. Staahl, L. Chen, A. Kuo, J. Lessard, **A.I. Nesvizhskii**, J. Ranish, G.R. Crabtree, An embryonic stem cell chromatin remodeling complex, esBAF, is essential for embryonic stem cell self-renewal and pluripotency. *Proc. Nat. Acad. Sciences U.S.A.* 106, 5181-5186 (2009).
4. P.J. Ulintz, A. Yocum, B. Bodenmiller, R. Aebersold, P.C. Andrews, and **A.I. Nesvizhskii**, Comparison of MS2-only, MSA, and MS2/MS3 methodologies for phosphopeptide identification. *J. Proteome Res.*, 8, 887-899 (2009).
5. M. Goudreault, L.M. D'Ambrosio, M. Mullin, B.G. Larsen, A. Sanchez, S. Chaudhry, G.I. Chen, F. Sicheri, **A.I. Nesvizhskii**, R. Aebersold, B. Raught, and A.C. Gingras, A PP2A phosphatase high-density interaction network identifies a novel striatin-interacting phosphatase and kinase complex linked to the cerebral cavernous malformation 3 (CCM3) protein. *Mol. Cell. Proteomics* 8, 157-171 (2009).
6. H. Choi, D. Fermin, and **A.I. Nesvizhskii**, Significance analysis of spectral count data in label-free shotgun proteomics. *Mol. Cell. Proteomics*, 7, 2373-2385 (2008).
7. Y. Ding, H. Choi, and **A.I. Nesvizhskii**, Adaptive discriminant function analysis and re-ranking of MS/MS database search results for improved peptide identification in shotgun proteomics. *J. Proteome Res.*, 7, 4878-79 (2008).
8. X. Cao and **A.I. Nesvizhskii**, I mproved sequence tag generation method for peptide identification in tandem mass spectrometry. *J. Proteome Res*. 7, 4422-34 (2008).

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. H. Choi, A. Breitkreutz, B.G. Larsen, Z.S. Qin, A.C. Gingras, M. Tyers, **A.I. Nesvizhskii**, Assessing Significance of Protein-Protein Interactions Using Spectral Counts. HUPO World Congress, Amsterdam, The Netherlands, August 19, 2008.
2. D. Shteynberg, E. Deutsch, H. Lam, R. Aebersold, **A.I. Nesvizhskii**, iProphet: Improved Validation Of Peptide Identification In Shotgun Proteomics. HUPO World Congress, Amsterdam, The Netherlands, August 19, 2008.
3. A. Breitkreutz, B. Larsen, H. Choi, Z.Y. Lin, J. Sharom, L. Boucher, D. Dewar, R. Linding, T. Pawson, A.C. Gingras, **A.I. Nesvizhskii**, Mike Tyers, Systematic Interrogation of the Budding Yeast Kinome. HUPO World Congress, Amsterdam, The Netherlands, August 18, 2008.
4. L. Mendoza, D. Shteynberg, N. Tasman, B. Pratt, J.K. Eng, H. Lam, **A.I. Nesvizhskii**, E. W. Deutsch, R. Aebersold, New functionality for the Trans-Proteomic Pipeline: tools for the analysis of proteomics data, US HUPO Annual Conference, San Diego, California, February 23, 2009.
5. D. Dytfeld, M. Prasad, V.B. Bhat, R. Zhao, **A.I. Nesvizhskii**, A.J. Jakubowiak, A. Sreekumar, Proteomic alterations in response to in vitro treatment with velcade, doxorubicin, and dexamethasone in multiple myeloma using 8-plex iTRAQ, Annual ASMS Conference, Philadelphia, Pennsylvania, 1 June, 2009.
6. D. Fermin, H. Choi, **A. Nesvizhskii**, Analysis of large-scale shotgun proteomic datasets containing multiple replicates, Annual ASMS Conference, Philadelphia, Pennsylvania, 2 June, 2009.
7. K. Ning, **A. Nesvizhskii**, Computational Analysis of Unassigned High Quality Spectra from Human T Leukemic Cells, Annual ASMS Conference, Philadelphia, Pennsylvania, 2 June, 2009.
8. L. Mendoza, D. Shteynberg, N. Tasman, B.S. Pratt, J.K. Eng, H.H. Lam, **A. Nesvizhskii**, E.W. Deutsch, R. Aebersold, New functionality for the Trans-Proteomic

Pipeline: tools for the analysis of proteomics data, Annual ASMS Conference, Philadelphia, Pennsylvania, 3 June, 2009.

9. A. Sreekumar, A. Khan, L. Poisson, V.B. Bhat, R. Zhao, J. Siddiqui, **A. Nesvizhskii**, G. Omenn, A. Chinnaiyan, Quantitative Proteomic Profiling Reveals a Role for miR-128 in Prostate Cancer Progression, Annual ASMS Conference, Philadelphia, Pennsylvania, 3 June, 2009.

Duane W. Newton, Ph.D.

Associate Professor
Director of Microbiology/Virology Laboratory

I. Clinical Activities

A. MICROBIOLOGY/VIROLOGY
1. Director, Clinical Microbiology/Virology Laboratories
2. Coordinator, Infectious Disease Microbiology Laboratory Rounds

B. TECHNICAL CONSULTANT - M-LABS

C. LABORATORY DIRECTOR, UMHS OUTPATIENT LABORATORIES
1. Dominoes Farms
2. Livonia Health Center
3. Saline Health Center
4. Ypsilanti Family Practice)

D. NEW CLINICAL TEST DEVELOPMENT, VERIFICATION AND IMPLEMENTATION
1. Implementation of testing methodologies to support active surveillance for MRSA , VRE and C. difficile (completed)
2. Evaluation of real-time PCR assay for direct detection and differentiation of MSSA and MRSA from blood cultures (completed)
3. Evaluation of chromogenic media for the detection and differentiation of Candida sp. from positive blood cultures (completed)
4. Evaluation of PNA-FISH for the identification of Candida sp from positive blood cultures (completed)
5. Evaluation of automated systems for detection of Mycobacteria (completed)
6. Implementation of shell-vial viral cultures and elimination of viral tube cultures (completed)
7. Evaluation of real-time PCR for the detection and differentiation of influenza A, influenza B, and RSV from respiratory specimens (in progress)
8. Evaluation of two real-time PCR platforms for CT/NG detection in clinical specimens (in progress)

II. Teaching Activities

A. MEDICAL STUDENTS

1. Preceptor for M-4 elective in Pathology
2. Instructor, Infectious Disease Laboratory Rounds

B. HOUSE OFFICERS AND FELLOWS

1. Instructor, Pathology House Officer Microbiology/Virology Program
2. Coordinator, Clinical Microbiology/Virology In-service Program
3. Instructor, Infectious Disease Laboratory Rounds
4. Coordinator, Clinical Microbiology Journal Club
5. Preceptor for M-4 elective in Pathology
6. Preceptor for Pharmacy Resident rotation in Clinical Microbiology and Virology

C. GRADUATE STUDENTS

1. PhD thesis committee member
   a) Tomi F. Akinyemiju, MS, Department of Epidemiology, School of Public Health
   b) Nottasorn Plipot, Department of Epidemiology, School of Public Health

D. LECTURES

1. Faculty, EPID 525, Clinical and diagnostic microbiology, UM School of Public Health, Winter term, 2009 (developed course, wrote lectures, presented lectures 2x/week for entire term).
2. Lecturer, Epidemiology 680, "Hospital Epidemiology," UM School of Public Health.
3. Lecturer, Epidemiology 605, "Infectious Disease Epidemiology," UM School of Public Health.
4. Assistant Professor, Department of Epidemiology, School of Public Health.
5. Clinical Pathology Grand Rounds, UM Dept. of Pathology: "You Have to Grow Up Sometime—Conversion from Conventional to Molecular Testing for Detection of Microbial Pathogens." Grand Rounds presentation, Clinical Pathology Division, Department of Pathology, University of Michigan Medical Center. 10/7/08.
6. Continuing Education Lecturer, UM Dept. of Pathology. "Introduction to molecular diagnostics" Brown-bag lunch seminar for Medical Technology students, Department of Pathology, University of Michigan Medical Center. 03/11/09.

III. Research Activities

A. SPONSORED SUPPORT

1. Wallace H. Coulter Foundation Grant, (PI Hunt, Co-I) 10% effort, Project title: Rapid Identification and Susceptibility Testing of Bacteria; 2008 - 2010.

B. PROJECTS UNDER STUDY

1. Risk factors for infections with MRSA with reduced susceptibility to Vancomycin at UMHS (Newton, DePestel, PIs).
2. Surveillance for carbepenemase producing Enterobacteriaceae at UMHS (Newton, DePestel, PIs, collaborating with CDC).
3. Epidemiology of human metapneumovirus in Michigan (Newton, Lukacs, Monto, PIs).
4. Providing support (sterility testing) for several clinical trials including Human Applications Lab, KeraCure, and Aastrom.
5. Risk factors for ESBL+ Enterobacteriaciae in hospitalized patients (DePestel/Chenoweth, PIs).
6. Rapid low cost point-of-care device for the detection of bacteremia (RapidBioSense, Mathew, PI; NIH grant submitted).
7. Use of magnetic nanoparticles for the detection and susceptibility testing of bacteria (McNaughton, PI; NIH grant submitted).
8. Clostridium difficile in the Elderly (Malani, PI).
9. S. aureus bacteremia in the Elderly (Malani, PI).
10. Trends in the bacteriology of chronic sinusitis (Tabor, PI).
11. Characterization of the Viral Pathogens and Subsequent Immune Response in Children with Clinical Respiratory Tract Infections (Shanley, PI).
12. Blood Culture Usage during Periods of Crowding in the UM Emergency Department (Younger, PI).
13. H. influenzae genes associated with COPD (Gilsdorf, PI).
14. Evaluation of HandyLabs' Jaguar for the detection of Group B streptococcus in clinical specimens (Newton, PI).
15. Evaluation of HandyLabs' Jaguar and Abbott's m2000 for the detection of CT/NG in clinical specimens (Newton/LeBar, PIs).
16. Identification of viral pathogens in the evaluation of placental chronic villitis (Lieberman/Newton, PIs).
17. Best use of antibiograms to optimize therapy for bacteremia and hospital-acquired pneumonia (Depestel, PI).
18. Histopathology of chronic C. difficile colitis (Hammer, PI).
19. Evaluation of real-time PCR platforms for the quantification of CMV viral load (Newton, PI).
20. Assessment of MRSA transmission in the hospital environment using mathematical modeling (Newton, PI).
21. Assessment of a new C. difficile testing algorithm for rapid detection of C. difficile toxin positive patients (Newton, PI).

IV. Administrative Activities

A. DEPARTMENTAL

1. Clinical Pathology Laboratory Directors Committee
2. Quality Assurance Committee
3. Clinical Microbiology/Virology Senior Staff committee
4. Clinical Pathology Training Program Review Committee
5. Laboratory Infection Control Committee, Chairman

B. INSTITUTIONAL

1. Hospital Infection Control Committee
2. Antimicrobial Use Subcommittee of the Pharmaceutical & Therapeutics Committee
3. Pediatric Virus Prevention Program Committee, Infection Control & Epidemiology
4. SARS Preparedness Planning Working Group
5. Pandemic Influenza Planning Committee
6. Institutional Biohazards Preparedness Committee

C. REGIONAL/NATIONAL/INTERNATIONAL

1. Program Planning Co-chair, South Central Association for Clinical Microbiology
2. Director-at-Large, South Central Association for Clinical Microbiology
3. Rabies Working Group, Michigan Department of Community Health
4. Board Exam Development Committee, American Board of Medical Microbiology
5. Pandemic Influenza Tabletop Exercise, Centers for Disease Control and Prevention
6. Bureau of Laboratories Capacity Review, Michigan Department of Community Health

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Boards
   a) *Journal of Clinical Virology*
   b) *Infection Control and Hospital Epidemiology*
2. Manuscript Reviews
   a) *International Journal of Laboratory Hematology*

B. INVITED LECTURES/SEMINARS

1. "Who Wants to be a Millionaire Microbiologist?" Careers in Science Seminar Series, Department of Biology, University of Dayton, Dayton, OH. 9/12/08.
2. "You Have to Grow Up Sometime—Conversion from Conventional to Molecular Testing for Detection of Microbial Pathogens." Michigan Branch Fall Meeting, South Central Association for Clinical Microbiology, Brighton, MI. 10/16/08.
3. "Application of Molecular Techniques for Smaller Clinical Microbiology Laboratories." South Central Association for Clinical Microbiology Annual Meeting, Indianapolis, IN. 3/21/09.

4. "Diagnosis of Viral Neurologic Diseases." Plenary Session Presentation, 25th Annual Clinical Virology Symposium and Annual Meeting of the Pan American Society for Clinical Virology, Daytona Beach, FL.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Society for Microbiology
2. Infectious Disease Society of America
3. South Central Association for Clinical Microbiology
4. Pan American Society for Clinical Virology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. L.J. Bischof, L. Lapsley, K. Fontecchio, D. Jacosalem, C. Young, R. Hankerd, and **D.W. Newton**. 2009. Comparison of Chromogenic Media and BD GeneOhm MRSA PCR for the Detection of Methicillin Resistant Staphylococcus aureus from Nasal Swabs. *Journal of Clinical Microbiology*. 2009 May 13. [Epub ahead of print].
2. D.A. Patel, Y. Shih, **D.W. Newton**, C.W. Michael, P.A. Oeth, M.D. Kane, A.W. Opipari, M.T. Ruffin, IV, L.M. Kalikin, D.M. Kurnit . 2009. Development and evaluation of a PCR and mass spectroscopy (PCR –MS)-based method for quantitative, type-specific detection of human papillomavirus. *Journal of Virological Methods* 160:78-84.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. L. Bischof, W. LeBar, and **D. Newton**. 2009. Evaluation of the Roche LightCycler 2.0 with the CMV UL54 ASR for quantitative detection of CMV in plasma by real-time PCR. Poster presented at the 25th Annual Clinical Virology Symposium and Annual Meeting of the Pan American Society for Clinical Virology, Daytona Beach, FL.
2. J. Stempien, R. Hankerd, **D. Newton**, and W. LeBar. 2009. Comparison of HANDYLAB GBS assay to Cepheid Smart GBS™ assay and pre-natal screening cultures for the detectin of group B streptococci. Poster presented at the 25th Annual Clinical Virology Symposium and Annual Meeting of the Pan American Society for Clinical Virology, Daytona Beach, FL.
3. C. Young, **D. Newton**, and W. LeBar. 2009. Comparison of RambaCHROM VRE and chromID VRE for Detection of Vancomycin Resistant Enterococcus sp. in Rectal Surveillance Cultures. Poster presented at the 109th General Meeting of the American Society for Microbiology, Philadelphia, PA.
4. W. LeBar, K. Machchinski, C. Young, R. Hankerd, and **D. Newton**. 2009. Comparison of Wampole® C. DIFF QUIK CHEK ®, REMEL ProSpecT® Toxin A/B and Bartels Cytotoxicity Assay for detection of Clostridium difficile Toxin. Poster

presented at the 109th General Meeting of the American Society for Microbiology, Philadelphia, PA.

5. C. Brenke, C. Young, W. LeBar, and **D. Newton**. 2009. Comparison of mecA PCR to the Vitek 2 Cefoxitin Screen For the Detection of Methicillin Resistance in Staphylococcus aureus (SA) and Coagulase Negative Staphylococci (CNS). Poster presented at the 109th General Meeting of the American Society for Microbiology, Philadelphia, PA.
6. C. Young, **D. Newton**, and W. LeBar. 2009. Efficient and Cost Effective Detection of Vancomycin Resistant Enterococcus in Surveillance Cultures Using Novel Chromogenic Medium. Poster presented at the 109th General Meeting of the American Society for Microbiology, Philadelphia, PA.

Zaneta Nikolovska-Coleska, Ph.D.

Assistant Professor of Pathology

I. Clinical Activities - None

II. Teaching Activities

A. GRADUATE STUDENTS

1. Student laboratory rotation (3 students)
   a. Molecular and Cellular Pathology: Garrett Gibbons (6 months)
   b. Chemical Biology: Chenxi Shen (2 months)
   c. Medicinal Chemistry: Fardokht Abulwerdi (2 months)
2. Dissertation Committee (3 students)
   a. Chemical Biology Graduate Student thesis committee (2 students)
      i. Andrea Dooley Thompson
      ii. Yoshinari Miyata
   b. Pharmacology Graduate Student thesis committee, Levi Blazer

B. LECTURES

1. Molecular and Cellular Pathology Graduate Program, November 14, 2008, "Strategies for Discovery of Molecularly Targeted Small-Molecule Anti-Cancer Drugs".

III. Research Activities

A. SPONSORED SUPPORT

1. NIH R21 NS056915-01 (P.I.) "Discovery and Characterization of Novel Small Molecule Inhibitors of Mcl-1" 7/5/2006 - 6/30/2009.
2. NIH/NCI 1R01CA127551-01A2 (Wang, P.I.; Co-I) “Design of Bivalent SMAC Mimetics” 01/01/2009 - 11/30/2013.

B. PENDING PROJECTS

1. American Association for Cancer Research, The Stand Up To Cancer Innovative Research Grants Program. "Targeting hDOT1L: an oncogenic histone methyltransferase".

2. NIH R01: "Novel selective small-molecule inhibitors of Mcl-1 protein" 04/01/2010 - 03/31/2015.

IV. Administrative Activities - None

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Grant Reviews
   a. Department of Defense Breast Cancer Program Grant Reviewer, Breast Cancer Clinical and Therapeutics -6 (CET-6) panel, 2008
   b. Department of Defense Prostate Cancer Program Grant Reviewer, PRE-Clinical and Experimental Therapeutics D (PRE-CET-D) online panel, 2009
2. Manuscript Reviews
   a. *Bioorganic and Medicinal Chemistry*
   b. *Journal of Molecular Structure*
   c. *Nucleic Acid Research*

B. INVITED LECTURES/SEMINARS

1. Third Annual Chemical Biology Symposium, University of Michigan, "Discovery and Characterization of Molecularly Targeted Small-Molecule Anti-Cancer Drugs by Targeting Key Apoptosis Regulators", October 10, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. American Chemical Society
2. American Association for Cancer Research
3. International Pharmaceutical Federation (FIP)
4. Macedonian Pharmaceutical Association

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. **Nikolovska-Coleska Z**, Meagher JL, Jiang S, Kawamoto SA, Gao W, Yi H, Qin D, Roller PP, Stuckey JA, Wang S. Design and Characterization of Bivalent Smac-based Peptides as Antagonists of XIAP and Development and Validation of a Fluorescence-Polarization Assay for XIAP containing both BIR2 and BIR3 domains. *Anal Biochem*. 2008; 374(1):87-98.
2. **Nikolovska-Coleska Z**, Meagher J.L, Jiang S, Yang C.Y, Qiu S, Roller P.P, Stuckey J. A, Wang S. Interaction of a cyclic, bivalent smac mimetic with the x-linked inhibitor of apoptosis protein. *Biochemistry*. 2008; 47(37):9811-24.
3. Sun Y, Wu J, Aboukameel A, Banerjee S, Arnold A.A, Chen J, **Nikolovska-Coleska Z**, Lin Y, Ling X, Yang D, Wang S, Al-Katib A, Mohammad R.M. Apogossypolone, a nonpeptidic small molecule inhibitor targeting Bcl-2 family proteins, effectively inhibits

growth of diffuse large cell lymphoma cells in vitro and in vivo. *Cancer Biol Ther*. 2008; 7(9):1418-26.

4. Sun H, **Nikolovska-Coleska Z**, Yang CY, Qian D, Lu J, Qiu S, Bai L, Peng Y, Cai Q, Wang S. Design of small-molecule peptidic and nonpeptidic Smac mimetics. *Acc Chem Res*. 2008, 41(10):1264-77.
5. Sun H, **Nikolovska-Coleska Z**, Lu J, Meagher JL, Yang CY, Qiu S, Tomita Y, Ueda Y, Jiang S, Krajewski K, Roller PP, Stuckey JA, Wang S. Structure-Based Design, Synthesis, Evaluation, and Crystallographic Studies of Conformationally Constrained Smac Mimetics as Inhibitors of the X-linked Inhibitor of Apoptosis Protein (XIAP). *J Med Chem*. 2008, 51(22), 7169–7180.
6. Lu J, Bai L, Sun H, **Nikolovska-Coleska Z**, McEachern D, Qiu S, Miller RS, Yi H, Shangary S, Sun Y, Meagher JL, Stuckey JA, Wang S. SM-164: a novel, bivalent Smac mimetic that induces apoptosis and tumor regression by concurrent removal of the blockade of cIAP-1/2 and XIAP. *Cancer Res.* 2008, 68(22):9384-93.
7. Zhang B, **Nikolovska-Coleska Z**, Zhang Y, Bai L, Qiu S, Yang CY, Sun H, Wang S, Wu Y. Design, Synthesis, and Evaluation of Tricyclic, Conformationally Constrained Small-Molecule Mimetics of Second Mitochondria-Derived Activator of Caspases. *J Med Chem.* 2008, 51(23), 7352–7355.
8. Peng Y, Sun H, **Nikolovska-Coleska Z**, Qiu S, Yang CY, Lu J, Cai Q, Yi H, Kang S, Yang D, Wang S. Potent, orally bioavailable diazabicyclic small-molecule mimetics of second mitochondria-derived activator of caspases. *J Med Chem*. 2008, 51(24):8158-62.
9. Rich RL, Papalia GA, Flynn PJ, Furneisen J, Quinn J, Klein JS, Katsamba PS, Waddell MB, Scott M, Thompson J, Berlier J, Corry S, Baltzinger M, Zeder-Lutz G, Schoenemann A, Clabbers A, Wieckowski S, Murphy MM, Page P, Ryan TE, Duffner J, Ganguly T, Corbin J, Gautam S, Anderluh G, Bavdek A, Reichmann D, Yadav SP, Hommema E, Pol E, Drake A, Klakamp S, Chapman T, Kernaghan D, Miller K, Schuman J, Lindquist K, Herlihy K, Murphy MB, Bohnsack R, Andrien B, Brandani P, Terwey D, Millican R, Darling RJ, Wang L, Carter Q, Dotzlaf J, Lopez-Sagaseta J, Campbell I, Torreri P, Hoos S, England P, Liu Y, Abdiche Y, Malashock D, Pinkerton A, Wong M, Lafer E, Hinck C, Thompson K, Primo CD, Joyce A, Brooks J, Torta F, Bagge Hagel AB, Krarup J, Pass J, Ferreira M, Shikov S, Mikolajczyk M, Abe Y, Barbato G, Giannetti AM, Krishnamoorthy G, Beusink B, Satpaev D, Tsang T, Fang E, Partridge J, Browhan S, Horn J, Pritsch O, Obal G, Nilapwar S, Busby B, Gutierrez-Sanchez G, Gupta RD, Canepa S, Witte K, **Nikolovska-Coleska Z**, Cho YH, D'Agata R, Schlick K., Calvert R, Munoz EM, Hernaiz MJ, Bravman T, Dines M, Yang MH, Puskas A, Boni E, Li J, Wear M, Grinberg A, Baardsnes J, Dolezal O, Gainey M, Anderson H, Peng J, Lewis M, Spies P, Trinh Q, Bibikov S, Raymond J, Yousef M, Chandrasekaran V, Feng Y, Emerick A, Mundodo S, Guimaraes R, McGirr K, Li YJ, Hughes H, Mantz H, Skrabana R, Witmer M, Ballard J, Martin L, Skladal P, Korza G, Laird-Offringa I, Lee CS, Khadir A, Podlaski F, Neuner P, Rothacker J, Rafique A, Dankbar N, Kainz P, Gedig E, Vuyisich M, Boozer C, Ly N,

Toews M, Uren A, Kalyuzhniy O, Lewis K, Chomey E, Pak BJ, Myszka DG. A global benchmark study using affinity-based biosensors. *Anal Biochem.* 2009, 386(2):194-216.

10. Sun W, **Nikolovska-Coleska Z**, Qin D, Sun H, Yang CY, Bai L, Qiu S, Wang Y, Ma D, Wang S. Design, Synthesis, and Evaluation of Potent, Nonpeptidic Mimetics of Second Mitochondria-Derived Activator of Caspases. *J Med Chem*. 2009, 52(3):593-6.
11. Gomez C, Bai L, Zhang J, **Nikolovska-Coleska Z**, Chen J, Yi H, Wang S. Design, synthesis, and evaluation of peptidomimetics containing Freidinger lactams as STAT3 inhibitors. *Bioorg Med Chem Lett*. 2009, 19(6):1733-6.

Gabriel Nuñez, M.D.

Paul H. De Kruif Professor of Pathology

I. Clinical Activities

A. Autopsy Service - 12 days

II. Teaching Activities

A. MEDICAL STUDENTS

1. Viani, Kyle 08/07-09/08 (Medical Student w/lab rotation)

B. GRADUATE STUDENTS

1. Fernandez-Rey, Maigualida 01/09 - 04/09
2. Thesis Committees
   a. Keith Wolter
   b. Phillip Delekta
   c. Sara C. Monroe
   d. Cailin Wilkie

C. HOUSE OFFICERS AND FELLOWS

1. Franchi, Luigi, M.D., Ph.D.
2. Park, Jong-Hwan, D.M.V., Ph.D.
3. Chen, Grace, M.D., Ph.D.
4. Noemi Marina, Ph.D.
5. Shaw, Michael, Ph.D.
6. Kim, Yungi, Ph.D.
7. Harder, Juergen, Ph.D.
8. Reimer, Thornik, D.V.M., Ph.D.
9. Eigenbrod, Tatjana, Ph.D.
10. Warner, Neil, Ph.D.
11. Munoz-Planillo, Raul
12. Kamada, Nobuhiko
13. Nakamura, Yumi

D. UNDERGRADUTE STUDENTS
1. Siyan Cao
2. Aaron Burberry

III. Research Activities

A. SPONSORED SUPPORT
1. NIH/NIDDK R01 DK61707 (PI) Nod2: A Susceptibility Gene for Crohn's Disease, 04/08/002 - 06/30/12, $220,000 annual direct costs.
2. NIH R01 Al063331 (PI) Cryopyrin Signaling in Inflammation and Innate Immunity 05/01/05 - 01/31/10, $212,500 annual direct costs.
3. NIH/NIDDK R01 DK067628 (PI) Peptidoglycan signaling in Crohn's disease, 03/15/05 - 02/28/10, $200,000 annual direct costs.
4. NIH R01 AI064748 (PI), Role of Ipaf in Inflammation and Host Defense, 05/15/05 - 04/30/10, $250,000 annual direct costs.
5. NIH R01 1AR052756 (PI), Role of ASC signaling Pathway in Inflammatory Disease, 04/10/06 - 01/31/11, $250,000 annual direct costs.

IV. Administrative Activities

A. INSTITUTIONAL
1. Member, Biomedical Research Core Facilites (BRCF), University of Michigan
2. Member, Research Core Facilites Adivsory Panel, University of Michigan
3. Co-Director, Functional Genomis Core, Univeristy of Michigan Medical School

B. REGIONAL/NATIONAL/INTERNATIONAL
1. Thesis Committee, Lionel LeBourhis, Spring 2009, External Appraiser, University of Toronto

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Boards
   a. Section Editor, *Journal Immunology*
   b. Editorial Board, *Microbes and Infection*
2. Manuscript Reviews
   a. *Journal of Immunology*
   b. *Proceedings National Academy of Science USA*
   c. *Science*
   d. *Immunity*
   e. *Journal of Biological Chemistry*
   f. *EMBO Journal*
   g. *Cell*
   h. *Nature*

i. *Nature Immunology*
j. *Gastroenterology and Gut*
k. *European Journal of Immunology*
l. *PLoS-Pathogens*
m. *PLoS-Genetics*

B. INVITED LECTURES/SEMINARS

1. Invited Speaker "Nod-like Receptors in Immunity and Disease" Department of Immunology, University of Washington-Seattle, Seattle, Washington, June 2, 2008.
2. Invited Speaker "NOD-1 - A Diagnostic and Prognostic Marker for Crohn's Disease." Prometheus Inc., San Diego, California, June 30, 2008.
3. Invited Speaker "Nod-like Receptors in Immunity and Disease" American Association of Immunologists, 2008 Advanced Course in Immunology, Minneapolis, Minnesota, July 20, 2008.
4. Invited Speaker "Innate Immune Signaling" 10th Biennial Meeting-International Endotoxin and Innate Immunity Society, Edinburgh Scotland, United Kingdom, August 1, 2008.
5. Invited Speaker "Nod-like Receptors in Innate Immunity and Disease" Pathology Research Seminar, Case Western Reserve University, Cleveland, Ohio, Sept 15, 2008.
6. Invited Speaker "Nod-like receptors in Immunity and Disease" Pathobiology Research Seminar, Cleveland Clinic, Cleveland, Ohio, Sept 16, 2008.
7. Invited Speaker "Function of Nod-like Receptors in Bacterial Recognition and Host Defense" International Symposium of the SFB670, Cologne, Germany, September 22, 2008.
8. Invited Speaker "Role of Inflammasome and IL-1R in microbial and sterile inflammation" Toll 2008 "Recent Advances in Pattern Recognition", Lisbon, Portugal, September 26, 2008.
9. Invited Speaker "Pyroptosis and the inflammasome: a new type of response to danger" 1st International Conference of Immunochemotherapy, Institute Curie, Paris, France, October 17, 2008.
10. Invited Speaker "Nod-Like Receptors in Innate Immunity and Disease" The 10th Annual Skirball Institute Symposium, Inflammation and Host Defense, New York City, New York, November 21, 2008.
11. Invited Speaker "Nod-like Receptors in Innate Immunity", Special Seminar, University of Miami, Department of Physiology and Biophysics, Miami, Florida, December 4, 2008.
12. Invited Speaker "Role of NLRs in Microbial Recognition and Host Defense" Gordon Research Conference, Molecular Approaches for Emergent/Re-emergent Tropical Diseases, Galveston, Texas, January 26, 2009.
13. Invited Speaker "TLRs, NLRs and the Inflammasome" BMT Tandem Meeting, Tampa, Florida, February 12, 2009.

14. Invited Speaker "Nod-Like Receptors in Innate Immunity and Disease" Department of Microbiology, Immunology and Molecular Genetics-Special Seminar, University of Kentucky-Lexington, February 24, 2009.
15. Invited Speaker "Nod-like Receptors in Innate Immunity and Disease" Department of Microbiology and Immunology, University of Kentucky-Louisville, Kentucky, March 19, 2009.
16. Invited Speaker "Function of NLRs in Innate Immunity" Keystone Symposium-Pattern Recognition Molecules and Immune Sensors of Pathogens, Banff, Alberta, Canada, 2009.
17. Invited Speaker "Nod-Like Receptors: In Innate Immunity and Disease" Molecular Virology Seminar, University of Pittsburgh, Pittsburgh, Pennsylvania, April 21, 2009.
18. Inviter Speaker "Nod-Like Receptors: In Innate Immunity and Disease" Department of Immunology-Special Seminar, University of Toronto, Toronto, Ontario, Canada, May 1, 2009.
19. Invited Speaker "Function of Nod-like Receptors in innate immunity to bacterial pathogens" 12th International Symposium on Immunobiology, Sante Fe, New Mexico, May 5, 2009.
20. Invited Speaker "Activation of the inflammasome by bacterial pathogens" 96th Meeting of the American Association of Immunologists" Seattle, Washington, May 8, 2009.
21. Invited Speaker "Cell Death and the Inflammasome: Sensing Danger and Microbial Infection" International Cell Death Society, Muldersdrift, Johannesburg, South Africa, June 6, 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Association of Immunologists
2. American Association for the Advancement of Science
3. American Association of Investigative Pathology
4. American Society of Cell Biology
5. American Association of Microbiology
6. Pluto Society (Association of American Pathologists)
7. American Association of Physicians (AAP)

D. HONORS AND AWARDS
1. 2008 Distinguished Faculty Lectureship Award, University of Michigan

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Kim JY, Omori E, Matsumoto K, **Núñez G**, Ninomiya-Tsuji J. TAK1 is a central mediator of NOD2 signaling in epidermal cells. *J Biol Chem*. 203:137-144 (2008).

2. Hutchens M, Luker KE, Sottile P, Sonstein J, Lukacs NW, **Núñez G**, Curtis JL, Luker GD. TLR3 Increases Disease Morbidity and Mortality from Vaccinia Infection. *J Immunol.* 180:483-491 (2008).
3. Hasegawa M, Fujimoto Y, Lucas PC, Nakano H, Fukase K, **Núñez G**, Inohara N. A critical role of RICK/RIP2 polyubiquitination in Nod-induced NF- kB activation. *EMBO J.* 27: 373-383 (2008).
4. Kim YG, Park J-P, Shaw MH, Franchi L, Inohara N and **Núñez G**. Nod1 and Nod2 are Critical for Intracellular Bacterial Sensing and Host Defense after Exposure to Toll-like Receptors Ligands. *Immunity*, 28: 246-257 (2008).
5. Song W, Dong Z, Jin T, Mantellini MG, **Núñez G**, Nör JE. Cancer gene therapy with iCaspase-9 transcriptionally targeted to tumor endothelial cells. *Cancer Gene Ther*. 10:667-675 (2008).
6. Marina-García N., Franchi L., Kim Y-G., Miller D., McDonald C., Boons G-H., and **Núñez G** . Pannexin-1-Mediated Intracellular Delivery of Muramyl Dipeptide Induces Caspase-1 Activation via Cryopyrin/NLRP3 Independently of Nod2. *J. Immunology*, 6:4050-4057 (2008).
7. Kim YG, Park, JH, Daignault S, Fukase K, **Núñez G**. Cross-Tolerization between Nod1 and Nod2 Signaling Results in Reduced Refractoriness to Bacterial Infection in Nod2-Deficient Macrophages. *J. Immunol.* 6:4340-4346 (2008).
8. Lamkanfi M, Kanneganti TD, Van Damme P, Vanden Berghe T, Vanoverberghe I, Vanderkerckkhove J, Vandenabeele P, Gevaert K, **Núñez G.** Targeted peptide-centric proteomics reveals caspase-7 as a substrate of the caspases-1 inflammasomes. *Mol Cell Proteomics*. 7:2350-2363 (2008).
9. Franchi L, **Núñez G**. The Nlrp3 inflammasome is critical for aluminum hydroxide-mediated IL-1beta secretion but dispensable for adjuvant activity. *Eur J Immunol.* 8:2085-2089 (2008).
10. Moreira LO, El Kasmi KC, Smith AM, Finkelstein D, Fillon S, Kim YG, **Núñez G** , Tuomanen E, Murray PJ. The TLR2-Myd88-NOD2-RIPK2 signaling axis regulates a balanced pro-inflammatory and IL-10 mediated anti-inflammatory cytokine response to gram-positive cell walls. *Cell Microbiol*. 10:769-776 (2008).
11. Eigenbrod T, Park JH, Harder J, Iwakura Y, **Núñez G**. Cutting Edge: critical role for mesothelial cells in necrosis-induced inflammation through the recognition of IL-1alpha released from dying cells. *J Immunol*. 12:8194-8198 (2008).
12. Chen G, Shaw MH, Redondo G, **Núñez G.** The innate immunity receptor Nod1 protects the intestine from inflammation-induced tumorigenesis. *Cancer Research*. 24:10060-10067 (2008).
13. Saha S, Qi J, Wang S, Wang M, Li X, Kim YG, **Núñez G**, Gupta D, Dziarski R. PGLYRP-2 and Nod2 are both required for Peptidoglycan-Induced Arthritis and Local Inflammation. *Cell Host Microbe* 2:137-150 (2009).
14. Park JH, Kim YG, **Núñez G.** RICK/RIP2 Promotes Inflammation on Lethality after Gram-Negative Bacterial Infection in Mice Stimulated with Lipopolysaccharide. *Infect Immun*. 2009 Feb 2 [Epub ahead of print].

15. Sanders CJ, Franchi L, Yarovinsky F, Uematsu S, Akira S, **Núñez G** , Gerwitz AT. Induction of adaptive immunity by flagellin does not require robust activation of innate immunity. *Eur J Immunol.* 2:359-371 (2009).
16. Park JH, Kim YG, **Núñez G**. RICK promotes inflammation and lethality after gram-negative bacterial infection in mice stimulated with lipopolysaccharide. *Infect Immun*. 77:1569-1578 (2009).
17. Saha S, Qi J, Wang S, Wang M, Li X, Kim YG, **Núñez G**, Gupta D, Dziarski R. PGLYRP-2 and Nod2 are both required for peptidoglycan-induced arthritis and local inflammation. *Cell Host Microbe* 5:137-150 (2009).
18. Sanders CJ, Franchi L, Yarovinsky F, Uematsu S, Akira S, **Núñez G**, Gewirtz AT. Induction of adaptive immunity by flagellin does not require robust activation of innate immunity. *Eur J Immunol.* 39:359-371 (2009).
19. Marina-García N, Franchi L, Kim YG, Hu Y, Smith DE, Boons GJ, **Núñez G**. Clathrin- and dynamin-dependent endocytic pathway regulates muramyl dipeptide internalization and NOD2 activation. *J Immunol*. 182:4321-4327 (2009).
20. Galluzzi L, Aaronson SA, Abrams J, Alnemri ES, Andrews DW, Baehrecke EH, Bazan NG, Blagosklonny MV, Blomgren K, Borner C, Bredesen DE, Brenner C, Castedo M, Cidlowski JA, Ciechanover A, Cohen GM, De Laurenzi V, De Maria R, Deshmukh M, Dynlacht BD, El-Deiry WS, Flavell RA, Fulda S, Garrido C, Golstein P, Gougeon ML, Green DR, Gronemeyer H, Hajnóczky G, Hardwick JM, Hengartner MO, Ichijo H, Jäättelä M, Kepp O, Kimchi A, Klionsky DJ, Knight RA, Kornbluth S, Kumar S, Levine B, Lipton SA, Lugli E, Madeo F, Malorni W, Marine JC, Martin SJ, Medema JP, Mehlen P, Melino G, Moll UM, Morselli E, Nagata S, Nicholson DW, Nicotera P, **Nuñez G**, Oren M, Penninger J, Pervaiz S, Peter ME, Piacentini M, Prehn JH, Puthalakath H, Rabinovich GA, Rizzuto R, Rodrigues CM, Rubinsztein DC, Rudel T, Scorrano L, Simon HU, Steller H, Tschopp J, Tsujimoto Y, Vandenabeele P, Vitale I, Vousden KH, Youle RJ, Yuan J, Zhivotovsky B, Kroemer G. Guidelines for the use and interpretation of assays for monitoring cell death in higher eukaryotes. *Cell Death Differ* 2009 Apr 17 [Epub ahead of print].
21. Nakamura Y, Kambe N, Saito M, Nishikomiri R, Kim YG, Murakami M, **Núñez G**, Matsue H. Mast cells mediate neutrophil recruitment and vascular leakage through the NLRP3 inflammasome in histamine-independent urticaria. *J Exp Med*. 5:137-1046 (2009).
22. Qu Y, Ramachandra L, Mohr S, Franchi L, Harding CV, **Núñez G**, Dubyak GR. P2X7 receptor-stimulated secretion of MHC class II-containing exosomes requires the ASC/NLRP3 inflammasome but is independent of caspase-1. *J Immunol*. 8:5052-5062 (2009).
23. Chen GY, **Núñez G.** Gut Immunity: a NOD to the commensals. *Curr Biol*. 4:R171-174 (2009).
24. Franchi L, Eigenbrod T, Muñoz-Planillo R, **Nuñez G**. The inflammasome: a caspase-1-activation platform that regulates immune responses and disease pathogenesis. *Nat Immunol*. 3:241-247 (2009).

25. Park JH, Kim YG, **Núñez G.** RICK promotes inflammation and lethality after gram-negative bacterial infection in mice stimulated with lipopolysaccharide. *Infect Immun*. 4:1569-1578 (2009).
26. Dessein R, Gironella M, Vignal C, Peyrin-Biroulet L, Sokol H, Secher T, Lacas-Gervais S, Gratadoux JJ, Lafont F, Dagorn JC, Ryffel B, Akira S, Langella P, **Nùñez G,** Sirard JC, Iovanna J, Simonet M, Chamaillard M. Toll-like receptor 2 is critical for induction of Reg3 {beta} expression and intestinal clearance of Yersinia pseudotuberculosis. *Gut*. 6:771-779 (2009).
27. Franchi L, Warner N, Viani K, **Nuñez G** . Function of Nod-like receptors in microbial recognition and host defense. *Immunol Rev* 1:106-128 (2009).
28. Harder J, **Núñez G**. Functional expression of the intracellular pattern recognition receptor NOD1 in human keratinocytes. *J Invest Dermatol*. 2:359-371 (2009).

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Franchi L, Park JH, Shaw MH, Marina-Garcia N, Chen G, Kim YG, **Núñez G**. Intracellular NOD-like receptors in innate immunity, infection and disease. *Cell Microbiol*. 10:1-8 (2008).
2. Ting JP, Lovering RC, Alnemri ES, Bertin J, Boss JM, Davis BK, Flavell RA, Girardin SE, Godzik A, Harton JA, Hoffman HM, Hugot JP, Inohara N, Mackenzie A, Maltais LJ, **Núñez G**, Ogura Y, Otten LA, Philpott D, Reed JC, Reith W, Schreiber S, Steimle V, Ward P. The NLR gene family: a standard nomenclature. *Immunity* 3:285-287 (2008).
3. Shaw MH, Reimer T, Kim YG, **Núñez G**. NOD-like receptors (NLRs): bona fide intracellular microbial sensors. *Curr Opin Immunol* 4:377-382 (2008).
4. Chen G, Shaw MH, Kim YG, **Núñez G**. Nod-like Receptors: Role in Innate Immunity and Inflammatory Disease. *Annu Rev. Pathol*. 2008 [Epub ahead of print].
5. Franchi L, Warner N, Viani K, **Núñez G**. Function of Nod-like receptors in microbial recognition and host defense. *Immunol Rev* 227:106-128 (2009).
6. Franchi L, Eigenbrod T, Munoz-Planillo R, **Núñez G**. The inflammasome: a caspase-1-activation platform that regulates immune responses and disease pathogeneses. *Nat Immunol*. 3:241-247 (2009).
7. Franchi L, Warner N, Viani K, **Núñez G**. Function of Nod-Like receptors in microbial recognition and host defense. *Immunol Rev*. 1:106-128 (2009).
8. Chen GY, **Núñez G**. Gut Immunity: a NOD to the commensals. *Curr Biol*. 24;19:R171-174 (2009).
9. Franchi L, Eigenbrod T, Muñoz-Planillo R, **Nuñez G**. The inflammasome: a caspase-1-activation platform that regulates immune responses and disease pathogenesis. *Nat Immunol*. 10:241-247 (2009).

Stephen H. Olsen, M.D.

Assistant Professor of Pathology

I. Clinical Activities

A. DERMATOPATHOLOGY

1. Dermatopathology Service (12 months)
2. Dermatopathology Consultation Service (12 months)
3. Dermatopathology Direct Immunofluorescence Service (12 months)

II. Teaching Activities

A. MEDICAL STUDENTS

1. Dermatopathology Laboratory Instructor, MSII Dermatology Sequence
2. Dermatopathology, Pathology Clerkship MSI and MSIV students
3. Dermatopathology, Dermatology Clerkship MSIV students

B. HOUSE OFFICERS AND FELLOWS

1. Dermatopathology sign-out (Dermpath fellows, Pathology and Dermatology Residents, medical students)
2. Review of Dermatopathology consultation material
3. Dermatopathology teaching conference, Department of Dermatology
4. Dermatopathology teaching conference, Department of Pathology
5. Consult Conference (Pathology Residents)
6. Dermatopathology Grossing Liaison (Pathology Residents and Pathology Assistants)
7. Dermatopathology resident elective (Pathology residents)

C. LECTURES

1. University of Michigan, Department of Dermatology, Dermatopathology resident teaching conference (1/month)
2. University of Michigan, Department of Dermatology, Diagnostic Conference (1/month)

3. University of Michigan, Department of Pathology, Dermatopathology Resident Teaching Conference (3/year)

D. OTHER
1. Multidisciplinary Melanoma Tumor Board
2. Multidisciplinary Merkel Cell Tumor Board

III. Research Activities

A. PROJECTS UNDER STUDY
1. Immunohistochemical distinction of adenoid cystic carcionoma from adenoidal basal cell carcinoma; Coffing B, McHugh J. (IRB pending)
2. Melanocytic activity in pigmented basal cell carcinoma; Dlugosz A.
3. Application of anti-Elafin antibody in skin biopsies for graft vs. host disease; Ferrara J, Coffing B., et al.
4. Clinical and histopathologic comparison of generalized Subcutaneous morphea with eosinophilic fasciitis; Mahmood F, Siebold J, Lowe L, et al.

IV. Administrative Activities

A. DEPARTMENTAL
1. Interviewer, House Officer Candidates, Department of Pathology
2. Cutaneous Surgical Oncology Unit QA/QC Committee, Department of Dermatology
3. Dermatopathology QC committee
4. AP extramural strategy group
5. Dermatopathology grossing manual
6. Dermatopathology Grossing Liaison (Pathology Assistants)

B. INSTITUTIONAL
1. Member, Multidisciplinary Melanoma Tumor Board, University of Michigan Comprehensive Cancer Center
2. Member, Multidisciplinary Merkel Cell Tumor Board, University of Michigan Comprehensive Cancer Center

V. Other Relevant Activities

A. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Society for Clinical Pathology
2. College of American Pathologists
3. United States and Canadian Academy of Pathology
4. American Society of Dermatopathology

B. HONORS AND AWARDS
1. 2008-09 Pathology Residents Teaching Award

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Pouryazdanparast P, Yu L, Cutlan JE, **Olsen SH**, Fullen DR, Ma L: Diagnostic value of CD163 in cutaneous spindle cell lesions. *J Cutan Pathol* 36:859-864, 2009.
2. Yu L, **Olsen S**, Lowe L, Michael C, Jing X: Fine-needle aspiration cytology of metastatic eccrine porocarcinoma. *Diagn Cytopathol*. 2009 Apr 29. [Epub ahead of print]

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Cutlan J, Habib L, Bichakjian C, Reynolds K, **Olsen S**, Fullen D: Plaque-type syringoma of the vulva. Platform presentation, International Society of Dermatopathology, 2009.
2. **Olsen SH**, Wilson TE, Fullen DR, Ma L: Inflammatory morphea with T-cell receptor gamma gene clonality. Abstract submitted for poster presentation, American Society of Dermatopathology, 2009.
3. Mahmood F, Impens A, Schiopu E, Phillips K, Lowe L, **Olsen S**, Siebold J . Clinical and Histopathologic Comparison of Generalized Subcutaneous Morphea (GSM) with Eosinophilic Fasciitis (EF) Abstract submitted for poster presentation, American College of Rheumatology 2009.

Nallasivam Palanisamy, Ph.D.

Research Assistant Professor

I. Clinical Activities - None

II. Teaching Activities - None

III. Research Activities

A. SPONSORED SUPPORT

1. Ventana Medical Systems, USA (PI) Validation Studies In Support of the Development of Multi-Probe FISH Assays in Prostate Cancer - ETS Partners 6/01/09 - 5/31/11.
2. Melanoma Research Alliance (Development Award) (PI) Trancriptome sequencing to detect gene fusions in melanoma".
3. Agilent Technologies- Agilent Program for University Research (PI) Combined use of aCGH and genome partitioning to identify and characterize recurrent genomic amplifications in prostate cancer: Identification and sequence characterization of oncogenic and tumor suppressive events.5/1/09 - 4/30/10

B. PENDING PROJECTS

1. GlaxoSmithKline – Clinical Development &Medical Affairs, (PI), Molecular profiling of ETS gene rearrangements in patients registered in REDEEM trial.
2. Genome Characterization Centers and Genome Data Analysis Centers for the Cancer Genome Atlas Research Network (TCGA) [U24].
3. Michigan Center for Translational Pathology Genome Characterization Center (MCTP-GCC).
4. Application of Next Generation Sequencing technology for Transcriptome Characterization (PI) Submitted on 3/13/09.
5. Recovery Act Limited Competition: High-End Instrumentation Grant Program (S10) - Request for Helicos Genetic Analysis System, (PI), Submitted on 5/6/09.

C. PROJECTS UNDER STUDY

1. Transcriptome sequencing of Prostate, melanoma and lung cancer for identification of gene fusions
2. Target capture and resequencing of recurrent genome amplifications in prostate cancer

3. Validation of prostate cancer gene fusion probes in collaboration with Ventana Medical Systems
4. FISH based projects on low PSA prostate cohort

IV. Administrative Activities

A. REGIONAL/NATIONAL/INTERNATIONAL

1. Advisory Board Member, International Conference on Biomarkers in Health and Environmental Management and XXXII Annual meeting of Environmental Mutagen Society of India. PSG College of Arts and Science, Coimbatore India. January 10-12, 2007.
2. Advisory Board Member, International Conference on Toxic exposure related biomarkers, Genomes and Health Effects NEERI Golden Jubilee Celebrations, 2007-2008 January 10-11, 2008, National Environmental Engineering Research Institute, Nehru Marg, Nagpur, 440020, India.
3. Advisory Board Member, International Conference on Environment, Occupational and Lifestyle Concerns – Transdisciplinary Approach. 16-19 September 2009 Nirmal Bhawan, ROHCS-NIOH-ICMR Complex, Bangalore, India.
4. Member of the Board of Examiners, PhD thesis evaluation committee
   a. Bharathiar University, Coimbatore, Tamilnadu, India
   b. The Tamilnadu Dr.MGR Medical University, Tamilnadu India
   c. National University of Singapore, Singapore
5. Grant Review Member - National Medical Research Council, Singapore

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Manuscript Reviews
   a. *Singapore Medical Journal* - 2008 Best Reviewer Award
   b. *Biomed Central*
   c. *Cancer Research (AACR Journal)*
   d. *Oncogene*
   e. *Genetic Testing*

B. INVITED LECTURES/SEMINARS

1. Integrative analysis of genomic imbalances in cancer. Midwest Microarray User Group Meeting, Chicago, IL, August, 12-13, 2008.
2. Integrative analysis of genomic imbalances in cancer, Four Nation VIP Tour Seminar Series Organized and Sponsored by Agilent Technologies, USA. One-day seminar series along with local Scientists from Seoul National University Medical School, Seoul, Korea, September 16, 2008.
3. Integrative analysis of genomic imbalances in cancer, Four Nation VIP Tour Seminar Series Organized and Sponsored by Agilent Technologies, USA. One-day seminar series along with Scientists from Samsung Medical Center, Seoul, Korea, September 17, 2008.
4. Integrative analysis of genomic imbalances in cancer, Four Nation VIP Tour Seminar Series Organized and Sponsored by Agilent Technologies, USA. Beijing Oriental Hotel, Beijing, China, September 18, 2008.
5. Integrative analysis of genomic imbalances in cancer, Four Nation VIP Tour Seminar Series Organized and Sponsored by Agilent Technologies, USA. Shanghai Hope Hotel, Shanghai, China, September 19, 2008.

6. Integrative analysis of genomic imbalances in cancer, Four Nation VIP Tour Seminar Series Organized and Sponsored by Agilent Technologies, USA. One day seminar along with Scientists from A*STAR Institutes, Biopolis, Matrix Theaterette 4, Singapore, September 22, 2008.
7. Integrative analysis of genomic imbalances in cancer, Four Nation VIP Tour Seminar Series Organized and Sponsored by Agilent Technologies, USA. National Cancer Center, Singapore, September 23, 2008.
8. Integrative analysis of genomic imbalances in cancer, Four Nation VIP Tour Seminar Series Organized and Sponsored by Agilent Technologies, USA. Indian Institute of Science, Bangalore, India, September 25, 2008.
9. Integrative analysis of genomic imbalances in cancer, Four Nation VIP Tour Seminar Series Organized and Sponsored by Agilent Technologies, USA. Marriot Hotel, Hyderabad, India, September 26, 2008.
10. 100th Annual American Association for Cancer Research Meeting, Mini symposium-Functional Analysis of Cancer Genes and molecular markers, Title: Analysis of genomic imbalances to detect gene fusions in cancer Colorado Convention Center, Denver, Colorado, USA April 18-22, 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Association for Cancer Research (AACR) USA

D. HONORS AND AWARDS
1. The 2008 Singapore Medical Journal Best Reviewer Recognition Award
2. 2009 Melanoma Research Alliance Development Award
3. 2009 Agilent Technologies University Relations Grant Award

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Jinqiu Zhang, Xuejing Liu, Arpita Datta, KR Govindarajan, Wai Leong Tam, Jianyong Han, Joshy George, Christopher W. Wong, Kalpana Ramnarayanan, Tze Yoong Phua, Wan Yee Leong, Yang Sun Chan, **Nallasivam Palanisamy**, Edison T. Liu, R. Krishna Murthy Karuturi, Bing Lim and Lance D. Miller. RAB11FIP1/RCP is a novel breast cancer promoting gene with Ras activating function. *Journal of Clinical Investigation,* April 2009 In press.
2. Christopher A. Maher, **Nallasivam Palanisamy**, John C. Brenner, Xuhong Cao, Shanker Kalyana-Sundaram, Shujun Luo, Irina Khrebtukova, Terrence Barrette, Catherine Grasso, Jindan Yu, Robert Lonigro, Gary Schroth, Chandan Kumar-Sinha, Arul M. Chinnaiyan. Chimera transcript discovery by paired-end transcriptome sequencing. PNAS, In press.
3. Mehra R, Suleman K, Tomlins SA, Wang L, Singhal N, Linetzky KA, **Palanisamy N**, Zhou M, Chinnaiyan AM, Shah RB. Han B, Characterization of ETS gene aberrations in select histologic variants of prostate carcinoma. *Mod Pathol.* 2009 May 22. [Epub ahead of print] PMID: 19465903.
4. Han B, Mehra R, Lonigro RJ, Wang L, Suleman K, Menon A, **Palanisamy N**, Tomlins SA, Chinnaiyan AM, Shah RB. Fluorescence in situ hybridization study shows association of PTEN deletion with ERG rearrangement during prostate cancer progression. *Mod Pathol.* 2009 May 1. [Epub ahead of print] PMID: 19407851.

5. Vega VB, Cheung E, **Palanisamy N**, Sung WK. PLoS Inherent signals in sequencing-based Chromatin-ImmunoPrecipitation control libraries. *ONE*. 2009;4(4):e5241. Epub 2009 Apr 15. PMID: 19367334.
6. Benoît Legrand, C.S. Chang, S.H. Ong, Soek-Ying Neo, **Nallasivam Palanisamy**. Automated identification of chromosome segments involved in translocations by combining spectral karyotyping and banding analysis. *IEEE Transactions on Systems, Man & Cybernetics (Part A Systems & Humans)*, Vol. 38, No. 6, Nov 2008, pp 1374 – 1384.
7. Maher CA, Kumar-Sinha C, Cao X, Kalyana-Sundaram S, Han B, Jing X, Sam L, Barrette T, **Palanisamy N**, Chinnaiyan AM.Transcriptome sequencing to detect gene fusions in cancer. *Nature*. 2009 Mar 5;458(7234):97-101. Epub 2009 Jan 11. PMID: 19136943.
8. Varambally S, Cao Q, Mani RS, Shankar S, Wang X, Ateeq B, Laxman B, Cao X, Jing X, Ramnarayanan K, Brenner JC, Yu J, Kim JH, Han B, Tan P, Kumar-Sinha C, Lonigro RJ, **Palanisamy N**, Maher CA, Chinnaiyan AM. Genomic loss of microRNA-101 leads to overexpression of histone methyltransferase EZH2 in cancer. *Science*. 2008 Dec 12;322(5908):1695-9. Epub 2008 Nov 13. PMID: 19008416.
9. Han B, Mehra R, Dhanasekaran SM, Yu J, Menon A, Lonigro RJ, Wang X, Gong Y, Wang L, Shankar S, Laxman B, Shah RB, Varambally S, **Palanisamy N**, Tomlins SA, Kumar-Sinha C, Chinnaiyan AM. A fluorescence in situ hybridization screen for E26 transformation-specific aberrations: identification of DDX5-ETV4 fusion protein in prostate cancer. *Cancer Res.* 2008 Sep 15;68(18):7629-37.PMID: 18794152.
10. Poonepalli A, Banerjee B, Ramnarayanan K, **Palanisamy N**, Putti TC, Hande MP. Telomere-mediated genomic instability and the clinico-pathological parameters in breast cancer. *Genes Chromosomes Cancer*. 2008 Dec;47(12):1098-109.PMID: 18720522.
11. Huynh H, Chow PK, **Palanisamy N**, Salto-Tellez M, Goh BC, Lee CK, Somani A, Lee HS, Kalpana R, Yu K, Tan PH, Wu J, Soong R, Lee MH, Hor H, Soo KC, Toh HC, Tan P. Bevacizumab, and rapamycin induce growth suppression in mouse models of hepatocellular carcinoma. *J Hepatol*. 2008 Jul; 49(1):52-60. Epub 2008 Apr 28. PMID: 18490075.
12. Benoît Legrand, C S Chang, S.H. Ong, Soek-Ying Neo, **Nallasivam Palanisamy**. Chromosome Classification Using Dynamic Time Warping. *Pattern Recognition Letters* 2008, 29, 215-222.

B. BOOKS/CHAPTERS IN BOOKS
1. **Nallasivam Palanisamy**. "Genetics, Biology and therapy of Acute Myelogenous Leukemia" to be published by Springer in the Cancer Treatment and Research Series under the editorship of Dr. Steven T. Rosen. "Chromosomal Translocations in AML: Detection and Prognostic Significance". Editor: Dr.Lalitha Nagarajan, M D Anderson Cancer Center, USA- In Press.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. Rohit Mehra, MD, Scott A. Tomlins, PhD; **Nallasivam Palanisamy, PhD**; Rajal B. Shah, MD; Arul M. Chinnaiyan, MD, PhD. Fusion of ETS Family Members With Distinct 5? Partners Typify a Unique Set of Gene Rearrangements in Prostate Cancer (Poster No. 17). Abstracts and Case Studies from the College of American

Pathologists 2008 Annual Meeting (CAP '08) San Diego, CA, September 25-28, 2008.

2. Bo Han, Rohit Mehra, Saravana M. Dhanasekaran, Jindan Yu, Anjana Menon, Robert J. Lonigro, Xiaosong Wang, Yusong Gong, Lei Wang, Sunita Shanker, Bharathi Laxman, Rajal B Shah, Sooryanarayana Varambally, **Nallasivam Palanisamy**, Scott A Tomlins, Chandan Kumar-Sinha, Arul M Chinnaiyan. Comprehensive analysis of ETS family aberrations and characterization of novel gene fusions in prostate cancer. 7th Annual Pathology Research Symposium, The University of Michigan Medical School, Graduate Program in Molecular and Cellular Pathology, October 17, 2008 and University of Michigan Cancer Center Research Symposium, November 14, 2008.
3. Christopher A. Maher, Chandan Kumar-Sinha, Xuhong Cao, Shanker Kalyana-Sundaram, Bo Han, Lee Sam, Terrence Barrette, **Nallasivam Palanisamy**, Arul Chinnaiyan. Trascriptome sequencing to detect gene fusions in cancer. 7th Annual Pathology Research Symposium, The University of Michigan Medical School, Graduate Program in Molecular and Cellular Pathology, October 17, 2008 and University of Michigan Cancer Center Research Symposium, November 14, 2008.
4. Qi Cao, Sooryanarayana Varambally, Ram-Shankar Mani, Sunita Shankar,Xiaosong Wang, Bushra Ateeq, Bharathi Laxman, J. Chad Brenner, Jung H. Kim,Xuhong Cao, Bo Han, Patrick Tan, Chandan Kumar-Sinha, **Nallasivam Palanisamy**, Robert J. Lonigro, Christopher A. Maher and Arul M. Chinnaiyan. Genomic Loss of miR-101 Leads to Overexpression of EZH2 in Cancer. 7th Annual Pathology Research Symposium, The University of Michigan Medical School, Graduate Program in Molecular and Cellular Pathology, October 17, 2008 and University of Michigan Cancer Center Research Symposium, November 14, 2008.
5. Qi Cao, Sooryanarayana Varambally, Ram-Shankar Mani, Sunita Shankar, Xiaosong Wang, Bushra Ateeq, Bharathi Laxman, J. Chad Brenner, Jung Kim, Xuhong Cao, Bo Han, Chandan Kumar-Sinha, Patrick Tan, **Nallasivam Palanisamy**, Robert Lonigro, Christopher Maher and Arul Chinnaiyan. Genomic loss of a microRNA leads to overexpression of EZH2 in cancer. *Cancer Prev Res* 2008; 1(7 Suppl):B90. Abstract B90:
6. Rohit Mehra, MD, Bo Han, MD; Scott A. Tomlins, PhD; **Nallasivam Palanisamy, PhD**; Rajal B. Shah, MD; Arul M. Chinnaiyan, MD, PhD. Fusion of ETS Family Members With Distinct 5? Partners Typify a Unique Set of Gene Rearrangements in Prostate Cancer (Poster No. 17) Archives of Pathology and Laboratory Medicine: Vol. 132, No. 9, pp. 1454–1527. Abstracts and Case Studies from the College of American Pathologists 2008 Annual Meeting (CAP '08).
7. Qi Cao, Sooryanarayana Varambally, Ram-Shankar Mani, Sunita Shankar, Xiaosong Wang, Bushra Ateeq, Bharathi Laxman, Xuhong Cao, Kalpana Ramnarayanan, Xiaojun Jing, J. Chad Brenner, Jindan Yu, Jung Kim, Bo Han, Patrick Tan, Chandan Kumar-Sinha, Robert Lonigro, **Nallasivam Palanisamy**, Christopher Maher, Arul Chinnaiyan. Role of microRNA-101 in regulating histone methyltransferase EZH2 in cancer. Poster Session.Transcription Factors. 100th Annual American Association for Cancer Research Meeting 2009, April 18-22, 2009 Colorado Convention Center, Denver, Colorado.
8. Christopher A. Maher, Chandan Kumar-Sinha, Xuhong Cao, Shanker Kalyana-Sundaram, Bo Han, Xiaojun Jing, Lee Sam, Terrence Barrette, **Nallasivam Palanisamy**, Arul M. Chinnaiyan. Integrative transcriptome sequencing for discovery of gene fusions in prostate cancer. Minisymposium Understanding and Targeting

Oncogenic Pathways 100th Annual American Association for Cancer Research Meeting 2009, April 18-22, 2009 Colorado Convention Center, Denver, Colorado.

9. Xiaosong Wang, Saravana M. Dhanasekaran, John Presener, Bo Han, **Nallasivam Palanisamy**, Gilbert S. Omenn, Arul M. Chinnaiyan.Genomic-scale screening for gene fusions in human solid tumors by integrative biomedical informatics. Poster Session, Cancer Informatics 2. 100th Annual American Association for Cancer Research Meeting 2009, April 18-22, 2009 Colorado Convention Center, Denver, Colorado.
10. Rohit Mehra, Scott Tomlins, Bo Han, Khalid Suleman, Xuhong Cao, **Nallasivam Palanisamy**, Anjana Menon, Lei Wang, Rajal B. Shah, Kenneth J. Pienta, Arul M. Chinnaiyan. The Role of TMPRSS2: ETS gene fusions in androgen independent metastatic prostate cancers. Poster Session Novel Technologies in Cancer Biomarkers 100th Annual American Association for Cancer Research Meeting 2009, April 18-22, 2009 Colorado Convention Center, Denver, Colorado.
11. **Nallasivam Palanisamy**, Kalpana Ramnarayanan, Thomas Choudary Putti, Kyew Htet Hlaing, Ram Shanker Mani, Chandan Kumar Sinha, Sooryanarayana Varambally, Patrick Tan, Arul Chinnaiyan.Analysis of genomic imbalances to detect gene fusions in cancer. Mini-symposium Functional Analysis of Cancer Genes and molecular markers 100th Annual American Association for Cancer Research Meeting 2009, April 18-22, 2009 Colorado Convention Center, Denver, Colorado.

Rajiv Patel, M.D.

Assistant Professor of Pathology

I. Clinical Activities

A. DERMATOPATHOLOGY
1. Dermatopathology Service - 3 months
2. Dermatopathology Consultation Service - 3 months

II. Teaching Activities

A. MEDICAL STUDENTS
1. Rotating Medical Students dermatopathology sign-out - 3 months

B. HOUSE OFFICERS AND FELLOWS
1. Dermatopathology sign-out (Pathology and Dermatology Residents) - 3 months
2. Review of dermatopathology consultation material - 3 months

C. LECTURES
1. Essential Connective Tissue Tumor Pathology for the Dermatology Resident -1hour

D. OTHER
1. Multidisciplinary Melanoma Tumor Board
2. Multidisciplinary Merkel Cell Tumor Board
3. Multidisciplinary Sarcoma Tumor Board

III. Research Activities

A. PENDING PROJECTS
1. AP Funding Committee, Gene expression profiling of Merkel cell carcinoma.

B. PROJECTS UNDER STUDY
1. Gene expression profile of Merkel cell carcinoma.

IV. Administrative Activities

A. INSTITUTIONAL

1. Member, Multidisciplinary Melanoma Program, University of Michigan Comprehensive Cancer Center.
2. Member, Multidisciplinary Merkel Cell Carcinoma Program, University of Michigan Comprehensive Center.
3. Member, Multidisciplinary Sarcoma Program, University of Michigan Comprehensive Cancer Center.

B. REGIONAL/NATIONAL/INTERNATIONAL

1. Panel Member, Royal College of Pathologists of Australasia Board of Education Australasian Soft Tissue Tumor Registry

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Manuscript Reviews
   a. *Journal of the Royal Australasian College of Pathologists*

B. INVITED LECTURES/SEMINARS

1. Cutaneous Soft Tissue Tumors: A Pattern-Oriented Approach Utilizing FISH for Diagnosis of Rare and Unusual Superficial Sarcomas. University of Michigan, Department of Pathology and Laboratory Medicine, October, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. College of American Pathologists
2. American Society for Clinical Pathology
3. United States and Canadian Academy of Pathology
4. International Bone and Soft Tissue Society
5. American Society of Dermatopathology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Downs-Kelly E, **Patel RM**, Goldblum JR, Weiss SW, Folpe AL, Tubbs RR, Hicks DG, Skacel M. The utility of novel florescence in situ hybridization 9FISH) probes in the diagnosis of myxoid soft tissue neoplasms. *Am J Surg Pathol* 2008; 32(1):8-13.
2. Issa N, Poggio ED, Fatica RA, Baker M, **Patel R**, Ruggieri PM, Heyka RJ. Nephrogenic systemic fibrosis: history, pathology, and possible link to gadolinium exposure. *Cleveland Clinic Journal of Medicine* 2008: 75(2):95-111.

3. **Patel RM**, Folpe AF. Immunohistochemistry for human telomerase reverse transcriptase catalytic subunit (hTERT): a study of 143 benign and malignant soft tissue and bone tumors. *Pathology*, August 2009.
4. Thomas C, **Patel R**, Bergfeld W. Cytophagic and S-100 protein immunoreactive myeloid leukemia Cutis. *J Cutan Path*, pending publication date.
5. Downs-Kelly E, Shehata BM, **Patel R**, Goldblum JR, Skacel M. Initial experience with a novel florescence in situ hybridization (FISH) break-apart assay for FKHR gene (13q14) in the diagnosis of alveolar rhabdomyosarcoma. *Diagnostic Molecular Pathology*, pending publication date.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Weinre I, Bergfeld WF, **Patel RM**, Ghazarian DM. Apocrine carcinoma in situ of sweat duct origin. *Am J Surg Pathol* 2009;33(1):155-157.

Sem H. Phan, M.D., Ph.D.

Professor of Pathology

I. Clinical Activities

A. AUTOPSY SERVICE

II. Teaching Activities

A. GRADUATE STUDENTS

1. Member, Various Thesis Committees

B. HOUSE OFFICERS AND FELLOWS

1. House Officer training in autopsy service

C. LECTURES

1. Pathology 581

D. OTHER

1. Training of postdoctoral fellows
2. Supervise Undergraduate Research Opportunities Program (UROP) student projects

III. Research Activities

A. SPONSORED SUPPORT

1. NIH, R37, HL28737 MERIT Award (PI) 25% effort, "Mechanisms of pulmonary fibrosis," $218,475 annual direct costs.
2. NIH, R01, HL 52285 (PI) 15% effort, "Myofibroblasts in pulmonary fibrosis," $250,000 annual direct costs.
3. NIH, R01, HL77297 (PI) 15% effort, "A novel telomerase expressing lung fibroblast phenotype," $250,000 annual direct costs.
4. NIH, P01, HL 91775 (PI) 20% effort, Project III, "Role of C/EBPß in pulmonary fibrosis," $272,316 annual direct costs.
5. NIH, PO-1, HL 31963 (PI) 15% effort, Project III, "Lung FIZZ1 expression and its regulation in fibrosis," $239,524 annual direct costs.

6. Genzyme Corp, "Evaluation of systemic vs. intranasal delivery of anti-TGFbeta antibodies in lung fibrosis" $96,250 annual direct costs.

B. PROJECTS UNDER STUDY
1. Molecular and cellular mechanisms of lung injury and fibrosis.
2. Bone marrow and lung progenitor cells for pulmonary fibroblasts/myofibroblasts and mechanisms of differentiation.
3. Molecular regulation of the alpha-smooth muscle actin, telomerase reverse transcriptase and FIZZ1 promoter and gene expression.
4. Resistin-like molecule receptor identification and associated signaling.
5. Induction and regulation of telomerase expression in lung fibrosis.
6. Eosinophil-epithelial cytokine-mediated crosstalk in pulmonary fibrosis.
7. Characterization of FIZZ1, FIZZ2 & FIZZ4 and their role in myofibroblast differentiation.
8. DNA methylation and associated binding proteins in regulation of myofibroblast differentiation.
9. Regulation of C/EBPß isoform expression and its role in alpha-actin gene expression.

IV. Administrative Activities

A. DEPARTMENTAL
1. Member, Pathology House Officer Selection Committee
2. Member, Molecular Cellular Pathology Graduate Program Advisory Committee

B. REGIONAL/NATIONAL/INTERNATIONAL
1. Member, National Advisory Environmental Health Sciences Council, NIEHS, NIH
2. Ad hoc member, various NIH Study Sections/Special Review Panels

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Board
   a. *Stem Cells*
   b. *American Journal of Pathology*
   c. *American Journal of Respiratory Cell and Molecular Biology*

B. INVITED LECTURES/SEMINARS
1. "Transcriptional regulation of pulmonary fibrosis", University of Rochester, Rochester, NY, 2008.
2. "Telomeres, telomerase and pulmonary fibrosis", Featured Speaker, 15th International Colloquium on Lung and Airway Fibrosis, Sunset Beach, NC, 2008.
3. "Induction of telomerase in pulmonary fibrosis", Charles Hales Lung Conference, University of Maryland, Baltimore, MD, 2009.

4. "Stem Cells and Lung Development and Disease", Session Chair, Experimental Biology 2009, New Orleans, LA, 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Society of Investigative Pathology
2. American Thoracic Society
3. American Society of Biochemistry and Molecular Biology
4. American Association of Immunology
5. International Academy of Pathology
6. Cytokine Society

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Milam JE, Keshamouni VG, **Phan SH**, Hu B, Gangireddy SR, Hogaboam CM, Standiford TJ, Thannickal VJ, Reddy RC. PPAR- γ Agonists Inhibit Pro-Fibrotic Phenotypes in Human Lung Fibroblasts and Bleomycin-Induced Pulmonary Fibrosis. *Am J Physiol Lung Cell Mol Physiol*. 2008; 294:L891-901. PMID: 18162602.
2. Dolgachev VA, Ullenbruch MR, Lukacs NW, **Phan SH**: Role of stem cell factor and bone marrow derived fibroblasts in airway remodeling. *Am J Pathol*. 2009; 174:390-400. PMID: 19147822.
3. Liu TJ, Hu B, Choi YY, Chung MJ, Ullenbruch M, Yu H, **Phan SH**: Notch1 signaling in FIZZ1 induction of myofibroblast differentiation. *Am J Pathol*. 2009; 174:1745-55. PMID: 19349363.
4. Hu B, Wu YM, Wu Z, **Phan SH**: Nkx2.5/Csx represses myofibroblast differentiation. *Am. J. Respir. Cell Mol. Biol*. 2009; In press. PMID: 19395679.
5. Takagi Y, Hashimoto N, **Phan SH**, Imaizumi K, Matsuo M, Nakashima H, Hashimoto I, Hayashi Y, Kawabe T, Shimokata K, Hasegawa Y. Erythromycin-induced CXCR4 expression on microvascular endothelial cells. *Am J Physiol Lung Cell Mol Physiol*. 2009; in press. PMID: 19502290.

B. BOOKS/CHAPTERS IN BOOKS
1. **Phan SH.** Biology of fibroblasts and myofibroblasts. *Proc Am Thorac Soc*. 2008; 5:334-7. PMID: 18403329.
2. Franks TJ, Colby TV, Travis WD, Tuder RM, Reynolds HY, Brody AR, Cardoso WV, Crystal RG, Drake CJ, Engelhardt J, Frid M, Herzog E, Mason R, **Phan SH**, Randell SH, Rose MC, Stevens T, Serge J, Sunday ME, Voynow JA, Weinstein BM, Whitsett J, Williams MC. Resident cellular components of the human lung: current knowledge and goals for research on cell phenotyping and function. *Proc Am Thorac Soc*. 2008; 5:763-6. PMID: 18757314.
3. Gharaee-Kermani M, Hu B, **Phan SH**, Gyetko MR. Recent Advances in Molecular Targets and Treatment of Idiopathic Pulmonary Fibrosis: Focus on TGF β Signaling

and the Myofibroblast. *Curr Med Chem*. 2009; 16:1400-17. PMID: 19355895.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Hu B, Wu Z, **Phan SH**: FIZZ1 binds to B7-H3 on fibroblasts and activates myofibroblast differentiation F ASEB J. 2009;23:894.7.
2. Liu T, Huaux F, Choi YY, Ullenbruch M, **Phan SH**: Eosinophil-derived IL-16 induction of FIZZ1 expression in alveolar epithelial cells is mediated by CD9. *J. Immunol*. 2009; 182:93.11.
3. Dolgachev V, Ullenbruch MR, Lukacs NW, **Phan SH**: Role of stem cell factor and bone marrow derived fibroblasts in airway remodeling. *J. Immunol*. 2009; 182 :140.1.
4. Liu T, Choi Y, Selman M, **Phan SH**: Telomerase and Telomere Length in IPF. *Am. J. Respir. Crit. Care Med*. 2009; 179 :A2700.
5. Hu B, Gharaee-Kermani M, Wu Z, **Phan SH**: Epigenetic Regulation of Myofibroblast Differentiation by DNA Methylation. *Am. J. Respir. Crit. Care Med*. 2009; 179 :A3976.
6. Choi Y, Liu T, Ullenbruch M, **Phan SH**: Telomerase RNA Component (TR) Deficiency Does Not Impair Pulmonary Fibrosis. *Am. J. Respir. Crit. Care Med*. 2009; 179:A2719.

Stephen R. Ramsburgh, M.D.

Assistant Professor
Interim Director of Autopsy Service

I. Clinical Activities

A. GENERAL SURGICAL PATHOLOGY - 30 weeks

II. Teaching Activities

A. GRADUATE STUDENTS

1. M-1 Pathology - 14 hours
2. M-1 Histopathology Lectures - 8 hours
3. M-1 Histopathology Lab - 20 hours
4. M-2 Pathology Lab - 70 hours

B. HOUSE OFFICERS AND FELLOWS

1. General Surgical Pathology - 30 weeks
2. Resident Teaching Conference - 65 hours
3. Consultation Conferences - 4 hours
4. Intraoperative consultation - 70 hours
5. Surgical Pathology Elective for senior level residents - 60 hours

III. Research Activities - None

IV. Administrative Activities - None

V. Other Relevant Activities

A. HONORS AND AWARDS

1. Named “Favorite Professor” by class of 2012

VI. Publications

A. BOOKS/CHAPTERS IN BOOKS

1. **S. Ramsburgh**. Quick Compendium of Surgical Pathology Chicago: American Society for Clinical Pathology Press. 2008.

Rodolfo Rasche, M.D.

Assistant Professor of Pathology
Associate Director of MLabs

I. Clinical Activities

A. SURGICAL PATHOLOGY
   1. Coverage of M-Labs cases – outside clients

B. CYTOPATHOLOGY
   1. Provide coverage in gynecologic, non-gyn and FNA services at U of M Hospitals, 12-14 weeks

C. AUTOPSY SERVICE
   1. Coverage for approx. 14 days (weekdays/weekends)

D. CLINICAL PATHOLOGY
   1. Outside stat consults to M-Labs clients
   2. Review blood smears from Forest Health (Ypsilanti) and University of Michigan Health Service

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS
   1. Supervise autopsies by residents
   2. Sign-out in Cytopathology, with residents, fellows and occasionally with medical students

B. LECTURES
   1. Organize and lecture at the M-Labs Symposium (April 25, 2009), a one-day event for pathologists in our region (most are M-Labs clients)
   2. In-service teaching to laboratory staff at M-Labs clients Forest Health Medical Center and U of M Health Service
   3. Monthly colposcopy meetings with the Gyn staff at the U of M Health Service

III. Research Activities - None

IV. Administrative Activities

A. DEPARTMENTAL

1. Associate Director, M-Labs Program (60% effort as of 1/1/07)
    a. Medical director of laboratories at Forest Health Medical Center (Ypsilanti) and U of M Student Health Service as part of our support through the M-Labs Program.

B. REGIONAL/NATIONAL/INTERNATIONAL

1. Inspector for the CAP Accreditation Program. Recent inspections outside the US.

V. Other Relevant Activities

A. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. College of American Pathologists
2. A.J. French Society

VI. Publications - None

Charles W. Ross, M.D.

Associate Professor of Pathology
Director of Clinical Flow Cytometry Laboratory

I. Clinical Activities

A. DIAGNOSTIC SURGICAL PATHOLOGY
1. Hematopathology
2. Hematopathology Consultation Cases (including M-Labs and Veterans Administration Hospital)

B. CLINICAL HEMATOLOGY LABORATORY
1. General Hematology
2. Flow Cytometry

C. CLINICAL CONFERENCE AND CONSULTATIVE SUPPORT
1. Leukemia/Lymphoma Program
2. Myeloma Program
3. Cutaneous Lymphoma Program
4. Mast Cell Disease Program

II. Teaching Activities

A. MEDICAL STUDENTS
1. Lecturer, M2 Hematology Sequence
2. Laboratory Instructor, M2 Hematology Sequence
3. Laboratory Instructor, M1 Histopathology Course

B. DENTAL STUDENTS
1. Lecturer, Integrated Medical Sciences - IV

C. HOUSE OFFICERS AND FELLOWS
1. Sign-out of bone marrow biopsies, aspirates, blood smears, and body fluids in Hematology Laboratory
2. Sign-out of lymph node biopsies and review of hematopathology consultation material
3. Flow cytometry sign-out

4. Hematopathology case conferences
5. Hematopathology lecturer
6. Hematopathology Journal Club
7. Leukemia conference/biweekly
8. Lymphoma conference/weekly
9. Hematology conference/biweekly
10. Pathology Grand Rounds
11. Clinical Pathology Case Conference/weekly
12. Cutaneous Lymphoma Conference/monthly
13. Multiple Myeloma Conference/biweekly
14. Hematology/Oncology Morbidity and Morality Conference

D. LECTURES
1. "Variant t(8;21) in Acute Myeloid Leukemia", invited presentation for New Frontiers in Diagnostic Pathology course.
2. "Eosinophilia", invited presentation for New Frontiers in Diagnostic Pathology course.

E. OTHER
1. Continuing Medical Education for clinical laboratory staff.

III. Research Activities

A. PROJECTS UNDER STUDY
1. A Single Arm, Phase II, Open-Label Study to Determine the Efficacy of Twice Daily Oral Dosing of Midostaurin Administered to Patients with Aggressive Systemic Mastocytosis (ASM) and Mast Cell Leukemia (MCL) +/- Hematological Clonal Non-Mast Cell Lineage Disease (co-investigator with Cem Akin, M.D.).
2. Effect of parathyroid hormone and interleukin-6 on hematopoietic stem cells and bone mass (co-investigator with Laurie McCauley, D.D.S., Ph.D.).
3. Lysosomal phospholipase A2 – role in mononuclear phagocyte system and features of autoimmune disease in a murine knockout model (co-investigator with James Shayman, M.D.).
4. Tissue Banking for Hematologic Translational Research (co-investigator with Megan Lim, M.D.).
5. Phase 3 Trial to evaluate safety and efficacy of specific immunotherapy, recombinant idiotype conjugated to KLH with GM-CSF, compared to non-specific immunotherapy, KLH with GM-CSF in patients with follicular Non-Hodgkin's Lymphoma (co-investigator with Andrzej Jakubowiak, M.D.).
6. Early response assessment in patients with diffuse large B cell lymphoma using FDG-PET (co-investigator with Rebecca Elstrom, M.D.).
7. A pilot study of combination therapy with VELCADE, Doxil, and Dexamethasone (VDd) as first line therapy for multiple myeloma (co-investigator with Andrzej Jakubowiak, M.D., Ph.D.).

8. A phase II study of combination of VELCADE, Doxil, and Dexamethasone (VDd) as first line therapy for multiple myeloma (co-investigator with Andrzej Jakubowiak, M.D., Ph.D.).
9. Tissue Procurement Protocol for patients with multiple myeloma and other plasma cell disorders (co-investigator with Andrzej Jakubowiak, M.D., Ph.D.).
10. Open-label Phase I Study of the safety of Perifosine in combination with Lenalidomide and Dexamethasone- relapsed or refractory multiple myeloma protocol (co-investigator with Andrzej Jakubowiak, M.D., Ph.D.).
11. Myeloproliferative Disease Repository (co-investigator with Moshe Talpaz, M.D.).
12. Descriptive investigation of post-transplant lymphoproliferative disorders (co-investigator with Douglas Blayney, M.D.).
13. A Phase II clinical trial of consolidation treatment with iodine I131 tositumomab for multiple myeloma (co-investigator with Andzej Jakubowiak, M.D., Ph.D.).

IV. Administrative Activities

A. DEPARTMENTAL
1. Anatomic Pathology Operations Committee
2. Interviewer of residency candidates
3. Evaluation of on-line tracking tool for management of blocks and slides for transfer and consultation cases

B. REGIONAL/NATIONAL/INTERNATIONAL
1. American Society for Clinical Pathology, CheckPath Expert Review Panel, Hematopathology

V. Other Relevant Activities

A. INVITED LECTURES/SEMINARS
1. New Frontiers in Diagnostic Pathology Course

B. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Society for Clinical Pathology
2. United States and Canadian Academy of Pathology
3. Society for Hematopathology
4. American Society of Hematology
5. Michigan Society of Pathologists
6. Phi Rho Sigma Medical Society, Zeta Chapter, Ann Arbor

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Knight JS, Tsodikov A, Cibrik DM, **Ross CW**, Kaminski MS, Blayney DW. Lymphoma After Solid Organ Transplantation: Risk, Response to Therapy, and Survival at a Transplantation Center. *Journal of Clinical Oncology* (in press).

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Ma L, Kim DSL, Cutlan J, **Ross CW**, Lim M, Fullen D. Diagnostic Value of CD33 by Immunohistochemistry in Leukemia Cutis. *Modern Pathol* 2009; 22(Suppl 1): 106A.

Diane Roulston, Ph.D.

Associate Professor of Pathology
Director of Cytogenetics Laboratory

I. Clinical Activities

A. DIRECTOR, CLINICAL CYTOGENETICS LABORATORY

II. Teaching Activities

A. GRADUATE STUDENTS
1. Rotations in Cytogenetics: Genetic Counseling Master's candidates (6)

B. HOUSE OFFICERS AND FELLOWS
1. Rotations in Cytogenetics
   a. Pathology Residents (8)
   b. Hematopathology Fellow (1)
   c. Adult Hematology/Oncology Fellows (1)

C. LECTURES
1. Clinical Cytogenetics teaching
   a. Cytogenetics Technical Conference and Case Review for technologists, residents, fellows, and faculty (monthly)
   b. Leukemia Conference (biweekly)
   c. Medical Genetics Conference (monthly)
   d. Case presentation 1/15/09 : "Down syndrome with del (21)/idic(21) mosaicism"
2. Clinical Pathology Grand Rounds 3/24/09, "The Cytogenetics of Solid Tumors"
3. "Clinical Cytogenetics," Human Genetics 641 Applied Clinical Genetics
4. "Cytogenetics in Reproductive Medicine," Human Genetics HG643 Reproductive Genetics

III. Research Activities

A. PROJECTS UNDER STUDY
1. Identification of microdeletions by microarray analysis of acute myelogenous leukemia, collaboration with Dr. Sami Malek
2. BCR/ABL FISH analysis of bone marrow stem cells, collaboration with Dr. Dale Bixby

IV. Administrative Activities

A. DEPARTMENTAL
1. Director, Clinical Cytogenetics Laboratory
2. Assistant Director of Cytogenetics Search
3. Training Programs in Hematopathology, Dermatopathology, Molecular Pathology

4. Interviewed candidates for Molecular Pathology Fellowship program

B. INSTITUTIONAL
   1. Training Program in Medical Genetics and Clinical Cytogenetics
   2. Interviewed candidates for Medical Genetics Residency program

C. REGIONAL/NATIONAL/INTERNATIONAL
   1. American Board of Medical Genetics
      a. Diplomate
      b. Extended Maintenance of Certification participant
      c. Recertification Exam, 12/02/2008
   2. Fellow, American College of Medical Genetics
   3. Children's Oncology Group (COG)
      a. Cytogenetics Committee member: Review cytogenetics studies for treatment protocols
      b. Director of an Approved Laboratory; submit cases for review
      c. Germ Cell Tumor Study, Cytogenetics coordinator
      d. Moderator, COG Cytogenetics workshop, 2/13/09 - 2/14/09, first Saturday session, St. Louis, MO
   4. Southwest Oncology Group (SWOG)
      a. Chair, Cytogenetics Committee and Study Coordinator for SWOG 9007 (Cytogenetics for all relevant SWOG treatment protocols)
      b. Director of an Approved Laboratory for SWOG Cytogenetics studies

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
   1. Manuscript Reviews
      a. *Pediatric Hematology and Oncology*

B. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
   1. American Society of Human Genetics
   2. American Association for the Advancement of Science

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
   1. Langer C, Radmacher MD, Ruppert AS, Whitman SP, Paschka P, Mrózek K, Baldus CD, Vukosavljevic T, Liu CG, Ross ME, Powell BL, de la Chapelle A, Kolitz JE, Larson RA, Marcucci G, Bloomfield CD; Cancer and Leukemia Group B (CALGB) (87 collaborators). High BAALC expression associates with other molecular prognostic markers, poor outcome, and a distinct gene-expression signature in cytogenetically normal patients younger than 60 years with acute myeloid leukemia: a Cancer and Leukemia Group B (CALGB) study. *Blood*. 111(11):5371-9, 2008.

J. Vidya Sarma, Ph.D.

Research Assistant Professor

I. Clinical Activities - None

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS
1. Markus Bosmann, M.D. (postdoctoral fellow)
2. Ketong Zhu, Ph.D. (postdoctoral fellow)
3. Gelareh Atefi, M.D. (postdoctoral fellow)

B. LECTURES
1. BIOL 305 Spring term 2009

C. OTHER
1. Firas Zetoune, B.S., M.B.A.,(Lab specialist Lead)
2. UROP students
   a. Brian Nadeau (undergraduate student)
   b. Anthony Chen (undergraduate student)
   c. Soumya Gowda (undergraduate student)
   d. Vinay Patel (undergraduate student)
   e. Rami Al-aref (undergraduate student)

III. Research Activities

A. SPONSORED SUPPORT
1. NIH R01 GM069438-01A1 (PI-Younger, Co I) 10% effort, C5a in defense against murine Gram-negative pneumonia. 07/01/04 - 06/30/09, $200,000 annual direct costs.
2. NIH R01-GM029507 (PI-Ward, Co I) 30% effort, Lung injury by Oxygen Metabolites. 07/01/01 - 06/30/09, $312,396 annual direct costs.
3. NIH R01-GM061656-05A1 (PI-Ward, Co I) 30% effort, Protective effects of anti-C5a in Sepsis. 09/25/06 - 08/31/10, $404,314 annual direct costs.

B. PENDING PROJECTS
1. NIH R01 (PI-Ward, Co-I), Regulation of Lung Inflammation by Catecholamines and Adrenergic receptors.
2. NIH P01 (PI-Ward, Co-I), Regulation of IL-17 by complement.

C. PROJECTS UNDER STUDY
1. Role of Complement fragment 5a and it's receptors in sepsis and lung inflammation.
2. Role of cytokines and chemokines in sepsis and lung inflammation.
3. Complement activation pathways.

IV. Administrative Activities

A. INSTITUTIONAL
1. Member APRAPT Committee (2006-2009)

B. REGIONAL/NATIONAL/INTERNATIONAL
1. Presented at XXII International Complement Workshop in Basel, Switzerland, October 2008

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Manuscript Reviews
   a. *American Journal of Pathology*
   b. *Critical Care Medicine*
   c. *FASEB Journal*
   d. *Journal of Clinical Investigation*
   e. *Journal of Experimental Medicine*
   f. *Journal of Immunology*
   g. *Nature*
   h. *Nature Medicine*
   i. *Nature Biotechnology*
   j. *Shock*

B. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Association for the Advancement of Science

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Patel SN, Berghout J, Lovegrove FE, Ayi K, Conroy A, Serghides L, Min-oo G, Gowda DC, *Sarma JV*, Rittirsch D, Ward PA, Liles WC, Gros P Kain KC. C5 deficiency and C5a or C5aR blockade protects against cerebral malaria. *J Exp Med*. 2008, 205: 1133-1143. PMID: 1842698.
2. Flierl MA, Rittirsch D, Nadeau BA, Day DE, Zetoune FS, **Sarma JV**, Huber-Lang MS and Ward PA: Functions of the complement components C3 and C5 during sepsis. *FASEB J*. 2008 10:3483-3490. PMID: 18587006.
3. Albrecht, E.A., **Sarma, J.V**., and Ward, P.A.: Activation by C5a of endothelial cell caspase 8 and cFLIP. *Inflamm Res.* 2009 58(1):30-37. PMID: 19115040.
4. Flierl, M.A., Rittirsch, D., Nadeau, B.A., **Sarma, J.V.**, Day, D.E., Lentsch, A.B., Huber-Lang, M.S., and Ward, P.A.: Upregulation of phagocyte-derived catecholamines augments the acute inflammatory response. *PLoS One.* 2009 4(2):e4414. [Epub 2009 Feb 12] PMID: 19212441.
5. Rittirsch, D., Flierl, M.A., Day, D.E., Nadeau, B.A., Zetoune, F.S., **Sarma, J.V.**, Werner, C.M., Wanner, G.A., Simmen, H.P., Huber-Lang, M.S., and Ward, P.A.: Cross-talk between TLR4 and Fcγ receptor III (CD16) pathways. *PLoS Pathogens*.

2009 5(6):e10000464. PMID: 19503602.

B. BOOKS/CHAPTERS IN BOOKS

1. Flierl, M.A., Rittirsch, D., **Sarma, J.V.**, Huber-Lang, M., and Ward, P.A.: Adrenergic regulation of complement-induced acute lung injury. In Advances in experimental medicine and biology – current topics in complement II, J.D. Lambris (ed), Springer, New York, NY. vol. 632, 2008.

Bertram Schnitzer, M.D.

Professor Emeritus of Pathology

I. Clinical Activities

A. HEMATOPATHOLOGY

1. Sign-out of Hematopathology consultation cases (12 months)

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS

1. Consultation cases (at microscope)
2. Unknown slide conferences

B. LECTURES

1. Benign lymphadenopathies Lectures to Fellows and Residents

III. Research Activities - None

IV. Administrative Activities - None

V. Other Relevant Activities

A. INVITED LECTURES/SEMINARS

1. "A Practical Approach to Diagnostic Hematological Problems", ASCP Educational Course, Lectures given included: Classification of Non-Hodgkin's Lymphomas, b) Hodgkin Lymphoma; c) Extranodal Lymphomas. Monterey, CA, November 2008.
2. "Extranodal Non-Hodgkin's Lymphomas", Lake Superior Pathology, Duluth, MN, May 2009.

B. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. American Society of Hematology
2. USCAP
3. American Society for Clinical Pathology
4. Society for Hematopathology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Olsen SH, Ma L, **Schnitzer B**, Fullen DR. Clusterin expression in cutaneus CD30-positive lymphoproliferative disorders and their histologic simulants. *J Cutan Pathol*. 2009 Mar; 36(3):302-7.
2. **Schnitzer B**. Hodgkin's Lymphoma. Hematology/Oncology Clinics of North America 2009 (in press).

B. BOOKS/CHAPTERS IN BOOKS

1. Hsi ED., **Schnitzer B**. Benign Lymphadenopathies. In Jaffee ES, Harris NL, Vardiman J (eds). Diagnostic Hematopathology. Harcourt Health Sciences, 2010.
2. **Schnitzer B**, Smith LB. Hodgkin's Lymphoma In Kroft S. and Reichard K (eds). Practical Lymph Node Pathology. Churchill-Livingstone, 2009.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Smith LB, Nigro K, **Schnitzer B**. Nodular lymphocyte predominant Hodgkin lymphoma with diffuse areas. XIV meeting of the European Association for Haematopathology, Bordeaux, France, September 2008.
2. Lim M, **Schnitzer B**, Elenitoba-Johnson K. Composite lymphoma with mediastinal large B-cell lymphoma and classical Hodgkin lymphoma. XIV meeting of European Association for Haematopathology, Bordeaux, France, September 2008.
3. Smith LB, Mody R, **Schnitzer B**, Lim MS. Post-transplant Lymphoproliferative Disorders in Children and Adolescents: A Single Institution Experience. 3rd International Symposium on Childhood and Adolescent Non-Hodgkin Lymphoma, Frankfurt, Germany, Hematology Meeting Reports 2009. 3:77.

Rajal B. Shah, M.D.

Associate Professor of Pathology
Director of Genitourinary Pathology Service
Co-Director of Prostate SPORE Tissue Core

I. Clinical Activities

A. GENERAL SURGICAL PATHOLOGY
1. Room 1 General Surg Path sign-out, 3 weeks/yr

B. GENITOURINARY PATHOLOGY
1. GU Surg subspecialty sign-out, 12 wks/yr
2. Genitourinary Transfer cases, 12 wks/yr
3. GU Consultation service, daily, 7 months
4. Participation in Urology Tumor Board & Grand Rounds, weekly, 12 months
5. Participation in Disordered Sexual Development Conference - as needed basis

C. BREAST PATHOLOGY
1. Breast Pathology subspecialty sign-out, 4 wks/yr

D. PEDIATRIC PATHOLOGY
1. PEDS Pathology subspecialty sign-out, 3 wks/yr

E. AUTOPSY SERVICE
1. Rapid warm autopsies for men with advanced prostate cancers, 24/7 availability, 12 months

II. Teaching Activities

A. MEDICAL STUDENTS
1. M2-Renal Sequence and Reproductive Sequence lectures, 2 hrs/yr
2. M2-Renal Sequence Lab, 4 hrs/yr

B. HOUSE OFFICERS AND FELLOWS
1. Residents didactic Monday evening Anatomic Pathology lectures, 3/yr
2. Residents Wednesday Consultation Conferences, 3/yr
3. GU Clinical Pathology Resident teaching, 12 wks
4. General Surgical Pathology Resident teaching, 3 wks

5. Urology Resident Pathology lectures, 4/yr
6. Breast Clinical Pathology Resident teaching, 4 wks
7. Pediatric Clinical Pathology Resident teaching, 3 wks

C. POSTDOCTORAL FELLOWS
1. Matthew Wasco, MD, Genitourinary Pathology Fellow, 12 months
2. Bo Han, MD, PhD, Center for Translational Research, 12 months

D. NATIONAL LEVEL CME COURSES AND SEMINARS
1. Interpretation of Prostate Needle Biopsies: Critical Issues and Emerging Markers", Short Course, course director, United States and Canadian Academy of Pathology: Boston, Massachusetts, March, 2009.
2. Interpretation of Prostate Needle Biopsies: Critical Issues and Emerging Markers", United States and Canadian Academy of Pathology: San Francisco, CA, May, 2009.

III. Research Activities

A. SPONSORED SUPPORT
1. NIH- P50 CA69568 (PI-Pienta, Co-I) 20% effort, Tissue and Serum Core Resource Grant: University of Michigan Prostate SPORE (Specialized Program for Research Excellence), 07/01/03 - 05/31/08, $251,033 annual direct costs.
2. W81XWH-05-1-0173 (PI- Chinnaiyan, Co-I) 2.5% effort, Molecular profiling of prostate cancer, $61,858 total costs.
3. NIH P50 CA069568 (PI-Pienta/Wang, Co-I) 5% effort, Evaluation & Development of Non-peptide MDM2 inhibitors in the treatment of metastatic prostate cancer. $150,000.
4. NIH P50 CA069568 (PI-Piert, Co-I) 2% effort, Prostate Cancer Imaging for Radiation. $40,286 total costs.
5. NIH funded pilot of biomarker validation (PI) 0% effort, Inter prostate biomarker study (IPBS), University of Michigan.

B. PROJECTS UNDER STUDY
1. Cluster analysis of immunohistochemical profiles delineates CK7, vimentin, S100 and c-kit as an optimal panel in the differential diagnosis of renal oncocytoma from its mimics.
2. Urothelial carcinomas with nested variant morphology are uniformally aggressive neoplasms: A clinicopathologic immunohistochemical study of 30 pure and mixed cases.

IV. Administrative Activities

A. DEPARTMENTAL
1. Co-Director, Prostate SPORE tissue core laboratory
2. Section Head, Urological Surgical Pathology

3. Director, GU Fellowship Program
4. House Officer/GU Fellowship and Faculty Candidate interviews
5. Translational research/pathology consultant for Genitourinary research, 12 months
6. Member, Development of Extramural Consultation Service Project for Anatomic Pathology section

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Manuscript Reviews
   a. *Journal of Clinical Pathology*
   b. *Archives of Pathology and Laboratory Medicine*
   c. *BMC Cancer*
   d. *Human Pathology*
   e. *Journal of Histochemistry and Cytochemistry and Cancer Research*
   f. *Journal of Urology*
   g. *Clinical Cancer Research*
   h. *Histopathology*
   i. *Cancer Research*

B. INVITED LECTURES/SEMINARS

1. "Urologic Pathology Case Presentation: New Frontiers in Diagnostic Pathology: An Update for Practising Pathologists" - University of Michigan Department of Pathology and A. James French Society of Pathologist symposium, Ann Arbor, MI-48109, September 28, 2008.
2. "Urologic Pathology Breakout session, part 1: Gleason grading of prostate cancer: New Frontiers in Diagnostic Pathology: An Update for Practising Pathologists" – University of Michigan Department of Pathology and A. James French Society of Pathologist symposium, Ann Arbor, MI, September 28, 2008.
3. "Urologic Pathology Breakout session, part 3: Interpretation of flat urothelial lesions: New Frontiers in Diagnostic Pathology: An Update for Practising Pathologists" – University of Michigan Department of Pathology and A. James French Society of Pathologist symposium, Ann Arbor, MI, September 28, 2008.
4. "Contemporary Issues in Bladder Cancer Diagnosis and Management" – Flint Society of Pathologists Meeting, Hurley Hospital, Flint, MI, January 14, 2009.
5. "The discovery of common recurrent TMPRSS2:ETS gene fusions in prostate cancer: Significance and clinical implications" – Guest Speaker, Organized by Krishna Institute of Medical Sciences, Moving Academy of Medicine and Biomedicine, and Association of Indian Pathologists in North America, Karad, India, January 31, 2009.
6. "Contemporary Issues in Bladder Cancer Diagnosis and Management" – All India Association of Pathologist and Microbiologist, XIV Indo-US International CME in

Pathology, Hosted by Gwalior Medical College, AIPNA chapter, Agra, India, February 4, 2009.

7. "Selected Recent Entities and Contemporary Issues in Renal Neoplasms" - All India Association of Pathologist and Microbiologist, XIV Indo-US International CME in Pathology, Hosted by Gwalior Medical College, AIPNA chapter, Agra, India, February 4, 2009.
8. "Contemporary Issues in Bladder Cancer Diagnosis and Management" – Association of Pathologists and Microbiologists, Ahmedabad, India, February 8, 2009.
9. "Significance of Tertiary Pattern 5 in Prostate Needle Biopsies with Gleason Score 3+4 or 4+3 Prostate Cancer: Pathologic Correlation Following Radical Prostatectomy, 98th annual meeting, United States and Canadian Academy of Pathology, Boston, MA, March 11, 2009.
10. "Nested Urothelial Carcinoma: A Clinicopathologic and Immunohistochemical Analysis of 33 cases", The American urology association (AUA) meeting, Chicago, IL, April 27, 2009.
11. "Significance of Tertiary Pattern 5 in Prostate Needle Biopsies with Gleason Score 3+4 or 4+3 Prostate Cancer: Pathologic Correlation Following Radical Prostatectomy, The American Urology Association (AUA) meeting, Chicago, IL, April 29, 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Society for Clinical Pathology
2. College of American Pathologists
3. United States and Canadian Academy of Pathology
4. International Society of Urologic Pathology
5. American Urological Association, Inc.

D. HONORS AND AWARDS
1. America's Top Physician (consumer research council of America)
2. Marquis, Who's Who in the World
3. America's Top Pathologists (consumer research council of America)
4. "Cover in Histopathology", Senior author
5. Co-chair, Proffered Papers: Genitourinary Pathology: United States and Canadian Academy of Pathology, March 9, 2009, Boston, MA

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Gobbo S, Eble JN, Maclennan GT, Crignon DJ, **Shah RB**, Zhang S, Martignoni G, Brunelli M, Cheng L. Renal Cell Carcinomas With Papillary Architecture and Clear Cell Components: The Utility of Immunohistochemical and Cytogenetical Analyses in Differential Diagnosis. *Am J Surg Pathol*, 32(12):1780-6, 2008.

2. Park H, Piert MR, Khan A, **Shah R**, Hussain H, Siddiqui J, Chenvert TL, Meyer CL. Registration methodology for histological sections and in vivo imaging of human prostate. *Acad Radiol*, 15(8):1027-39, 2008.
3. Kunju LP, Daignault S, Wei JT, **Shah RB**. Should multiple cores with prostate cancer submitted in the same container without site identifiers be assigned individual Gleason scores? *Human Pathol*, 40(4): 558-64, 2009.
4. Han B, Mehra R, Dhanasekaran SM, Yu J, Menon A, Lonigro RJ, Wang X, Gong Y, Wang L, Shankar S, Laxman B, **Shah RB**, Varambally S, Palanisamy N, Tomlins SA, Kumar-Sinha C, Chinnaiyan AM. A fluorescence in situ hybridization screen for E26 transformation-specific aberrations: identification of DDX5- ETV 4 fusion protein in prostate cancer. *Cancer Res*, 68(18): 7629-37, 2008.
5. Borofsky M, **Shah RB**, Wolf Jr JS. Nephron-Sparing Diagnosis and Management of Renal Keratinizing Desquamative Squamous Metaplasia. *J Endourol*, 23(1):51-5, 2009.
6. Bradford TJ, Weizer AZ, Gilbert SM, Dunn RL, Wojno K, **Shah R**, Wood DP. Is residual neurovascular tissue on prostatectomy specimens associated with surgeon intent at nerve-sparing and postoperative quality of life measures? *Urol Oncol*, 2008, Dec 24 (Epub ahead of print).
7. **Shah RB** and Chinnaiyan AM. The Discovery of Common Recurrent TMPRSS2:ETS Gene Fusions in Prostate Cancer: Significance and Clinical Implications. Review. *Adv Anat Pathol*, 16(3):145-53, 2009.
8. Han B, Mehra R, Lonigro RJ, Wang L, Suleman K, Menon A, Palanisamy N, Tomlins SA, Chinnaiyan AM, and **Shah RB**. A Fluorescence In Situ Hybridization Study Shows Association of PTEN Deletion with ERG Rearrangement During Prostate Cancer Progression. *Mod Pathol*, 2009, May 1 (Epub ahead of print).
9. **Shah RB**. Current Perspectives on Gleason Grading of Prostate Cancer. Review, *Arch Pathol Lab Medicine,* In press.
10. Mosquera JM, Mehra R, Regan M, Perner S, Genega E, Bueti G, **Shah RB**, Gaston S, Tomlins S, Wei J, Kearney M, Johnson L, Tang J, Chinnaiyan A, Rubin M, Sanda M. Prevalence of TMPRSS2-ERG fusion prostate cancer among men undergoing prostate biopsy in the United States, *Clin Cancer Res,* In press.
11. Weizer AZ, Wasco MJ, Wang R, Daignault S, Lee CT, and **Shah RB**. Presence of Multiple Adverse Histologic Features Increase the Odds of Understaging in Patients with T1 Bladder Cancer. *J Urol*, 182 (1):59-65, 2009.
12. Han B, Mehra R, Suleman K, Wang L, Menon A, Palanisamy N, Tomlins SA, Chinnaiyan AM, and **Shah RB**. Characterization of TMPRSS2:ETS Gene Fusions in Histologic Variants of Prostate Cancer. *Mod Pathol*, 2009, May 22 (Epub ahead of print).

B. BOOKS/CHAPTERS IN BOOKS

1. Wu A and **Shah RB.** "Translocation assoicated renal cell carcinoma" eMedicine Pathology, 2009, In press.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. **Shah RB**, Daignault S, Kunju LP, Wood DP Jr., Wei JT . Significance of Tertiary Pattern 5 in Prostate Needle Biopsies with Gleason Score 3+4 or 4+3 Prostate Cancer: Pathologic Correlation Following Radical Prostatectomy, *Mod Pathol*, 22:826:183A, 2009, and *Laboratory Investigation*, 89:873:193A, 2009.
2. Mehra R, Han B, Lonigro R, Suleman K, Tomlins S, Palanisamy N, Wang L, Menon A, Hamstra D, Chinnaiyan AM, and **Shah RB**. Assessment of Utility of TMPRSS2:ERG Gene Aberrations To Predict Salvage Radiotherapy Prostate Cancer Outcomes. *Mod Pathol* 22:824:182A, 2009, and *Laboratory Investigation*, 89:774:171A-172A, 2009.
3. Han B, Mehra R, Palanisamy N, Suleman K, Zhou M, Chinnaiyan AM and **Shah RB**. Comprehensive Assessment of TMPRSS2 and ETS Family Molecular Aberrations in Histologic Variants of Prostate Carcinoma. *Mod Pathol* 22:773:171A, 2009 and *Laboratory Investigation*, 89:773:171A, 2009.
4. Han B, Mehra R, Palanisamy N, Chinnaiyan AM, **Shah RB**. Comprehensive FISH Assessment Shows Association of PTEN Deletion with ERG Rearrangement during Prostate Cancer Development. *Mod Pathol* 22:774:171A-172A, 2009, and *Laboratory Investigation*, 89:774:171A-172A, 2009.
5. Wasco M, Bradley D, and **Shah RB**. Nested Urothelial Carcinoma: A Clinicopathologic and Immunohistochemical Analysis of 33 Cases. *Mod Pathol* 22: 912:201A, 2009, and *Laboratory Investigation*, 89:92:201A, 2009.
6. Wasco M, Carvalho J, Siddiqui J, Kunju LP, Thomas D, and **Shah RB**. Analysis of Novel Immunohistochemical Markers with a Cluster Analysis Approach To Define an Optimal Panel for the Differential Diagnosis of Renal Epithelial Neoplasms with Eosinophilic Cytoplasm. *Mod Pathol* 22:911:201A, 2009, and *Laboratory Investigation*, 89:911:201A, 2009.
7. Zhou M, Magi-Galluzzi C, **Shah RB**. Atypical Cribriform Lesions of the Prostate: Implications for Diagnosis in Prostate Biopsies. *Mod Pathol* 22:926:204A, 2009, and *Laboratory Investigation*, 89:926:204A, 2009.
8. Wasco M, Bradley D, **Shah RB**. Nested Urothelial Carcinoma: A Clinicopathologic and Immunohistochemical Analysis of 33 Cases. *J Urol*, 181(4): 416S, April, 2009.
9. Wasco M, Bradley D, **Shah RB**. Nested Urothelial Carcinoma: A Clinicopathologic and Immunohistochemical Analysis of 33 Cases. *Modern Pathol*, 22:912:201A, 2009, and *Laboratory Investigation*, 89:912:201A, 2009.
10. Amin M, **Shah RB**, Vasco MW, Gupta R, Amin MB, Merchant S, Bonventre JV, Zhang PL. Utility of Kidney Injury Molecule (KIM-1) Staining in a Wide Spectrum of

Traditional and Newly Recognized Renal Epithelial Neoplasms: Diagnostic and Histogenic Implications. *Laboratory Investigation*, 89: 703: 156A-157A, Jan, 2009.

11. **Shah RB**, Daignault S, Kunju LP, Wood DP, Wie JT. Significance of Tertiary Pattern 5 in Prostate Needle Biopsies with Gleason Score of 3+4 or 4+3 Prostate Cancer: Pathologic Correlation following Radical Prostatecomy. *J Urol*, 181(4): 2081: 754, Apr, 2009.
12. Mehra R, Tomlins SA, Lonigo RJ, Wang L, Menon A, **Shah RB**, Chinnaiyan AM. TMPRSS2-ERG Gene Rearrangement is Associated with C-MYC Protein Over-Expression in Prostate Cancer. *Modern Pathol*, 22:826:183A, Jan, 2009, and *Laboratory Investigation*, 89: 826: 183A, Jan, 2009.
13. Mehra R, Tomlins SA, Lonigo RJ, Wang L, Menon A, **Shah RB**, Chinnaiyan AM. TMPRSS2-ERG Gene Rearrangement is Associated with C-MYC Protein Over-Expression in Prostate Cancer. *Modern Pathol*, 22:826: 183A, Jan, 2009.

Douglas M. Smith, M.D.

Professor of Pathology

I. Clinical Activities

A. DIRECTOR, CLINICAL HISTOCOMPATIBILITY LABORATORY

II. Teaching Activities

A. GRADUATE STUDENTS

1. One post-doctoral fellow
2. One Visiting professor from Korea x 6 months

B. HOUSE OFFICERS AND FELLOWS

1. Resident rotations on CPE

C. OTHER

1. Continuing education for the HLA lab techs

III. Research Activities

A. SPONSORED SUPPORT

1. Contract SLA typing from Spring Point Project (xenotransplantation of pancreatic islets)

IV. Administrative Activities

A. REGIONAL/NATIONAL/INTERNATIONAL

1. Member of the CAP Histocompatibility and Identity Testing Committee
2. Chairman of the SLA Nomenclature Committee for the International Society for Animal Genetics and curator of the IPD/SLA website

V. Other Relevant Activities

A. INVITED LECTURES/SEMINARS

1. Invited presentation on "Genetics and Polymorphism of the Swine MHC" for a seminar on Rational Vaccine Design in Copenhagen, Denmark in August 2008.

B. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. American Association of Blood Banks
2. American Society of Histocompatibility and Immunogenetics
3. American Society for Transplantation
4. American Association for the Advancement of Science
5. College of American Pathologists
6. International Society for Animal Genetics

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Lunney JK, Ho CS, Wysocki M, **Smith DM** “Molecular genetics of the swine major histocompatibility complex, the SLA complex”, *Developmental and Comparative Immunology* 33(3):362-74, 2009.
2. Yang J, Schall C, **Smith D**, Kreuser J, Zamberlan M, King K, Gajarski R. “HLA sensitization in pediatric pre-transplant cardiac patients supported by mechanical assist devices: the utility of Luminex” *Journal of Heart Lung Transplantation* 28(2):123-9, 2009.
3. Ho CS, Lunney JK, Ando A, Rogel-Gaillard C, Lee JH, **Smith DM**. Nomenclature for factors of the SLA system, update 2008. *Tissue Antigens* 73(4):307-5, 2009.
4. Ho CS, Franzo-Romain MH, Lee YJ, Lee JH, **Smith DM**. Sequence-based typing of swine leukocyte antigen class I and class II alleles in eight porcine cell lines. *International Journal of Immunogenetics*, In press.
5. Ho CS, Lunney JK, Franzo-Romain MH, Martens GW, Lee YJ, Lee JH, Wysocki M, Rowland RRR, **Smith DM**. Molecular characterization of swine leukocyte antigen (SLA) class I genes in outbred pig populations. *Animal Genetics,* In press.

Lauren B. Smith, M.D.

Assistant Professor

I. Clinical Activities

A. HEMATOPATHOLOGY

1. 34-35 weeks hematopathology service
2. 18 weeks hemoglobin signout

II. Teaching Activities

A. MEDICAL STUDENTS

1. CP grand rounds, November 2008
2. Hematopathology Conference, March 2009
3. Resident Slide Seminar, August 2008
4. Hematology Conference, May 2009

B. GRADUATE STUDENTS

1. Bioethics Committee (monthly meetings & 4 weeks on call)
2. Pathology Residency Selection Committee

C. HOUSE OFFICERS AND FELLOWS

1. CP grand rounds, November 2008
2. Hematopathology Conference, March 2009
3. Resident Slide Seminar, August 2008
4. Hematology Conference, May 2009

III. Research Activities

A. PENDING PROJECTS

1. Nominated for MSMS Bioethics Committee (nomination pending)

IV. Administrative Activities - None

V. Other Relevant Activities - None

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. **Smith LB**, Pyonnen M, Flint A, Adams JL & Elner VE. Progressive eyelid swelling and facial edema due to follicular lymphoma. *Archives of Ophthalmology*, In press
2. Shalowitz D, Barnosky A, **Smith LB**. Communicating the Risk of Iatrogenic Creutzfeldt-Jakob Disease: Ethical Analysis. *Infection Control and Hospital Epidemiology*, In press.
3. Miles R, Mankey C, Seiler C, **Smith LB**, Teruya-Feldstein J, Hsi E, Elenitoba-Johnson K, Lim MS. Expression of Grb2 Distinguishes Classical Hodgkin Lymphomas from Primary Mediastinal B-cell Lymphomas and Other Diffuse Large B-cell Lymphomas. *Human Pathology*, In press.

B. BOOKS/CHAPTERS IN BOOKS

1. Schnitzer B & **Smith LB**. Hodgkin Lymphoma. In S Kroft and K Reichard (Eds). Practical Lymph Node Pathology, In press.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Case presented by moderator, **Smith LB**, Kitko C & Schnitzer B. Nodular lymphocyte predominant Hodgkin lymphoma with diffuse areas. European Association for Hematopathology, Bordeaux, France, September 2008.
2. Poster , **Smith LB**, Mody R, Schnitzer B, Lim MS. Post-transplant lymphoproliferative disorders in children and adolescent: A single institution experience. 3rd International Symposium on Childhood, Adolescent, and Young Adult Non-Hodgkin's Lymphoma. Frankfurt, Germany, June 2009.
3. Miles R & **Smith LB**. Plasmacytoma-like PTLD. Cleveland Worshop, Society for Hematopathology. Presentation by moderator, September 2009.
4. Hummel J, Utiger C & **Smith LB**. IgM Myeloma. Cleveland Workshop, Society for Hematopathology. Presentation by moderator, September 2009.
5. Farmen S, Schnitzer B & **Smith LB**. CD5 positive lymphoplasmacytic lymphoma. Cleveland Workshop, Society for Hematopathology. Platform presentation, September 2009.
6. Wey Elizabeth, De Jitakshi & **Smith LB**. Diffuse large B-cell lymphoma with plasmacytic differentiation. Cleveland Workshop, Society for Hematopathology. Presentation by moderator, September 2009.

Arun Sreekumar, Ph.D.

Research Assistant Professor

I. Clinical Activities - None

II. Teaching Activities

A. GRADUATE STUDENTS
1. Laila Poisson (Thesis advisor: Debashis Ghosh)

B. HOUSE OFFICERS AND FELLOWS
1. T. M. Rajendiran (Research Investigator)
2. Amjad Khan (Research Fellow)
3. Bhaskar Malayappan (Research Fellow)
4. Anastasia Yocum (Research Fellow under Arul Chinnaiyan)
5. Adaikalam Velaichamy (Research Fellow under Arul Chinnaiyan)

C. LECTURES
1. Ad hoc lecturer for the Bioinformatics B551 course. The lecture was on Protein Microarrays and Immunomics on April 3, 2008.

D. OTHER
1. Selected as Affiliate Faculty Center for Computational and Molecular Biology, University of Michigan.

III. Research Activities

A. SPONSORED SUPPORT
1. NIH 1R01CA133458-01 (PI) 3.6 mo effort, Integrative Metabolomics of Prostate Cancer Progression, 04/01/08 - 03/31/2013, $250,000 annual direct costs.
2. Multiple Myeloma Research Foundation 602005 (PI) 0.6 mo effort, Proteomic Profiling of Multiple Myeloma Progression, 04/01/08 - 02/28/2011, $250,000 annual direct costs.
3. NIH/NCIBI1 U54 DA021519-01A1 (PI: Athey, Co-I) 0.6 mo effort, Develop bioinformatics and computational approaches for high-throughput data. 09/25/05 - 08/31/10, $2,543,758 annual direct costs.
4. U/M Medical School Michigan Institute for Clinical and Health Research (PI), 2.6 mo effort, Metabolomics Markers for Prostate Cancer Progression, 09/01/07 - 08/31/08, $100,000 total costs.

5. NIH/NCI R01 CA106402 (PI-Lubman, Co-I) 1.0 mo effort, Protein Microarrays for the Humoral Response of Cancer, 06/15/04 - 05/31/09, $194,378 annual direct costs.
6. MEDC GR-687 (PI-Omenn, Co-I.) 1.2 mo effort, Proteomics Alliance for Cancer Research Michigan Technology Tri-Corridor Fund, 09/01/2005 - 08/31/2008, $165,000 annual direct costs.
7. NIH R01 GM049500-11A2 (PI-Lubman, Co-I) 2.4 mo effort, Differential Mapping of Posttranslational Modifications in Tumor Cells, 08/01/07 - 07/31/11, $201,250 annual direct costs.
8. Metabolon (PI) Metabolomic Profiling of Prostate Cancer, 07/2008 - 06/2010, $228,000 annual direct costs.

B. PENDING PROJECTS
1. NIH O'Brien Center Pilot Grant, (PI) Metabolomic Profiling of Benign Prostatic Hyperplasia, 09/01/08 - 08/31/09, $60,000 total costs.
2. DOD IDEA grant (PI) Multiplex Urine Metabolites As Diagnostic Markers for Prostate Cancer, 11/2008 - 10/2011, $375,000 annual direct costs.
3. U/M Medical School Michigan Institute for Clinical and Health Research (Co-PI) Delineating Proteomic Markers in MM Patients Predictive of Response to RVDD, 09/01/08 - 08/31/09, $75,000 total costs.

C. PROJECTS UNDER STUDY
1. Profiling Humoral Response in Prostate Cancer Using Two-Dimensional Liquid Phase Fractionation and Protein Microarrays.
2. Profiling Interactome of Prostate Cancer using Protein Microarrays and Mass Spectrometry.
3. Profiling Metabolome of Prostate Cancer Progression Using Mass Spectrometry.
4. Validating clinically relevant metabolomic markers for prostate cancer progression.
5. Quantitative Profiling of Prostate Cancer proteome.
6. Integration of matched "Omics" data to understand prostate cancer progression with a systems perspective.
7. Delineating post-translational modifications of prostate cancer proteome using protein microarrays and mass spectrometry.
8. Using Multiple Reaction Monitoring Mass spectrometry as a diagnostic tool to detect ETS-fusion products in prostate cancer.
9. Delineating Androgen regulated proteome using Mass spectrometry.

IV. Administrative Activities

A. INSTITUTIONAL
1. Served as proxy to Arul Chinnaiyan in the thesis committee of Greg Garuda, from the Department of Physiology, University of Michigan.

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Manuscript Reviews
   a. *Cancer Investigation*
   b. *Cancer Research*
   c. *Clinical Proteomics*
2. Grant reviews

a. US Army Medical Research and Material Command (USAMRMC)

B. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Association for Cancer Research

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. **Sreekumar A**, Poisson LM, Rajendiran TM, Khan AP, Cao Q, Yu J, Laxman B, Mehra R, Lonigro RJ, Li Y, Nyati MK, Ahsan A, Kalyana-Sundaram S, Han B, Cao X, Byun J, Omenn GS, Ghosh D, Pennathur S, Alexander DC, Berger A, Shuster JR, Wei JT, Varambally S, Beecher C, Chinnaiyan AM. Metabolomic profiles delineate potential role for sarcosine in prostate cancer progression. *Nature* 2009 Feb 12; 457(7231):910-4, PMID 19212411.
2. Krupanidhi S, **Sreekumar A**, Sanjeevi CB. Copper and biological health; Review. *Indian J Med Res* 2008 Oct; 128(4):448-61, PMID: 19106440.
3. Varambally S, Laxman B, Mehra R, Cao Q, Dhanasekaran SM, Tomlins SA, Granger J, Vellaichamy A, **Sreekumar A**, Yu J, Gu W, Shen R, Ghosh D, Wright LM, Kladney RD, Kuefer R, Rubin MA, Fimmel CJ, Chinnaiyan AM. *Neoplasia* 2008 Nov; 10(11):1285-94, PMID: 18953438.
4. Taylor BS, Pal M, Yu J, Laxman B, Kalyana-Sunderam S, Zhao R, Menon A, Wei JT, Nesvizhskii AI, Ghosh D, Omenn GS, Lubman DM, Chinnaiyan AM, **Sreekumar A**. Humoral response profiling reveals pathways to prostate cancer progression. *Mol Cell Proteomics*

Lloyd M. Stoolman, M.D.

Professor of Pathology

I. Clinical Activities

A. CLINICAL FLOW CYTOMETRY

1. Medical Director, Clinical Flow Cytometry Laboratory
2. Flow Cytometry Diagnostic Service: 60-70% coverage of diagnostic service
3. Flow Cytometry Education: Primary responsibility for fellow/resident training

B. HEMATOPATHOLOGY

1. Report integration for M-labs clients (Hemepath-Flow-Cytogenetics-Molecular)
2. Web-based competency testing with virtual slides
3. "Case Builder" project: Designed Web application (under development by Pathology Informatics that creates searchable, online Hematopathology and Flow Cytometry Cases from networked patholgy reports,virtual slides and primary flow cytometry data.

II. Teaching Activities

A. MEDICAL STUDENTS

1. M1 Histology
2. M1 Histopathology
3. M2 Organ Systems Pathology
4. Managed educational and research virtual microscopy within the Department of Pathology
5. M2 Hematology sequence (16th year), Co-director
6. Lecturer and seminar leader
7. Hematopathology "virtual" laboratories, author
8. M1 Host Defense sequence (16th year), lecturer and seminar leader
9. D1 Host Defense sequence (16th year), lecturer

B. GRADUATE STUDENTS

1. Supervised research activities of post-graduate (3) and undergraduate investigators
2. Graduate Seminar in Immunology, 3-lecture hours
3. Thesis committees (2), Immunology Program

4. Comprehensive Examination Committees (3), Immunology Program
5. Consultation services for Flow Cytometry and Digital Microscopy Core laboratories

C. HOUSE OFFICERS AND FELLOWS
1. Flow cytometry fundamentals, procedures, analytic tools and interpretation
2. Expansion of virtual slide content for resident/fellow education

III. Research Activities

A. SPONSORED SUPPORT
1. NIH, R01CA73059 (PI) T Cell Trafficking in Adoptive Cellular Immunotherapy; ended March 2009.
2. Training grant faculty:
   a. Immunopathology (PI-Kunkel)
   b. Vascular Biology Training Grant (PI-Wakefield)

IV. Administrative Activities

A. DEPARTMENTAL
1. Flow Cytometry Clinical and Core Research Laboratories, Director
2. Research Flow Cytometry Laboratory
3. Digital Microscopy Core Laboratory, Director
4. Graduate student examination committee, Immunology Program
5. Co-Director, M2 Hematology Sequence

V. Other Relevant Activities

A. HONORS AND AWARDS
1. 2009 Provost's Teaching Innovation Prize for Co-development of Virtual Microscopy in Life Sciences Education

VI. Publications

A. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. Designed websites, authored content (Hematopathology) and managed infrastructure for the Virtual Microscopy Initiative

Cheryl A. Utiger, M.D.

Lecturer

I. Clinical Activities

A. ANN ARBOR VA HEALTH SYSTEM

1. Hematology sign out, approx 60% of VA total for year
2. Surgical Path 25% of VA total
3. Cytology 50% of VA total
4. Sign out Special Chemistry 50% of VA total

II. Teaching Activities

A. MEDICAL STUDENTS

1. M2 teaching labs in Pathology Resp., Endo., Reproductive

B. HOUSE OFFICERS AND FELLOWS

1. Teaching of residents gross and surgical signout, autopsy
2. Review blood and bone marrow slides with residents and medical students

III. Research Activities - None

IV. Administrative Activities

A. ANN ARBOR VA HEALTH SYSTEM

1. Medical director of Hematology lab
2. Medical director of Blood Bank
3. Medical director of VA autopsy service
4. Chair, Blood Utilization Committee

V. Other Relevant Activities

A. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. Michigan Society of Pathologists
2. American Society for Clinical Pathology
3. Society for Hematopathology

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Finn WG, Sreekumar A, Menon A, **Utiger C**, Chinnaiyan A.Trisomy 12-associated, t(11;14)-negative mature B-cell leukemia with gene expression profile resembling mantle cell lymphoma. *Leuk Lymphoma.* 2006 Jan; 47(1):121-7.
2. **Utiger, Cheryl A**, Headington, John T: Psammomatous Melanotic Schwannoma: A new Cutaneous Marker for Carney's Complex. *Archives of Dermatology*, 129:202-204; 1993.

Sooryanarayana Varambally, Ph.D.

Research Assistant Professor

I. Clinical Activities - None

II. Teaching Activities

A. GRADUATE STUDENTS
1. Chad Brenner

B. HOUSE OFFICERS AND FELLOWS
1. Qi Cao, PhD
2. Bushra Ateeq, PhD
3. Ram Mani, PhD

C. LECTURES
1. Cancer Biology Graduate teaching - 553 Gene expression analysis

III. Research Activities

A. SPONSORED SUPPORT
1. NIH/NCI P50 CA69568 (PI: Pienta) 0.6 mo effort, SPORE in Prostate Cancer, Project 1 Title: Role of gene fusions in prostate cancer, 06/01/08 - 05/31/13, $196,297 annual direct costs.
2. DOD W81XWH-06-1-0224 (PI: Chinnaiyan, Co-I) 2.7 mo effort, Integrative Proteomic and Genomic Analysis of Prostate Cancer Progression, 12/15/05 - 01/14/09, $106,000 annual direct costs.
3. NIH 5 R01 CA107469-03 (PI: Kleer) 2.7 mo effort, Role of EZH2 in Breast Cancer, 02/01/05 - 12/31/09, $152,381 annual direct costs.
4. Gen-Probe (PI) 0.6 mo effort, University of Michigan/Gen-Probe Partnership to Develop Gene Fusion Based Diagnostic for Prostate Cancer, 08/01/06 - 08/01/11, $254,908 annual direct costs.
5. DOD W81XWH-08-0110 (PI: Chinnaiyan, Co-I) 1.2 mo effort, A Search for Gene Fusions/Translocations in Breast Cancer, 09/01/08 - 08/31/13, $500,000 annual direct costs.
6. GlaxoSmithKline (GSK) (PI), The Role of Avodart in Pre-clinical Models of Gene Fusion Positive Prostate Cancer, 10/22/08 - 10/21/09, $91,629 total costs.

7. NIH 2 P50 CA069568-11 (PI) 3.0 mo effort, University of Michigan Comprehensive Cancer Center Prostate SPORE, 11/01/08 - 10/31/10, $70,000 annual costs.
8. NIH R01CA132874-01 (PI: Chinnaiyan, Co-I) 1.2 mo effort, Molecular Sub-typing of Prostate Cancer Based on Recurrent Gene Fusions, 3/01/08 - 11/31/13, $225,000 annual direct costs.

B. PROJECTS UNDER STUDY
1. Studies to understand the molecular basis and functional relevance of EZH2 in prostate and breast cancer progression.
2. Identification of small molecule inhibitor of EZH2.
3. Deciphering the role of ETS transcription factors in prostate cancer progression.
4. Profiling microRNA gene expression in prostate cancer.
5. Functional role of gene fusions in cancer.

IV. Administrative Activities

A. INSTITUTIONAL
1. Member- Advisory Committee on Primary Research Appointments, Promotions, and Tenure.

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Manuscript Reviews
   a. *Cancer Research*
   b. *Proteomics*

B. INVITED LECTURES/SEMINARS
1. 9th Annual symposium of Michigan Research Colloquium
2. "Function and Regulation of Oncogenic Histone Methyltransferase EZH2" Prostate Cancer Foundation"
3. "Function and Regulation of Oncogenic Histone Methyltransferase EZH2"

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. American Association for Cancer Research

D. HONORS AND AWARDS
1. Research Faculty Recognition Award for exceptional scholarly achievement from University of Michigan

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS
1. Cao Q, Yu J, Dhanasekaran SM, Kim JH, Mani RS, Tomlins SA, Mehra R, Laxman B, Cao X, Yu J, Kleer CG, **Varambally S** *, Chinnaiyan AM*. Repression of E-cadherin by the Polycomb Group Protein EZH2 in Cancer. 2008, *Oncogene*. 2008 Dec 11; 27(58):7274-84 (* Shared senior authorship).
2. **Varambally S***, Laxman B, Mehra R, Cao Q, Dhanasekaran SM, Tomlins SA, Granger J, Vellaichamy A, Sreekumar A, Yu J, Gu W, Shen R, Ghosh D, Wright LM, Kladney RD, Kuefer R, Rubin MA, Fimmel CJ, Chinnaiyan AM.*. Golgi Protein

GOLM1 is a tissue and urine biomarker of prostate cancer. *Neoplasia*. 2008 Nov; 10(11):1285-94 (* Shared senior Authorship).

3. Han B, Mehra R, Dhanasekaran SM, Yu J, Menon A, Lonigro RJ, Wang X, Gong Y, Wang L, Shankar S, Laxman B, Shah RB, **Varambally S**, Palanisamy N, Tomlins SA, Kumar-Sinha C, Chinnaiyan AM. A fluorescence in situ hybridization screen for E26 transformation-specific aberrations: identification of DDX5-ETV4 fusion protein in prostate cancer. *Cancer Research*. 2008 Sep 15; 68(18):7629-37.

James Varani, Ph.D.

Professor of Pathology

I. Clinical Activities - None

II. Teaching Activities

A. MEDICAL STUDENTS
1. Pooja Rao: 1st year medical student, University of Iowa (April - September 2008)

B. UNDERGRADUATE STUDENTS
1. Madhav Kamlesh Naik: 4th-year undergraduate, University of Michigan (April 2006 - present)
2. Stephanie Weber: University of Michigan graduate as of Spring 2009 (September 2006 - May 2009)
3. Tejaswi Paruchuri: University of Michigan graduate as of Spring 2008 (July 2007 - present)
4. Katie Bleavins: 4th-year student, community high school (April 2008 - present)
5. Monica O'Brien Deming: 3rd-year undergraduate, Michigan State University (June 2008 - present)
6. Tim Wang: 4th-year student, community high school (September - December 2008)

C. HOUSE OFFICERS AND FELLOWS
1. Muhammad Nadeem Aslam, M.D. (June 2002 - present)

D. LECTURES
1. Instructor: Pathology 581: Tissue, cellular and molecular basis of disease
2. Instructor: Dental School interdisciplinary course
3. Instructor: Pathology 553: Cancer Biology

E. OTHER
1. Narasimharao Bhagavathula, Ph.D., Research Investigator

III. Research Activities

A. SPONSORED SUPPORT
1. NIH/NIAMS GM77724, Wound-healing properties of a non-irritating retinoid
2. NIH/NIAMS GM80779, Non-irritating 9-cis retinoic acid derivatives for use in an aged population
3. NIH/NIAMS AR052889, Amphiregulin in Psoriatic Epidermal Hyperplasia

4. NIH/NIC CA140760, Dietary marine algae in colon cancer chemoprevention

B. PENDING PROJECTS
1. HL70797-04: MMP-1 and MMP-3 in Acute Lung Injury and Its Consequences
2. NIH/NIA: Mineral-Rich Extract for Preservation of Bone Structure/Function

C. PROJECTS UNDER STUDY
1. Retinoid effects on collagen destruction and repair in diabetic and aged skin0
2. Role of MMP-3 in acute and chronic lung injury.
3. Development of a non-irritating retinoid for replacement of RA in therapy of skin aging and as a wound-healing agent.
4. Role of the calcium-sensing receptor in colon cancer growth control.

IV. Administrative Activities

A. DEPARTMENTAL
1. Member, Department of Pathology Advisory Committee on Appointments, Promotions and Tenure
2. Member, Department of Pathology Graduate Program Committee
3. Member and Chairman, Pathology Graduate Program Curriculum Revision Committee

B. INSTITUTIONAL
1. Member, Institutional Review Board of the UM Medical School (IRBMED)
2. Member, IRBMED's task force on adverse event reporting
3. Member, UM Program in Biomedical Sciences (PIBS) Curriculum Committee
4. Member, UM Dermatology Research Training Grant Steering Committee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Editorial Board
   a. *Expert Review of Dermatology*
2. Manuscript Reviews
   a. *American Journal of Pathology*
   b. *Cancer Research*
   c. *Journal of Investigative Dermatology*

B. INVITED LECTURES/SEMINARS
1. “The Effects of GBCA on Fibroblasts and Skin Organ Culture”, European MRI Meeting, Valencia, Spain, September 29, 2008.
2. “Biology of NSF: Effects of GBCA on Human Skin and Human Skin Fibroblasts”, First International Multidisciplinary Experts Panel on NSF, Princeton, NJ, October 9-10, 2008.
3. MDI 301: Efficacy Without Skin Irritation in a Wound Healing Model in Atrophic Skin”, Molecular Design International, Memphis, TN, February 9, 2009.
4. “Human Skin Organ Culture and Human Skin - SCID Mouse Transplant Models for Assessing Epidermal Hyperplasia and Potential Therapeutics”, Medicis, Phoenix, AZ, May 7, 2009.

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

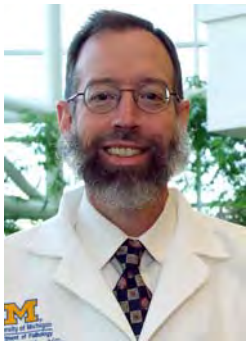
1. Warner RL, Bhagavathula N, Nerusu K, Hanosh A, McClintock SD, Naik M, Johnson KJ, Ginsburg I, **Varani J**. MDI 301, a nonirritating retinoid, improves abrasion wound healing in damaged/atrophic skin. *Wound Repair Regen* 16:117-124, 2008.
2. **Varani J** , Bhagavathula N, Aslam MN, Fay K, Warner RL, Hanosh A, Barron AG, Miller RA. Inhibition of retinoic acid-induced skin irritation in calorie-restricted mice. *Arch Dermatol Res* 300:27-35, 2008.
3. Fisher GJ, **Varani J**, Voorhees JJ. Looking older: fibroblast collapse and therapeutic implications. *Arch Dermatol* 144:666-672, 2008.
4. Bhagavathula N, Nerusu KC, Hanosh A, Aslam MN, Sundberg TB, Opipari AW Jr, Johnson K, Kang S, Glick GD, **Varani J**. 7-Chloro-5-(4-hydroxyphenyl)-1-methyl-3-(naphthalen-2-ylmethyl)-4,5-dihydro-1H-benzo[b][1,4]diazepin-2(3H)-one (Bz-423), a benzodiazepine, suppresses keratinocyte proliferation and has antipsoriatic activity in the human skin-severe, combined immunodeficient mouse transplant model. *J Pharmacol Exp Ther* 324:938-947, 2008.
5. Dame MK, Spahlinger DM, DaSilva M, Perone P, Dunstan R, **Varani J.** Establishment and characteristics of Gottingen minipig skin in organ culture and monolayer cell culture: relevance to drug safety testing. *In Vitro Cell Dev Biol Anim* 44:245-252, 2008.
6. Dame MK, **Varani J.** Recombinant collagen for animal product-free dextran microcarriers. *In Vitro Cell Dev Biol Anim* 44:407-141, 2008.
7. **Varani J**, Perone P, Warner RL, Dame MK, Kang S, Fisher GJ, Voorhees JJ. Vascular tube formation on matrix metalloproteinase-1-damaged collagen. *Br J Cancer* 98:1646-1652, 2008.
8. Liu G, Hu X, **Varani J**, Chakrabarty S. Calcium and calcium sensing receptor modulates the expression of thymidylate synthase, NAD(P)H:quinone oxidoreductase 1 and survivin in human colon carcinoma cells: promotion of cytotoxic response to mitomycin C and fluorouracil. *Mol Carcinog* 48:202-211, 2008.
9. Bhagavathula N, Warner RL, DaSilva M, McClintock SD, Barron A, Aslam MN, Johnson KJ, **Varani J.** A combination of curcumin and ginger extract improves abrasion wound healing in corticosteroid-impaired hairless rat skin. *Wound Repair Regen* 17:360-366, 2009.
10. **Varani J**, DaSilva M, Warner RL, Deming MO, Barron AG, Johnson KJ, Swartz RD. Effects of gadolinium-based magnetic resonance imaging contrast agents on human skin in organ culture and human skin fibroblasts. *Invest Radiol* 44:74-81, 2009.
11. Fisher GJ, Quan T, Purohit T, Shao Y, Cho MK, He T, **Varani J**, Kang S, Voorhees JJ. Collagen fragmentation promotes oxidative stress and elevates matrix metalloproteinase-1 in fibroblasts in aged human skin. *Am J Pathol* 174:101-114, 2009.
12. Aslam MN, Bhagavathula N, Paruchuri T, Hu X, Chakrabarty S, **Varani J.** Growth-inhibitory effects of a mineralized extract from the red marine algae, Lithothamnion calcareum, on Ca(2+)-sensitive and Ca(2+)-resistant human colon carcinoma cells. *Cancer Lett* [Epub ahead of print] 2009.
13. **Varani J**, Perone P, Deming MO, Warner RL, Aslam MN, Bhagavathula N, Dame MK, Voorhees JJ. Impaired keratinocyte function on matrix metalloproteinase-1 (MMP-1) damaged collagen. *Arch Dermatol Res* [Epub ahead of print] 2009.

14. Bhagavathula N, DaSilva M, Aslam MN, Dame MK, Warner RL, Xu Y, Fisher GJ, Johnson KJ, Swartz R, **Varani J**. Regulation of collagen turnover in human skin fibroblasts exposed to a gadolinium-based contrast agent. *Invest Radiol* [Epub ahead of print] 2009.
15. Dame MK, Paruchuri T, DaSilva M, Bhagavathula N, Ridder W, **Varani J**. The Göttingen minipig for assessment of retinoid efficacy in the skin: comparison of results from topically treated animals with results from organ-cultured skin. *In Vitro Cell Dev Biol Anim* [Epub ahead of print] 2009.

B. BOOKS/CHAPTERS IN BOOKS
1. **Varani J**. A solid foundation is important for healthy looking skin. In: Nutritional Cosmetics. Edited by A Tabor and RM Blair. New York: William Andrew Publishing, 2009.
2. **Varani J**, Quan T, Fisher GJ. Mechanisms and pathophysiology of skin aging and photoaging. Edited by A Kozlowski. Carol Stream, IL: Allured Publishing, 2009.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS
1. Dame MK, Spahlinger D, DaSilva M, Perone P, Dunstan R, **Varani J**. Organ and monolayer cell culture of Gottingen minipig skin: a model for whole skin study and drug safety. *In Vitro Cell Dev Biol Anim* (abstract) 2008.
2. Barron AG, Warner RL, Bhagavathula N, Johnson KJ, **Varani J**. Determination of rodent tropoelastin in the skin by competitive ELISA. *FASEB J* 22:1121.4, 2008.
3. Warner RL, Bhagavathula N, Hanosh A, McClintock SD, Naik MK, Johnson KJ, **Varani J**. MDI 301, a non-irritating retinoid, improves abrasion wound healing in both aged and diabetic skin. *FASEB J* 22:1121.3, 2008.
4. **Varani J**, Perone P, Warner RL, Dame MK, Kang S, Fisher GJ, Voorhees JJ. Vascular tube formation on matrix metalloproteinase-1 damaged collagen. *FASEB J* 22:470.11, 2008.
5. DaSilva M, Bhagavathula N, Barron AG, Warner RL, Weber S, **Varani J**. Anti-oxidant activity increased in human dermal fibroblasts and intact skin by Zingiber officinale CO2 extract. *FASEB J* 22:897.11, 2008.
6. Aslam MN , Paruchuri T, Bhagavathula M, **Varani J**. Dietary modifications of colon tumorigenesis. AACR Annual Meeting Program (Abstract 5476) p. 434, 2008.
7. DaSilva, M, Warner RL, Bhagavathula R, Demb JB, Weber SL, Johnson KJ, **Varani J**. MMP-1 reduced in organ cultured human skin and dermal fibroblasts by ginger and curcumin. *FASEB J* 23:469.4, 2009.
8. Warner RL, Bhagavathula N, DaSilva M, McClintock SD, Barron A, Aslam MN, Johnson KJ, **Varani J**. Curcumin and ginger extract improves abrasion wound healing in damaged skin. *FASEB J* 23:469.3, 2009.

Daniel W. Visscher, M.D.



Associate Professor of Pathology
Director of Surgical Pathology
Interim Director of Pediatric Pathology

I. Clinical Activities

A. SURGICAL PATHOLOGY

1. General Surgical Pathology (Room 1) & Pediatric Pathology: 8 weeks each
2. GU Service: 4 weeks
3. Breast Service: 10 weeks
4. Gyn Service: 5 weeks
5. Intra-Operative Consultation (On-Call): 4 weeks
6. Outside consultations: 490 (VI & MY)

II. Teaching Activities

A. MEDICAL STUDENTS

1. M2 Lab Instructor

B. HOUSE OFFICERS AND FELLOWS

1. Frozen Section Conference, weekly, 1 hour each - 34 weeks
2. Gross Surgical Pathology Conference - 10 weeks
3. Grand Rounds - 2 hours
4. ASCP Resident Review Course - Anatomic Pathology, April, 2009 - 2 hours

C. LECTURES

1. Breast Pathology, New Frontiers in Pathology Conference, Ann Arbor, MI, September, 2008.
2. Michigan Radiological Society Conference, Dearborn, Michigan, October, 2008.
3. Contemporary Issues in Multidisciplinary Breast Cancer Management, October, 2008.
4. Contemporary Issues in Diagnostic Pathology Conference, Wayne State University, Detroit, Michigan October, 2008.
5. Breast Pathology, Montana Society Pathology Conference, Missoula, Montana, March, 2009.

III. Research Activities - None

IV. Administrative Activities

A. DEPARTMENTAL

1. Director of Surgical Pathology
2. Medical Director of Histology and Pathologists Assistants

B. INSTITUTIONAL

1. UM Medical School Admissions Committee

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Board, *Human Pathology*

B. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. USCAP
2. Michigan Society of Pathologists

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

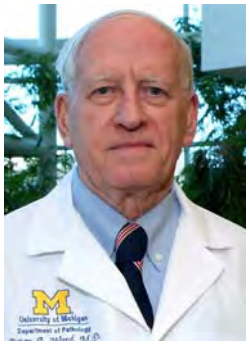
1. Shakhar MP, Tait L, Pauley RJ, Wu GS, Santner SJ, Nangia-Makkar P, Shekhar V, Nassar H, **Visscher DW**, Heppner GH, Miller FR. Comedo-ductal carcinoma in situ: A paradoxical role for programmed cell death. *Cancer Biol Ther*, 2008, Nov 12; 7(11); Epub ahead of print.
2. Reinholz MM, Bruzek AK, **Visscher DW**, Lingle WL, Schroeder MJ, Perez EA, Jenkins RB. Breast cancer and aneusomy 17: implications for carcinogenesis and therapeutic response. *Lancet Oncol*, 2009 Mar; 10(3):267-77.
3. Shekhar MP, Biernat LA, Pernik N, Tait L, Abrams J, **Visscher DW**. Utility of DNA post replication repair protein Rad6B in neoadjuvant chemotherapy response. *Med Oncol*, 2009 May; Epub ahead of print.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Ghosh K, Pankratz VS, Vierkant RA, Anderson SS, Degnim AC, **Visscher DW**, Frost Mh, Vachon CM, Hartmann LC. Benign breast disease and breast cancer risk in young women. *Cancer Research*, 69(2):785, Jan, 2009.
2. McKian KP, Reynolds CA, Anderson S, Vierkant RA, **Visscher DW**, Frost MH, Pankratz VS, Nassar A, Hartmann LC. A novel breast tissue feature strongly associated with the risk of breast cancer. *Cancer Research*, 69(2):303S, Jan, 2009.
3. Barr-Fritcher EG, Hartmann LC, Degnim AC, Anderson SS, Vierkant RA, Frost M, **Visscher DW**, Reynolds C. *Laboratory Investigation*, 89:252:29A, Jan, 2009.

4. **Visscher DW**, Vierkant R, Frost M, Reynolds C, Anderson S, Hartmann L. Clinical Analysis of mucocele-like tumors of the breast: Analysis of a large benign breast disease cohort. *Laboratory Investigation*, 89:316:73A, Jan, 2009.

Peter A. Ward, M.D.



Godfrey D. Stobbe Professor of Pathology

I. Clinical Activities - None

II. Teaching Activities

A. HOUSE OFFICERS AND FELLOWS
1. Gelareh Atefi, M.D.
2. Ketong Zhu, M.D.
3. Markus Bosmann, M.D.

B. UNDERGRADUATE STUDENTS
1. UROP Undergraduate Students
   a. Anthony Chen
   b. Danielle Day
   c. Brian Nadeau
   d. Vinay Patel
   e. Somya Gowda
2. Undergraduate Students
   a. Rami Al-Aref

C. OTHER
1. Firas Zetoune, Research Associate

III. Research Activities

A. SPONSORED SUPPORT
1. NIH/NHLBI P01-HL31963, Project 1 (PI), 25% effort, "Inflammatory Cells and Lung Injury", 02/01/05 - 01/31/10, $264,827 annual direct costs.
2. NIH/NIGMS R01-GM29507 (PI); 20% effort, "Lung Injury by Oxygen Metabolites (MERIT), 07/01/05 - 06/30/09, $312,396 annual direct costs.
3. NIH/NIGMS R01-GM61656 (PI) 20% effort, "Protective Effects of Anti-C5a in Sepsis", 09/25/06 - 08/31/10, $404,314 annual direct costs.
4. USAMRMC W18XWH-06-2-0044 (PI) 5% effort, "Mechanisms and Prevention of Lung Injury Caused by Exposure to Mustard Gas", 08/21/06 - 08/31/09, $348,514 annual direct costs.

IV. Administrative Activities

A. INSTITUTIONAL

1. Undergraduate Research Opportunity Program, University of Michigan
2. Conflict of Interest Advisory Committee for the University of Michigan
3. HUMES Oversight Committee

B. REGIONAL/NATIONAL/INTERNATIONAL

1. American Association of Immunologists
2. American Society for Clinical Investigation
3. American Society for Investigative Pathology, representative to FASEB Board
4. Association of American Physicians
5. American Thoracic Society
6. American Heart Association, Fellow
7. Association of Pathology, Chairman
8. American Association of University Pathologists
9. A. James French Society of Pathologists
10. Federation of American Societies for Experimental Biology
    a. Board Committee
    b. Finance Committee
    c. FASEB Publications and Communications Committee
11. Institute of Medicine, National Academy of Sciences
12. Michigan Society of Pathologists
13. Midwest Eye-Banks Research Review Committee
14. Committee on Recognition and Alleviation of Distress in Laboratory Animals
    a. Chair, 2006-present

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Editorial Boards
    a. *American Journal of Pathology*
    b. *American Review of Respiratory Diseases*, Consulting Editor
    c. *Free Radical Biology & Medicine*
    d. *Journal of Clinical Investigation*, Consulting Editor
    e. *Journal of Experimental and Molecular Biology*
    f. *Toxicologic Pathology*
    g. *Biological Perspective, American Journal of Pathology*, Special Editor
    h. *SHOCK Journal*, Associate Editor
    i. *Molecular Medicine Reports (International)*
    j. *Journal of Organ Dysfunction*
2. Manuscript Reviews
    a. *American Journal of Pathology*
    b. *American Journal of Respiratory Critical Care Medicine*
    c. *Apoptosis*
    d. *Arteriosclerosis, Thrombosis and Vascular Biology*
    e. *Critical Care Medicine*
    f. *European Journal of Immunology*
    g. *Experimental and Molecular Pathology*
    h. *FASEB Journal*

i. *Infection and Immunity*
j. *Journal of American College of Cardiology*
k. *Journal of American Society of Nephrology*
l. *Journal of Biological Chemistry*
m. *Journal of Cellular and Molecular Medicine*
n. *Journal of Clinical Investigation*
o. *Journal of Experimental Medicine*
p. *Journal of Immunological Methods*
q. *Journal of Immunology*
r. *Journal of Inflammation*
s. *Journal of Investigative Surgery*
t. *Journal of Leukocyte Biology*
u. *Journal of Neurochemistry*
v. *Journal of Surgical Research*
w. *Nature*
x. *Nature Immunology*
y. *Nature Medicine*
z. *Nature Reviews Biology*
aa. *Nature Reviews Immunology*
bb. *Proceedings of National Academy of Sciences*
cc. *Respiratory Research Journal Reviews*
dd. *Scandinavian Journal of Immunology*
ee. *SHOCK Journal*

VI. Other Relevant Activities

A. GRANT REVIEWS

1. NIH NHLBI KO8 Awards Reviewer, July, September 2008
2. NSF Proposal Reviews, September 2008
3. American Transplant Congress 2009 Abstract Reviews, December 2008
4. Wellcome Trust Grant Application Reviews, December 2008
5. NIH NHLBI KO8 Awards Reviewer, February 2009
6. Defense Threat Reduction Agency (DTRA), Joint Science and Technology Office for Chemical and Biological Defense FY10/11 Phase II Scientific Reviews, March 2009
7. Health Research Board, Dublin, Ireland, Peer Review Applications, March 2009
8. Wellcome Trust Grant Application Reviews, March 2009
9. NIH CounterACT Program Review Committee, Chair, April 2009
10. Report Coordinator for National Research Council report, Institute for Laboratory Animal Research, entitled "Scientific and Humane Issues in the Use of Random Source Dogs and Cats", April 2009
11. Midwest-Eyebanks Grant Application Reviews, May 2009

B. INVITED LECTURES/SEMINARS

1. Invited Speaker, "The Acute Lung Inflammation Response", at NexBio, Inc., San Diego, CA, July 14, 2008.
2. Invited Speaker, "The Acute Lung Inflammatory Response", Sepracor Research Forum, New Orleans, LA, September 20, 2008.
3. Invited Speaker, "Adrenergic Regulation of the Lung Inflammatory Response", ERS Annual Congress, Berlin, Germany, October 5, 2008.

4. Invited Speaker, "Harmful Molecular Aspects of Sepsis", University of Maryland, MBRC, Baltimore, MD, October 17, 2008.
5. Invited Speaker, "Harmful Molecular Aspects of Sepsis", Montana State University, Bozeman, MT, October 21-22, 2008.
6. Invited Speaker, "How to get into High Impact Journals as an Author" – Pre-Meeting, November 6; "Adrenergic Regulation of Acute Lung Injury", November 9, ISRD 2008, 5th Intl Symposium on Respiratory Diseases, Shanghai, China, November 9, 2008.
7. Invited Speaker, "Mentorship in Investigative Pathology", ACVP Career Development Session on Mentoring, San Antonio, TX, November 16, 2008.
8. Presenter, "Adrenergic Regulation of the Lung Inflammatory Response", Pathology Research Seminar, University of Michigan Medical School, January 15, 2009.
9. Invited Speaker, "Role of IL-17 in Dysregulated Inflammatory Responses", Immunopathology of Pulmonary Disease Seminar, University of Michigan Medical School, February 16, 2009.
10. Invited Speaker, "IL-17 and Sepsis", Department of Surgery Research Advisory Committee Seminar-Vascular and Systemic Inflammation, University of Michigan Hospital, March 25, 2009.
11. Invited Speaker, "Role of IL-17 in Hyperinflammatory Responses", Anatomy/Cell Biology Seminar Series, Wayne State University, Detroit, MI, May 12, 2009.
12. Invited Speaker, "Phagocyte-derived Catecholamines Regulate Lung Inflammation", American Thoracic Society Intl. Conference, San Diego, CA, May 20, 2009.
12. Invited Discussion Leader, "Evidence for Association of TLR4 and FcgammaRIII (CD16) In Vitro and In Vivo", Gordon Research Conference: Phagocytes – Innate Immune Cell: Pathogen Interactions, Waterville Valley, NH, June 11, 2009.
13. Invited Speaker, "Regulation of IL-17 Production In Vitro and In Vivo", 6th Intl Innate Immunity Conference, Heraklion, Crete, Greece, June 25, 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. American Association for the Advancement of Science
2. American Association of Immunologists
3. American Association of University Pathologists
4. American Heart Association, Fellow
5. American Medical Association
6. American Society for Clinical Investigation
7. American Society for Investigative Pathology, representative to FASEB Board
8. American Thoracic Society
9. Association of American Physicians
10. Association of Pathology Chairs
11. FASEB Board Committee
    a. FASEB Finance Committee
    b. FASEB Publications and Communications Committee
12. A. James French Society of Pathologists
13. Institute of Medicine, National Academy of Sciences
14. Michigan Society of Pathologists
15. Michigan State Medical Society
16. Michigan Thoracic Society
17. North American Vascular Biology Organization
18. Shock Society

19. Society of Critical Care Medicine
20. Society of Leukocyte Biology
21. Society of Toxicologic Pathology
22. U.S. and Canadian Academy of Pathology
    a. Committee on Recognition and Alleviation of Distress in Laboratory Animals
        i. Chair, 2006-present

D. HONORS AND AWARDS
1. Establishment of the Peter A. Ward Endowed Professorship of Pathology (June, 2008) at the University of Michigan Medical School (First recipient, Professor Kathleen Cho, Department of Pathology, University of Michigan Medical School, June, 2008).

VII. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Rittirsch, D., Flierl, M.A., and **Ward, P.A**.: Harmful molecular mechanisms in sepsis. *Nat Rev Immun*. 2008 8:776-787. PMID: 18802444.
2. Anaya-Prado R, Pérez-Gomez N, Toledo-Pereyra LH, Walsh J, Jordan J, and **Ward PA**.:Small molecule selectin inhibitor in global cerebral ischemia and controlled hemorrhagic shock. *J Trauma*. 2008 653:678-684. PMID: 18784584.
3. **Ward, P.A.** On being a pathologist. *Hum Pathol*. 2008 39:1719-1724. PMID: 18657297.
4. **Ward, P.A**. Sepsis, apoptosis and complement. *Biochem Pharmacol*, 2008 76:1383-1388. PMID: 18848819.
5. **Ward, P.A**: The first fifty years in research. *Annu Rev Pathol*. 2008 Aug 14 [Epub ahead of print]. PMID: 18702604.
6. Albrecht, E.A., Sarma, J.V., and **Ward, P.A**: Activation by C5a of endothelial cell caspase 8 and cFLIP. *Inflamm Res*, 2009 58:30-37. PMID: 19115040.
7. Rittirsch, D., Huber-Lang, M., Flierl, M., and **Ward, P.A**: Immunodesign of experimental sepsis by cecal ligation and puncture. *Nat Protoc*. 2009 4:31-36. PMID: 19131954.
8. Flierl, M.A., Stahel, P.F., Rittirsch, D., Huber-Lang, M., Niederbichler, A.D., Hoesel, L.M., Touban, B.M., Morgan, S.J., Smith, W.R., **Ward, P.A.**, and Ipaktchi, K. Inhibition of complement C5a prevents breakdown of the blood-brain barrier and pituitary dysfucntion in experimental sepsis. *Crit Care*, 2009 Feb 5 13:R12 [Epub ahead of print]. PMID: 19196477.
9. **Ward, P.A** Functions of C5a receptors. *J. Mol Med.* 2009 Feb 3 [Epub ahead of print]. 87:375-378. PMID: 19189071.
10. Flierl, M.A., Rittirsch, D., Nadeau, B.A., Sarma, J.V., Day, D.E., Lentwch, A.B., Huber-Lang, M.S., and **Ward, P.A.** Upregulation of phagocyte-derived catecholamines augments the acute inflammatory response. *PLoS One*. 2009 4(2):e4414. [Epub 2009 Feb 12] PMID: 19212441.
11. **Ward, P.A**.: Seeking a heart salve. *Nature Medicine Bench to Bedside*. 2009 15:497-498. PMID: 19424210.
12. Rittirsch, D., Flierl, M.A., Day, D.E., Nadeau, B.A., Zetoune, F.S., Sarma, J.V., Werner, C.M., Wanner, G.A., Simmen, H.P., Huber-Lang, M.S., and **Ward, P.A.** Cross-talk between TLR4 and Fcgamma receptor III (CD16) pathways. *PLoS Pathogens*. 2009 5(6):e10000464. PMID: 19503602.

13. **Ward, P.A.** What's new in SHOCK, September 2009? Commentary, *SHOCK*, Accepted.

B. BOOKS/CHAPTERS IN BOOKS

1. Sarma, J.V. and **Ward, P.A.** The role of complement in sepsis. In Critical Care Nephrology, 2nd, Ed. C. Ronco, R. Bellomo, J. Kellum (eds). Elsevier, Philadelphia, PA. Chptr. 153, pp.794-798, 2009.

Roscoe L. Warner, Ph.D.

Research Assistant Professor

I. Clinical Activities - None

II. Teaching Activities

A. RESEARCH ASSISTANTS
1. Shannon McClintock, B.S.
2. Adam Barron, B.S.
3. Daniela Bickel, B.S.

III. Research Activities

A. SPONSORED SUPPORT
1. 2R44GM077724-02 (PI-Varani, Co-PI) "Wound-Healing Properties of a Non-Irritating Novel 9-cis Retinoic Acid Derivative", 4/17/08 - 3/31/10, $385,986.00 total costs.
2. NIH GM-77724, SBIR Phase-I (PI-Varani, Co-PI) "Topical Skin Treatment to Facilitate Wound Healing in the Aged Population".

B. PROJECTS UNDER STUDY
1. Determination of Biomarkers in Human Vasculitis and Rodent Models of Vasculitis.
2. Mechanisms of MMP-3 Action in Acute Lung Injury.
3. Protein Carbohydrate Interactions Use of Marasmius oreades lectin in a model of microangiopathic injury in mice.
4. Mechanisms of MMP-3 Action in Bleomycin induced Airway Thickening.
5. Mechanisms of Action of a Benzodiazepine Derivative in Rodent Models of LUPUS.
6. Development of Human and Rat Antibody Microarrays.
7. Cyclosporin-induced nephrotoxicity.
8. Dermal Abrasion model to screen Retinoic Acid Derivative Wound Healing.

IV. Administrative Activities - None

V. Other Relevant Activities - None

VI. Publications

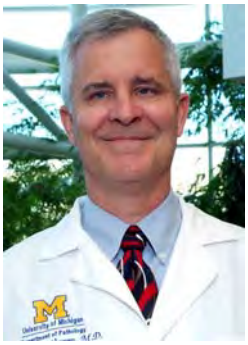
A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Varani J., Perone P., **Warner R.L.**, Dame M.K., Kang S., Fisher G.J., Voorhees J.J. (2008) Vascular tube formation on matrix metalloproteinase-1-damaged collagen. *British Journal of Cancer*. 98(10):1646-1652. PMID: 18443597.
2. Varani J. DaSilva M. **Warner RL**. Deming MO. Barron AG. Johnson KJ. Swartz RD. (2009) Effects of gadolinium-based magnetic resonance imaging contrast agents on human skin in organ culture and human skin fibroblasts. *Invest. Radiol*. 44(2):74-81. PMID: 19077912.
3. Bhagavathula, N., **Warner, R.L.**, DaSilva, M., McClintock, S.D., Barron, A., Aslam, M.N., Johnson, K.J., Varani, J. (2009) A combination of curcumin and ginger extract improves abrasion wound healing in corticosteroid-impaired hairless rat skin. *Wound Repair Regen*. 17:360-366.
4. Bhagavathula, N., DaSilva, M., Aslam, M.N., Dame, M.K., **Warner, R.L.**, Xu, Y., Fisher, G.J., Johnson, K.J., Swartz, R., Varani, J. (2009) Regulation of Collagen Turnover in Human Skin Fibroblasts Exposed to a Gadolinium-Based Contrast Agent. *Invest Radiol*. 44(8).
5. Varani, J., Perone P., O'Brien Deming, M., Warner, R.L., Aslam, M., Bhagavathula, N., Dame, Voorhees J.J. (2009). Impaired Keratinocyte function on matrix metalloproteinase-1 (MMP-1) damaged collagen. *Arch. Dermatol. Res.* (Accepted).

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Marissa DaSilva, **Roscoe L. Warner**, Narasimharao Bhagavathula, Joshua B. Demb, Stephanie L. Weber, Kent J. Johnson and James Varani. MMP-1 reduced in organ cultured human skin and dermal fibroblasts by ginger and curcumin. *FASEB J*. 2009 23:469.4.
2. **Roscoe L. Warner**, Narasimharao Bhagavathula, Marissa DaSilva, Shannon D. McClintock, Adam Barron, Muhammad N. Aslam, Kent J. Johnson and James Varani, Curcumin and ginger extract improves abrasion wound healing in damaged skin. *FASEB J*. 2009 23:469.3.

Jeffrey S. Warren, M.D.



Aldred S. Warthin Endowed Professor of Pathology
Director of Clinical Pathology

I. Clinical Activities

A. DIRECTOR, DIVISION OF CLINICAL PATHOLOGY/CLINICAL LABORATORIES

B. DIRECTOR, CLINICAL IMMUNOPATHOLOGY SERVICE

C. DIRECTOR, PATHOLOGY PHLEBOTOMY SERVICE

D. MICROBIOLOGY LABORATORY; review of peripheral blood parasite smears

E. MOLECULAR DIAGNOSTICS LABORATORY; sign-out of cases (12 weeks/year)

II. Teaching Activities

A. MEDICAL STUDENTS

1. "Current Topics in Immunopathology" journal club series: pathology residents, M4 students (23 contact hours)
2. Clinical Pathology Grand Rounds: "Cases and Images in Immunopathology" (12-4-08)
3. Immunopathology signout: pathology residents, M4 medical students, medical technology students (3 times/week; 40 weeks/year)

B. HOUSE OFFICERS AND FELLOWS

1. "Current Topics in Immunopathology" journal club series: pathology residents, M4 students (23 contact hours)
2. Clinical Pathology Grand Rounds: "Cases and Images in Immunopathology" (12-4-08)
3. Rheumatology-Pathology Case Conference: pathology residents, rheumatology fellows and faculty (1/month; 10 months/year)
4. Immunopathology signout: pathology residents, M4 medical students, medical technology students (3/week; 40 weeks/year)
5. Immunopathology component of Block E (Clinical Pathology); ad hoc topical reviews: pathology residents (82 contact hours).

6. Collaboration and mentoring of Research activities
    a. Anjali Desai, Ph.D. (Research Investigator; Department of Pathology); (6/15/96 - 5/31/07). Dr. Desai is currently a Research Investigator in Internal Medicine. We meet approximately every 8 weeks to discuss completion of ongoing projects. (7/01/07 - present).

C. OTHER
1. Mentoring; Thibault Pham (rising freshman, Georgia Institute of Technology; 6/17/09 - present)
2. Mentoring; Barbara O'Malley, M.D. (visiting fellow; Wayne State University, College of Medicine; 5/15/09 - present)

III. Research Activities

A. PROJECTS UNDER STUDY
1. Modulation of proatherogenic endothelial and smooth muscle cell functions by erythropoietin, reactive oxygen intermediates, and reactive nitrogen intermediates (with Anjali Desai, Ph.D.).
2. Role of erythropoietin in accelerated atherogenesis in ApoE-(-/-) mice with drug-induced chronic renal disease. (with Anjali Desai, Ph.D.).
3. Atypical laboratory presentations of cryoglobulinemia.
4. Beta 2 transferrin assay modification.

IV. Administrative Activities

A. DEPARTMENTAL
1. Interviewer of Pathology Residency Candidates, 1989 - present.
2. Chairman, Laboratories Communications Committee, 1993 - present.
3. Chairman, Clinical Pathology Quality Assurance Committee, 1993 - present.

B. INSTITUTIONAL
1. Promotion Reader, University of Michigan Provost, 2006 - present.

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Member, Diagnostic Immunology Rescource Committee, College of American Pathologists, 2000 - present
2. Member, Test Committee for Molecular Genetic Pathology; American Board of Pathology, 2006 - present

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS

1. Manuscript Reviews
   a. *American Journal of Pathology*
   b. *Laboratory Investigation*
   c. *Circulation*
   d. *Clinical Immunology and Immunopathology*

B. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES

1. American Society for Clinical Pathology
2. United States and Canadian Academy of Pathology
3. College of American Pathologists

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Desai A, Zhao Y, **Warren JS**. Human recombinant erythropoietin augments asymmetric dimethylarginine concentrations but does not compromise nitric oxide generation in mice. *Nephrol Dialysis Transplant* 2008; 23:1513-1520.
2. Desai A, Zhao Y, **Warren JS**. Development of atherosclerosis in Balb/c apolipoproteine – deficient mice. *Cardiovascular Pathology*. 2008; 17: 233-240.

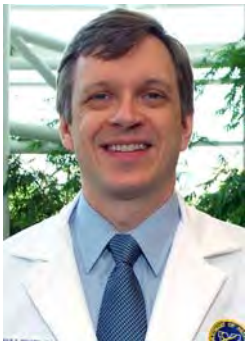
B. BOOKS/CHAPTERS IN BOOKS

1. **Warren JS**. Laboratory evaluation of a patient with rapidly progressive glomenlonephritis. 2009 Pathology Check Sample Program, Clinical Pathology No. 09-10. ASCP Chicago, Publishers (in press).
2. **Warren JS**, Ward PA. The Inflammatory Response, in Lichtman MA, (ed). Williams Hematology, 8th Edition, McGraw-Hill, New York, NY, 2009 (in press).

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Desai A, **Warren JS**. EPO induces rise in serum ADMA but does not prevent the increase in NO release: the likely involvement of HO-1. *Nephrol. Dial. Transplant*, 2008; 23: 1586 (letter).

Thomas E. Wilson, M.D., Ph.D.



Associate Professor of Pathology

I. Clinical Activities

A. ASSOCIATE DIRECTOR OF THE MOLECULAR DIAGNOSTICS LABORATORY

1. Case sign-out, physician consultation, new test development
2. Areas of special expertise: genetic identity testing, pharmacogenetics

II. Teaching Activities

A. GRADUATE STUDENTS

1. Coursemaster, PATH 850, Research Colloquium in Experimental Pathology
2. Coursemaster, PIBS 507, Introduction to Translational Research
3. Mentor, rotation student (1): Christian Shively (PIBS)
4. Member, thesis committees (5)
   a. Graham Brady (Pathology, successfully defended)
   b. Kevin Hicks (Pharmacology)
   c. Heather Krueger (Radiation Oncology)
   d. Dave Pai (Biological Chemistry)
   e. Martina Kubec (Human Genetics)
5. Member, preliminary examination committees (4)
   a. Mario Blanco (CMB)
   b. John Pressner (Pathology)
   c. Bryan Petersen (Pathology)
   d. Jane Tan (Pathology)

B. HOUSE OFFICERS AND FELLOWS

1. Associate coordinator for Molecular Diagnostic component of Pathology Block E rotation: sign-out review, didactic sessions, resident projects
2. Molecular Genetic Pathology Fellowship, site visit
3. University of Michigan Physician Postdoctoral Research Training Program: Two week full-time course in molecular biology and DNA repair

C. LECTURES
1. PATH 581, lecture and exam
2. EHS 583, lecture and exam
3. GENETICS 541, three lectures and exam
4. CANBIO 553, lecture
5. Clinical Pathology Grand Rounds, lecture on genetic identity testing
6. Radiation Oncology residents, lecture
7. Invited lecturer, Department of Molecular Medicine, University of Texas Health Sciences Center at San Antonio

D. OTHER
1. Mentor, undergraduate students (2)
   a. Sarah Tochman (UROP summer fellowship)
   b. Benjamin Gilbert (UROP)
2. CME coordinator for physicians, Pathology Research Seminar

III. Research Activities

A. SPONSORED SUPPORT
1. NIH/NCI 1 R01 CA102563-05 (PI) 30% effort, Systematic Genetic Analysis of Yeast NHEJ, 8/1/2004 - 5/31/2010 (including one-year no-cost extension), $157,500 annual direct costs.
2. NIH/NCI 2 R01 CA76581 (PI-Shewach, Co-I) 4% effort, Enhancing suicide gene therapy through mechanism-based approaches, 4/1/2008 - 1/31/2013, $178,000 annual direct costs.

B. PENDING PROJECTS
1. NIH/NCI 2 R01 CA102563-06 (PI) 25% effort, Systematic Genetic Analysis of Yeast NHEJ, 4/1/20010 - 3/31/2015, $175,000 annual direct costs.
2. NIH/NIEHS 1RC1ES018672-01 (ARRA Challenge Grant) (PI, Multiple PI Grant) 15% effort, Environmental Risk Factors for Copy Number Variation in Human Chromosomes, 9/30/2009 - 9/29/2011, $314,000 annual direct costs.
3. NIH/NHGRI 1 R21 (PI) 10% effort, High throughput sequencing platforms for yeast mutation discovery, 04/01/2010 - 03/31/2012, $150,000 annual direct costs.

C. PROJECTS UNDER STUDY
1. My laboratory studies basic mechanisms of DNA double-strand break repair and genome rearrangement predominantly using yeast as a model organism with extension to both humans and human bacterial pathogens.
   a. The molecular mechanisms of nonhomologous end joining, including both the core structural proteins and end-processing enzymes, especially DNA ligases and polymerases.

b. The molecular mechanisms of resection of DSB ends that prevent end joining and commit chromosome breaks to homologous recombination.
c. The contribution of the above mechanisms to de novo chromosome rearrangements following replication stress.
d. The contribution of the above other DNA damage response mechanisms to the efficacy of DNA-damaging chemotherapeutic agents.

IV. Administrative Activities

A. DEPARTMENTAL
1. Chair and Organizer, Pathology Research Seminar Series
2. Member, Pathology Graduate Program Curriculum Committee
3. Pathology student/resident interviews/recruitment
4. Faculty candidate interviews/recruitment
5. Research incentive program planning committee

B. INSTITUTIONAL
1. Member, University of Michigan Biomedical Research Council (BMRC)
2. Planning Committee, Biological Sciences Scholars Retreat
3. Member, MSTP Career Advisory Panel
4. Faculty candidate interviews/recruitment
5. MSTP and PIBS student interviews/recruitment

C. REGIONAL/NATIONAL/INTERNATIONAL
1. Co-chair, 11th Annual Midwest DNA Repair Symposium (with Dr. Mats Ljungman) (>200 US-wide participants, 99 abstracts, 2-day event hosted on the U of M campus)

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Ad hoc manuscript review, numerous journals

B. INVITED LECTURES/SEMINARS
1. "Enzyme recruitment and catalysis in nonhomologous end joining of DNA double-strand breaks". University of Texas Health Sciences Center at San Antonio, San Antonio, Texas, April 2009.
2. "DNA repair and chromosomal rearrangements: toward relating protein mechanisms to global genomic variation". University of Michigan Department of Human Genetics, Ann Arbor, Michigan, June 2009.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Fellow, College of American Pathologists
2. Member, American Association for the Advancement of Science
3. Member, American Society for Microbiology

4. Member, American Association for Cancer Research
5. Member, Association for Molecular Pathology
6. Member, Genetics Society of America
7. Council Officer, Environmental Mutagen Society

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Palmbos PL, Wu D, Daley JM, **Wilson TE**. Recruitment of Saccharomyces cerevisiae Dnl4-Lif1 complex to a double-strand break requires interactions with Yku80 and the Xrs2 FHA domain. *Genetics* 180: 1809-1819 (2008).
2. O'Konek JJ, Boucher PD, Iacco AA, *Wilson TE*, Shewach DS. MLH1 deficiency enhances tumor cell sensitivity to ganciclovir. *Cancer Gene Therapy* in press.

B. BOOKS/CHAPTERS IN BOOKS

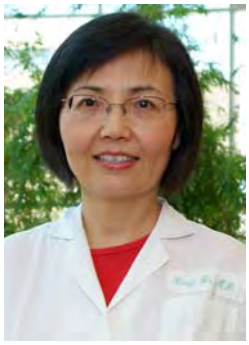
1. **Wilson TE**. Genetic identity testing. In Molecular and Translational Pathology, eds. Elenitoba-Johnson K, Balis U, Chinnaiyan A, Lim M, Wittwer C. Cambridge University Press, in press.

C. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Olsen S, **Wilson TE**, Fullen D, Ma L. Inflammatory morphea with T-cell receptor gamma gene clonality. American Society of Dermatopathology, Annual meeting, Chicago, Illinois, October 2009.
2. Sanks JK, Betz B, **Wilson TE**. An Evaluation of the Verigene® Warfarin Metabolism Nucleic Acid Test and the eSensor® XT-8 Warfarin Sensitivity Test Platforms. Association for Molecular Pathology 15th Annual Meeting, November 2009.

Rong Wu, Ph.D.

Research Assistant Professor



I. Clinical Activities - None

II. Teaching Activities - None

III. Research Activities

A. PROJECTS UNDER STUDY

1. Molecular Pathogenesis of Ovarian Endometrioid Adenocarcinomas.
2. Preclinical testing of novel PI3K/Akt and/or Wnt pathway inhibitors using the well established mouse ovarian endometrioid carcinoma model.
3. Development of mouse models of ovarian cancer for studying tumor biology and testing novel molecularly targeted therapeutic strategies.

IV. Administrative Activities - None

V. Other Relevant Activities - None

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Wang Y, **Wu R**, Cho KR, Thomas DG, Gossner G, Liu JR, Giordano TJ, Shedden KA, Misek DE, Lubman DM. Differential protein mapping of ovarian serous adenocarcinomas: identification of potential markers for distinct tumor stage. *J Proteome Res*. 2009 Mar; 8(3):1452-63.
2. Sangha N, **Wu R**, Kuick R, Powers S, Mu D, Fiander D, Yuen K, Katabuchi H, Tashiro H, Fearon ER, Cho KR. Neurofibromin 1 (NF1) defects are common in human ovarian serous carcinomas and co-occur with TP53 mutations. *Neoplasia*. 2008 Dec; 10(12):1362-72.

Anuska Andjelkovic-Zochowska, Ph.D.

Assistant Professor of Pathology

I. Clinical Activities - None

II. Teaching Activities

A. GRADUATE STUDENTS
1. Amber Maria Smith (PIBS-Biochemistry) rotation student (2 months)
2. Ashley Talsma (PIBS-Neuroscience) (3 months)
3. Kathleen Johanna Dumas (PIBS- CMB) (3 months)

B. HOUSE OFFICERS AND FELLOWS
1. Svetlana Stamatovic, M.D., Ph.D.

C. LECTURES
1. PIBS 503 (Research Responsibility and Ethics) Small Group Moderator
2. NEUROSCI 602 001 W09, NS615 module "Neuropathology and Translational Models", Course Director

D. UNDERGRADUATE STUDENTS
1. Kristy Lynn Fitzpatrick (Faculty Director for Psych 326)
2. Tom Joe Valikodath (UROP student winter-spring semester)

III. Research Activities

A. SPONSORED SUPPORT
1. National Institute of Neurological Disorders and Stroke R21 NS 044907, (PI) "The Nicotine and brain ischemic/reperfusion injury", 12/2008 - 11/2010.
2. National Institute of Neurological Disorders and Stroke R01 NS 34709 (PI-Keep, Co-I) 20% effort, "Endogenous and exogenous protection of the BBB in stroke", 2/2009 - 1/2014, $1,094,000 total direct costs.
3. National Institute of Cardiovascular Diseases R01 (PI) 20% effort, "Inflammation and Blood brain barrier permeability", 3/2009 - 5/2013, $800,000 total direct costs.
4. NIH Great Opportunities Grant (PI-O'Shea) "A Stem Cell Consortium for the Study of Neurodevelopmental Diseases", A. Alfred Taubman Medical Research Institute's Consortia for Stem Cell Therapies.

B. PENDING PROJECTS
1. National Institute of Cardiovascular Diseases, R01 (PI) 20% effort, "The Blood Brain barrier in neuroinflammation", 3/2009 - 5/2013, $800,000 total direct costs.
2. National Institute of Neurological Disorders and Stroke R01 (PI) 20% effort, "Blood brain barrier and cerebral ischemia", 3/2009 - 5/2013, $800,000 total direct costs.

IV. Administrative Activities

A. DEPARTMENTAL
1. Member, PIBS Admission Committee (Pathology)
2. Elected, Medical School Senate Assembly (three-year term)

B. INSTITUTIONAL
1. Member, Neuroscience Graduate Program
2. Member, Pathology Graduate Program
3. PIBS Student Interviews

V. Other Relevant Activities

A. EDITORIAL BOARDS/REVIEWS
1. Grant Reviews
   a. NIH Challenge Grants in Health and Science Research, Brain Disorders and Clinical Neurosciences
   b. Michigan Institute for Clinical and Health Research (MICHR), Pilot Grant Program
   c. Multiple Sclerosis Center research council (MSCRC) Grant
2. Manuscript Reviews
   a. *Journal of Neuroscience*
   b. *Journal of Neurochemistry*
   c. *European Journal of Cell Biology*
   d. *FASEB Journal*
   e. *Stroke*
   f. *Brain Research*
   g. *American Journal of Pathology*
   h. *Journal of Cell Physiology*
   i. *Atherosclerosis*
   j. *Journal of Applied Physiology*

B. INVITED LECTURES/SEMINARS
1. "RhoA: Rac1 cross talk in regulation of brain endothelial barrier permeability", 11th Symposium Signal transduction in the Blood Brain Barrier, Amsterdam, Netherlands, September 13-16, 2008.
2. "Mechanism of the junctional adhesion molecule-A redistribution under inflammatory conditions", 11th Symposium Signal transduction in the Blood Brain Barrier, London, UK, September 9-11, 2009.
3. "The molecular basis of brain endothelial barrier regulation: From basic mechanisms to clinical application", Pathology Seminar Series, October 30, 2008.

C. MEMBERSHIP AND OFFICES IN PROFESSIONAL SOCIETIES
1. Society for Neuroscience

2. International Society of Neuroimmunology
3. Society for In Vitro Biology
4. Society of Leukocyte Biology
5. American Society forMolecular Biology and Biochemistry
6. American Stroke Association

VI. Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Keep RF, Xiang J, Ennis SR, **Andjelkovic A**, Hua Y, Xi G, Hoff JT (2008): Blood-brain barrier function in intracerebral hemorrhage. *Acta Neurochir Suppl*. 105:73-7. Review. PMID: 19066086.
2. Stamatovic SM, Keep RF, **Andjelkovic AV**. Brain endothelial cell-cell junctions: how to "open" the blood brain barrier. *Curr Neuropharmacol*. 2008 Sep; 6(3):179-92. PMID: 19506719.
3. Stamatovic SM, Keep RF, Wong MM, Jankovic I and **Andjelkovic AV** (2009): Caveolae-mediated internalization of occludin and claudin-5 during CCL2-induced tight junction remodeling in brain endothelial cells. *J Bio Chem*, (2009) May 7 - Epub ahead of print. PMID: 19423710.
4. Hoffman W, Stamatovic SM, and **Andjelkovic AV** (2009): Inflammatory mediators and blood brain barrier disruption in fatal brain edema of diabetic ketoacidosis. *Brain Res*, 1254:138-148. PMID: 19103180.

B. ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS

1. Stamatovic SM, Keep RF, Wang MH, **Andjelkovic AV**: "The role of junctional adhesion molecule - JAM-A, JAM-B and JAM-C in progression of brain ischemia/reperfusion injury", 11th Symposium Signal Transduction in the Blood Brain Barrier, Amsterdam, Netherlands, September 18-21, 2008.

RESEARCH INVESTIGATORS

Research Investigators

Venkatesha Basrur, Ph.D. .....Elenitoba-Johnson Laboratory

Research Focus: Research Investigator/Laboratory Manager for the Departmental Proteomics Resource Facility, charged with the day-to-day operations of the facility from maintaining state-of-the-art instrumentation and implementation of new techniques to the analysis of the proteome. I assist in grant submissions and am charged with responsibility for any new equipment purchased through approved grants. I'm also involved in discussing the proteomic projects with the concerned PI (along with Dr. Elenitoba-Johnson), sample preparation, data analysis and interpretation. I do not have a research project of my own. I work with all faculty members of the Department who are interested in applying proteomics approaches to address the biological problem that they are trying understand. However, I work most closely with Drs. Elenitoba-Johnson and Lim's laboratory. For more detailed information, please refer to the activites of the PRF in the Division of Translational Pathology report.

Judith Connett, Ph.D.....S. Kunkel Laboratory

Research Focus: In addition to grant writing and editing for the Kunkel, Hogaboam and Lukacs Laboratories, my research has focused on:

1. The effects of murine gamma herpesvirus-68 on mouse bone marrow dendritic cells maturation.
2. The role of indoleamine 2,3-dioxygenase in dendritic cells from sham treated and cecal ligation and puncture treated mice.

Saravana Mohan Dhanasekaran, Ph.D. ..... A. Chinnaiyan Laboratory

Research Focus: My research centers around the following:

1. Characterization of Novel Gene Fusions in Prostate Cancer.
2. Characterization of DNA methylation in Prostate Cancer.
3. Role of EZH2 in Prostate Cancer.
4. Epigenetic and transcriptomic characterizations of prostate cancer using Next Generation Sequencing Technology.

James M. Harper, Ph.D. ..... R. Miller Laboratory

Research Focus: The five primary areas of research include:

1. Development of additional cell culture models (e.g. chondrocytes, keratinocoytes) for the assessment of multiorgan stress resistance in long-lived Snell dwarf mice.
2. Examination of the DNA repair response in UV-C irradiated Snell dwarf mice.
3. Examination of the role of early postnatal under nutrition in the determination of stress resistance, insulin signaling, hypothalamic-pituitary-adrenal axis activity and life span in mice.

4. Characterization of Macrophage Migration Inhibitory Factor (MIF) knockout mice, a new long-lived mouse model.
5. Development of primary canine and avian fibroblast cell lines for aging research.

Randall N. Knibbs, Ph.D. ..... L. Stoolman Laboratory

Research Focus: We are continuing to work to improve protocols for the Adoptive Immunotherapy of Cancer. By combining therapies that have limited effectiveness (angiogenesis inhibitors and adoptive immunotherapy), we hope to find significantly better treatments. Our specific projects include:

1. Characterization of tumor vasculature in the B16 melanoma with and without treatment with angeiogenesis inhibitors.
2. Characterization of changes in the trafficking of adoptively transferred transgenic T-cells in the B16 murine melanoma model in mice treated with inhibitors of angiogenesis.

Dennis Lindell, Ph.D. ..... N. Lukacs Laboratory

Research Focus:

1. Antigen presenting cells in chronic allergic lung disease (asthma).
2. Pulmonary B lymphocytes in asthma and exacerbation of asthma.
3. Respiratory syncytial virus (RSV) vaccine development.
4. Immune dysregulation following bone marrow transplantation.

Tianju Liu, M.D., Ph.D. ..... S. Phan Laboratory

Research Focus: The three primary areas of research include:

1. A novel telomerase expressing lung fibroblast phenotype (the project is to elucidate molecular regulation of telomerase expression in fibroblasts from injured/fibrotic lungs and to analyze its role in fibrogenesis).
2. Notch signaling in myofibroblast differentiation (the objective of this project is to address the role of notch signaling in lung fibrosis, identify the cells exhibiting such signaling, and evaluate its potential role in myofibroblast differentiation).
3. Inflammatory cells and lung injury (the project is to identify the fibrogenic function of Found In Inflammatory Zone 1 (FIZZ1) in myofibroblast differentiation and pulmonary fibrosis).

Yifan Liu, Ph.D. ..... Y. Dou Laboratory

Research Focus The focus of my research includes:

1. Discovery of novel molecular targets that alter epigenetic marks in cancer.
2. Polycomb mediated heterochromatin formation in Tetrahymena.

Thekkelnaycke Rajendiran, Ph.D. ..... A. Chinnaiyan Laboratory

Research Focus: The primary areas of research include:

1. Integrative metabolomics of prostate cancer progression.
2. Metabolomic profiling of prostate cancer progression: Identification and validation of multiple metabolites in tissues, urine, plasma and cell lines of prostate cancer using GC-MS, LC-MS/MS and NMR.

3. Synthesis and Characterization of Tumor Inhibitors: Synthesize small organic drug candidates to inhibit prostate tumors and characterize by IR, NMR and LC-MS/MS.

Amir A. Sadighi Akha, Ph.D. ..... R. Miller Laboratory

Research Focus:

1. The study of ER stress response in Snell dwarf mice and their normal counterparts.
2. Enhancing human T cell function through modifying surface glycoproteins.

Dafydd G. Thomas, Ph.D. ..... T. Giordano Laboratory

Research Focus: The four primary areas of research include:

1. Utilization of the AQUA™ and quantitative immunofluorescence assays to determine concentrations of biomarkers in breast cancer, osteosarcoma and Ewing's sarcoma (enzymes responsible for chemotherapy drug metabolism) and neuroblastoma (nMYC expression).
2. Characterization of fusion genes in the follicular variant of papillary thyroid carcinoma by genomic DNA isolation from formalin fixed paraffin embedded tissue, PCR and sequencing of a PPARg/PAX8 fusion gene.

George Xiaoju Wang, Ph.D. ..... A. Chinnaiyan Laboratory

Research Focus: Cancer development and progression, as well as biomarker discovery, using proteomic and bioinformatics approaches, with a primary focus on prostate cancer, specifically:

1. Epitomic biomarkers of prostate cancer.
2. Identification and characterization of small peptides binding to ETS.
3. Characterization of the immunomic profile of head and neck cancer.
4. Prognosis of lung cancer by autoantibody profiling.

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