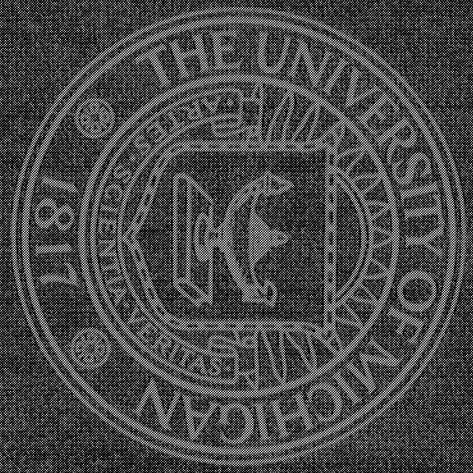

THE UNIVERSITY OF MICHIGAN

Department of Pathology

ANNUAL REPORT

1 July 1989 - 30 June 1990

From the library of
Peter A. Ward, M.D.
Professor and Chairman
Department of Pathology

THE UNIVERSITY OF MICHIGAN

DEPARTMENT OF PATHOLOGY

ANNUAL REPORT

1 JULY 1989 - 30 JUNE 1990

The University of Michigan Department of Pathology Annual Report

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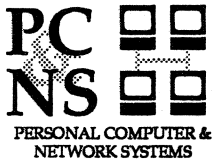


Department of Pathology
1301 E. Catherine Rd.
Medical Science I 2249
Ann Arbor, MI 48109-0602

LIST OF FACULTY

LIST OF FACULTY

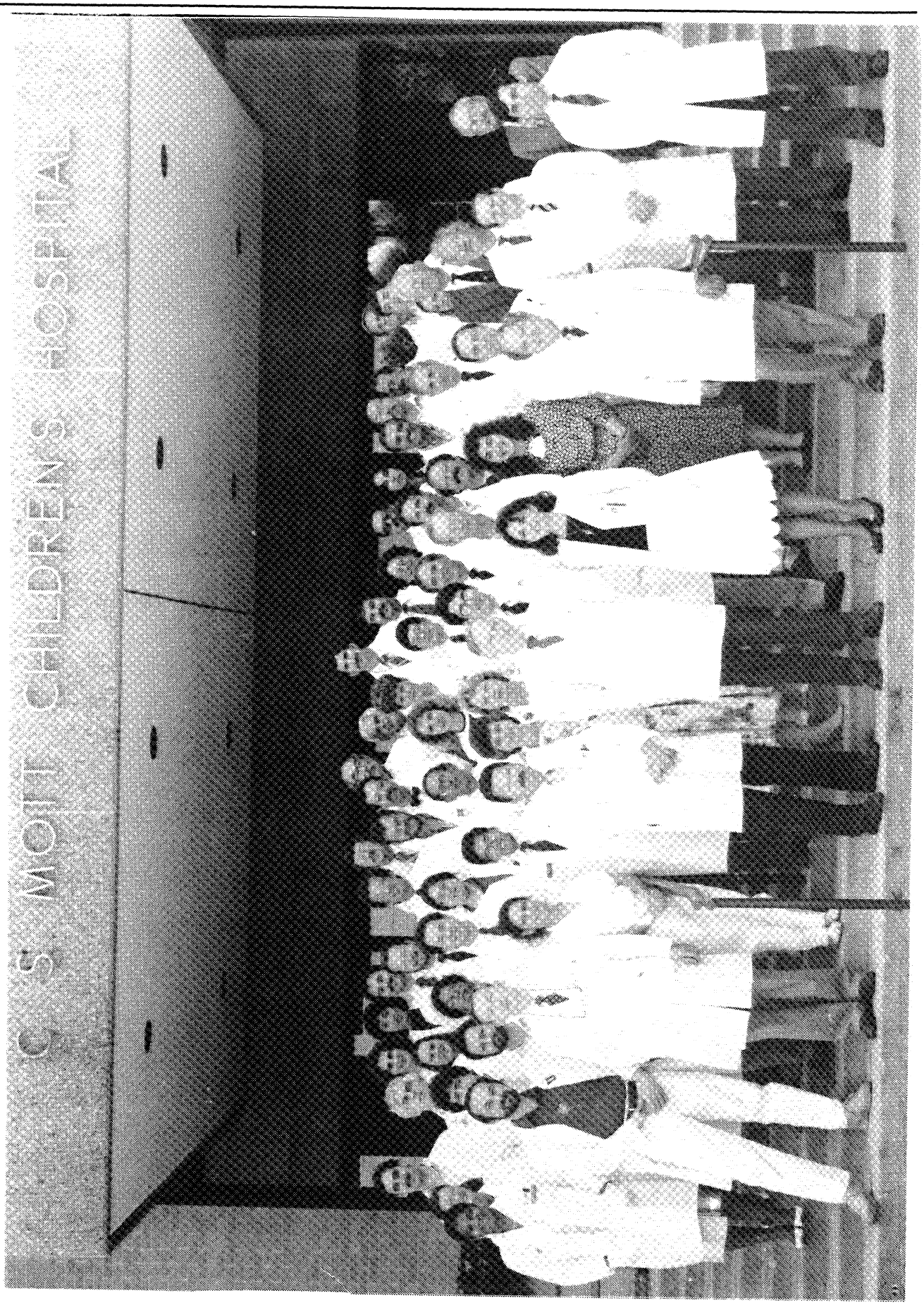
Name	Rank	Institutional Affiliation
Abell, Murray R.	Professor Emeritus	The University of Michigan
Abrams, Gerald D.	Professor	The University of Michigan
Annesley, Thomas M.	Associate Professor	The University of Michigan
Appelman, Henry, D.	Professor	The University of Michigan
Barnes, Barbara A.	Assistant Professor	The University of Michigan
Barr Jr., Mason+	Professor	The University of Michigan
Beals, Theodore F.	Assistant Professor	Veterans Administration Medical Center
Blaivas, Mila I.	Clinical Assistant Professor	The University of Michigan
Bonadio, Jeffrey	Assistant Professor	The University of Michigan
Capps, Rodney D.	Assistant Professor	The University of Michigan
Chensue, Stephen W.	Assistant Professor	Veterans Administration Medical Center
Courtney, Richard M.*	Assistant Professor	The University of Michigan
D'Amato, Constance J.	Assistant Professor	The University of Michigan
Davenport, Robertson	Assistant Professor	The University of Michigan
de la Iglesia, Felix**	Adjunct Research Scientist	Warner-Lambert;Parke Davis
Dixit, Vishva M.	Assistant Professor	The University of Michigan
Elner, Victor M.++	Assistant Professor	The University of Michigan
England, Barry G.	Associate Professor	The University of Michigan
Fantone, Joseph C.	Associate Professor	The University of Michigan
Flint, Andrew	Associate Professor	The University of Michigan
Frank, Thomas S.	Assistant Professor	The University of Michigan

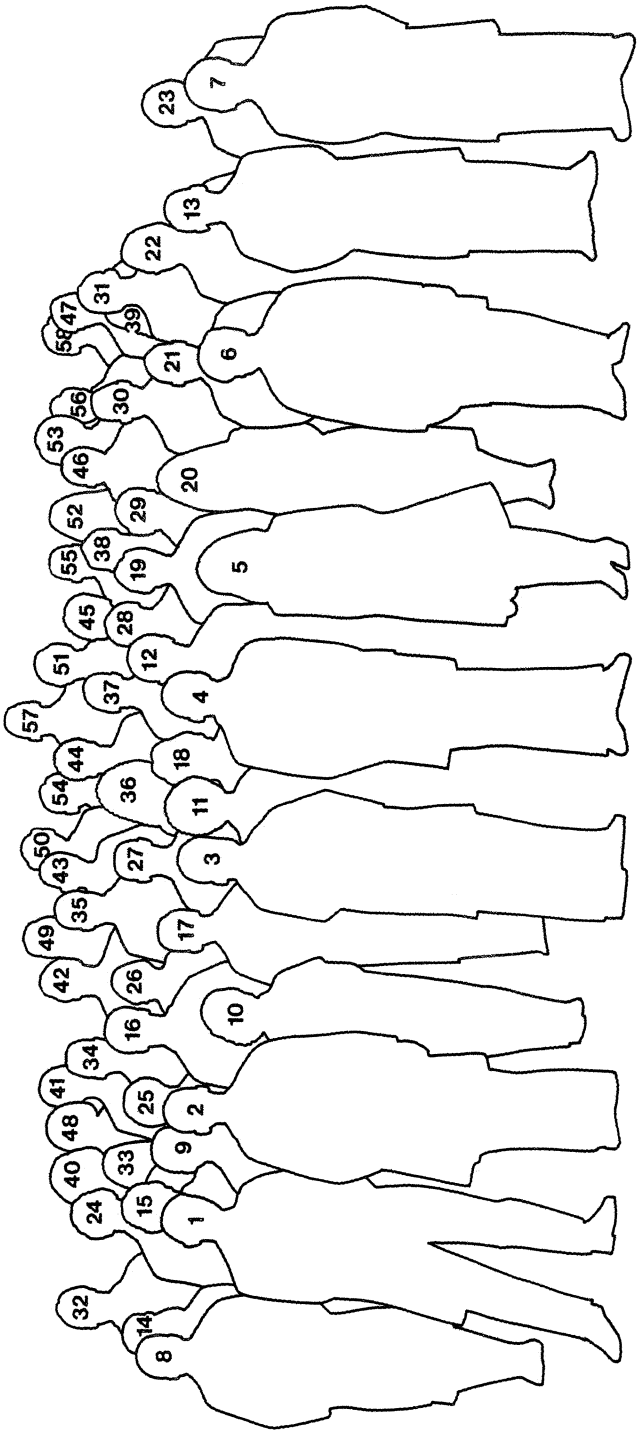
Name	Rank	Institutional Affiliation
Friedman, Bruce A.	Professor	The University of Michigan
Giacherio, Donald	Assistant Professor	The University of Michigan
Gikas, Paul W.	Professor	The University of Michigan
Glover, Thomas W.+	Assistant Professor	The University of Michigan
Hanks, Carl T.*	Associate Professor	The University of Michigan
Hanson, Curtis A.	Assistant Professor	The University of Michigan
Headington, John T.	Professor	The University of Michigan
Heidelberger, Kathleen P.	Professor	The University of Michigan
Hendrix, Robert C.	Professor Emeritus	The University of Michigan
Hicks, Samuel P.	Professor Emeritus	The University of Michigan
Hinerman, Dorin L.	Professor Emeritus	The University of Michigan
Johnson, Kent J.	Professor	The University of Michigan
Judd, W. John	Associate Professor	The University of Michigan
Keren, David F.	Adjunct Professor	The University of Michigan
Killen, Paul D.	Assistant Professor	The University of Michigan
Kunkel, Steven L.	Associate Professor	The University of Michigan
Lindsten, Tullia	Assistant Research Scientist	The University of Michigan
Lloyd, Ricardo V.	Associate Professor	The University of Michigan
Lowe, John B.	Assistant Professor	The University of Michigan
McClatchey, Kenneth D.	Associate Professor, Associate Chairman, Director, Clinical Laboratories	The University of Michigan
McKeever, Paul E.	Associate Professor	The University of Michigan
Midgley, A. Rees*	Professor	The University of Michigan
Mitra, Raj S.	Assistant Research Scientist	The University of Michigan

Name	Rank	Institutional Affiliation
Naylor, Bernard	Professor	The University of Michigan
Nickoloff, Brian J.	Assistant Professor	The University of Michigan
Oberman, Harold A.	Professor and Associate Director, Clinical Laboratories	The University of Michigan
Phan, Sem H.	Associate Professor	The University of Michigan
Pierson, Carl L.	Assistant Professor	The University of Michigan
Regezi, Joseph A.*	Associate Professor	The University of Michigan
Remick, Daniel G.	Assistant Professor	The University of Michigan
Rachmaninoff, Nikolai	Lecturer	The University of Michigan
Repola, Kenneth L.	Lecturer	The University of Michigan
Ross, Charles W.	Fellow/Lecturer	The University of Michigan
Rowe, Nathaniel H.*	Professor	The University of Michigan
Schmidt, Robert W.	Professor	The University of Michigan
Schnitzer, Bertram	Professor	The University of Michigan
Schuger, Lucia	Research Investigator	The University of Michigan
Shanberge, Jacob N.	Clinical Professor	William Beaumont Hospital
Sheldon, Susan	Assistant Professor	The University of Michigan
Shope, Thomas C.+	Associate Professor	The University of Michigan
Shu, Suyu+++	Associate Professor	The University of Michigan
Silbart, Lawrence	Research Investigator	The University of Michigan
Silverman, Eugene M.	Clinical Associate Professor	The University of Michigan
Smolen, James E.+	Associate Professor	The University of Michigan
Stoolman, Lloyd M.	Assistant Professor	The University of Michigan
Till, Gerd O.	Associate Professor	The University of Michigan
Varani, James	Associate Professor	The University of Michigan

Name	Rank	Institutional Affiliation
Ward, Peter A.	Professor and Chairman	The University of Michigan
Warren, Jeffrey S.	Assistant Professor	The University of Michigan
Weatherbee, Lee	Associate Professor	Veterans Administration Medical Center
Weiss, Bernard	Professor	The University of Michigan
Weiss, Sharon W.	Professor and Director, Anatomic Pathology	The University of Michigan
Wolter, J. Reimer++	Professor	The University of Michigan

* Joint Appointment, Dental School
** Clinical Appointment, Warner-Lambert, Parke Davis
\+ Joint Appointment, Department of Pediatrics and Communicable Diseases
++ Joint Appointment, Department of Opthalmology
+++ Joint Appointment, Department of Surgery


S. MOTT CHILDREN'S HOSPITAL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1. Lloyd Stoolman
2. Bernard Naylor
3. Kenneth McClatchey
4. Peter Ward
5. Sharon Weiss
6. Barry England
7. Mark Smith
8. Sonya Brown
9. Soverin Karmiol
10. Elahe Torabi
11. Kathleen Heidelberg
12. Charles Ross
13. Paul McKeever
14. Barbara Markey
15. Michael Caplan
16. Jeffrey Pearson
17. Eric Hsi
18. Constance D'Amato
19. Paul Gikas
20. Loretta O'Donnell
21. Eugene Silverman
22. Anders Sima
23. Eugene Napolitan
24. Gerald Abrams
25. Vidya Sarma
26. Rachel Yabkowitz
27. Bertram Schnitzer
28. Bruce Friedman
29. Brian Nickoloff
30. Bernard Weiss
31. Robert Hendrix
32. Eric Kaldjian
33. Denise Sulavik
34. David Start
35. Daniel Remick
36. Cheryl Swenson
37. Joseph Grande
38. John Lowe
39. Susan Sheldon
40. Priscilla Lindley
41. Paul Mazzara
42. Charles Hunter
43. Andrew Flint
44. Amanda Thornton
45. Jeffrey Bonadio
46. Vishva Dixit
47. Curtis Hanson
48. Jane Chen
49. Thomas Annesley
50. Henry Appelman
51. Victor Elner
52. Lucy Schuger
53. Sem Phan
54. John Headington
55. Abaza, Mohammed
56. James Varani
57. Donald Giacherio
58. Kent Johnson

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DEPARTMENTAL OVERVIEW

DEPARTMENTAL OVERVIEW
1989/90

During the past academic year several important events and changes have occurred, underscoring the constant evolution in the Department of Pathology. Perhaps the most visible change is related to the Surgical Pathology Service, in which Dr. Sharon Weiss assumed the position as Director of the Division of Anatomic Pathology and Head of Surgical Pathology in August, 1989. Under her leadership recruitment of new faculty has occurred as well as initiation of a Fellowship Program in Surgical Pathology. The aim of this Fellowship Program is to provide training for individuals destined for careers in surgical pathology. We hope that this program will become the most competitive training program in surgical pathology in the country. In the past year Dr. Thomas Frank was recruited as a surgical pathologist. Faculty recruitment efforts continue for another newly established position in surgical pathology. With Dr. Robert Schmidt's plans to retire during the new academic year, Dr. Suzanne Selvaggi has been recruited as a cytopathologist from Hutzel Hospital in Detroit.

The volume of clinical pathology and surgical pathology specimens continues to increase annually, due both to the growth of intramural activities as well as the MLabs program. Under serious discussion with Hospital administration is the need for additional clinical laboratory space (both for anatomic pathology and clinical pathology operations of the Department). These considerations will also be linked to the urgent institutional need to define expansion plans for ambulatory care services. Related to this are the requirements for clinical departments such as Internal Medicine to expand educational training for third and fourth year medical students into the ambulatory care setting, all of which represents part of a national trend towards fundamental changes in medical education.

Clinical Pathology is the current departmental target for intensified recruitment efforts. We continue to search for an academic clinical pathologist for the position vacated by Dr. David Keren. As of January, 1991, Dr. Gabriel Nunez will join the Department to establish his own research program in molecular biology and to serve as a key resource, together with Dr. Curtis A. Hanson and Thomas Frank, in expanding the Molecular Diagnostic Program in the Department of Pathology. Dr. Nunez, who is trained in anatomic pathology, immunopathology and molecular biology, will join us after completing a three year research fellowship in molecular biology with Dr. Stanley Korsmeyer at the Hughes Medical Institute at Washington University (St. Louis) School of Medicine.

The most significant accomplishment relating to our administrative efforts has been the successful negotiation with Hospital Administration for a long-term (four year) agreement for administrative laboratory clinical services provided by Pathology Associates. Other important aspects of administration within the Department include the development of comprehensive quality assurance and quality control programs affecting every aspect of clinical service. The requirement for these programs is significantly driven by the Health Care Financing Agency (Medicare). Our efforts in this area are being supervised by Dr. Kenneth D. McClatchey, who has assumed the title of Associate Chief for Clinical Affairs and will work with Dr. Robert Kelch (Chief of Clinical Affairs) in hospital-wide quality assurance programs. On other administrative issues, it should also be noted that we are inaugurating Department-wide a new word-processing system which no longer is linked to a highly centralized, main-frame computer type of system. Conversion to a PC-based system should significantly improve word processing activities at all levels in the Department.

Research programs continue to flourish within the Department, in spite of the current, difficult environment for obtaining and retaining research grant support from the federal government and from private foundations. At present our total research income per year is approximately $6,178,411, compared to $4,925,000 one year ago. We are reassured by the fact that most of these research grants in the Department are allocated as individual (RO1) grants, reflecting a broad, solid foundation of research activities in the Department.

The educational enterprise of the Department continues in its tradition of excellence, especially with respect to medical students and pathology residents. The reputation for departmental excellence in teaching is underscored by the annual teaching awards presented to our faculty members. A landmark in educational accomplishments of the Department was achieved in the Summer of 1990 when we inaugurated our graduate (Ph.D.) program in Experimental Pathology. Three excellent candidates were accepted into this program, which will gradually expand to a level of twelve to fifteen trainees. The early success of this program is in large part attributable to the efforts of Dr. Joseph C. Fantone, with the help of Dr. Sem H. Phan and many others. It is our hope to attract into this program M.D./Ph.D. (MSTP) students from the Medical School. The research environment of the Department, namely a focus on the application of basic biology to disease processes, provides many opportunities for graduate students, especially those with a background in medicine and biology. Other important changes in the educational area include the codifying of evaluation of faculty performance at all levels (e.g., medical students, graduate students, residents and postdoctoral fellows). Through Dr. Fantone's efforts we now have in place mechanisms that permit annual evaluations of the quality of individual faculty teaching efforts. In the Residency Training Program in Pathology, we are pleased at the high quality of physicians being recruited into this program; the performance of our residents is exceptional. In Summer of 1990, Dr. Fantone assumed the position of Director of the Residency Training Program in Pathology. This change in directorship followed the many years of successful leadership provided by Dr. McClatchey, who was assisted by Dr. Andrew Flint.

In general, the Department of Pathology is strong and healthy. It is hard to believe that this is my tenth overview for the annual departmental report. There is still much to be done and there are many additional changes that need to be made. On the basis of success and progress over the past ten years, there is every reason to believe that the coming year will be highly productive, that the Department will continue to be strengthened, and that we will ultimately achieve our objective to be among the three top ranked academic Departments of Pathology in the United States.

Respectfully Submitted,



Peter A. Ward, M.D.
Godfrey D. Stobbe,
Professor of Pathology
Professor and Chairman

INDIVIDUAL FACULTY REPORTS

GERALD D. ABRAMS, M.D.
PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Surgical Pathology Services - 2 1/2 months (sabbatical leave - 6 mos.).
B. Necropsy Service - on call.
C. Pathologist, Cardiac Transplant Team - full time.
D. Consultant for Gastrointestinal Pathology - full time.
E. Consultant for Cardiovascular Pathology - full time.

II. TEACHING ACTIVITIES:

A. Freshman Medical Class:
   1. ICS-500, 501 Sequence Coordinator and Lecturer, "Basic Concepts of Disease" CPC's - 26 contact hours.
B. Sophomore Medical Class:
   1. ICS 600, 601 - CPC's - 7 contact hours.
   2. Pathology 600 lectures - 7 contact hours.
C. Senior Medical Class:
   1. Pathology Clerkship Mentor.
D. Graduate School/Dental School/College of LS&A:
   1. Pathology 580 (Graduate School), Course Director, Lecturer - 18 contact hours.
   2. Pathology 630 (Dental School), Lecturer - 2 contact hours.
   3. Environmental and Industrial Health 518 (SPH) - Lecturer 1 1/2 contact hours.
   4. Biology 224 - (LS&A) Lecturer - 1 1/2 contact hours.
E. Hospital Conferences:
   1. Cardiovascular Pathology Conference - monthly.
   2. Internal Medicine CPC - monthly.
   3. Internal Medicine Necropsy Review - monthly.
   4. Gynecologic Pathology, Non-oncologic - monthly.
F. House Officers:
   1. Training in Surgical and Necropsy Pathology.
G. Invited Lectures:
   1. ASCP/CAP Performance Improvement Program Seminar on Gastrointestinal Pathology, October 30, 1989, Washington, D.C.
H. Medical Class of 1992 - Outstanding Lectureship Award.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. University of Michigan Cancer Center, Tissue Procurement Core - NIH 1 - P30 CA 46592.
B. National Collaborative Diagnostic Imaging Trial - NIH 1 - U0l CA 49077.

C. Technetium - 99M Labelled Monoclonal Antibody in Patients With Peripheral Vascular Disease. Centocor C00 50101.

PROJECTS UNDER STUDY:

A. Director - Tissue Procurement Core - U of M Cancer Center.
B. Pathologic-Radiologic Correlation in Pancreatic Neoplasms (with I. Francis).
C. Toxicity of Mitometh (with D.E. Schteingart).
D. Natural History of Myocarditis (multicenter study).
E. Laser Ablation of Accessory Atrioventricular Pathways (with C.D. Schuger, Wayne State University).
F. Reinnervation of Transplanted Human Heart (with M. Schwaiger).

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

1. Member, Pathology Doctoral Program Committee.
2. Member, Pathology House Officer Selection Committee.

MEDICAL SCHOOL/HOSPITAL:

1. Member, Historical Center for the Health Sciences Liaison Committee.
2. Member, Hospital Ethics Committee.
3. Member, Inteflex Policy Committee.

REGIONAL AND NATIONAL:

1. President, Gastrointestinal Pathology Society.
2. Editorial Board, "Modern Pathology".
3. Reviewer, "Ophthalmology".
4. Reviewer, "Archives of Pathology and Lab Medicine".
5. Deputy Medical Examiner, Washtenaw County.

V. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Yuzbasiyan-Gurkan, V., Brewer, G.J., Abrams, G.D., Main, B. and Giacherio, D.: Treatment of Wilson's disease with Zinc: V Changes in serum levels of lipase, amylase, and alkaline phosphatase in patients with Wilson's disease. J. Lab. Clin. Med. 1989;114:520-526.
2. Kluger, M.J., Conn, C.A., Franklin, B., Freter, R. and Abrams, G.D.: Effect of gastrointestinal flora on body temperature of rats and mice. Am. J. Physiol. 1990;258:R552-R557.
3. Bolling, S.F., Putnam, Abrams, G.D., and Deeb, G.M.: Lack of correlation between hemodynamic changes and endomyocardial biopsy findings. Ann. Thor. Surg.. In Press.

ARTICLES SUBMITTED FOR PUBLICATION:

1. Schwaiger, M., Hutchins, G.D., Kalff, V., Rosenspire, K., Haka, M.S., Mallette, S., Deeb, G.M., Abrams, G.D. and Weiland, D.: Evidence for regional reinnervation of the transplanted human heart by positron emission tomography. J. Clin. Invest.

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

1. Sulavik, D., Caplan, M. and Abrams, G.: Clinical utility of postmortem cultures. Mod. Path. 1990;3:97A.
2. Abrams, G.D. (Book Review): "Interventional and Surgical Cardiovascular Pathology: Clinical Correlations and Basic Principles", by Schoen F.J. (ed), Am. J. Surg. Path. In Press.
3. Abrams, G.D., in "Pathophysiology: Clinical Concepts of Disease Processes", Price, S.A. and Wilson, L.M., (eds), C.V. Mosby. In Press.
   - Chapter 1 - Introduction to General Pathology.
   - Chapter 2 - Heredity, Environment, and Disease.
   - Chapter 3 - Cellular Injury and Death.
   - Chapter 4 - Inflammation and Repair .
   - Chapter 5 - Response of the Body to Immunological Challenge.
   - Chapter 6 - Response of the Body to Infectious Agents.
   - Chapter 7 - Disturbances of Circulation.
   - Chapter 8 - Disturbances of Growth, Cellular Proliferation, and Differentiation.

THOMAS M. ANNESLEY, PH.D.
ASSOCIATE PROFESSOR OF CLINICAL CHEMISTRY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Director, Drug Analysis and Toxicology Laboratory.
B. Section Head, Biochemistry Laboratories.
C. Consultant to Veterans Administration Hospital, Ann Arbor, Michigan.

II. TEACHING ACTIVITIES:

MEDICAL SCHOOL/HOSPITALS:

A. Medical Students:
   1. Lecturer, Pathology 600 Course.
B. House Officers:
   1. Lecturer, Clinical Pathology Grand Rounds.
   2. Lecturer, Clinical Pathology Didactic Lecture Series.
   3. Daily sign-out and interpretation of Laboratory Results.
C. Graduate Students:
   1. Thesis Committee, Biomedical Engineering.

III. RESEARCH ACTIVITIES:

PROJECTS UNDER STUDY:

A. Microbore Applications to the analysis of drugs.
B. Distribution of cyclosporine and metabolites in blood and tissues.
C. Measurement of therapeutic drugs using alternative fluids beyond serum.
D. Esoteric analysis of drugs by gas chromatography/mass spectrometry.
E. Measurement of cyclosporine by radioimmunoassay.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Director, Drug Analysis an Toxicology Laboratory.
B. M-Labs Technical Group.
C. Pathology Associates

MEDICAL SCHOOL/HOSPITAL:

A. Standardization of Procedures Committee.

REGIONAL AND NATIONAL:

A. Executive Committee, National Therapeutic Drug Monitoring and Clinical Toxicology Division American Association for Clinical Chemistry.
B. National Awards Committee, American Association for Clinical Chemistry.
C. National Abstracts Committee, American Association for Clinical Chemistry.
D. National Meeting Planning Group, Clinical Ligand Assay Society.
E. Education Committee, Michigan Section, American Association for Clinical Chemistry.
F. College of American Pathologists Chemistry Reference Laboratory.
G. Member, NCA Drug Testing Team.
H. ETS Advisory Board, Syva Corporation.
I. Member, Academy of Clinical Laboratory Physicians and Scientists.
J. Member, American Association of Pathologists.
K. Member, American Association for Advancement of Science.
L. Member, Clinical Ligand Society.

V. OTHER RELEVANT ACTIVITIES:

EDITORIAL BOARDS:

A. Therapeutic Drug Monitoring Editorial Board.
B. Biomedical Chromatography, Editorial Board.
C. Therapeutic Drug Monitoring and Clinical Toxicology Newsletter, Editorial Board.

OTHER

A. Clinical Chemistry, Reviewer.
B. Mayo Clinic Proceedings, Reviewer.
C. Journal of Clinical Immunoassay, Reviewer.
D. Journal of International Federation of Clinical Chemistry, Reviewer.
E. Biomedical Chromatography, Reviewer.

INVITED LECTURES/SEMINARS:

1. "Advanced and Changes in Cyclosporine Monitoring", Pathology Update 1989. Current Concepts and New Developments, Chicago, Illinois, September, 1989.
2. "Urine Drug Testing - Techniques and Legal Issues", Pathology Update 1989. Current Concepts and New Developments, Chicago, Illinois, September, 1989.
3. "Cyclosporine Monitoring for Transplantation - Clinical and Methodological Update", National Meeting of the Eastern Analytical Symposium, New York, New York, September, 1989.
4. "Biomedical Applications of Microbore Chromatography", National Meeting of the Federation of Atomic Chemistry and Spectroscopy, Chicago, Illinois, October, 1989.
5. "Update on Cyclosporine Assays", Midwest Clinical Ligand Assay Society, Detroit, Michigan, October, 1989.
6. "Optimal Use of SandImmune", International Conference on Cyclosporine Monitoring, Hawks Cay, Florida, January, 1990.
7. "Preparing for Accreditation: Alternate Site Testing Programs, Clinical Ligand Assay Society National Meeting, Philadelphia, Pennsylvania, May, 1990.

8. "Preparing for Accreditation: Forensic Testing Programs", Clinical Ligand Assay Society National Meeting, Philadelphia, Pennsylvania, May, 1990.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Annesley, T.M.: Special considerations for geriatric therapeutic drug monitoring. Clin. Chem. 1989;35:1337-1341.
2. Hermann, R., Taylor, R.S., Ellis, C.N., Williams, A., Weiner, N.D., Flynn, G.L., Annesley, T.M. and Voorhees, J.J.: Topical Ciclosporin for psoriasis: In vitro skin penetration and clinical study. Skin Pharmacol. 1989;1:246-249.
3. Annesley, T.M. and Patel, J.: Extending the clinical laboratory into forensic drug testing. J. Clin. Immunoassay. 1989;12:205-211.
4. Annesley, T.M.: Human serum banks: A valuable resource--Maybe. Mayo Clin. Proc. 1989;64:1320-1323.
5. Annesley, T.: Pharmacokinetic changes in the elderly. Clin. Lab. Sci. 1990;3:100-102.
6. Bleske, B., Carver, P., Annesley, T. and Morady, F.: The effect of Ciprofloxacin on the pharmacokinetic and ECG parameters of quinidine. J. Clin. Pharmacol., In Press.
7. Vas Binder, E. and Annesley, T.: Liquid chromatographic analysis of mexiletine in serum with alternate application to tocainide, procainamide, and N-acetylprocainamide. Biomedical Chromatogr., In Press.
8. Watkins, P.B., Hamilton, J.A., Annesley, T.M., Ellis, C.N. and Voorhees, J.J.: The erythromycin breath test as a predictor of cyclosporine blood levels. Clin. Pharm. Ther., In Press.
9. Bolling, S.F., Lin, H., Annesley, T.M., Boyd, J.A., Gallagher, K. and Levy, R.: Local cyclosporine immunotherapy of cardiac transplants in rats enhances survival. J. Heart Transplant., In Press.

ABSTRACTS:

1. Annesley, T.M.: Biomedical applications of microbore chromatography. Proceedings of the 1989 Meeting of the Federation of Atomic Chemistry and Spectroscopy, 1989.
2. Annesley, T.M.: Cyclosporine monitoring for transplantation: Clinical and methodological update. Proceedings of the 28th National Meeting of the Eastern Analytical Symposium, 1989.
3. Fradin, M.S., Brown, M.D., Ellis, C.N., Annesley, T.M., Hamilton, T.H., Duell, E., Cooper, K.D. and Voorhees, J.J.: Low dose cyclosporine improves psoriasis: A double-blind study. J. Invest. Derm. 1990;94:525.
4. Annesley, T.M., Vas Binder, E., Matz, K. and Giacherio, D.: Liquid chromatograpic analysis of mexiletine in serum, with alternate application to procainamide, n-acetylprocainamide, and tocainide. Proc. Mich. AACC Res. Expos., 1990.
5. Annesley, T.M., Matz, K., Vas Binder, E. and Clayton, L.: Liquid chromatographic determination of amiodarone and desethylamiodarone in serum or plasma. Proc. Mich. AACC Res. Expos., 1990.

HENRY D. APPELMAN, M.D.
PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. General surgical pathology - 3 1/2 months.
B. Gastrointestinal and hepatic pathology consultation services - full time.

II. TEACHING ACTIVITIES:

MEDICAL SCHOOL/HOSPITALS:

A. Medical Students.
   1. Pathology 600 - 9 full class lectures.
   2. Lab Instructor Pathology 600 - 1 semester.
   3. Pathology 630 (dental) - 3 full class lectures.
   4. Senior medical student electives - 3 1/2 month instruction in surgical pathology in the reading room.
   5. Senior medical student elective in pathology rotation, supervisor 1 month.

B. House Officers:
   1. Surgical Pathology Conference - 1 hour per week.
   2. Autopsy service tutoring, 5-6 weekends and gross autopsy conference twice a week.
   3. Surgical pathology diagnosing room instruction for assigned house officer - 3 1/2 months.
   4. Gastrointestinal and hepatic pathology tutoring - full time.
   5. Mentor for one house officer in gastrointestinal and liver pathology subspecialty - 1 month total.
   6. Formal Lectures on GI and Liver Pathology - 7 hours.

C. Interdepartmental:
   1. Medical Gastrointestinal Pathology Conference - 2nd and 4th Wednesday of each month.
   2. G-I Tumor Conference - 4th Tuesday of each month.
   3. Liver Transplant Conference - Every other Thursday.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT: None.

PROJECTS UNDER STUDY:

A. Hepatic histopathologic changes in methotrexate - treated psoriatics, with A. Flint and members of the Gastroenterology Division.
B. Appendiceal epithelial neoplasia.
C. Peptic-associated and Campylobacter-associated gastritis and duodenitis with Grace Elta, Jeffrey Barnett and Tim Nostrant.
D. Interactive Computer Based Diagnostic Program in Colorectal, Appendiceal and Anal Pathology with Bharat Nathwani at USC, plus Intellipath.
E. Thymosin Treatment of Chronic Hepatitis B with Milton Mutchnick.
F. Liver Transplantation for Hepatitis B Disease with Mike Lucey, Keith Henley, Bob Merion and David Graham.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Chairman, Advisory Committee on Appointments, Promotions and Titles.

MEDICAL SCHOOL/HOSPITALS:

A. Member, Cancer Work Group, University Hospital.
B. Member, Tissue and Invasive Procedure Committee, University Hospital.

REGIONAL AND NATIONAL:

A. Member, Program Committee, Michigan Society of Pathologists.
B. Reviewer of manuscripts for Archives of Pathology and Laboratory Medicine, Cancer, Human Pathology, Gastroenterology, and Am J Gastroenterology.
C. Chairman, Publications Committee and Member, Executive Committee, Gastrointestinal Pathology Society.
D. Coordinator for Pathology, Randomized Therapeutic Trial in Cancer of the Esophagus, International Organization for Statistical Studies of Diseases of the Esophagus, Paris, France.
E. Visiting Pathologist for Regional Workshops on Pathologic Diagnosis in Inflammatory Bowel Disease, sponsored by the National Foundation for Ileitis and Colitis.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. 1989 Fall Anatomic Pathology Slide Seminar. Diseases of the gastrointestinal tract, with Haggitt, R.C. and Riddell, R.H., Annual Meeting of the American Society of Clinical Pathologists, Washington, D.C., November 2-3, 1989.
2. Seminar: Whatever is trendy and sexy in GI biopsy pathology, Michigan Society of Pathologists, Ann Arbor, Michigan December 9, 1989.

3. Lecture: The natural history of the bowel wall in ulcerative colitis. The 5th Annual Rosilie O. Saffos Memorial Lecture, The North Florida Pathologist's Association, Jacksonville Florida, April 23, 1990.
4. Visiting Professor of Pathology, Department of Pathology, Jacksonville Division of the Health Science Center, University of Florida, Jacksonville, Florida. Lecture: Gastritis.
5. Seminar on Neoplastic Diseases of Intestine, American Society of Clinical Pathologists, course on Surgical Pathology of the Gastrointestinal Tract, Baltimore, Maryland, June 11, 1990.
6. Lectures on neurogenic pathogenesis, defective innervation and morphologic expressions and complications of achalasia and on histologic features of diffuse esophageal spasm, presented at the 3rd International Polydisciplinary Congress of the International Organization for Statistical Studies on Diseases of the Esophagus, June 20 and 21, 1990, Paris France.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Flint, A., Apppelman, H.D. and Beckwith, A.L.: DNA analysis of gastric stromal tumors: Correlation with pathologic features. Surg. Pathol. 1989;2:117-124.
2. McQuillan, A.C. and Appelman, H.D.: Superficial Crohn's disease: A study of 10 patients. Surg. Pathol. 1989;2:231-239.
3. Brewer, G.J., Yuzbasiyan-Gurkan, V., Lee, D-Y and Appelman, H.D.: The treatment of Wilson's disease with zinc. VI. Initial treatment studies. J. Lab. Clin. Med. 1989;114:633.
4. Barnett, J.L., Behler, E.M., Appelman, H.D. and Elta, G.H.: Campylobacter pylori is not associated wtih gastroparesis. Dig. Dis. Sci. 1989;34:1677-1680.
5. Ruwart, M.J., Wilkinson, K.F., Rush, B.D., Vidmar, T.J., Peters, K.M., Henley, K.S., Appelman, H.D., et al.: The integrated value of serum procollagen III peptide over time predicts hepatic hydroxyproline content and stainable collagen in a model of dietary cirrhosis in the rat. Hepatology 1989;10:801-806.
6. Montbriand, J.R., Appelman, H.D., Cotner, E.K., Nostrant, T.T. and Elta, G.H.: Treatment of Campylobacter pylori does not alter gastric acid secretion. Am. J. Gastroenterol. 1989;84:1513-1515.
7. Elta, G.H., Murphy, R., Behler, E.M., Barnett, J.L., Nostrant, T.T., Kern, S., and Appelman, H.D.: Campylobacter pylori in patients with dyspeptic symptoms and endoscopic evidence of erosion(s). Am. J. Gastroenterol. 1989;84:643-646.
8. Lanspa, S.J., Lynch, H.T., Smyrk, T.C., Strayhorn, P., Watson, P., Lynch, J.F., Jenkins, J.X. and Appelman, H.D.: Colorectal adenomas in the Lynch Syndromes. Gastroenterology 1990;98;1117-1122.
9. Graham, D.M. and Appelman, H.D.: Crohn's-like lymphoid reaction and colorectal carcinoma: a potential histologic prognosticator. Modern Pathology 1990;3:332-335.
10. Wolber, R., Owen, D., DelBuono, L., Appelman, H. and Freeman, H.: Lymphocytic gastritis in patients with celiac sprue or spruelike intestinal disease. Gastroenterology 1990;98:310-1315.

BOOKS AND CHAPTERS IN BOOKS:

1. Appelman, H.D.: Mesenchymal Tumors of the Gut: Historical Perspectives, New Approaches, New Results, and Does It Make Any Difference? Ch 6 in Goldman, H., Appelman, H.D. and Kaufman, N. (eds). Gastrointestinal Pathology. USCAP Monograph. Williams and Wilkins, Baltimore. 1990.
2. Appelman, H.D.: Barrett's Esophagus: Morphologic Considerations. In Orringer, M.B. (ed). Surgery of the Alimentary Tract - The Esophagus. W B Saunders, Philadelphia. In Press.

3. Appelman, H.D.: Mesenchymal Tumors of the GI Tract. Chapter 15 in Pathology of the Gastrointestinal Tract, Ming, S-C, and Goldman, H. (eds). W.B. Saunders, Philadelphia. In Press.
4. Appelman, H.D.: Epithelial Neoplasia of the Appendix (Revision of original chapter published in 1984 for 2nd edition) in Norris, H.T. (ed). Pathology of The Colon, Small Intestine and Anus; Churchill, Livingstone, New York, 1990.
5. Goldman, H., Appelman, H.D. and Kaufman, N. (eds). Gastrointestinal Pathology. USCAP Monograph. Williams and Wilkins, Baltimore, 1990.

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

1. Book Review: Liver Biopsy Interpretation, 4th ed, by Peter J. Scheuer. Arch. Pathol. Lab. Med. 1989;113:1310.
2. Book Review: Gastrointestinal and Oesophageal Pathology, edited by R. Whitehead. Gastroenterology 1989;98:803.
3. Book Review: Inflammatory Bowel Disease, by Joseph B. Kirsner and Roy G. Shorter. Am. J. Surg. Pathol. 1989;13:434.
4. Smyrk TC, Lynch HT, Watson PA, Lanspa SJ and Appelman HD: Histologic features of hereditary nonpolyposis colorectal carcinoma (HNPCC): Correlation with survival. Gastroenterology 1990;98:A311.
5. Barnett, J.L., McDonnell, W.M., Appelman, H.D. and Dobbins, W.O.: Familial visceral neuropathy: diagnosis by rectal biopsy. Gastroenterology 1990;98:A325.

BARBARA A. BARNES, MT(ASCP) SBB
ASSISTANT PROFESSOR OF MEDICAL TECHNOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Coordinate quality assurance activities in Blood Bank Laboratory.
B. Coordinate training of Blood Bank Laboratory Staff.

II. TEACHING ACTIVITIES:

A. House Officers
   1. Coordinator, Introductory Blood Bank Seminar Series for Pathology House Officers.
   2. Coordinator, Blood Bank/Coagulation Rotation for Pediatric Hematology Fellows.
B. Blood Bank Technical Staff.
   1. Coordinator, Continuing Education Weekly Conferences in Blood Banking.
   2. Coordinator, Orientation Training for New Employees in Blood Banking.

III. RESEARCH ACTIVITIES:

Project Under Study
Reducing pretransfusion medication on pediatric hematology-oncology service.

IV. ADMINISTRATIVE ACTIVITIES:

MEDICAL SCHOOL/HOSPITAL:

A. Blood Bank Communication Committee.
B. Conducted individual courses of instruction for each new employee of the hospital Blood Bank.
C. Drafted and implemented a weekly schedule of in-service education for Blood Bank staff.
D. Coordinated Blood Bank/Coagulation experience for each Pediatric Hematology Fellow.
E. Designed and implemented Blood Bank orientation sessions for students and residents from other departments.

REGIONAL AND NATIONAL:

A. Inspector for the Inspection and Accreditation Program of the American Association of Blood Banks.

V. OTHER RELEVANT ACTIVITIES:

WORKSHOP:

A. Lecture, "Personnel Proficiency", Quality Assurance in the Blood Bank. Annual Course, "Current Topics in Blood Banking", Department of Postgraduate Medicine, University of Michigan, June 6, 1990.

VI. PUBLICATIONS:

1. Barnes, BA, New Methods for Leukocyte-Poor Components, In Practice, Cl Lab Sci 3(1):18, 1990.

2. Barnes, BA, Maintaining and Testing Serologic Cellwashers, In Practice, CL Lab Sci 3(2):94, 1990.

MASON BARR, JR., M.D.
PROFESSOR OF TERATOLOGY
DEPARTMENT OF PATHOLOGY;
PROFESSOR OF PEDIATRICS
DEPARTMENT OF PEDIATRICS;
PROFESSOR OF OBSTETRICS AND GYNECOLOGY
DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Medical Director, Myelodysplasia Unit: inpatient and outpatient services for children with spina bifida, 322 Clinic Visits.
B. Attending Physician Pediatrics Infant Ward: 3 months
C. Pediatric Genetics/Teratology Consultant for Holden and Women's Hospitals - inpatient and outpatient consultations and parent counselling.
D. Teratology Unit (see Research Activities).

II. TEACHING ACTIVITIES:

A. Teratology-Obstetrics Conference: weekly case review meeting of Obstetrics, Teratology, Neonatology for planning management of fetuses with prenatally detected malformations.
B. Genetics Clinical Conference - weekly reviews of consultation cases and 4 times yearly didactic presentations.
C. Pediatrics-Pathology Conference: organize and present CPC-type conferences to the Department of Pediatrics; Four per year.
D. Neonatology Pathology Conference: quarterly review and discussion of neonatal deaths.
E. Malformations lecture, Embryology (M-1) Course.
F. Perinatal Pathology Conference: quarterly review and discussion of perinatal deaths (OB-GYN)

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT: None.

TERATOLOGY UNIT (DIRECTOR):

A. Detailed postmortem investigations of abortuses, stillborns and selected neonatal deaths for morphologic, pathologic and growth characteristics, correlations with family and prenatal histories, and counselling for future reproductive decisions by the parents.
B. Continuing investigation of normal and abnormal patterns of somatic and visceral growth. Detection of patterns of growth abnormalities associated with specific syndromes, exposures and obstetrical antecedents.
C. Quality control investigations for various prenatal diagnostic methodologies.
D. Teratology Unit Activities: 162 fetal/neonatal examinations (77 from UMMC, 85 referred from outside hospitals)

COLLABORATIVE RESEARCH:

1. Collection and allocation of fetal tissues for research projects in the Departments of Pediatrics, Pathology, Obstetrics, Anatomy, Genetics, and Howard Hughes Institute. Loan of fetal material for research investigations in the Department of Radiology.
2. Collaborative research with Central Laboratory for Embryology at the University of Washington (T.H. Shepard, M.D.) and the Department of Pathology ta the University of South Alabama (W.R. Blackburn, M.D.) on standards for normal fetal morphometrics.
3. Research with Wayne State University (M.P. Johnson, M.D.) on fetal growth assessment in aneuploid fetuses.

IV. ADMINISTRATIVE ACTIVITIES:

MEDICAL SCHOOL/HOSPITAL:

A. Departmental - Pathology: none.
B. Departmental - Pediatrics: Editorial Board, Pediatric Rounds; House Officer Selection Committee.
C. Steering Committee for DSCC-funded Cost of Comprehensive Care Study.
D. Standardization and product evaluation committee, member; Infant care review committee, co-chair.

REGIONAL AND NATIONAL:

A. Reviewer for journals: Teratology, Pediatric Pathology.
B. Public Affairs Committee, Teratology Society.
C. Michigan Department of Public Health, Task Force on Privider Approval System.
D. Editorial Board, Birth Defects Encyclopedia.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES AND SEMINARS:

1. Seminar: The syndromology of teratology: Results from stillbirth and other autopsy material. Australian Teratology Society, University of Syndye, Campderdown, NSW, Australia, July 11, 1989.
2. Lecture: Human malformations, ILSI-EPA Workshop on Developmental Toxicity: Human endpoints. Berkeley, California, September 18-19, 1989.
3. Lecture: Lung development and malformations. Neonatal Respiratory Disorders Symposium. Ann Arbor, Michigan, October 5-6, 1989.
4. Lecture: Classification of multiple malformations. Dental Postgraduate Seminar, Kalamazoo, Michigan, October 11, 1989.
5. Seminar: Classification of multiple malformations. UM School of Dentistry, Ann Arbor, Michigan, October 13, 1989.
6. Lecture: Morphometrics of fetal growth. University of South Alabama, Mobile, Alabama, February 20, 1990.
7. Lecture: Recent developments in pediatric rehabilitation. Pediatric Grand Rounds, St. John Hospital, Detroit, Michigan, April 3, 1990.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Siebert, J.R., Barr, M., Jackson, J.C., and Benjamin, D.R.: Ebstein's anomaly and extra cardiac defects. Am. J. Dis. Child, 143:570-572, 1989.
2. Bonadio, J., Ramirez, F. and Barr, M.: An intron mutation in the human alpha-1(I) collagen gene alters the efficiency of pre-mRNA splicing and is associated with osteogenesis imperfecta type II. J. Biol. Chem., 265:2262-2268, 1990.
3. Johnson, M.P., Barr, M., Qureshi, F., Drugan, A., and Evans, M.I.: Symmetrical intrauterine growth retardation is not symmetrical: Organ specific gravimetric deficits in midtrimester and neonatal trisomy 18. Fetal Diagnosis and Therapy (in press).

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

1. Barr, M. and Cohen, M.M.: The kidney-skull connection: Is selective or general hypotension a teratogenic mechanism? Presented to DW Smith Workshop on Malformations and Morphogenesis, Lexington, Kentucky, August 5-8, 1990.
2. Barr, M: Fetal effects of angiotensin converting enzyme inhibitor. Teratology, 41:536, 1990. Presented to Teratology Society, Victoria, BC, June 8-12, 1990.
3. Barr, M: Methodology for assessing somatic and visceral growth of the midgestation fetus. Teratology 41:536-7, 1990. Presented to Teratology Society, Victoria, BC, June 8-12, 1990.
4. Barr, M: Standards for assessing somatic and visceral growth of the midgestation fetus. Teratology 41:537, 1990. Presented to Teratology Society, Victoria, BC, June 8-12, 1990.

THEODORE F. BEALS, M.D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Diagnostic Electron Microscopy, Veterans Affairs Medical Center.
B. Director of Electron Microscopy Center of Excellence.
B. Cytopathology, Veterans Affairs Medical Center.
C. Coordinator of Decentralized Hospital Computer Program in Laboratory Service, Veterans Affairs Medical Center.
D. Fine Needle Aspiration, Veterans Affairs Medical Center.
E. Surgical/Autopsy Pathology, Veterans Affairs Medical Center.
F. Tumor Board, Veterans Affairs Medical Center.
G. Deputy Washtenaw County Medical Examiner.
H. Consultant: Diagnostic Electron Microscopy, Allen Park, VAMC and Danville, VAMC.

II. TEACHING ACTIVITIES:

A. Pathology House Officer monthly elective: Diagnostic Electron Microscopy, 10 months.
B. Diagnostic Electron Microscopy Case Conference, bi-weekly.
C. Pathology House Officers, fine needle aspiration technique and interpretation.
D. Pathology 600 Lab Section.
E. M4 elective in Pathology, Diagnostic EM and Cytopathology.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Pathologist for: VA Cooperative Study #268. A New Strategy to Preserve the Larynx in the Treatment of Advanced Laryngeal Cancer.(G. Wolf, Principal Investigator)
B. Marijuana-Bronchoscopy Project (Fligiel/Gong/Tashkin).NIH
C. A Prospective, Controlled, Randomized and Double-Blind Multi-Center Clinical Evaluation of Monoclonal Antibody 17.13.C1.10 for its Capability to Detect Head and Neck Squamous cell carcinoma in Primary Site Malignancies and Lymph Nodes.(Co-Investigators: Baker,Beals,Carey,Krause, McClatchey,Wolf).
D. Crescentic Nephritis -Core B- NIH Program Project, Consultant (Wiggins, Johnson)

PROJECTS UNDER STUDY:

A. Clinical Relevance of Ultrastructural Characteristics of Small Cell Carcinoma (with R. Green).

B. Role of Plastic Embedded Cell-Blocks and Electron Microscopy in Fine Needle Aspiration.
C. Morphometric Analysis of Cells and Tissue using the Scanning Light Microscope.
D. Surface Markers for Antigen Localization in Scanning and Transmission Electron Microscopy.(with S. Chensue and with D. Remick).
E. Growth of Cells on Microcarriers (with J. Varani).
F. Endothelial Cell Damage Caused by Oxidants (with D. Hinshaw).
G. Changes in Alveolar Macrophages in Monkeys smoking Marijuana (with S. Fligiel).
H. DNA Cytomorphometry of Laryngeal Squamous Carcinoma (with G. Wolf and J. Truelson).
I. Differentiation of Isolated Renal Tubular Cells in Culture (with D. Humes).
J. Ultrastructural Changes in Fuchs' Heterochromic Cyclitis (with B. Cohan).
K. Gap Junction Changes in Uterine Smooth Muscle in Women with Dysfunctional Labor (with Laudin).

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Electron Microscopy Committee.
B. Resident Selection Committee.

MEDICAL SCHOOL/HOSPITAL:

A. Surgical Case Review Committee, Veterans Affairs Medical Center.
B. Electron Microscopy Committee, chair, Veterans Affairs Medical Center.
C. Medical Records Review Committee, Veterans Affairs Medical Center.
D. Information Resources Management Oversite Committee Veterans Affairs Center.
E. Medical School Admissions Committee.
F. Executive Admissions Committee, Medical School.

REGIONAL AND NATIONAL:

A. Association of Veterans Affairs Pathologists
Secretary-Treasurer.
B. Veterans Affairs Central Office Electron Microscopy Review Group.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. Pulmonary Neoplasm: Diagnostic Problems and Ultrastructural Characteristics (Department of Internal Medicine, Pulmonary Conference).
2. Electron Microscopy as an Aid to Diagnostic Cytopathology. Henry Ford Medical Center

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFERRED JOURNALS:

1 Rockerbie,N., Solomon,A.R., Woo,T.Y., Beals,T.F., Ellis,C.N.: Malignant dermal cylindroma analogue tumors of parotid gland. Am. J. Dermatopathol. 1989:11;353-359.

2. Gilsdorf,J.R., Wilson,K., Beals,T.F.: Bacterial colonization of intravenous catheter materials in vitro and in vivo. Surg. 1989L106;37-44.

BOOKS AND CHAPTERS IN BOOKS:

1. Wolber,R.A. and Beals, T.F.: Streptavidin-Gold Labeling for Ultrastructural in situ Nucleic Acid Hybridization. Chapter 19 in Principles, Methods and Applications Volume 2 Colloidal Gold edited by M.A. Hayat. Academic Press, Inc. N.Y.,1989 pp. 379-396.
2. Wolf,G.T., Beals,T.F., Carey,T.E., Hudson,J.L., Buiting, N.,Bradford,C.R., Peterson,K.A.: Cytophotometric Analysis of DNA Content of Human Head and Neck Carcinoma Cell Lines. in, Head and Neck Cancer, eds. W.E. Fee, H. Goepfert, M.E. Johns, E.W. Strong, P.H. Ward. B.C. Decker, Inc., Toronto, 1990 pp 102-108.

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

1. Cohan,B.E., Beals,T.F., Chensue,S.W., Miles,J., Stuth,S.: Fuchs' Heterochromic Cyclitis: SEM of Aqueous Cytology and Iris Anterior Border Layer. Assoc. Res. Vision and Opthol., Sarasoto, 1990. Invest. Ophthalmol. Vis. Sci. 1990:41;444.
2. Wolf,G., Truelson,J., Beals,T.,Fisher,S. : Nuclear Area (NA) and Adjusted DNA Index (aDI): A New Correlate of Prognosis in Squamous Carcinoma of the Larynx. AACR, 1990.
3. Fligiel S.E.G., Beals,T.F., Tashkin,D.P.: Pulmonary Pathology in Cocaine Smokers. Am. Rev. Respir. Dis. 141: A780,1990.
4. Wolf,G., Truelson,J., Beals,T., Fisher,S.: Nuclear Area (NA) and Adjusted DNA Index (aDI): A New Correlate of Prognosis in Squamous Carcinoma of the Larynx. AACR , 1990.

MILA BLAIVAS, M.D., PH.D.
CLINICAL ASSISTANT PROFESSOR
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. M-LABS AP/CP coverage at Lapeer Community Hospital, Albion community Hospital, Thorn Hospital, and The University of Michigan Hospital.
B. Muscle biopsies and nerve biopsies done for the University of Michigan and other hospitals in and out of state.
C. Six rotations in Autopsy Service.
D. Neuropathology service coverage during Dr. Paul E. McKeever's absences.
E. Consultations on brain biopsies and rheumatology cases.

II. TEACHING ACTIVITIES:

A. Taught residents, fellows and staff in Neurology, Rheumatology and Pediatrics on muscle and nerve biopsies.
B. Taught pathology residents how to perform and read out autopsies.
C. Lectured on muscle and nerve pathology to residents in Pathology, Neurology and sophomore medical students.
D. Monthly conference on muscle and nerve cases with Neurology and Rheumatology departments.
E. Biweekly muscle and nerve cases review with pathology residents.
F. Weekly conference with Neuromuscular staff.
G. Bimonthly conference with Neuroradiology and Pediatric Neurology.

III. RESEARCH ACTIVITIES:

PROJECTS UNDER STUDY:

A. Histology and histochemistry of orbicularis muscle (coinvestigator on the MI Eye-bank and Transplantation Center Grant: 1988-1989; $10,000).
B. Peripheral nerve grafting.
C. Pelvic floor muscles.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Continuing improvement of interdepartmental coordination of muscle and nerve biopsy service.

MEDICAL SCHOOL:

A. Member of the Admission Committee

REGIONAL AND NATIONAL:

A. Worked at Lapeer Community Hospital.
B. Visits to Albion Community Hospital Laboratory.
C. Member, American Association of Neuropathologists, IAP, and AMA.

V. OTHER RELEVANT ACTIVITIES:

A.. Participated in weekly brain cutting conference.
B. Participated in conferences for neurosurgeons and brain tumor boards

INVITED LECTURES/SEMINARS:

1. Attend ASCP intensive Neuropathology course at Loma Lind University, California - 3 days.
2. Attended American Association of Neuropathologists meeting and presented 2 posters in San Francisco - 4 days.

VI. PUBLICATIONS:

1. Higgs, J.B., Blaivas, M., Albers, J.W.: McArdle's disease presenting as treatment resistant polymyositis. Journal of Rheumatology. 1989; 16,12: 1588-1591.
2. Silbergleit R., Gerbarski, S.S., McGillicudy, J. and Blaivas, M.: Lumbar synovial cyst: Correlation of myelographic CT, MRI and pathological findings. Radiology, HJNR, 11: 777-779, July/Aug, 1990.
3. Nelson, C.C. and Blaivas, M.: Histochemical characteristics of the orbicular oculi muscle in children. Investigative Ophthalmology and Visual Science. in press.
4. Oxenkrug G.F., Anderson, G.F., Dragovic, L., Blaivas, M., and Riederer, P.: Circadian rhythms of human pineal melatonin, related indoles and beta adrenoreceptors: Postmortem evaluation. The Pineal. in press.

ARTICLES SUBMITTED:

2. Feldman, E.L., Blaivas, M., Gilmore, J., and Bromberg, M.B.: Pandysautonomic neurpathy. Archives of Neurology.
3. Selwa, J.F., Feldman, E.L., and Blaivas, M.: Mononeuropathy multiplex in tryptophan-associated eosinophilia-myalgia syndrome. Neurology.

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

1. Carroll, W., Sullivan, M., Blaivas, M. and Risz, S.: Vascularized and conventional nerve graft. A histomorphologic comparison. American Society of Head and Neck Surgery Meeting, April, 1990.
2. O'Rourke, K.S., Blaivas, M., and Ike, R.W.: Utility of needle muscle biopsy in a university rheumatology practice. American College of Rheumatology Meeting, May, 1990.
3. Blaivas, M. and Nelson, C.C.: Aging changes in human orbicularis oculi muscle. American Association of Neuropathologists Meeting, June 14-17, 1990.

4. Nelson, C.C. and Blaivas, M.: Histologic and histochemical characteristics of eyebrow and eyelid muscles. American Association of Neuropathologists Meeting, June 14-17, 1990.

JEFFREY BONADIO, M.D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Inherited Connective Tissue Disease Diagnostic Service (Biochemical Analysis of Skin Biopsy Material).
B. Attending Staff, University of Michigan Autopsy Service.

II. TEACHING ACTIVITIES:

A. Graduate Student thesis Co-Chairman with Steven Goldstein: Ms. Monique Mansoura (Bioengineering).
Graduate student thesis Co-Chairman with Steven Goldstein: Mr. John Germiller (MSTP).
Graduate Student thesis committee: Mr. Karl Jepsen (Bioengineering).
Graduate Student thesis committee: Ms. Patricia Sherman (Human Genetics).
Graduate Student thesis committee: Ms. Elizabeth Allen (Human Genetics).
B. Supervision of four postdoctoral fellows: (Eric Patterson, Ph.D., David Bole, Ph.D., Loretta Register, M.D., and Gopa Majmudar, Ph.D.).
C. Mentor, Summer Medical Research Program, University of Michigan, 1989 and 1990 (1990 Summer Students - John Germiller, Claudia McQueen, and Andy Pasternak).
D. Courses:
1. Lecturer, Pathology 600.
2. Lecturer, Pathology 580.
3. Lecturer, Biochemistry 501.
4. Course Co-Director, Pathology 581.
5. Pathophysiology, Fifth Block, Baylor College of Medicine (Invited lecturer, Inherited Connective Tissue Disease).

E. Continuing Medical Education:
1. Orthopedic Surgery, Department of Surgery, University of Michigan, 1989.
2. Biomedical Research Council Forum on Transgenic Animal Models of Disease, The University of Michigan, 1989.
3. Internal Medicine, Renal Division Seminar Series, University of Michigan, 1989.
4. General Surgery, Department of Surgery, University of Michigan, 1990.
5. Rheumatology, Department of Medicine, University of Michigan, 1990.
6. Laboratory Medicine, Department of Pathology, University of Michigan, 1990.

F. Invited Presentations:
1. European Molecular Biology Laboratory Mouse Molecular Genetics Meeting, 1989.
2. Seminar Series, Molecular Biophysics Program, Center for Advanced Biotechnology and Medicine, the State University of New Jersey, 1989.
3. Seminar Series, Department of Pathology, University of Wisconsin, 1989.
4. Structural Macromolecules Gordon Research Conference, 1989.
5. Seminar Series, Molecular Genetics, Baylor College of Medicine, 1989.
6. Seminar Series, Endocrinology Division, Genentech Inc., 1990.

7. Seminar Series, Amgen Inc., 1990.
8. NIH Workshop - Heritable Disorders of Connective Tissue (Invited Participant), 1990.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Principal Investigator, "Molecular Basis of Osteogenesis Imperfecta Type II, NIH-DK, AR38473-04 (50% effort), $44,520.00/year direct costs, ($194,771.00/5 years).
B. Office of the Vice President for Research, ($10,000.00) (1/1/90-12/31/90).

PROJECTS UNDER STUDY:

A. We are interested in the relationship between structure and function for type I collagen, a fibrous protein that resides in the extracellular matrix (ECM) of most tissues. Type I collagen was chosen in part because of a larger interest in the contribution of the ECM to tissue assembly during development. By focusing on a major ECM component, our goal is to define this contribution in molecular terms.

IV. ADMINISTRATIVE ACTIVITIES:

MEDICAL SCHOOL:

A. Member, Planning Committee, University of Michigan Skeletal Dysplasia Clinic.
B. Member, Preclinical Advisory Program, University of Michigan Medical School.
C. Biomechanics Core Steering Committee, University of Michigan Multipurpose Arthritis and Musculoskeletal Diseases Center.

DEPARTMENTAL:

A. Oversight Committee, Graduate Program, Department of Pathology, University of Michigan.

V. OTHER RELEVANT ACTIVITIES:

A. Invited Reviewer, American Journal of Human Genetics.
B. Invited Reviewer, The Journal of Clinical Investigation.
C. Invited Reviewer, The Journal of Biological Chemistry.
D. Invited Reviewer, The March of Dimes, Grants Program.
E. Member, Multipurpose Arthritis Center.
F. Member, Michigan Cancer Center.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Bonadio, J., Ramirez, F. and Barr, M.: An intron mutation in the human a1(I) collagen gene alters the efficiency of pre-mRNA splicing and is associated with osteogenesis imperfecta Type II. J. Biol. Chem. 1990;265:2262-2268.
2. Beckwith, J.B., Kiviat, N.B. and Bonadio, J.F.: Nephrogenic rests, nephroblastomatosis, and the pathogenesis of Wilm's Tumor. Pediatr. Pathol. 1990;10:1-36.
3. Bonadio, J., Saunders, T.L., Tsai, E., Goldstein, S.A., Morris-Wiman, J., Brinkley, L., Dolan, D.F., Altschuler, R.A., Hawkins, J.E., Bateman, J.F., Mascara, T. and Jaenisch, R. A transgenic mouse model of the mild dominant form of osteogenesis imperfecta. Proc. Natl. Acad. Sci. USA, 1990, In Press.

ABSTRACTS:

1. Bonadio, J.F., Saunders, T.L., Tsai, E., Goldstein, S.J., Morris, J., Brinkley, L., Dolan, D.F., Altschuler, R.A. and Hawkins, J.E. A transgenic mouse model of the mild dominant form of osteogenesis imperfecta. European Molecular Biology Laboratory Mouse Molecular Genetics Meeting, 1989.
2. Greenfield, N.J., Montelione, G.T., Smiley, E. and Bonadio, J.F. Conformational transitions of a collagen fragment studied by CD and ^{1}H-NMR. American Association for the Advancement of Science, Protein Folding Symposium, 1990.
3. Greenfield, N.J., Montelione, G.T., Tsao, J., Stein, S., Smiley, E. and Bonadio, J. Conformational transitions of a collagen fragment studied by CD and ^{1}H-NMR. Biophysical Society Meeting, 1989.
4. Jepsen, K.J., Mansoura, M.K., Bonadio, J., Kuhn, J.L. and Goldstein, S.A. The adaptational response of cortical bone to defective type I collagen synthesis. Orthopaedic Research Society 36th Annual Meeting, 1990.
5. Majmudar, G., Bonadio, J.F., Guo, J. and Jourdian, G.W. Isolation and purification of chick embryo osteoblasts by alginate beads. Society for Complex Carbohydrates, 1989.
6. Majmudar, G., Patterson, E., Bonadio, J.F., Guo, J. and Jourdian, G.W. A genetic approach to study the relationship between collagen structure and biomineralization. East Coast Connective Tissue Society 9th Annual Meeting, 1990.

STEPHEN W. CHENSUE, M.D., PH.D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Director, Clinical Laboratories, Veterans Affairs Medical Center
B. Hematology/Coagulation, Veterans Affairs Medical Center
C. Surgical/Autopsy Pathology, Veterans Affairs Medical Center
D. Special Chemistry/Immunology, Veterans Affairs Medical Center

II. TEACHING ACTIVITIES:

A. Sophomore medical students, Pathology 600 laboratory course.
B. Pathology house officers, Surgical Pathology/Autopsy supervision and instruction.
C. Technologists and technicians, ongoing inservice instruction on clinical laboratory topics.
D. Physicians, educational lectures regarding aspects of clinical pathology.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Principal Investigator: Production and Regulation of Granuloma Macrophage Mediators, VAMC Merit Review ($49,000 annual).
B. Principal Investigator: Cytokine Cascades in Granuloma Formation, VAMC Merit Review (55,000 annual) 1990-1993.
C. Consultant on NIH-HL-R01-31237, Macrophage Function in Pulmonary Inflammation, Dr. S. Kunkel, Principal Investigator.

PROJECTS UNDER STUDY:

A. Role of cytokines in Schistosoma mansoni egg-induced granulamatous inflammation.
B. Immunolocalization of interleukin 1 and tumor necrosis factor mouse and human inflammatory lesions.
C. Regulation and orchestration of cytokine production during granulomatous inflammation.
D. In situ hybridization to demonstrate local cytokine induction and synthesis of monokine mRNA in cultured cells and tissue sections.
E. In vivo analysis of cytokine cascades in experimental endotoxemia.
F. Analysis of neutrophil and monocyte chemoattractants by immunolocalization in cultured cells and tissue sections.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL: None.

MEDICAL SCHOOL/HOSPITAL:

A. Blood Utilization Review Committee, VAMC, Chairman
B. Research and Development Committee, VAMC, voting member
C. Ambulatory Care Committee, VAMC, voting member
D. Hospital Quality Assurance Investigations, ad hoc committee
E. Personnel employment and evaluation
F. Clinical laboratory equipment evaluation
G. Editor, "VALABS Interface Laboratory News", Laboratory Newsletter

REGIONAL AND NATIONAL:

A. Editorial Review
American Journal of Pathology
Journal of Immunology
Clinical Immunology and Immunopathology
American Journal of Respiratory Cell and Molecular Biology
Agents and Actions
B. Inspector, College of American Pathologists
C. Reviewer and on site inspection for Merit Review Board

V. OTHER RELEVANT ACTIVITIES:

A. Case presentations at GI and Hematology Conferences
B. Case presentations at Morbidity and Mortality Conferences
C. Tissue evaluation for clinical researchers
D. Invited lecture, Upjohn Company

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Kunkel, S.L., Chensue, S.W., Strieter, R.M., Lynch, J.P. and Remick, D.G.: Cellular and molecular aspects of granulomatous inflammation. Am. J. Respir. Cell Mol. Biol. 1989;1:439.
2. Strieter, R.M., Wiggins, R., Phan, S.H., Wharram, B.L., Showell, H.J., Remick, D.G., Chensue, S.W. and Kunkel, S.L.: Monocyte chemotactic protein gene expression by cytokine treated human fibroblasts and endothelial cells. Biochem. Biophys. Res. Comm. 1989;162:694.
3. Warren, J.S., Yabroff, K.R., Remick, D.G., Kunkel, S.L., Chensue, S.W., Kunkel, R.G., Johnson, K.J. and Ward, P.A: Tumor necrosis factor participates in the pathogenesis of acute immune complex alveolitis in the rat. J. Clin. Invest., 1989;84:1873.
4. Strieter, R.M., Chensue, S.W., Basha, M.A., Standiford, T.J., Lynch, J.P., Baggiolini, M. and Kunkel, S.L.: Human alveolar macrophage gene expression of interleukin-8 by tumor necrosis factor-alpha, lipopolysaccharide, and interleukin-1 beta. Am. J. Respir. Cell Mol. Biol. 1990;2:321.
5. Strieter, R.M., Chensue, S.W., Standiford, T.J., Basha, M.A., Showell, H.J. and Kunkel, S.L.: Disparate gene expression of chemotactic cytokines by human mononuclear phagocytes. Biochem. Biophys. Res. Comm. 1990;166:886.

6. Kunkel, S.L., Standiford, T.J., Chensue, S.W., Kasahara, K. and Strieter, R.M.: Cellular and molecular mechanisms of cytokine networking. Agents and Actions, (In Press).
7. Kunkel, S.L., Strieter, R.M., Chensue, S.W. and Remick, D.G.: The role of TNF in diverse pathologic processes. Biotherapy (In Press).

SUBMITTED ARTICLES

1. Chensue, S.W., Terebuh, P.D., Remick, D.G., Scales, W.E., and Kunkel, S.L.: In vivo biologic and immunohistochemical analysis of interleukin-1 alpha, beta and tumor necrosis factor, during experimental endotoxemia: kinetics, Kupffer cell expression and glucocorticoid effects. Am. J. Pathol.
2. Standiford, T.J., Strieter, R.J., Chensue, S.W., Westwick, J., Kasahara, K. and Kunkel, S.L.: Interleukin 4 inhibits the expression of interleukin 8 from stimulated human monocytes. J. Immunol.
3. Standiford, T.J., Westwick, J., Kunkel, S.L., Basha, M.A., Chensue, S.W., Lynch, J.P., Toews, G.B. and Strieter, R.M.: Clin. Invest.

BOOKS AND CHAPTERS IN BOOKS:

1. Kunkel, S.L., Chensue, S.W., Remick, D.G. and Strieter, R.M.: Immunomodulation of pulmonary host defense, in Pozzi, E. (ed) International Symposium on "Pathophysiology of Pulmonary Cells", 1990.
2. Strieter, R.M., Standiford, T.J., Chensue, S.W., Kasahara, K. and Kunkel, S.L.: Induction and regulation of interleukin-8 gene expression. Chemotactic Cytokines. Plenum Press, 1990.

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

1. Chensue, S.W., Terebuh, P.D., and Kunkel, S.L.: Gamma-interferon suppresses schistosome egg granuloma formation: Possible role of natural killer cells. FASEB 1990.
2. Strieter, R.M., Chensue, S.W., Showell, H.J., Basha, M.A., Standiford, T.J., Remick, D.G., Allen, R., Lynch, J.P. and Kunkel, S.L.: Interleukin-8 gene expression by human alveolar macrophages. FASEB 1990.
3. Kasahara, K. Strieter, R.M., Chensue, S.W. Standiford, T.J., and Kunkel, S.L.: Adherence to plastic induces IL-8 gene expression from mononuclear phagocytes. International Symposium on Chemotactic Cytokines. London, England, U.K., June 25-26, 1990.
4. Kunkel, S.L., Chensue, S.W., Kasahara, K,., Remick, D.G. and Strieter, R.M.: The role of LPS, IL-1, and TNF in the induction of chemotactic cytokine expression. IES abstract, 1990.
5. Strieter, R.M., Chensue, S.W., Standiford, T.J., Remick, D.G., Lynch, J.P. and Kunkel, S.L.: Human alveolar macrophage gene expression of interleukin 8 by TNF-alpha, LPS, and IL-1 beta. World Conference on Lung Health, combined meeting of IUATLD, ALA and ATS, 1990.

CONSTANCE J. D'AMATO, B.S.
ASSISTANT PROFESSOR OF NEUROBIOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Work daily with house officers and staff in Pathology and other departments in the gross and microscopic examination of brains from autopsies at University Hospital.
B. Attend and participate in the removal and gross examination of brains from nearly all autopsies at University Hospital.
C. Work in a similar way with the people in "A" on autopsy brain material sent for consultative study from University-associated hospitals, other hospitals, and institutions.
D. Plan and conduct weekly Brain Cutting Conference for house officers, students and staff, for gross diagnosis and demonstrations of diagnostic methods, and teaching.
E. Plan and present gross and microscopic Neuropathology Conference on alternate months for the Neurology Department, and participate occasionally in their Grand Rounds.
F. Continuous review of quality control of diagnostic techniques, autopsy and surgical neuropathology, and search for improved and new methods.

II. TEACHING ACTIVITIES:

A. Neural and Behavioral Sciences 600 (NBS 600), Neuropathology for second year medical students, 5 hours of lectures and 12 hours of brain cutting sessions. Sequence coordinator for NBS 600, Neuropathology; responsible for implementing general plan of course, selection of much of the teaching material, coordination and integration of the lectures and brain cutting sessions of the course with other instructors.
B. Neuropathology for Pathology house officers. This exercise is integrated with Clinical Activities A-D.
C. Neuropathology 858. Intensive laboratory-lecture course for house officers in Pathology, and in the several clinical services concerned with the nervous system, graduate students, and faculty; implement general plan of course. Annual, 18 hours. One credit hour elective.
D. Neuropathology for house officers from the several clinical services concerned with the nervous system, and senior medical students who take an elective rotation in Neuropathology.
E. Teach laboratory techniques and basic neuroanatomy and neuropathology to our laboratory technologists.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

None

PROJECTS UNDER STUDY:

A. With S.P. Hicks in three areas in collaboration with colleagues.

1. A mutant rat in which a transient failure of basement membrane formation in the cephalic neural tube leads to local overgrowth with stenosis of the aqueduct and prenatal hydrocephalus, many affected animals surviving to adulthood. Previous studies had shown that in situ the mutant neuroepithelium transiently failed to produce collagen IV. With K. Sue O'Shea, we have shown that cultured neurons from mutant embryos fail to extend neurites on tissue culture dishes coated with laminin, fibronectin, or type IV collagen, or on culture medium alone, whereas controls formed elaborate neurites. In a related study Sue O'Shea and Paul Killen have shown that there is no preferential localization of a metalloprotease (TIMP) in regions in the mutant where the basement membrane breaks down.
2. Studies continue with James Varani and others to determine whether the phagocytes that appear in certain parts of the embryo in response to cell-killing by radiation add to the malformation that radiation produces, or lessen it by promoting regeneration. For example, the most severe malformation occurs in the mantle of the 16th day embryo where no phagocytes appear.
3. Thrombospondin (TSP), a glycoprotein of extracellular matrices is associated with migrating cells and neurite outgrowth from neurons and is synthesized by neurons and glia. Its possible role in astrocytic hypertrophy (gliosis) following injury is unknown. With Vishva Dixit and Sue O'Shea we have shown preliminarily that TSP appears in association with the hypertrophy of astrocytes in the third week after surgical injury of the rat cerebral cortex but not in the earlier stages.

B. The pathologic examination of human autopsy brains from patients with clinical diagnosis of Alzheimer's, Huntington's, Pick's and other dementing diseases is being done in collaboration with Drs. A.B. Young and J.B. Penney, who are examining the brains biochemically.

C. Growth, spread and antigenicity of ENU-induced gliomas in rats, in collaboration with Paul E. McKeever, M.D., Ph.D. and Terry Hood, M.D..

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Anatomic Pathology Committee.

MEDICAL SCHOOL/HOSPITAL:

A. Director of the Neural and Behavioral Sciences Program.
B. Basic Science Phase Committee.
C. Basic Science Academic Review Board.
D. Neural and Behavioral Sciences Curriculum Committee.
E. Neural and Behavioral Sciences Examinations Committee.
F. Sequence Coordinator for Neural and Behavioral Sciences 600 (Neuropathology).
G. Admissions Committee, U of M Medical School.
H. Executive Committee of the Admissions Committee.
I. Preprofessional Counselor, premedical and health-related students

REGIONAL AND NATIONAL:

A. American Association of Neuropathologists.
B. Reviewer of research grant applications for National Science Foundation Neurobiology Program.
C. Reviewer of journal manuscripts, Teratology, Experimental Neurology, and Science.

V. OTHER RELEVANT ACTIVITIES:

A. Presentation: Alzheimer's Disease and other dementias, at Eastern Michigan University, June 1990.
B. Chairman, Cost Analysis Panel of the Postmortem Examination Work group of the Dementia Subcommittee of the Chronic Disease Advisory Committee (Michigan Department of Public Health).
C. Executive Committee of the Postmortem Examination Work group (Michigan Department of Health).

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Papodopoulos, S.M., Gilbert, L., Webb, R.C., D'Amato, C.J. Characterization of contractile responses to endothelin in human cerebral arteries - implication for cerebral vasospasm. Neurosurgery 26:810-815, 1990.

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

1. Jones, M.L., Douglass, R., Fratkin, J.D., Foster, N.L., D'Amato, C.J., et al. Dementia Postmortem Examination Program: Interim Recommendations for Michigan. (Abstract and Poster). J. Neuropath. Exper. Neurol. 49:307,1990.
2. D'Amato, C.J., O'Shea, K.S., Hicks, S.P., Lack of Neurite Outgrowth in Hydrocephalic Mutant Rat Embryo Neurons. Society for Neuroscience Annual Meeting, St. Louis, November 1990. (Submitted for Poster Presentation).

ROBERTSON D. DAVENPORT, M. D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Fellow in Blood Banking, University Hospitals.
B. Medical coverage of Transfusion Service.
C. Diagnosis of surgical specimens from M-Labs.
D. Diagnosis of cytologic specimens from University Hospital patients.
E. Medical coverage of Necropsy Service.
F. Deputy Medical Exmaniner.

II. TEACHING ACTIVITIES:

A. Course on Transfusion Medicine for Pathology House Officers.
B. Postgraduate Course, "Current Topics in Blood Banking"
Workshop: "Component Therapy in Coagulation Disorders."
Lecture: "How Should Transfusion Reactions be Evaluated?"
C. Continuing education presentations for Blood Bank technologists.
D. Daily teaching rounds for Pathology House Officers assigned to the Blood Bank.

III. ADMINISTRATIVE ACTIVITIES:

PROJECTS UNDER STUDY

A. Cytokine production in hemolytic transfusion reactions.
B. Value of prophylactic plasma transfusion before percutaneous liver biopsy.
C. Clinical characteristics of delayed hemolytic transfusion reactions.
D. Histopathology of hemolytic transfusion reactions.
E. Hemolytic transfusion reactions due to Anti-i.

IV. ADMINISTRATIVE ACTIVITIES:

MEDICAL SCHOOL/HOSPITAL

A. Transfusion Committee.

V. OTHER RELEVANT ACTIVITIES:

A. Reviewer, Transfusion.
B. Reviewer, American Journal of Clinical Pathology.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Davenport, R.D.: Cytologic diagnosis of *Campylobacter pylori*-associated gastritis. Acta Cytopathol. 1990;34:211-213.
2. Davenport, R.D.: Cytologic diagnosis of fibrolemellar carcinoma of liver by fine-needle aspiration. Diag. Cytopathol. (in press).
3. Davenport, R.D.: Diagnostic value of crush artifact in cytologic specimens. Occurrence in small cell carcinoma of the lung. Acta Cytopathol. (in press).
4. Davenport, R.D.: Rapid on-site evaluation of transbronchial aspirates. Chest (in press).
5. Davenport, R.D., Register, L.J., Schnitzer, B. and McKeever, P.E.: Non-Hodgkin's lymphoma of the brain following Hodgkin's disease: An immunohistochemical study. Cancer (in press).

BOOKS AND CHAPTERS IN BOOKS:

1. McKeever, P.E., Davenport, R.D. and Shakui, P.: Patterns of antigenic expression of cultured human glioma cells, in, Nelson, J.S. (Ed.), CRC Critical Reviews in Neurobiology. (in press).

ABSTRACTS:

1. Flint, A., Davenport, R.D. and Lloyd, R.V.: The tall cell varient of papillary thyroid carcinoma: comparison with the common form of papillary thyroid carcinoma by DNA and morphometric analysis. Lab. Invest. 1990:62;34A.

VISHVA M. DIXIT, M.D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES: None.

II. TEACHING ACTIVITIES:

A. Supervised the following undergraduate students: Mark Burt, Kara Reynolds
B. Supervised the following graduate students: Carol Laherty, Tony Opipari, Ron Katz, Cameron Scarlet
C. Supervised the following post doctoral fellows: Larry Holzman, Vidya Sarma, Rachel Yabkowitz, Theresa Bacon-Baguely, Valarie Castle
D. Graduate School Pathology Course. Lectures on Extracellular Matrix.
E. Cell and Molecular Biology course to clinical fellows.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

1. NIH-R01-39037-01 - "Structure and Regulation of Human Platelet Thrombospondin". Period 07/01/87 - 06/30/92. Budget - $101,554, Principal Investigator, 40% effort.
2. NIH-R01-HD23867 - "Role of Thrombospondin in CNS Development". Period 02/01/88 - 01/31/91. Budget - $101,022, Co-Investigator, 10% effort.
3. American Heart Association Established Investigatorship Award. #89-217 - "Structure and Function of Thrombospondin", Period 07/01/89-06/31/94, Budget $35,000 annually, Principal Investigator.
4. DK39255-03 - "Mechanisms of Glomerular and Tubular Injury", Period 09/01/87-07/31/92, first year direct costs $40,000, Co-Investigator, Roger C. Wiggins, Program Director.
5. Grant-in-Aid, American Heart Association, "Thrombospondin Heparin Binding Domain and Platelet Function", Period 07/01/90-06/30/93, $35,000 per year, Principal Investigator.
6. American Cancer Society - "Novel Thrombospondin Receptors on Squamous Carcinoma Cells", Period 07/01/90 - 06/30/93, Budget- $85,000, Principal Investigator.
7. NIH-45351 - "Cytokine Modulation of Endothelial Gene Expression", Period 07/01/90 - 06/30/93, Budget $116,327, Principal Investigator.

PENDING GRANTS:

1. NIH-CA51888, "Novel Thrombospondin Receptors on Squamous Carcinoma Cells", 12/01/90 - 11/30/93, Budget $108,282, Principal Investigator.

PROJECTS UNDER STUDY:

A. Structure/function relationships in thrombospondin.
B. Mechanisms of action of tumor necrosis factor.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Interview prospective graduate students for a) Molecular and Cell Biology Program, and b) Medical Scientist Training Program.
B. Taught a graduate school course on Extracellular Matrix.
C. Taught a pathology resident course on molecular biology.
D. Participated in graduate school pathology program.

MEDICAL SCHOOL/HOSPITAL:

A. Review BMRC grants.
B. Taught in Cell and Molecular Biology course for fellows.
C. Committee on Cell and Molecular Biology.

REGIONAL AND NATIONAL:

A. Reviewer for the following journals: Journal of Biological Chemistry, Journal of Clinical Investigation.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES AND SEMINARS:

1.. Invited Speaker, University of Minnesota, Minneapolis, Minnesota, 1989
2. Lecture, University of Michigan, Department of Internal Medicine, Nephrology Division, 1989
3. Invited Speaker, Glycomed, Alameda, CA, 1989
4.. Invited Speaker, Cytogen, Princeton, NJ, 1989
5. Lecture, University of Michigan, Department of Biology, 1989
6. Lecture, University of Michigan, Department of Internal Medicine, Nephrology Division, 1989
7. Invited Speaker, University of Wisconsin, Madison, WI, 1989
8. Invited Speaker, University of South Carolina, Charleston, South Carolina, 1990
9. Invited Speaker, Biogen, Inc., Cambridge, MA, 1990
10. Invited Speaker, Cleveland Clinic Foundation, Cleveland, OH, 1990
11. Invited Speaker, Scripps Clinic, La Jolla, California, 1990
12.. Invited Speaker, World Conference on Lung Health, American Lung Association, Boston, MA, 1990

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. McClenic, B., Mitra, R.S., Riser, B.L., Nickoloff, B.J., Dixit, V.M., Varani, J.: Production and utilization of extracellular matrix molecules by human melanocytes. Exp. Cell Res., 1989;180:314-325.
2. Laherty, C., Gierman, T., and Dixit, V.: Characterization of the promoter region of the human thrombospondin gene. DNA sequences within the first intron increase transcription. J. Biol. Chem., 1989;264:11222-11227.
3. Yabkowitz, R., Lowe, J.B., Dixit, V.M.: Expression and initial characterization of a recombinant human thrombospondin heparin binding domain. J. Biol. Chem., 1989;264:10888-10896.
4. Varani, J., Riser, B.L., Hughes, L.A., Carey, T.E., Fligiel, S.G., Dixit, V.M.: Characterization of thrombospondin synthesis, secretion and cell surface expression by human tumor cells. Clin. Exp. Metastasis, 1989;7:265-276.
5. Varani, J., Mitra, R.S., McClenic, B.J., Fligiel, S.E.G., Inman, D.R., Dixit, V.M., and Nickoloff, B.J.: Modulation of fibronectin production in normal human melanocytes and malignant melanoma cells by interferon-g and Tumor necrosis factor-a. Amer. J. Pathol., 1989;134:827-836.
6. Prochownik, E.V., O'Rourke, K. and Dixit, V.M.: Expression and analysis of c-terminal deletions of the human thrombospondin molecule. J. Cell Biol., 1989;109:843-852.
7. Dixit, V.M., Marks, R.M., Sarma, V. and Prochownik, E.V.: The antimitogenic action of tumor necrosis factor is associated with increased AP-1/c-jun proto-oncogene transcription. J. Biol. Chem., 1989;264:16905-16909.
8. Phan, S.H., Dillon, R.G., McGarry, B.M., Dixit, V.M.: Stimulation of fibroblast proliferation by thrombospondin. Biochem. Biophys.. Res. Commun., 1989;163(1):56-63.
9. Varani, J., Nickoloff, B.J., Dixit, V.M., Mitra, R.S. and Voorhees, J.J.: All-trans retinoic acid stimulates growth of adult human keratinocytes cultured in growth factor-deficient medium, inhibits production of thrombospondin and fibronectin, and reduces adhesion. J. Invest. Derm., 1989;93:449-454.
10. Riser, B.L., Mitra, R., Perry, D., Dixit, V.M. and Varani, J.: Monocyte killing of human squamous epithelial cells: Role for thrombospondin. Cancer Research, 1989;49:6123-6129.
11. Dixit, V.M., Green, S., Sarma, V., Holzman, L., Wolf, F.W., O'Rourke, K., Ward, P.A., Prochownik, E.V. and Marks, R.M.: Tumor Necrosis factor-a induction of novel genes in human endothelial cells including a macrophage specific chemotaxin. J. Biol. Chem., 1990;265:2973-2978.
12. Barker, J.N.W.N., Sarma, V., Mitra, R.S., Dixit, V.M., Nickoloff, B.J.: Marked synergism between TNF-a and IFN-g in regulation of keratinocyte-derived adhesion molecules and chemotactic factors. J. Clin. Invest., 1990;85:605-608.
13. Wolf, F.W., and Dixit, V.M.: Structure of the thrombospondin gene provides evidence for exon shuffling. Genomics, 1990;6(4):685-691.
14. O'Shea, K.S., Rheinheimer, J.S.T., and Dixit, V.M.: Deposition and role of thrombospondin in the histogenesis of the cerebellar cortex. J. Cell. Biol., 1990;110(4):1275-1284.
15. Long, M.W., and Dixit, V.M.: Thrombospondin functions as a cytoadhesion molecule for human hematopoietic progenitor cells. Blood 1990;75(12):2311-2318.
16. Opipari, A.W., Boguski, M.S., Dixit, V.M.: The A20 cDNA induced by tumor necrosis factor a encodes a novel type of zinc finger protein. J. Biol. Chem., in press, 1990.
17. Holzman, L.B., Marks, R.M., Dixit, V.M.: A novel immediate-early response gene of endothelium is induced by cytokines and encodes a secreted protein. Mol. Cell. Biol., in press.
18. O'Shea, K.S., Liu, L.-H.J., Kinnunen, L.H., Dixit, V.M.: Role of the extracellular matrix protein thrombospondin in the early development of the mouse embryo. J. Cell Biol., in press.

ARTICLES SUBMITTED FOR PUBLICATION

1. Castle, V.P., Varani, J., Fligiel, S., Prochownik, E.V., Dixit, V.M.: Antisense-mediated reduction in thrombospondin reverses the malignant phenotype of a human squamous carcinoma. J. Cell Biol., submitted.
2. Yabkowitz, R. and Dixit, V.M.: Two distinct thrombospondin receptors specific for different functional domains in human carcinoma cells. J. Clin. Invest., submitted.
3. Suchard, S.J., Boxer, L.A. and Dixit, V.M.: Human neutrophils express two distinct thrombospondin receptors. J. Clin. Invest., submitted.
4. O'Shea, K.S., Liu, L-H.J., and Dixit, V.M.: Thrombospondin promotes neuron attachment and neurite outgrowth. J. Cell. Biol., submitted.

VICTOR M. ELNER, M.D., PH.D.
ASSISTANT PROFESSOR OF OPTHALMOLOGY AND PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Ophthalmic Surgery Pathology

II. TEACHING ACTIVITIES:

A. Instruction of Pathology Residents in Ocular Pathology (regularly until 2/90 then as asked, eg., cases for teaching conferences, review of specific cases)
B. Ophthalmic Pathology Lectures (2 - 2 hour lectures)
C. Ophthalmic Pathology Grossing Manual
D. Preceptor: Ophthalmic Pathology Resident Research (Drs. Pavilack, Wu, Dutt)
E. Visiting Lecturer: Mount Sinai Hospital, Detroit, MI; Michigan State University, East Lansing, MI

III. RESEARCH ACTIVITIES:

A. Retinal Pigment Epithelial Cell Biology
B. Corneal Cell Biology
C. Anatomic and Pathologic Correlations in Ophthalmic Plastic and Orbital Surgery
D. Collaborative Ocular Melanoma Study: Pathologist
E. Selected topics in Ophthalmic Surgical Pathology and Experimental Ophthalmic Pathology (eg. glaucoma)
F. Sponsored Research - Co-Investigator: Ultrastructural and Immunohistochemical Analysis of Mechanically-Induced Retinal Pigment Epithelial Fibrous Metaplasia (SG Elner; Principal Investigator - Michigan Eye Bank 1989-1990)

IV. AWARDS

a. The American Society of Ophthalmic Plastic and Reconstructive Surgery Research Award, 1989 for Elner, VM: "The Histologic Anatomy of the Medical Canthal Ligament and Surrounding Structures." Dissertation, American Association of Ophthalmic Plastic and Reconstructinve Surgery, 1989.

IV. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Elner, V.M., Stieter, R.M., Elner, S.G., Baggiolini, M., Lindley, I., Kunkel, S.L.: Neutrophil chemotactic factor (IL-8) gene expression by cytokine treated retinal pigment epithelial cells. Am. J. Pathol. 1990;136:745-750.
2. Carpenter, J.L., Schmidt, G.M., Moore, F.M., Albert, D.M., Abrams, K.L., Elner, V.M.: Canine bilateral extraocular polymyositis. Vet. Pathol. 1989;26:510-512.
3. Elner, S.G., Elner, V.M., Albert, D.M., Arnall, M.: Ocular associated systemic findings in suspected child abuse: A necropsy study. Arch. Ophthalmol. 1990 (In Press).
4. Cajita, V.M., Tolentino, F.I., Refojo, M., Elner, V.M., Abert, D.M.: Carmusinte (BCNU) - silicone oil in proliferative vitreoretinopathy: Antiproliferative and toxicity drug studies. Curr. Eye Res. 1990 (Submitted)
5. Elner, V.M., Elner, S.G., Pavilack, M.A., Todd, R.F., Yue, B., Huber, A.R.: Intercellular Adhesion Molecule-1 (ICAM-1) Mediates Leukocytes binding by human corneal endothelium. Arch. Ophthalmol. (Submitted)
6. Elner, S.G., Strieter, R.M., Elner, V.M., Rollins, B.J., DelMonte, M.A., Kunkel, S.L.: Monocyte chemotactic protein gene expression by cytokine-treated human retinal pigment eptihelial cells. Arch. Ophthalmol. (Submitted)

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR, ARTICLES PUBLISHED IN UNREFEREED JOURNALS :

1. Elner, V.M., Strieter, R.M., Elner, S.G. and Kunkel, S.L.: Monocyte chemotactic protein (MCP) gene expression by cytokine treated human retinal pigment epithelium (RPE) cells. FASEB 1990 J 4(Suppl):A641.
2. Skuta, G.L., Wilkinson, W.L., Bergstrom, T.J. and Elner, V.M.: The effects of intraoperative topical application of mitmycin-c on filtration surgery in rabbits. Invest. Ophthalml. Vis. Sci. 1990 31(Suppl):275.
3. Elner, V.M., Elner, S.G. and Cornicelli, J.A.: Human and monkey RPE cells express native nad acetylated low density lipoprotein receptorss in vitro and in vivo. Invest. Ophthalml. Vis. Sci. 1990 31(Suppl):370.
4. Pavilack, M.A., Elner, S.G., Feldman, L.E., Todd, R.F. and Elner, V.M.: Human RPE cells express leukocyte integrins and intercellular adhesion molecules. Invest. Ophthalml. Vis. Sci. 31(Suppl):372.
5. Crew, R.P., Skuta, G.L., Elner, V.M. and Musch, D.C.: Triamcinolone acetonide and filtering surgery in a primate model. Invest. Ophthalml. Vis. Sci. 31(Suppl):591.

BARRY G. ENGLAND
ASSOCIATE PROFESSOR OF REPRODUCTIVE BIOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Director, Ligand Assay Laboratory.

II. TEACHING ACTIVITIES:

A. Instructor for Pathology House Officers Laboratory Rotation.
B. Instructor for Nuclear Medicine Residents Laboratory Rotation.
C. Thesis Committee Member for Hamed Benghuzzi, University of Dayton.
D. Participant, Clinical Pathology Grand Rounds.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. USPHS (NIDDKD) 2P60AM20572-10: Michigan Diabetes Research and Training Center; Director Ligand Assay Core Facility, 129,322/yr., 1987-1992.
B. USPHS (NICHD) 5T32HD07048-13: Training Program in Reproductive Endocrinology, Co-Investigator, 193,082/yr, 1975-1990.
C. Protocol to evaluate the transdermal delivery of estradiol-17B in postmenopausal women. Sponsor: Ciba-Geigy Corp.

IV. SERVICE ACTIVITIES:

DEPARTMENTAL:

A. Director, Central Ligand Assay Laboratory.

MEDICAL SCHOOL/HOSPITAL:

A. Director, Ligand Assay Core Facility, Diabetes Research and Training Center.
B. Co-Director, Standards and Reagents Core Facility, Reproductive Sciences Program.
C. Member, Selection Committee, Reproductive Sciences Program.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. Presented workshop on radioimmunoassay techniques for ovarian steroids and gonadotropins. Utah State University, April 27 & 28, 1989.
2. Presented workshop on a comparison of commercial estradiol radioimmunoassays at the Clinical Ligand Assay Society, Washington D.C. May 4, 1990.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Jin, J., Song, J., Chandler, W.F., England, B.E., Smart, J.B., Barkan, A., and Lloyd, R.V.: Hybridization Studies of Cultured Human Pituitary PRL and GH Producing Adenoma Cells; Effects of Thyrotropin-Releasing Hormone, Somatostatin, and Phorbal Ester. Endocrine Pathology 1990;1(1).
2. Grenman, S.E., Van Dyke, D.L., Worsham, M.J., England, B.E., McClatchey, K.D., Hopkins, M., Babu, V.R., Grenman, reider, and Carey, T.E.: Phenotypic Characterization, Karyotype Analysis and in Vitro Tamoxifen Sensitivity of New ER-Negative Vulvar Carcinoma Cell Lines-UM-SCV-1A and UM-SCV-1B. International Journal of Cancer 1990;45(5):920-927.
3. Grenman, S.E., Worscham, M.J., Van Dyke, D.L., England, B.E., McClatchey, K.D., Babu, V.R., Roberts, J.A., Maenpaa, J., and Carey, T.E.: Establishment and Characterization of UM-EC-2, A Tamoxifen Sensitive Estrogen Receptor Negative Human Endometrial Carcinoma Cell Line. Gynecologic Oncology 1990;37(2):188-199.
4. Benghuzzi, H.A., Bajpai, P.K., and England, B.G.: Delivery of Testosterone and Dihydrotestosterone by ALCAP Ceramic Implants in Rats. Journal of Investigative Surgery (In Press).
5. Vinik, A.I., Gonin, J., England, B.G., Jackson, T., McLoed, M.K., and Cho, L.: Plasma Substance P in Neuroendocrine Tumors and Idiopathic Flushing. The Value of Pentagastrin Stimulation Tests and the Effects of Somatostatin Analogue. Journal of Clinical Endocrinology and Metabolism (In Press).
6. Benghuzzi, H.A., Bajpai, P.K., and England, B.G.: Long-Term Delivery of Danazol by Biodegadable Ceramic Devices. Journal of Applied Biomaterials Research (In Press).

BOOKS AND CHAPTERS IN BOOKS:

1. Benghuzzi, H.A., Bajpai, P.K., England, B.G.: Suppression of Spermatogenesis by Means of Continuous Delivery of Danazol in Combination with Dihydrotestosterone from ALCAP Drug Delivery Devices, in Paul Frenger (ed.) The 27th Annual Meeting of the Rocky Mountain Bioengineering Syposium. pp.141-149.
2. Benghuzzi, H.A., Jajpai, P.K., Barbaro, R., Lee, J., and England, B.G.: Long-term Delivery of Danazol by Biodegradable Ceramic Devices, in W.A. Krause (ed.) Digest of Papers, Eighth Southern biomedical Engineering Conference. McGregor and werner, Washington, D.C., pp. 58-61.

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

1. Benghuzzi, H.A., Bajpai, P.K., and England, B.G.: Long-Term Delivery of Danazolby Biodegradable Ceramic Devices. Eighth Southern Biomedical Engineering Conference. October 15-16,1989.

2. Benghuzzi, H.A., Bajpai, P.K., England, B.G.: Suppression of Spermatogenesis by Means of Continuous Delivery of Danazol in Combination with Dihydrotestosterone from ALCAP Drug Delivery Devices. The 27th Annual Meeting of the Rocky Mountain Bioengineering Symposium. April 6-7, 1990, Denver, Colorado.
3. Benghuzzi, H,A., Bajpai, B.K., and England, B.G.: Regulation Of Supermatogenesis by Means of Sustained Delivery of Testosterone from Biodegradable Ceramic Implants. The Ninth Southern Biomedical Engineering Conference. Nov. 17-18, 1990, Miami, Florida.

JOSEPH C. FANTONE, M.D.
ASSOCIATE PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Autopsy Service.
B. Occasional Surgical Pathology Interpretation.

II. TEACHING ACTIVITIES:

A. Director, Resident Training Program
B. Graduate Program Committee (Chairman).
C. Course Director - Pathology 600.
D. Laboratory Instructor - Pathology 600.
E. Coordinator - Senior Medical Student Clerkships.
F. Sequence Coordinator and Lecturer - Sophomore Medical Students (ICS-600) Immunopathology.
G. Associate Director - Sophomore Medical Student ICS Course (600/601).
H. Pulmonary Pathology Conference (monthly to Pulmonary Division - Internal Medicine).
I. Lecturer - Microbiology and Immunology 624.
J. Lecturer - Pathology 580.
K. Preceptor - Undergraduate and Medical Student Research (3).
L. Graduate Student Ph.D. Thesis Committee (3).
M. Preceptor for one Postdoctoral Fellow.

III. RESEARCH ACTIVITIES:

A. Regulation of phagocytic cell-mediated tissue injury.
B. Signal transduction pathways of phagocytic cells.

SPONSORED SUPPORT:

A. Principal Investigator: Modulation of Immune Complex Lung Injury (NIH-R01-HL-32024).
B. Principal Investigator: Mechanisms of Myocardial Ischemia/Reperfusion Injury (NIH-R01-HL44085).
C. Principal Investigator: Phagocytic Cell and Glomerular Injury. Section IV of Renal Center Grant (NIH-P50-DK39255).
D. Co-Investigator: Mechanisms and Genetic Regulation of Pulmonary Fibrosis. (S.H. Phan; Principal Investigator) (NIH-5-R01-HL-28737).
E. Co-Investigator: Pharmacologic Studies on the Ischemic Heart (B. Lucchesi, Principal Investigator) (NIH-R01-HL-19782).

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Chairman's Advisory Committee
B. Coordinator - Educational Activities.
C. Department ACAPT Committee
D. Research Space Advisory Committee
E. Department Computer Committee
F. Department Photography Committee

MEDICAL SCHOOL/HOSPITAL:

A. Medical Student Advisor (3rd and 4th year).
B. ICS - Executive Committee.
C. Basic Science Phase Committee (Chairman).
D. Clinical Phase Committee.
E. Medical Student Basic Science Academic Review Board.
F. Medical Student Clinical Phase Academic Review Board.
G. Academic Affairs Council.
H. Task Force on Medical School Admissions and Promotions, 1990.
I. External Review Committee (Chairman), Department of Post-Graduate Medicine and Health Professions Education.
J. Medical School Admissions Committee.
K. LCME Review: Subcommittee for Educational Programs.

REGIONAL AND NATIONAL:

A. NIH Site Visit, Program Project: Physical Properties and Biologic Functions of Lipids, Hormel Institute, Austin, Minnesota, 1990.
B. NIH Site Visit, Program Project: Ether Lipids, Eicosanoids, and Lung Pathophysiology, National Jewish Hospital, Denver, Colorado, 1990.
C. Editorial Board, Laboratory Investigation.
D. Reviewer, Veteran's Administration Research Grants.
E. Reviewer for: J. Clin. Invest., J. Immunol., Science, Am. J. Pathol., Lab. Invest., Prostaglandins, J. Biol. Chem., Am. Rev. Respir. Dis., J. Leuk. Biol., Circ. Res., Biochem. Pharm., Am. J. Phys., Circulation.

V. INVITED LECTURES AND SEMINARS:

1. Visiting Professor, Department of Surgery, University of Hawaii Medical School, 1990.
2. Invited Speaker, Symposium on Inflammation and Healing of Sports-Induced Soft Tissue Injury. Bethesda, Maryland, 1989.

.VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Lucchesi, B.R., Werns, S.W. and Fantone, J.C.: The role of the neutrophil and free radicals in ischemic myocardial injury. J. Mol. Cell. Cardiol. 1989;21:1241-1251.

2. Simpson, P.J., Todd, R.F., Mickelson, J.K., Fantone, J.C., Gallagher, K.P., Lee, K.A., Tamura, Y. and Lucchesi, B.R.: Sustained limitation of myocardial reperfusion injury by a monoclonal antibody that inhibits leukocyte adhesion. Circulation 1990; 81:226-237.
3. Peters-Golden, M., McNish, R.W., Brieland, J.K., and Fantone, J.C.: Diminished protein kinase C activated arachidonate metabolism accompanies rat macrophage differentiation in the lung. J. Immunol. 1990;144:420-426.
4. Vissers, M.C.M. and Fantone, J.C.: Inhibition of hypochlorous acid- mediated reactions by deferoxamine. Implications for the mechanism of cellular injury by neutrophils. Free Rad. Biol. & Med. 1990;8:331-337.
5. Crockett-Torabi, E. and Fantone, J.C.: Soluble and insoluble immune complexes activate human neutrophil NADPH oxidase by distinct Fcg receptor-specific mechanisms. J. Immunol. (in press)

CHAPTERS IN BOOKS:

1. Fantone, J.C.: Pathogenesis of ischemia-reperfusion injury: An overview. In, Clinical Ischemic Syndromes. Mechanisms and Consequences of Tissue Injury. G.B. Zelenock (Ed.) C.V. Mosby Co. pg. 1137-146, 1990.
2. Walker, B.A.M. 2 and Fantone, J.C.: Inflammation, Basic and Clinical Immunology. L.H. Sigal and Y. Ron (Eds.) McGraw-Hill Publishers, 1990.
3. Fantone, J.C.: Basic Concepts of inflammation. Inflammation and Healing in Sports Medicine. W. Ledbett J. Buckwalter and S. Gordon (Eds.) McGraw-Hill Publishers, 1990.

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

1. Jones, M.L., Karabin, G., Stoolman, L., Nickoloff, B. and Fantone J.: Monocyte chemoattractant mRNA expression and activity production in the human Jurkat cell line clone J59-78. Fed. Proc. 4:A348, 1990.
2. Fantone, J., Torabi, E., Loomis, T., Stevenson, V. and Shayman, J.: Dissociation of insoluble immune complex induced neutrophil superoxide anion (O^-_2) production and changes in inositol trisphosphate (IP3). Fed. Proc. 4:A496, 1990.
3. Buckmaster, M.J., Werns, S.W., Shlafer, M., Lucchesi, B. and Fantone, J.C.: Inhibition of sarcoplasmic reticulum Ca^{2+}/Mg^{2+}-dependent ATPase by myoglobin-hydrogen peroxide. Fed. Proc. 4:A1217, 1990.
4. Fantone, J.C. and Loomis, T.: Human neutrophil phospholipase C activity is modulated by PGE_1 and cAMP-dependent protein kinase. 24th Annual Scientific Meeting, Eur. Soc. Clin. Invest., 1990.

ANDREW FLINT, M.D.
ASSOCIATE PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Surgical Pathology Rotations, July (2/4), August (4/4), October (2/4), January (2/4), February (2/4), April (2/4), June (2/4).

II. TEACHING ACTIVITIES:

A. Pathology 600 Lectures:
   1. Pulmonary Pathology I - January, 1990
   2. Pulmonary Pathology II - January, 1990
   3. Pulmonary Pathology III - January, 1990
   4. Pulmonary Pathology IV - January, 1990
   5. Pulmonary Pathology V - January, 1990
   6. Gyn Pathology I - March, 1990
   7. Gyn Pathology II - March, 1990
   8. Gyn Pathology III - March, 1990
   9. Pathology 600 Laboratory Instructor, January - April, 1990

B. Pathology 630:
   1. Respiratory Disease I - October, 1989
   2. Respiratory Disease II - October, 1989

C. Residency Training:
   1. Diseases of the Chest I - April, 1990
   2. Diseases of the Chest II - April, 1990
   3. Diseases of the Chest III - June, 1990

D. Other educational activities:
   1. M4 student elective mentor, September, 1989
   2. Clinicopathologic Conference, Department of Internal Medicine, January, 1990
   3. Clinicopathologic Conference, Department of Internal Medicine, February, 1990
   4. Clinicopathologic Conference, Department of Internal Medicine, March, 1990
   5. Clinicopathologic Conference, Department of Internal Medicine, April, 1990
   6. Clinicopathologic Conference, Department of Internal Medicine, June, 1990
   7. Autopsy Review Conference, Department of Internal Medicine, June, 1990
   8. Pulmonary Pathology - Radiology Conference, Department of Radiology, February, 1990
   9. Pulmonary Pathology - Radiology Conference, Department of Radiology, March, 1990
   10. Pulmonary Pathology - Radiology Conference, Department of Radiology, April, 1990
   11. Department of Internal Medicine Seminar, "Pathology of Pulmonary Vascular Disorders", August, 1989
   12. Department of Internal Medicine Seminar, "Pathology of Lymphoid Pulmonary Disorders", October, 1989

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Pathology Consultant, Morphologic Studies of Diffuse Interstitial Lung Diseases, A Multi-Institution Project, Reuben M. Cherniak, M.D., National Jewish Hospital, Program Director.
B. Monoclonal Antibodies to Bladder Tumor Antigens, H. Barton Grossman, M.D. (Principal Investigator), Andrew Flint, M.D. (Co-Investigator).
C. Pathology Consultant, Prospective Investigation of Pulmonary Embolism Diagnosis, John G. Weg, M.D., Principal Investigator.

PROJECTS UNDER STUDY:

A. The pathologic manifestations of nasal involvment by Wegener's Granulomatosis
B. Wegener's Granulomatosis: morphologic and immunohistochemical analysis
C. Methotrexate-induced hepatic disease: an analysis of sequential liver biopsy samples
D. Papillary adenoma of the lung: morphologic and immuno-chemical analysis
E. Morphometric analysis and quantitation of peroxidase staining intensity of cultured urinary bladder carcinoma cells.
F. Interstitial lung disease: the influence of biopsy site on diagnosis.
G. The morphologic manifestations of metastatic renal cell carcinoma to the lung
H. The specificity of a monoclonal antibody to a colon-specific CEA epitope: an aid in detecting metastatic colon carcinoma to the lung?
I. Tall cell papillary carcinoma of the thyroid: DNA analysis and comparison to other forms of thryroid carcinoma.
J. DNA analysis of preoperative esophageal biopsy samples: can ploidy analysis predict prognosis?

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Educational Coordinator, Residency Training Program (July, 1989 - April, 1990).
B. Chairman, Residency Candidates Selection Comittee (July, 1989 - April, 1990).
   1. Interviewed 33/36 candidates
   2. Revision of recruitment brochures
C. Design of Surgical Pathology Fellowship Program, in collaboration with Ricardo V. Lloyd, M.D., Ph. D.
D. Coordinator, Senior Staff Service Rotation
E. Chairman, Pathology Residency Advisory Committee (July, 1989 - April, 1990).

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. Editorial Review: Annals of Thoracic Surgery, Archives of Pathology and Laboratory Medicine, Human Pathology.
2. Guest Pathologist, Tri-State Thoracic Society, Orange Beach, Alabama, January, 1990.
3. "Pitfalls in effusion cytology and the use of special techniques" American Society of Cytology, Louisville, Kentucky, November 1989.

VI. PUBLICATIONS:

1. Hegg CA., Flint A.: Neurofibroma of the Ovary. Gynecologic Oncology (in press).
2. Del Buono EA, Flint A: The diagnostic utility of nasal biopsy in Wegener's Granulomatosis. Human Pathology (in press).
3. Grossman HB, Liebert M, Wedemeyer G, Wilson, Flint A: Fibronectin distribution in normal and malignant urothelium. Journal of Urology 143:418-420, 1990.
4. Liebert M, Wedemeyer G, Chang JHC, Stein JA, McKeever PE, Carey TE, Flint, Steplewski Z, Buchsbaum DJ, Wahl RL, Grossman HB: Comparison of antigen expression on normal urothelial cells in tissue section and tissue culture. Cancer Research (in press).

SUBMITTED PUBLICATIONS:

1. Flint A, Davenport RD, Lloyd RV: The Tall Cell variant of papillary carcinoma of the Thyroid gland: Comparison to the common form of papillary carcinoma by DNA and morphometric analysis. (Archives of Pathology and Laboratory Medicine).
2. Hegg CA, Flint A., Singh G, Fantone JC: Papillary Adenoma of the Lung. (Cancer).

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

1. Flint A, Davenport, RD, Lloyd RV: The Tall Cell variant of papillary carcinoma of the Thyroid gland: Comparison to the common form of papillary carcinoma by DNA and morphometric analysis. International Academy of Pathology, Boston, Mass., 1990.
2. Barnett JL, Flint A, Moseley RH, Nostrant TT, Lucey MR, Fleckenstein JK, Appelman HD: Hepatotoxicity of methotrexate therapy in psoriasis. American Association for the Study of Liver Diseases, November, 1989.
3. Book Review: Principles and Practice of Surgical Pathology. 2 volumes. 2nd Ed. Silverberg, S., ed. American Journal of Surgical Pathology.

THOMAS FRANK, M.D.
ASSISTANT PROFESSOR OF CLINICAL CHEMISTRY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Surgical Pathology - three months
B. Necropsy Service - on call
C. Consultant for Breast Pathology - two weeks

II. TEACHING ACTIVITIES:

A. Medical Students
   1. Lecturer, Pathology 600 Course
   2. Lecturer, Introduction to Clinical Sciences 601 Course
B. House Officers
   1. Lecturer, Anatomic Pathology Didactic Conference

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Development of a novel strategy for determining the clonal origin of cells from prepared histologic sections. A. P. Feinberg, M.D., M.P.H., Howard Hughes Medical Institute, Principal Investigator.

PROJECTS UNDER STUDY:

A. Genetic analysis of drug-resistant ovarian carcinoma, with M.S. Sklar, M.D.
B. Multiinstitutional clinicopathologic study of stage IB mixed adenosquamous carcinoma of the cervix, with R.K. Reynolds, M.D. and C. Helm, M.D.; abstract submitted.
C. Pathologic-radiologic correlation of atypical hyperplasia of the breast, with M.A. Helvie, M.D.; results presented at La Societe Suisse de Senologie.
D. Morphologic assessment of renal injury during vascular surgery, with L.G.D'Alecy, M.D.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Member, Quality Assurance/Quality Control Committee
B. Consultant for Computer Issues for Surgical Pathology

REGIONAL AND NATIONAL:

A. Member, American Association for the Advancement of Science
B. Member, United States & Canadian Academy of Pathology (US-CAP)
C. Member, American Medical Association (AMA)
D. Member, American Society of Clinical Pathologists

V. OTHER RELEVANT ACTIVITIES:

A. Visiting Professor, Department of Pathology, Massachusetts General Hospital, Boston, MA, December 1989. Sponsored by Robert A. Sculley, M.D.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Zlatkin MB, Lenkinski RE, Shinkwin M, Schmidt RG, Daly JM, Holland GA, Frank T, Kressel HY: Combined magnetic resonance imaging and spectroscopy of bone and soft tissue tumors. Journal of Computer Assisted Tomography, 1990;14(1): 1-10.
2. Frank TS, Bhat N, Noumoff JS, Yeh I: Residual Trophoblast as a source of Highly Atypical Cells in the Postpartum Cervicovaginal Smear. (Acta Cytologica, in press)
3. Shinkwin MA, Lenkinski RE, Zlatkin MB, Frank TS, Holland GA, Schmidt RG, Kressel HY, Daly JM: Assessment of soft tisue tumors using integrated magnetic resonance imaging and ^{31}P-spectroscopy. (Cancer, in press)
4. Frank RS, Frank TS, Zelenock GB, D'Alecy LG: Intermittent reperfusion reduces functional and morphologic damage following renal ischemia. (Journal of Vascular Surgery, in press)

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

1. Brooks JJ, Perosio P, Frank TS, Swanson SA, Palman C, Bowen-Pope, D: Growth-related molecules in sarcomas and other soft tissue tumors. UCLA Symposium on Sarcomas, March, 1990.
2. Helvie MA, Hessler C, Frank TS, Ikeda DM: La traduction radiologique des mastopathies a risques. La Societe Suisse de Senologie, June, 1990.
3. Frank, TS: Book review, Pathology of the Mediastinum, in American Journal of Surgical Pathology (in press).

BRUCE A. FRIEDMAN, M.D.
PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Director, Pathology Data Systems.
B. Director, Phlebotomy Services and Central Distribution.
C. Staff supervision of the Autopsy Service.

II. TEACHING ACTIVITIES:

MEDICAL SCHOOL/HOSPITALS:

A. Program Director of the Eighth Annual Clinical Laboratory Computer Symposium at the Towsley Center for Continuing Medical Education, June 13-15, 1990. The Symposium attracted 220 registrants and 20 system vendors/laboratory consultants.

III. WORK IN PROGRESS:

A. Friedman, B.A. and Mitchell, W.: An analysis of the interface between information technology and quality: Implications for the professional role of pathologists.
B. Mitchell, W. and Friedman, B.A.: Use of information systems in hospitals: Technical, political, and transaction cost explanations for departmental success and interdepartmental failure

IV. SERVICE ACTIVITIES:

DEPARTMENTAL:

A. Computer Advisory Committee (Chairman).
B. Quality Assurance Committee.
C. Editor, Pathology Electronic News (PEN).
D. Clinical Pathology Faculty Committee.

HOSPITAL COMMITTEES:

A. Task Force for the Integration of Hospital Information Systems (Chairman).
B. Physicians' Computer Advisory Committee (Chairman).
C. Steering Committee for ISIHS (Information Systems Integration for the Health Sciences).

REGIONAL AND NATIONAL:

A. Council on Medical Informatics of the American Society of Clinical Pathologists.
B. Professional Advisory Board of the Cerner Corporation

C. Chairman-Elect of the Cerner Users' Group.
D. Editorial Advisory Board, Clinical Laboratory Management Review.

V. OTHER RELEVANT ACTIVITIES:

SABBATICAL LEAVE (January-June, 1990):

A. Visiting Professor with Andersen Consulting. Assisted in the design and implementation the "Hospital of the Future" at the Infomart, Dallas, Texas.

INVITED LECTURES AND SEMINARS:

1.. The laboratory information system as a tool for implementing a strategic plan. An evening workshop presented at the Thirteenth Annual Symposium on Computer Applications in Medical Care, Washington, D.C., November 6, 1989.
2. Panel discussion on the use of the laboratory information system to support hospital quality assurance activities. Annual Meeting of the Cerner Users' Group, Kansas City, Missouri, April 10, 1990.
3. Some practical pointers on managing the information product of pathology. A lecture delivered to the Eighth Annual Clinical Laboratory Computer Symposium, University of Michigan Medical School, Ann Arbor, Michigan, June 13, 1990.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Friedman, B.A. The laboratory information system as a tool for implementing a strategic plan. Amer. J. Clin. Pathol. 1989;92:538-543.
2. Friedman, B.A.: Informating, not automating, the medical record. J. Med. Sys. 1989;13:221-225.
3. Friedman, B.A. and Dieterle, R.C.: Integrating information systems in hospitals. Arch. Pathol. Lab. Med. 1990;114:13-16.
4. Friedman, B.A.: The potential role of physicians in the management of hospital information systems. Clin Lab. Med. 1990;10:239-250.
5. Friedman, B.A.: Informatics as a separate section within a Department of Pathology. Amer. J. Clin. Pathol. (In Press).
6. Friedman, B.A. and Mitchell, W.: Organizational innovation, the clinical laboratories, and the laboratory information system. Clin. Lab. Man. Rev. (In Press).
7. Friedman, B.A. and Mitchell, W.: Horizontal and vertical integration in hospital clinical laboratories and the laboratory information system. Clin. Lab. Med. (In Press).
8. Friedman, B.A. and Mitchell, W.: Using the laboratory information system to achieve strategic leverage over the competitors of hospital-based clinical laboratories. Clin. Lab. Med. (In Press).

DONALD A. GIACHERIO, PH.D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Director, General Chemistry Laboratory.
B. Daily sign-out and interpretation of electrophoresis results.
C. Direct operation of blood gas-electrolyte analyzers in operating rooms of Main and Mott Hospitals.

II. TEACHING ACTIVITIES:

MEDICAL SCHOOL/HOSPITAL:

A. Pathology House Officers
   1. Lecturer, Clinical Pathology Rounds.
   2. Coordinator, Pathology House Officer rotation through General Chemistry Lab.
   3. Review daily sign-out and interpretation of electrophoresis results.
   4. Review of selected topics in Clinical Chemistry.
B. Medical Technologists
   1. Program Director, Continuing Education Series for Medical Technologists.

III. RESEARCH ACTIVITIES:

A. Comparison of Apolipoprotein A-I and B concentrations with lipoprotein fractions in heart transplant patients.
B. Evaluation of whole blood analyzers for blood gases and electrolytes.
C. Intracellular magnesium as an indicator of magnesium status in patients with congestive heart failure on long term diuretic therapy. (with J Nicklas)
D. Evaluation of instruments for the measurement of blood glucose at the patients bedside.
E. CRC Protocol: Oxalate dynamics and removal in endstage primary hyperoxaluria. (with J. Turcotte, et al)
F. CRC Protocol: Hourly variation in serum potassium and magnesium concentrations in patients with congestive heart failure. (with J. Nicklas)
G. Changes in serum levels of Apolipoproteins A1 and B, and Lipoprotein (a) in hypercholesterolemic patients following dietary therapy. (with C. Orringer)

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Quality Assurance Committee.
B. M-Labs Technical Operations Group.
C. Coordinator, Chemistry Lab Supervisors Meetings.
D. Biochemistry Section Directors Group.
E. Coordinator, Clinical Chemistry In-Service Education Program.

MEDICAL SCHOOL/HOSPITAL:

A. Pathology representative to the "Standardization and Product Evaluation Committee".

REGIONAL AND NATIONAL:

A. Coordinator, College of American Pathologists Clinical Chemistry Standards Assay Laboratory.
B. Education Committee, Michigan Section, AACC.
C. Program Committee Chairman, Michigan Section, AACC.
D. Lipids and Lipoproteins Subgroup, AACC.

V. INVITED LECTURES:

1. "Cholesterol Measurement: Problems and Pitfalls." Hospital Lab Managers Association, Detroit, Michigan. July 1989.
2. "Risk factors for coronary disease". American Society of Clinical Pathologists, Pathology Update 1989: Current Concepts and New Developments. Chicago, Illinois. September 1989.
3. "New tests for the rapid diagnosis of myocardial infarction." American Society of Clinical Pathologists, Pathology Update 1989: Current Concepts and New Developments. Chicago, Illinois. September 1989.
4. "Laboratory measurement of catecholamines and their metabolites." Division of Hypertension, University of Michigan. January 1990.
5. "The emerging role of the critical care laboratory." Michigan Section, AACC, Detroit, Michigan. March 1990.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Yuzbasian-Gurkan, V., Brewer, J.G., Abrams, G.D., Main,B., and Giacherio, D.A.: Treatment of Wilson's disease with zinc: Changes in serum levels of lipase, amylase, and alkaline phosphatase in Wilson's disease patients. J Lab Clin Med 1989, 114:520-526.
2. Friedl, H.P., Guerra, E.E., Cramer, T., Giacherio, D., Toledo-Pereyra, L.H., and Till, G.O.: Histamine and xanthine oxidase in hepatic ischemia-reperfusion injury. Transplantation Proc. 1990, 22:513-515.

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

1. Giacherio, D., Brosnan, M., Liebaert, M., and Annesley, T.: Comparison of whole blood electrolyte values from three combined blood gas electrolyte analyzers. Michigan Section AACC Research Symposia, Detroit, Michigan. May 17, 1990
2. Giacherio, D. and Matz, K.: Apolipoprotein patterns in heart transplant patients: Comparison with traditional lipid analyses. Michigan Section AACC Research Symposia, Detroit, Michigan. May 17, 1990.
3. Annesley, T., Vas Binder, E., Matz, K., and Giacherio, D.: Liquid chromatographic analysis of mexiletine in serum, with alternate application to procainamide, M-acetylprocainamide, and tocainide. Michigan Section AACC Research Symposia, Detroit, Michigan. May 1990.
4. Giacherio, D. and Matz, K.: Evaluation of an enzyme immunoassay kit for the determination of lipoprotein (a). Clin. Chem. 36:955, 1990.
5. Giacherio, D. and Pyzik-Shuler, R.: Evaluation of the Abbott IMx CK-MB Immunoassay: Comparision with the Roche Isomune MB assay. Clin. Chem. 36:1132, 1990.
6. Giacherio, D., Meliones, J.N., Bandy, K.P., and Moler, F.W.: Blood Gas-Electrolyte Analyzers: Comparison of analyzers and the differences between whole blood and plasma electrolyte values. American Academy of Pediatrics, 1990 meeting (submitted).

PAUL W. GIKAS, M.D.
PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Surgical Pathology - Room I and Room II, 14 weeks
B. M-Lab rotations when needed
C. Diagnostic electron microscopy - share nephropathology work with Dr. K. Johnson
D. Consultation service for Uropathology
E. Conduct monthly conference in Urologic Pathology with Urology Section
F. Participate in weekly Renal Biopsy Conference for Nephrology Section with Dr. K. Johnson
G. Autopsy and Frozen Section "on call" Rotation.

II. TEACHING ACTIVITIES:

A. Lectures to sophomore Pathology 600 students:
   1. Death certification and forensic pathology
   2. Pathogenesis of highway injuries
   3. Renal neoplasms and renal allograft rejection
   4. Diseases of prostate and external genitalia
   5. Testicular disease
B. Lab instructor for Pathology 600
C. Lecture on Urologic Pathology and Pathogenesis of Highway Injury to Dental Pathology 630 students
D. Monitor for M-4 clerks during Elective Pathology Rotation, March 26-April 20
E. Pathology Resident Teaching
F. Faculty UM Northern Michigan Conference, June 18-22, 1990

III. RESEARCH ACTIVITIES:

PROJECTS UNDER STUDY:

A. Collaborate with Urology Staff and Radiology Staff on projects
B. Radiological Diagnostic Oncology Group Prostate Study correlating imaging techniques with morphologic findings. This specific project is funded by the National Cancer Institute and is a cooperative study with three other institutions.

IV. SERVICE ACTIVITIES:

DEPARTMENTAL:

Member Advisory Committee on Appointments, Promotion and Tenure

MEDICAL SCHOOL/HOSPITAL:

A. Hospital Claims Control Committee

UNIVERSITY:

None

REGIONAL AND NATIONAL:

A. National Collegiate Athletic Association (NCAA) Drug Testing Appeals Committee
B. NCAA Special Planning Committee for Drug Testing
C. NCAA Drug Testing Crew Chief
D. National Task Force on Anabolic Androgenic Steroid Abuse (NCAA, U.S. Olympic Committee, National Federation of State High School Associations and Amateur Athletic Foundation).
E. Deputy Medical Examiner, County of Washtenaw
F. Board of Directors, Public Citizen, Inc. (Ralph Nader, Initial Chairman and Founder)

V. OTHER RELEVANT ACTIVITIES:

None

VI. PUBLICATIONS:

ARTICLES PUBLISHED IN REFEREED JOURNALS

1. Grainger, R., Gikas, P.W., and Grossman, H.B.: Urothelial Carcinoma Occurring Within an Inverted Papilloma of the Ureter. Jour. of Urol. 143:802-804, 1990.

BOOK REVIEW

1. Gikas, P.W.: "Contemporary Issues in Surgical Pathology:Pathology of the Urinary Bladder" edited by R. H. Young. Archives of Pathology and Laboratory Medicine, 114:437, 1990.

ABSTRACT

1. American Roentgen Ray Society, 1990 Annual Meeting: May 13-18, 1990, Washington, DC.
2. Prostate Cancer Tumor Volumes:MRI/Pathological Correlation. JS Van Erp, BS, LE Quint, MD, PH Bland, PhD, SH Mandell, MD, EA DelBuono, MD, HB Grossman, MD, PW Gikas, MD, GM Glazer, MD.

CARL T. HANKS, D.D.S.
PROFESSOR OF DENTISTRY
DEPARTMENT OF ORAL PATHOLOGY
ASSOCIATE PROFESSOR OF ORAL PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES: None.

II. TEACHING ACTIVITIES:

A. D.D.S. Level:
Oral Pathology 625. 9 Hours (Lecture and Laboratory)
General Pathology 631. 2 Hours (Laboratory)

B. Dental Hygiene:
General/Oral Pathology 293. 36 Hours (Lecture)

C. Graduate Level:
Dental Materials 566/567. 2 Hours (Lecture)

D. Graduate Level Advisement:
John Watch - Ph.D. Program (Biomaterials) - 2 years.
Celeste Swamidoss - MSD Program (Oral Pathology) - 6 months.
Rod Parsell - Undergraduate Research - 3 years
Fawzi El Shefei - MSD Program (Biomaterials) - 3 months.
John C. Fat - MSD Program (Endodontics) - 3 months.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. National Institute of Dent. Res., Grant No. 1-R01-DE07987-02, "In Vitro Biocompatibility: Composite Resins and Bacteria, ", C.T. Hanks, (P.I.), 5/1/87-4/30/90.

B. National Institute of Dental Research, No. 1-P50-DE09296-01, "Specialized Materials Science Research Center," (R. G. Craig, Director; C.T. Hanks, Co-directed and P.I. of one of four sections), 9/29/89 - 9/28/94.

IV. ADMINISTRATIVE ACTIVITIES:

SCHOOL OF DENTISTRY AND DEPARTMENT OF ORAL PATHOLOGY:

A. Admissions Committee, School of Dentistry, 1985-1990
B. Nominations and Elections Committee, School of Dentistry, 1987-1990.
C. Hazardous Waste Committee, School of Dentistry, 1987-1990 (Chairman).
D. Table Clinics Committee (1989-1991)
E. Search Committees for faculty for departments of Biomaterials, Endodontics, and Prosthodontics, 1989-1990.
F. Director of Research School of Dentistry 1989-1990.

G. Research Dean's Committee (OVPR U/M), 1989-1990.
H. Medical Affairs Advisory Committee to Vice Provost Zwidema, 1989-1990.

REGIONAL AND NATIONAL:

A. President of Pulp Biology Group, International Association for Dental Research, 1989-1990.
B. ADA Subcommittee on Biological Evaluation of Dental Materials (Committee Member), 1987-1992.
C. U.S. Technical Advisory Group for International Standards Organization Tissue Culture Group 194: Biological Evaluation of Medical and Dental Materials and Devices (Nominated Member), 1989-1992.

V. OTHER RELEVANT ACTIVITIES:

A. Consultant: W. R. Grace Co.
B. Consultant: Kerr Manufacturing Co.
C. Consultant: Paladin Medical (Baxter).
D. Special Study Sections, NIDR, 1988-1990.

PROFESSIONAL ORGANIZATIONS:

A. International Association for Dental Research.
B. American Academy of Oral Pathology.
C. American Association for the Advancement of Science.
D. Omicron Kappa Upsilon.
E. Tissue Culture Association (National).
F. Michigan Biomedical Materials and Prosthetic Group.
G. New York Academy of Sciences.
H. Sigma Xi.

EDITORIAL BOARDS:

A. Journal of Dental Research.
B. Journal of the American Dental Association.

INVITED LECTURES/SEMINARS:

1. July, 1989 - Invited Speaker at Gordon Conference on Biocompatibility and Biomaterials. Lecture was Entitled "Cytotoxicity of Biomaterials".
2. November, 1989 - U/M Science Research Club - "Biocompatibility from a Biologist's Viewpoint."
3. January, 1990 - University of Iowa School of Dentistry - 2 lectures: "In Vitro Biocompatibility Testing of Dental Materials." and "Issues in Biocompatibility Testing."
4. May, 1990 - Temple University/University of Pennsylvania - Combined Program - "Models of Cytotoxicity Testing of Dental Materials and their Relevance."

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Parkinson, W.C. and Hanks, C.T. Search for cyclotron resonance in cells in vitro. Bioelectromagnetics 10: 129-145, 1989.
2. Parkinson, W.C. and Hanks, C.T. Experiments in the Interaction of Electromagnetic Fields with Mammalian Systems. Biol.Bull. 176(s):170-178, 1989.
3. Craig, R.G. and Hanks, C.T. Cytotoxicity of Experiment Casting Alloys Evaluated by Cell Culture Tests. (accepted by J.Dental.Res.)
4. Hanks, C.T., Syed, S.A., Craig, R.G., Hartrick, J.M., and Van Dyke, T.E..Modeling Bacterial Damage to Pulupal Cells in vitro. (accepted by J. Endodontics)

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFERRED JOURNALS:

1. Strawn, S.E., Liu, C.C., Hanks, C.T., Wataha, J.C., and Craig, R.G. Fabrication and Testing of Substitutes for Dentin Disks, J.Dent.Res.. 69 (sp iss):169, 1990.
2. Hanks, C.T., Parsell, R., Wataha. J.C., and Craig, R.G. Testing Zn3(PO4)2 Diffusion Through Dentin in vitro. J.Dent.Res. 69 (sp iss): 169, 1990.
3. Wataha, J.C., Craig, R.G., and Hanks, C.T. Dissolution of Casting Alloys in Medium: As-Cast vs. Polished Condition. J.Dent.Res. 69 (sp iss): 264, 1990.

CURTIS A. HANSON, M.D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Clinical Flow Cytometry Laboratory
B. Clinical Hematology Laboratory
C. Diagnostic Surgical Pathology, Hematopathology
D. Consultant for Hematopathology cases.
E. Clinical Molecular Diagnostics Laboratory

II. TEACHING ACTIVITIES:

A. Medical Students and Graduate Students.
   1. Three lectures, Hematopathology - Pathology 600 course
   2. Laboratory Instructor (2 sessions), Hematopathology - Pathology 600 course
   3. M4 Clerkship, Hematology portion of Clinical Pathology Rotation
   4. Dental students, One Lecture on Hematologic Disorders.
   5. Preliminary planning for M4 elective in Laboratory Medicine

B. House Officers
   1. Sign-out of bone marrow biopsies and aspirates
   2. Review of blood smears and body fluids in Hematology Laboratory
   3. Review of Flow Cytometry results and correlation with hematologic diagnosis.

C. Hematopathology teaching.
   1. Hematopathology Lectures/Weekly.
   2. Hematopathology unknown conferences/biweekly.

D. Clinical Pathology Grand Rounds (three lectures).

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT: None

PROJECTS UNDER STUDY:

A. S100-Positive Chronic Lymphoproliferative Disorders: Association with HHV-6
B. Leu8 expression in Hematologic Disorders
C. Biphenotypic Leukemias
D. Immunophenotyping in Chronic Lymphoproliferative Disorders
E. CD34 Expression in Acute Leukemia

F. Aberrant Antigen Expression in Acute Leukemia
G. CD2-Positive Acute Myeloid Leukemia
H. Detection of EBV Genomes by Polymerase Chain Reaction
I. Evaluation of *bcr-abl* in Hematologic Disease

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Director, Clinical Flow Cytometry Laboratory
B. Associate Director, Clinical Hematology Laboratory
C. Leukemia Conference, biweekly
D. Chairman's Advisory Committee
E. Director, Hematopathology Fellowship Program
F. Residency Advisory Committee

REGIONAL AND NATIONAL:

A. Associate Editor of Pathology Patterns (American Journal of Clinical Pathology, Suplement).
B. Editorial Board, American Journal of Clinical Pathology
C. Council for New Scientific Technology in Clinical Pathology, American Society of Clinical Pathologists.
D. Reviewer of articles for Blood, American Journal of Pathology, American Journal of Clinical Pathology, Laboratory Medicine and Clinical Immunology and Immunopathology.
E. Review of Southwest Oncology Group (SWOG) leukemia cases

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. Invited Lecturer, S100-Positive Chronic Lymphoproliferative Disease, University of Nebraska, September 29, 1989.
2. Lecturer, Flow Cytometry in Diagnostic Hematopathology, Department of Pediatrics, University of Michigan, October 18, 1989.
3. Lecturer, Acute Lymphoproliferative Diseases, Course presented at American Society of Clinical Pathologists (ASCP), October 31, 1989.
4. Lecturer, Flow Cytometry and Southern Blotting in the Diagnosis of Leukemia and Lymphoma, Course presented at American Society of Clinical Pathologists (ASCP), November 1, 1989.
5. Invited Lecturer, Chronic Lymphoproliferative Disorders, Wayne State University, February 21, 1990.
6. Invited Lecturer, Bone Marrow Pathology: Tradition versus Technology, Michigan Society of Pathologists, May 19, 1990.
7. Director, Clinical Applications of Flow Cytometry in Diagnostic Pathology, American Society of Clinical Pathologists, June 27-30, 1990.
8. Lecturer, Flow Cytometric Detection of Anti-Platelet and Anti-Neutrophil Antibodies, at Clinical Applications of Flow Cytometry in Diagnostic Pathology, American Society of Clinical Pathologists, June 30, 1990.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Hanson, C.A., Ward, P.C.J. and Schnitzer, B.: A multilobular variant of hairy cell leukemia with morphologic similarities to T-cell lymphoma. Am. J. Surg. Pathol. 1989; 13:671-679.
2. Gribbin, T.E., Stein, C.K., Glover, T.W., Hanson, C.A., Cody, R.L. and Mitchell, B.S.: Association of a hairy cell leukemia variant with a 4p+ chromosomal abnormality: derivation and characterization of a cell line. Leukemia 1989; 3:643-647.
3. Hanson, C.A., Jaszcz, W., Swanson, P.D., Wick, M.R., Peterson, B.A., Gajl-Peczalska, K.J., Kersey, J.H., Frizzera, G.: True histiocytic lymphoma: Histopathologic, immunophenotypic and genotypic analysis. Br. J. Haematol. 1989;73:187-198.
4. Patton, D.F., Wilkowski, C., Hanson, C.A., Kersey, J.H., Bostrom, B. and McClain, K.L.: Epstein-Barr virus related post bone marrow transplant lymphoproliferative disease: association with cytomegalovirus infection and down syndrome donor marrow. Am. J. Ped. Hem. Onc. 1989;11:429-432.
5. Shibata D., Brynes, R.K., Rabinowitz, A., Hanson, C.A., Slovak, M.L., Spira, T.J., Gill, P.: Adult T-cell leukemia/lymphoma in an HIV infected individual. Ann. Inn. Med. 1989;111:871-875.
6. Bayliss, K.M., Kueck, B.D., Hanson, C.A., Matthaeus, W.G., Almagro, U.A.: Richter's syndrome presenting as primary central nervous system lymphoma. Am. J. Clin. Pathol. 1990; 93:117-123.
7. Stahler, J.R., Kuick, R., Eckerskorn, C., Lottspeich, F., Reaman, G., Richardson, B.C., Fox, D.A., Stoolman, L.M., Hanson, C.A., Nichols, D., Teuche, H.J., Hanash, S.M.: Identification of two related markers for common acute lymphoblastic leukemia as heat shock proteins. J. Clin. Invest. 1990; 85:200-207.
8. Hanson, C.A., Thamilarasan, M., Ross, C.W., Stoolman, L.M., Schnitzer, B.: Kappa light chain gene rearrangement in T-cell acute lymphoblastic leukemia. Am. J. Clin. Pathol. 1990; 93:563-568.
9. Ho, V.C., Hansen, E., Elder, J.T., Baadsgaard, O., Wantzin, G., Hanson, C., Cooper, K.D.: T-cell receptor beta chain gene rearrangement without gamma chain gene rearrangement: an unusual finding. Clin. Immuno. Immunopath. 1990; 54:354-360.
10. Hanson, C.A.: Editorial: The changing field of hematopathology: Tradition versus technology. Am. J. Clin. Pathol. 1990;93(Suppl 1):S1-S2.
11. Remick, D.G., Kunkel, S.L., Holbrook, E.A., Hanson, C.A.: Theory and applications of the polymerase chain reaction. Am. J. Clin. Pathol. 1990; 93:(Suppl 1):S49-S54.
12. Hanson, C.A., Levine, E.G., Frizzera, G., Peterson, B.A.: True histiocytic lymphoma: A review of clinical and pathologic findings. Semin. Oncol. (In Press).
13. Ho, V.C., Baadsgaard, O., Elder, J.T., Hansen, E., Hanson, C., Wantzin, G., Cooper, K.D.: Genotypic analysis of T-cell clones derived from cutaneous T-cell lymphoma lesions demonstrates selective growth of tumor infiltrating lymphocytes. J. Invest. Derm. (In Press).
14. Hanson, C.A. and Ross, C.W.: The moleuclar genetics of the immunoglobulin globulin and T-cell receptors: Applications in diagnostic hematopathology. Adv. Pathol. (In Press).
15. Patton, D.F., Wilcowski, C., Hanson, C.A., Shapiro, R., Frizzera, G., Gajl-Peczalska, K.J. and Filipovich, A.H.: EBV determined clonality in post transplant lymphoma. Transplantation (In Press).
16. Hanson, C.A.: Multilobular variant of hairy cell leukemia: Case of the Quarter, Society for Hematopathology. (In Press).
17. Gupta, D.K, Cooper, K.D., Ellis, C.N., Nickoloff, B.J., Hanson, C.A.: Papulonodular lymphocytic infiltrates of the skin developing in association with cyclosporine A therapy. J. Am. Acad. Dermatol. (In Press).
18. Fishel, R.S., Farnen, J.P., Hanson, C.A., Silver, S.M., Emerson, S.G.: Acute lymphoblastic leukemia with eosinophilia. Medicine (In Press).
19. Ross, C.W., Stoolman, L.M., Schnitzer, B., Schlegelmilch, J.A., Hanson, C.A.: Immunophenotypic aberrancy in adult acute lymphoblastic leukemia. Am. J. Clin. Pathol. (In Press).

20. Hanson, C.A., Stoolman, L.M., Gribbon, T.E., Schlegelmilch, J.A., Schnitzer, B., Mitchell, B.S.: CD11c (Leu-M5) expression in B-cell chronic lymphoproliferativedisorders: Recognition of a spectrum of clinical disorders distinct from hairycell leukemia. Blood (In Press).
21. Hanson, C.A., Holbrook, E.A., Sheldon, S., Schnitzer, B., Roth, M.S.: Detectionof Philadelphia chromosome-positive cells from glass slide smears using thepolymerase chain reaction. Am. J. Pathol. (In Press).

ARTICLES SUBMITTED FOR PUBLICATION

1. Hanson, C.A., Swanson, P.E., Gajl-Peczalska, K.J., Jaszcz, W., Frizzera, G. and Wick, M.R.: Immunohistochemical analysis of "true histiocytic" lymphoma in paraffin sections.
2. Reardon, D.A., Roskos, R., Hanson, C.A.: Viral-associated hemophagocytic syndrome in bone marrow transplantation.
3. Reardon, D.A., Holbrook, E.A., Hanson, C.A.: Philadelphia chromosome-positive leukemia of childhood: A polymerase chain reaction study.
4. Ross, C.W., Schnitzer, B., Weston, B., Hanson, C.A.: Chronic-active Epstein-Barr virus infection and viral-associated hemophagocytic syndrome.
5. Grossman, D.M., Hanson, C.A., Schnitzer, B.: Simultaneous lymphocyte predominant Hodgkin's disease and large cell lymphoma.

BOOKS AND CHAPTERS IN BOOKS:

1. Hanson, C.A.: The acute leukemias and myelodysplastic syndromes, in McClatchey, K.D. (ed) Clinical Laboratory Medicine. Williams & Wilkins, Baltimore, MD, (In Progress).
2. Hanson, C.A.: Clinical applications of molecular biology: Hematopoietic disorders, in McClatchey, K.D. (ed) Clinical Laboratory Medicine. Williams & Wilkins, Baltimore, MD (In Progress).

ABSTRACTS, BOOK REVEIWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Slovak, M.L., Shibata, D, Brynes, R.K., Rabinowitz, A, Hanson, C.A., Spira, T.J., Gill, P.: Cancer genetics and cytogenetics of an HTLV-I associated adult T-cell leukemia/lymphoma (ATL) in an HIV-infected man. Presented at American Society of Human Genetics; Baltimore, Maryland, November, 1989. Am. J. Human Genetics. 1989;45:A33.
2. Hanson, C.A., Holbrook, E.A., Roth, M.S., Sheldon, S., Schnitzer, B.: Detection of Philadelphia-Chromosome (Ph') positive cells from glass slide smears and paraffin sections using the polymerase chain reaction (PCR). Presented at International Academy of Pathology; Boston, Massachusetts, March 1990. Lab Invest. 1990; 62:42A.
3. Hanson, C.A., Stoolman, L.M., Gribben, T.E., Schnitzer, B: CD11c expression in B cell chronic lymphoproliferative disorders (CLPD) distinct from hairy cell leukemia (HCL). Presented at International Academy of Pathology; Boston, Massachusetts, March 1990. Lab Invest. 1990; 62:42A.
4. Ross, C.W., Schnitzer, B., Hanson, C.A.: Chronic active Epstein-Barr virus (EBV) infection and virus-associated hemophagocytic syndrome (VAHS). Presented at International Academy of Pathology; Boston, Massachusetts, March 1990. Lab Invest. 1990; 62:85A.
5. Stoolman, L.M., Hanson, C.A., Holbrook, E.A., Ebling, H.: Functional epitopesand regulation of the human endothelial binding lectin (LEC-CAM 1)-a homingreceptor of lymphoid cells. Presented at FASEB; Washington, D.C., April 1990.

JOHN T. HEADINGTON, M.D.
PROFESSOR OF PATHOLOGY AND DERMATOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Clinical Dermatology.
B. Dermatopathology, private consultations.
C. Dermatopathology, M-Labs.
D. Dermatopathology, UMH.
E. Dermatopathology, tutorials.

II. TEACHING ACTIVITIES:

A. Medical Students: (second year):
   1. Dermatopathology lectures.
B. Pathology and Dermatology House Officers:
   1. Dermatopathology.
C. Dermatology House Officers:
   1. Clinical Dermatology.

III. RESEARCH ACTIVITIES:

PROJECTS UNDER STUDY:

A. Immunologic responses in the dermis in tryptophan-related sclerosis
B. Unclassified malignant cutaneous neoplasms of neural crest origin.
C. The histologic of the alopecia of secondary syphilis.
D. Textbook: The Pathology of the Hair Follicle.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Director, Pigmented Lesion Clinic.

MEDICAL SCHOOL/HOSPITAL:

A. Director, Dermatopathology Unit.

REGIONAL AND NATIONAL:

A. Editorial Board, Archives of Dermatology. American Board of Pathology.
B. Chairman, Task Force on Dermatopathology, The American Academy of Dermatology.
C. Test Committe For Dermatopathology.
D. Member, Council on Clinical and Laboratory Services, American Academy of Dermatology.

V. OTHER RELEVANT ACTIVITIES:

Honors: Docteur Honoris Causa, University of Bordeaux
Honorary Member, South African Dermatological Society.
William B. Taylor Teaching Award, Department of Dermatology.

INVITED LECTURES AND SEMINARS:

1. Hair Follicle Tumors. International Update in Dermatology and Dermatopathology. Brighton, England. September 1989.
2. Diagnostic Patterns in Histopathology of Skin Disease, The University of Bordeaux, Bordeaux France. September 1989.
3. The Diversity of Cutaneous T-cell Lymphoma. The University of Bordeaux, Bordeaux, France. September 1989.
4. Squamous Cell Carcinoma of the Skin. The New York Hospital Cornell Medical Center. New York, N.Y. September 1989.
5. Visiting Professor, Groote Schuur Hospital, Capetown, South Africa.
   a. Diagnostic Patterns in the Histopathology of Skin Disease.
   b. The Clinical Diagnosis of Alopecia I.
   c. The Clinical Disagnosis of Alopecia II.
   d. Benign Fat Cell Tumors.
   e. The Dermal Dendrocyte.
   f. Minoxidil in Androgenetic Alopecia. Retin A in photoaging and Cyclosporin A in Psoriasis.
6. The University of Stellenbosch. Tygerberg, South Africa
   a. The Use of Polarized light in the Diagnosis of Skin Disease.
   b. A Histologic Algorithm for the Diagnosis of Vasculitis.
7. Congress of the Dermatological Society of South Africa, Summerset West, South Africa:
   a. Primary Squamous Cell of the Skin.
   b. Paget's and Extramammary Paget's Disease.
   c. Uncommon lymphoproliferative Disorders.
   d. Uncommon Angioproliferative lesions.
   e. Selected Soft Tissue Tumors.
   f. Langerhans Cell Syndromes.
8. A Histologic Algorithm for the Diagnosis of Vasculitis. University of Witwatersrand, Johannesburg, South Africa.
9. Primary Tumors of the Hair Follicle. University of Praetoria, Praetoria South Africa.
10. The Biology of the Hair Follicle and Topical Minoxidil. The University of Modena, Modena, Italy. April 1990.
11. The Scarring Alopecias. Clinicopathologic correlates of two new topical agents: topical retinoic acid and topical minoxidil. The University of Bologna, Balogna, Italy. April 1990.
12. The Scarring Alopecias. Clinicopathologic correlates of two new topical agents: topical retinoic acid and topical minoxidil. The University of Verona, Verona, Italy, April 1990.

13. The Scarring Alopecias. Clinicopathologic correlates of two new topical agents: topical retinoic acid and topical minoxidil. The University of Milan. Milan, Italy, April 1990.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Cerio R, Griffiths CEM, Cooper KD, Nickoloff BJ, Headington JT: Characterization of factor XIIIa positive dermal dendritic cells in normal and inflamed skin. Br J of Dermatol 121:421-431, 1989.
2. Maxson BB, Scott RF, Headington JT: Management of Oral Squamous Cell Carcinoma in situ with Topical 5-Fluorouracil and Laser Surgery. Oral Surgery, Oral Med, Oral Path 68:nol 44-48, 1989.
3. Taylor RS, Cooper KD, Headington JT, Ho V, Ellis CN, Voorhees JJ: Cyclosporine therapy for severe atopic dermatitis. J Am Acad of Dermatol. vol 21 no.3, Sept 1989.
4. Hernandez RJ, Headington JT, Kaufman RA, Martel W: Fibroblastic Rheumatism. Skeletal Radiology. 18:43-45, 1989.
5. Headington JT, Cerio R: Dendritic Cells and the Dermis: 1990. Am J of Dermpath 12 (3):217-220, 1990.
6. Gupta AK, Billings JK and Headington JT: Multisystem Crystalline Deposits. Arch Dermatol 125:551-556. 1989.
7. Headington JT: Editorial: A Dermatopathologist looks at Mohs Micrgraphic Surgery. Arch Dermatol 126:950-951, 1990.
8. Bulengo-Ransby, SM, Headington JT: Pseudopelade of Brocq in a Child. (In Press, 1990).

KATHLEEN P. HEIDELBERGER, M.D.
PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Pediatric Surgical and Placental Pathology, daily, twelve months.
B. Pediatric Necropsies, daily, twelve months.
C. Pediatric Consultation Cases, daily, twelve months.
D. Adult Necropsy Service, 0.5 months.
E. Continued to organize and maintain the Michigan Cardiac Registry, twelve months.
F. Continued to direct and interpret the Lung Morphometric Program, twelve months.
G. Teratology Unit, histology, as necessary, approximately 40 cases per year.
H. Children's Cancer Study Group, coordinate all pathological material and data necessary for all children registered in national tumor protocols. (Collaborating investigator, NCI #2-U10-CA-02971-33, CCSG, R. Hutchinson, M.D., P.I.)
I. Cardiac transplantation pathologist, adults and children, during colleague's sabbatical.
J. Bone consultation cases, backup for Lee Weatherbee.

II. TEACHING ACTIVITIES:

A. M2: Pathology 600, three whole class lectures on Pediatric Pathology.
B. M4: Pediatric Surgical Pathology, twelve months, while they were on their pathology electives.
C. Supervised M4s on Pathology elective, one rotation (four weeks).
D. House Officers in Pathology, daily reading of pediatric surgicals, twelve months.
E. House Officers in Pathology, gross and microscopic supervision of most pediatric necropsies, twelve months and adult cases 0.5 months plus on-call weekends.
F. Surgical Pathology Conference, one hour/week, twelve months.
G. Lectures on Pediatric Necropsy Pathology in Core Curriculum Series for House Officers in Pathology.
H. Gross Necropsy Conference, one hour/week, twelve months.
I. Core curriculum lectures, two, on general peds path to House Officers.
J. Supervised Pediatric Hematology Fellows (one) for AP elective period.
K. Conferences:
    1. Pediatric Cardiology Death Conference, monthly, all year.
    2. Pediatric Tumor Conference, twice monthly, all year.
    3. CPC/General Death Conference, quarterly.

III. RESEARCH ACTIVITIES:

A. Multiphased, ongoing study with pediatric cardiologists and thoracic surgeons of effects of various congenital heart defects on the pulmonary vasculature.

B. Studies of regional variations in lung structure.
C. Compiling data base of morphometric characteristics of normal lungs at various ages.

PROJECTS UNDER STUDY:

A. Histologic studies of myocardium in hypoplastic left heart syndrome.
B. Review of the effects of pulmonary artery banding on the lung biopsy findings in young children with complete atrioventricular septal defect with pediatric cardiologists and thoracic surgeons.
C. Continued long term study of aneurysm formation of repaired coarctation with pediatric cardiologists (see abstracts).
D. Review with clinicians of familial diabetes in infants.
E. Study of correlation, if any, of ECHO study of heart transplant patients with the histologic findings on simultaneous heart biopsy.
F. Review of neoplasms in post transplant patients with the pediatric cardiologists.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Departmental ACAPT.
B. Interviewing House Officer candidates.

MEDICAL SCHOOL/HOSPITAL:

A. Executive Committee for Mott/Women's/Holden Unit.
B. Executive Committee of the Medical School, 1987-.

REGIONAL AND NATIONAL:

A. Member, American Board of Pathology Test Committee for Pediatric Pathology.
B. Member of the Education Committee of the Society for Pediatric Pathology, Subcommittee I, charged with the documentation and position preparation for subspecialty qualification.
C. Appointed Women's Liason officer for UMMC to AAMC.

V. OTHER RELEVANT ACTIVITIES: None.

VI. PUBLICATONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Bromberg, B.I., Beekman, R., Rocchini, A., Snider, A., Bank, E., Heidelberger, K. and Rosenthal, A.: Aortic Aneurysms Following Patch Aortoplasty Repair of Coarctation: A

Prospective Analysis of Prevalence, Screening Test and Risks. J. Am. Coll. Cardiol. 14:734-41, 1989.

2. Schumacher, R.E., Marogi, A.J. and Heidelberger, K.P.: Pulmonary Aveolar Proteinosis In A Newborn. Pediatric Pulmonology. 7:178-182, 1989.
3. Bromberg, B.I., Dick, M., Snider, A.R., Scott, W.A., Serwer, G.A., Bove, E.L., Heidelberger, K.P.: Tachycardia related cardiomyopathy: response to control of the arrhythmia. J Interven Cardiol 2:211-218, 1989.
4. Caron, K.H., DiPietro, M.A., Aisen, A.M., Heidelberger, K.P., Phillips, W.A., Martel, W.: MR Imaging of Early Fibrodysplasia Ossificans Progressiva. J Comput Assist Tomogr, 14:318-321, 1990.
5. Evans, D., Baugh, R., Gilsdorf, J., Heidelberger, K.P. and Niparko, J.K.: Lymphangiomatosis of skull manifesting with recurrent menigitis and cerebrospinal fluid otorrhea. (In Press: Otolaryngology-Head and Neck Surgery.)
6. Keim, D.,Ragsdale, C., Heidelberger, K.P. and Sullivan, Donita: Hepatic fibrosis with use of methotexate for juvenile rheumatoid arthritis: a case report. (In Press: The Journal of Rheumatology).
7. Delius, R.E., Zwischenberger, J.B., Cilley R., Behrendt, D.M., Bove, E.L., Deeb, G.M., Crowley, D., Heidelberger, K.P. and Bartlett, R.H.: Prolonged extracorporeal life support of pediatric and adolescent cardiac transplant patients. (In Press: Ann Thor Surg.)

ARTICLES SUBMITTED FOR PUBLICATION: None.

ABSTRACTS:

1. Minich, L., Beekman, R.H., Rocchini, A.P., Bove, E.L., Heidelberger, K.P.: Surgical repair is safe and effective after unsuccessful angioplasty of native coarctation. The American College of Cardiology, 39th Annual Scientific Session. Poster Session. New Orleans, March, 1990.
2. Bogaards, M.A., Snider, A.R., Crowley, D.C., Meliones, J.N. and Heidelberger, K.P.: Echocardiographic indexes of cardiac allograft rejection in transplant recipients. (Submitted)

SAMUEL P. HICKS. M.D.
PROFESSOR EMERITUS OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
July 1, 1989 - June 1, 1990

I. CLINICAL ACTIVITIES

A. With C.J. D'Amato prepare microscopic descriptions of most UM autopsy brains and those sent here for consultation. In UM cases, house officers compare them with their findings and incorporate them into final autopsy reports. In consultations they become part of the final report together with gross findings.

II. TEACHING ACTIVITIES

A. Review some of these autopsy brains with Pathology, and other house officers spending time in Pathology, and with students and staff as needed.
B. Neural and Behavioral Sciences 600 for second year medical students: 3 hours.
C. Neuropathology 858 for house officers in Pathology, Neurology, Neurosurgery and other departments, and graduate students. 18 hours including 3 lectures.

III RESEARCH ACTIVITIES

With C.J. D'Amato in three areas in collaboration with colleagues.

A. A mutant rat in which a transient failure of basement membrane formation in the cephalic neural tube leads to local overgrowth with stenosis of the aqueduct and prenatal hydrocephalus, many affected animals surviving to adulthood. Previous studies had shown that in situ the mutant neuroepithelium transiently failed to produce collagen IV. With K. Sue O'Shea, we have shown that cultured neurons from mutant embryos fail to extend neurites on tissue culture dishes coated with laminin, fibronectin, or type IV collagen, or on culture medium alone, whereas controls formed elaborate neurites. In a related study Sue O'Shea and Paul Killen have shown that there is no preferential localization of a metalloprotease (TIMP) in regions in the mutant where the basement membrane breaks down.
B. Studies continue with James Varani and others to determine whether the phagocytes that appear in certain parts of the embryo in response to cell-killing by radiation add to the malformation that radiation produces, or lessen it by promoting regeneration. For example, the most severe malformation occurs in the mantle of the 16th day embryo where no phagocytes appear.
C. Thrombospondin (TSP), a glycoprotein of extracellular matrices is associated with migrating cells and neurite outgrowth from neurons and is synthesized by neurons and glia. Its possible role in astrocytic hypertrophy (gliosis) following injury is unknown. With Vishva Dixit and Sue O'Shea we have shown preliminarily that TSP appears in association with the hypertrophy of astrocytes in the third week after surgical injury of the rat cerebral cortex but not in the earlier stages.

VI PUBLICATIONS

ABSTRACTS

1. D'Amato, C.J., O'Shea, K.S., Hicks, S.P. Lack of Neurite Outgrowth in Hydrocephalic Mutant Rat Embryo Neurons. Society for Neuroscience Annual Meeting, St. Louis, November, 1990. (Submitted for Poster Presentation.)

KENT J. JOHNSON, M.D.
PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Immunopathological evaluation of skin and renal biopsies.
B. Director, Electron Microscopy Service.
C. Renal pathology.
D. Autopsy coverage.

II. TEACHING ACTIVITIES:

A. Laboratory instructor - Second year pathology course.
B. Lecturer Genitourinary Pathology - Second year pathology course.
C. Lectures on Renal Pathology - Nephrology Fellows.
D. Lectures on Renal and Skin Immunopathology - Pathology Residents.
E. Lectures on Genitourinary pathology-Dental Pathology Course.

III. RESEARCH ACTIVTIES:

SPONSORED SUPPORT:

A. Lung injury Produced by Oxygen Metabolites. National Institutes of Health, $507,078 for four years. Co-investigator with Peter A. Ward.
B. Immune Complex Injury of Lung and Oxygen Metabolites. National Institutes of Health, $245,304 for three years. Co-investigator with Peter A. Ward.
C. Mediators in IgA and IgG Lung Injury. National Institutes of Health, Principal Investigator $466,791 for five years.
D. Pathogenesis of Pancreatitis Induced Pulmonary Injury. National Institues of Health, $285,558 for three years. Co-investigator with Karen Guice.
E. Renal Center Grant. National Institutes of Health. Principal Investigator, Section V and Core II. $444,520 for five years.
F. Oxidant and protease interaction in Acute Lung Injury. National Institutes of Health. Principal Investigator. $621,275 for five years.

PENDING SUPPORT:

A. Anesthetic and Viral Pulmonary Immunopathology. National Institutes of Health. Co-investigator with Paul Knight (Anesthiology) and Daniel Remick. $1,052,949.00 for five years. (Submitted March 1, 1990).

PROJECTS UNDER STUDY:

A. Pathogenesis of IgG and IgA Immune Complex Lung Injury.
   1. Role of oxygen radicals.

2. Role of proteases.
3. Role of terminal components of the complement system.

B. Oxidant and protease interaction in inflammation.
C. Pathogenesis of aspiration pneumonitis.
D. Pathogenesis of viral pneumonitis.
E. Pathogenesis of pancreatitis and pancreatitis Induced ARDS.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Director, Immunopathology Fellowship Program.
B. Renal Pathology Conference - Biweekly.
C. Space Utilization Committee.
D. Stobbe Funds Committee.
E. Chariman's Advisory Committee.

REGIONAL AND NATIONAL:

A. Associate Editor - Laboratory Investigation
B. Reviewer for the following journals:
   1. American Journal of Pathology
   2. American Review of Respiratory Diseases
C. Consultant/Grant reviewer for the Veteran's Administration.

V. OTHER RELEVANT ACTIVITIES:

A. Consultant on Dermatology and Nephrology training grants.

VI. PUBLICATIONS:

ARTICLES PUBLISHED IN REFEREED JOURNALS:

1. Ward, P.A., Cunningham, T.W., Johnson, K.J.: Signal transductions events in stimulated rat neutrophils: Effects of adenine nucleotides. Clin. Immunol. and Immunopath. 1989;50:30-41.
2. Warren, J.S., Mandel, D.M., Johnson, K.J., and Ward, P.A.: Evidence for the role of platelet-activating factor in a rat model of immune complex vasculitis. J. Clin. Invest., 1989;83:669-678.
3. Warren, J.S., Kunkel, R.G., Simon, R.H., Johnson, K.J., and Ward, P.A.: Ultrastructural cytochemical analysis of IgA immune complex induced lung injury in the rat. Lab. Invest., 1989;60(5):651-658.
4. Schuger, L., Varani, J., Marks, R., Kunkel, S.L., Johnson, K.J., Ward, P.A.: Cytotoxicity of tumor necrosis factor-a for human umbilical vein endothelial cells. Lab. Invest. 1989;61:62-68.
5. Guice, K.S., Oldham, K.T., Johnson, K.J.: Failure of anti-oxidant therapy (PEG-catalase) in acute pancreatitis. Am. J. Surg., 1989;157:145-149.
6. Weinburg, J.M., Johnson, K.J., Dela Iglesia, F.A. and Allen, E.D.: Acute alterations of tissue Ca^{++} and lethal tubular cell injury during $HgCL_2$ nephrotoxicity in the rat. Toxicologic Path., 1989;17:483-493.
7. Varani, J., Ginsburg, I., Schuger, L., Gibbs, D.F., Bromberg, J., Johnson, K.J., Ryan, U.S., Ward, P.A.: Endothelial cell killing by neutrophils: Synergistic interaction of oxygen products and proteases. Am. J. Pathol., 1989;135:435-438.

8. Ginsburg, I., Gibbs, D.F., Schuger, L., Johnson, K.J., Ryan, U.S., Ward, P.A. and Varani, J.: Vascular endothelial cell killing by combinations of membrane-active agents and hydrogen peroxide. Free Radical Biology and Medicine, 1989;7:369-376.
9. Ward, P.A., Warren, J.S., Till, G.O., Varani, J., Johnson, K.J.: Modification of disease by preventing free radical formation: a new concept in pharmacological intervention. Baillieres Clin. Haematol. 1989;2:391-402.
10. Kennedy, T.P., Johnson, K.J., Ward, P.A., Knight, P.R., Finch, J.S.: Acute acid aspiration lung injury in rat: Biphasic pathogenesis. Anesth. Analg., 1989;69:87-92.
11. Warren, J.S., Yabroff, K.R., Remick, D.G., Kunkel, S.L., Kunkel, R.G., Johnson, K.J., Ward, P.A.: Tumor necrosis factor participates in the pathogenesis of acute immune complex alveolitis in the rat. J. Clin. Invest., 1989;84:1873-1882.
12. Walker, B.A.M., Cunningham, T.W., Freyer, D.R., Todd, R.F. III, Johnson, K.J., Ward, P.A.: Regulation of superoxide responses of human neutrophils by adenine compounds: Independence of requirement for cytoplasmic granules. Lab. Invest., 1989;61:515-521.
13. Guice, K.S., Oldham, K.T., Caty, M.G., Johnson, K.J., Ward, P.A.: Neutrophil-dependent oxygen radical mediated lung injury associated with acute pancreatitis. Annals of Surgery 1990;210(6):740-747.
14. Penna, A.M., Johnson, K.J., Camilleri, J.M., Knight, P.R.: Alterations in influenza A, virus specific immune injury in mice anesthetized with halothine or ketamine. Intervirology, 1990;31:188-196.

ARTICLES ACCEPTED FOR PUBLICATION:

1. Carpenter, L.J., Johnson, K.J., Kunkel, R.G., and Roth, R.A.: Phorbol myristate acetate produces injury to isolated rat lung in the presence and absence of perfused neutrophils. J. Tox. App. Pharm., In Press.
2. Ward, P.A. and Johnson, K.J.: Lung inflammatory mechanisms. J. of Human Path., In Press.
3. Ward, P.A., Warren, J.S., Remick, D., Varani, J., Gannon, D., Johnson, K.J.: Cytokines and oxygen radical mediated tissue injury, in Shoemaker, W.C. (ed.), New Horizons III, Critical Care Medicine, In Press.
4. Warren, J.S., Johnson, K.J., and Ward, P.A.: PAF and immune complex induced injury. J. Lipid Mediators, in press.
5. Ward, P.A., Johnson, K.J., Till, G.O.: Mechanisms of lung injury. Prax. Klin. Pneumonol., in press.
6. Guice, K.S., Oldham, K.T., Johnson, K.J., and Ward, P.A.: Mechanisms of capillary endothelial cell injury in acute pancreatitis. Surg. Forum, In press.
7. Gannon, D.E., He, X., Ward, P.A., Varani, J., Johnson, K.J.: Time dependent inhibition of oxygen radical induced lung injury. Inflammation, In press.

ARTICLES SUBMITTED FOR PUBLICATION:

1. Ward, P.A., Till, G.O., Kunkel, R.G. and Johnson, K.J.: Protection against neutrophil-mediated lung injury by platelet depletion. Submitted for publication.
2. Ginsburg, I., Schuger, L., Gibbs, F., Johnson, K., Ryan, U.S., Ward, P.A. and Varani, J.: Endothelial cell killing by polymorphonuclear leukocytes: Independent and synergistic roles for oxygen radicals and proteases. Am. J. Path., submitted.
3. Warren, J.S., Yabroff, K.R., Mandel, D.M., Johnson, K.J., and Ward, P.A.: Role of O_2^- in neutrophil recruitment into sites of dermal and pulmonary vasculitis. Free Rad. Biol. Med., in press.
4. Varani, J., Stoolman. L., Wang, T., Schuger, L., Flippen, C., Dame, M., Dixit, V.M., Johnson, K.J., Todd, R.F., Ryan, U.S. and Ward, P.A.: Thrombospondin production and thrombospondin mediated adhesion in U937 cells. Submitted.
5. Varani, J., Gibbs, D.F., Johnson, K.J.,Weinberg, J.M., Ryan, U.S., Ginsburg, I., Ward, P.A.: Hydrogen peroxide-induced cell and tissue injury.: Protective effects of Mn^{2+}. Submitted.

6. Johnson, K.J., Dixit, V.M., Varani, J.: Role of thrombospondin in the acute inflammatory response. Submitted.
7. Kyff, J.V., Kennedy, T.P., Knight, P.R., Johnson, K.J.: The effect of volatile anesthetic agents on acid aspiration induced lung injury in rats. Submitted.
8. Schmeling, D.J., Oldham, K.T., Guice, K.S., Johnson, K.J.: Obliterative cholangitis induced by activated neutrophils: A model of biliary atresia: A model of biliary atresia. Submitted.

BOOKS AND CHAPTERS IN BOOKS

1. Johnson, K.J.: Inflammatory mediators in glomerulonephritis, in Churg, J. and Sinniah, R. (eds.) Classification and Atlas of Infectious Diseases of Kidney, WHO Vol. IV, Amer. Soc. Clin. Pathol., 1988.
2. Johnson,K.J., Chensue, S.W., Kunkel, S.L. and Ward, P.A.: Immunopathology, in Rubin, E. and Farber, J.L. (eds), Essential Pathology, Lippincott Inc., New York, NY, 1990.
3. Johnson, K.J., Varani,J., Smolen, J.E.: Neutrophil activation and another in health and disease. In: Granulocyte responses to cytokines: Basic and clinical research. A.G. Coffey (ed.). Marcel Dekker, Inc., New York, NY, In press.
4. Till, G.O., Johnson, K.J. and Ward, P.A.: Oxygen free radicals in inflammation, in Messmer, K. and Hammersen, F. (eds.) Prog. Appl. Microcirc., Vol. 9, Karger, Basel, In press.
5. Ward, P.A., Johnson, K.J. and Sulavik, M.D.: Lung injury produced by oxygen derived free radicals from leukocytes, in Mechanisms of Lung Injury Symposium, given at the Graduate Hospital, Philadelphia, PA, 1986, In press.
6. Ward, P.A., Johnson, K.J. and Till, G.O.: Tissue injury as a consequence of oxygen radicals produced by phagocytic cells, in Proceedings of a Symposium by the Comparative Respiratory Society, Anaheim, CA, 1986, In press.
7. Ward, P.A., Johnson, K.J., and Till, G.O.: Leukocyte oxygen radicals and acute lung injury in Proceedings of a Symposium on "Acute Lung Injury", PSG Publishing Co., Littleton, MA, In press.
8. Ward, P.A., Johnson, K.J., Till, G.O.: Animal models of oxidant lung injury. In Proceedings of Stressa Symposium in Zambon, Italy, In press.
9. Ward, P.A., Till, G.O., Gannon, D.E., Varani, J.A., and Johnson, K.J.: The role of iron in injury of endothelial cells in vitro and in vivo, in, Simic, M.D., Taylor, K.A., Ward, J.F. and Sonntag, C.C. (eds), Oxygen-Radicals in Biology and Medicine, 4-ICOR Conference, Plenum Press, New York, pp. 969-974, 1989.
10. Ward, P.A., Till, G.O., and Johnson, K.J.: Oxygen-derived free radicals and inflammation. Chapter for workshop on Inflammation and Healing of Sports Induced Soft Tissue Injury, held in Bethesda, Maryland, May 23, 1989.
11. Ward, P.A., Warren, J.S., Johnson, K.J., and Varani, J.: Cytokines and oxygen radical responses, in, Faist, Ninneman, and Green (eds), Proceedings of the 1st International Congress on The Immune Consequences of Trauma, Shock, and Sepsis: Mechanisms and Therapeutic Approaches", Springer-Verlag, Berlin, Heidelberg, 1989, pp. 173-178.
12. Ward, P.A., Warren, J.S., and Johnson, K.J.: Oxygen radicals, inflammation and tissue injury, Pryor, W. and Godber, S.L. (eds), Free Radical Biology and Medicine, in press.
13. Ward, P.A., Warren, J.S., Johnson, K.J., and Varani, J.: Cytokines and oxygen radical responses, in, Faist, Ninneman, and Green (eds), Proceedings of the 1st International Congress on The Immune Consequences of Trauma, Shock, and Sepsis: Mechanisms and Therapeutic Approaches", Springer-Verlag, Berlin, Heidelberg, 1989, pp. 173-178.
14. Ward, P.A., Warren, J.S., Till, G.O., Varani, J., Johnson, K.J.: Modification of disease by preventing free radical formation. A new concept in pharmacologic intervention, Chapter 7, in, Hershko, C. (guest ed.), Bailliere's Clinical Hematology: International Practive and Research, Vol. 2, No. 2, Bailliere Tindall, London, England, 1989, pp. 391-402.
15. Ward, P.A., Warren, J.S., Remick, D., Varani, J., Gannon, D., and Johnson, K.J.: Cytokines and oxygen-radical-mediated tissue injury, Chapter 6, in Bihari, D.J. and Cerra, F.B. (eds), New Horizons Multiple Organ Failure, Society of Critical Care Medicine, 1989, pp. 93-100.

16. Ward, P.A., Warren, J.S., Till, G.O., Varani, J., and Johnson, K.J.: Free radicals in lung disease, Rice-Evans, C. (ed), Free Radicals, Diseased States and Anti-Radical Interventions. Proceeding of the special colloquium. London, England, in press.
17. Ward, P.A., Warren, J.S., Till, G.O., Varani, J. and Johnson, K.J.: Modification of disease by preventing free radical formation: A new concept in pharmacologic intervention, in Hershko, C. (ed.), Iron Chelating Therapy, Bailliere Tindall Limited, Harcourt Brace Jovanovich, Publishers, London, England, In press.
18. Ward, P.A., Warren, J.S., Varani, J., and Johnson, K.J.: PAF, cytokines toxic oxygen products and cell injury. Molecular Aspects of Medicine, Proceedings of the VIIth Annual Inflammation Meeting, Birmingham, U.K., Pergammon Press (in press).
19. Warren, J.S., Johnson, K.J. and Ward, P.A.: Phagocytes and reactive oxygen substances as mediators of acute lung injury, in Hyers, T. (ed.) Diffuse Alveolar Damage and Respiratory Failure, Futura Press, New York, In press.
20. Warren, J.S., Johnson, K.J., Ward, P.A.: Consequences of oxidant injury, In: The Lung: Scientific Foundations, R.G. Crystal, T.B. West, In press.
21. Warren, J.S., Johnson, K.J. and Ward, P.A.: 7.5.2 Immunoglobulin and complement mediated immune injury, Crystal, R.G., West, J.B., Barnes, P.J., Cherniack, N.S. and Weibel, E.R. (eds), The Lung: Scientific Foundations, Raven Press, New York, In press.
22. Warren, J.S., Ward, P.A. and Johnson, K.J.: Immune complex injury, in Cantor, J.D. (ed.) CRC Handbook of Animal Models of Pulmonary Disease, CRC Press, Baco Raton, FL, 1987, In press.
23. Warren, J.S., Ward, P.A., and Johnson, K.J.: The inflammatory response, Chapter 8 In: W.J. Williams (ed), Hematology, 4th Edition, In press.
24. Warren, J.S., Ward, P.A., Johnson, K.J.: Oxygen radicals as 'Mediators of inflammation', Volume 6 in Henson, P.M. (ed.) The Handbook of Inflammation, Vol.6, Elsevier Biomedical Division, Amsterdam, The Netherlands, In press.
25. Warren, J.S., Ward, P.A. and Johnson, K.J.: The respiratory burst and mechanisms of oxygen radical mediated tissue injury, in Sbarra, A.J. and Strauss, R.P. (eds.) The Respiratory Burst and its Physiological Significance in Medicine Plenum Press, New York, NY, in press.
24. Warren, J.S., Ward, P.A., and Johnson, K.J.: Oxygen radicals as "mediators of inflammation", Volume 6, Henson, P. (ed), The Handbook of Inflammation, Elsevier Biomedical Division, Amsterdam, The Netherlands, In press.

ABSTRACTS, PRELIMINARY COMMUNICATIONS, PANEL DISCUSSIONS

1. Schmeling, D.J., Oldham, K.T., Guice, K.S., Johnson, K.J.: Noninfectious obliterative colangitis: A model of biliary inflammation. First Annual Dept. of Surgery Research Conf., 1989 (abstract).
2. Kunkel, R.G., Johnson, K.J., Ward, P.A., Marks, R.M.: Morphology of complement mediated neutrophil adhesion and migration through vascular endothelium. FASEB J, 1989;3:A1233.
3. Penna, A., Johnson, K.J., Knight, P.R.: Pathophysiologic effects of volatile anesthetics on influenza A infected mice. Amer. Soc. Anest. 1989.
4. Kyff, J.V., Kennedy, T.P., Johnson, K.J., Finch, J.S., Knight, P.R.: The effect of halathine and isoflurane on acid aspiration induced lung injury in rats. International Anesthesia Research Society. 1990 (abstract).
5. Sulavik, C.C., Johnson, K.J., Hagenlocker, B.E., Dixit, V.M.: Thrombospondin enhances oxidant production by rat alveolar macrophages but not neutrophils. FASEB, 1990.
6. Johnson, K.J., Sulavik, C.C., Dixit, V.M.: Antibodies to thrombospondin inhibits immune complex-induced lung injury in the rat. FASEB, 1990.
7. Kunkel, R.G., Thornton, A.J., Evanoff, H.L., Kunkel, S.L., Johnson, K.J., Remick, D.G.: TNF cytotoxicity: ultrastructural and molecular analysis. FASEB, 1990.
8. Kyff, J., Kennedy, T., Johnson, K., Finch, J.: The effect of halothane and isoflurane on acid aspiration induced lung injury in rats. FASEB, 1990.

9. Tait, A., Davidson, B., Johnson, K.J., Remick, D.: The effect of halothane on the immune response to influenza virus infection in mice. FASEB, 1990.
10. Druskovich, G., Kyff, J., Johnson, K.J.: Failure of deferoxamine to decrease lung injury in an acid aspiration model. FASEB, 1990.
11. Druskovich, G.M., Kyff, J., Johnson, K.J., Knight, P.R.: The role of leukocytes and hydroxyl radicals in mediation of acute acid aspiration injury. Midwest. Anest. Res. Conf., 1990.
12. Chan, L.S., Hammerberg, C.H., Soong, H.K., Cantu, C., Johnson, K.J., Cooper, K.D.: The spectrum of cicatricial pemphigoid. Soc. Invest. Derm. 94(4):513, 1990.

W. JOHN JUDD, F.I.M.L.S., M.I.BIOL.
ASSOCIATE PROFESSOR
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENT REPORT
1 JULY, 1989 - 30 JUNE, 1990

I. CLINICAL ACTIVITIES:

A. Director, Blood Bank Reference Laboratory.
B. Consultant, Veteran's Administration Medical Center, Ann Arbor.

II. TEACHING ACTIVITIES:

A. Directed weekly 1989-90 Clinical Pathology Grand Rounds.
B. Coordinated weekly 1989-90 Anatomical Pathology Conferences.
C. Coordinated Core-Lecture Series in Blood Banking for 1st-year Pathology House Officers.
D. Attended and participated in weekly Clinical Pathology Case Study Conferences.
E. Presentations at Clinical Pathology Grand Rounds:
   1. The Rh Blood Group System
   2. Immune Hemolysis
F. Trained Pathology and Pediatric Hematology Residents in Immunohematology.
G. Provided instruction to Pathology Residents during their Blood Bank Rotation.
H. Provided instruction to Blood Bank Fellow throughout the academic year.
I. Director, Current Topics in Blood Banking Conference, Towsley Center for Continuing Medical Education:
   1. Planned and Coordinated the June, 1990 Blood Bank Symposium and Preconvention Workshops.
   2. Presented Direct Antiglobulin Testing Workshop.
   3. Presented talk entitled: When the Urine is Red.
J. Visiting Lecturer, Specialist in Blood Banking Program, Wayne State University.

III. RESEARCH ACTIVITIES:

A. Knafl P, Horan M, Judd WJ, Oberman HA. Is autologous blood over-utilized? Submitted for presentation at the Joint Congress of the International Society of Blood Transfusion and the American Association of Blood Banks, Los Angeles, CA, November, 1990.
B. Judd WJ, Steiner EA, Abruzzo, LV, Davenport RD, Oberman HA: Acute intravascular hemolysis due to anti-i. Submitted for presentation at the Joint Congress of the International Society of Blood Transfusion and the American Association of Blood Banks, Los Angeles, CA, November, 1990.
C. Dectection of unexpected antibodies using flourescent-labeled erythrocytes; evaluation of semi-automated module developed by SYVA Corporation, Palo Alto, CA.

IV. SERVICE ACTIVITIES:

DEPARTMENTAL:

A. Blood Bank Daily Rounds
B. Weekly Blood Bank Communication Meetings.
B. Monthly Clinical Pathology Faculty Meetings.

REGIONAL/NATIONAL:

A. Michigan Association of Blood Banks:
   1. Chairman, Nominating Committee.
   2. Program Committee.
B. American Association of Blood Banks:
   1. Board of Directors, North Central District Representative.
   2.. Associate Editor, Technical Manual, ed 10 (published January, 1990):
      a. authored chapter on pretransfusion testing.
      b. authored chapter on antibody identification.
      c. authored chapter on direct antiglobulin testing.
      d. edited and compiled special methods section.
C. Reviewer of articles submitted for publication in Transfusion.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES:

1. Pretransfusion Testing - Where Have We Been and Where Are We Going? American Society of Clinical Pathologists, Chicago, Illinois, September, 1989.
2 The Rh Blood Group System - An Overview. Michigan Association of Blood Banks Annual Meeting, Troy, Michigan, September, 1989.
3. Problem Solving - What to Use and When. Bay Area Antibody Club, San Francisco, California, September, 1989.
4. Pretransfusion Testing for the 90's. Bay Area Antibody Club, San Francisco, California, September, 1989.
5. Mid-Atlantic Association of Blood Banks Annual Meeting, Hunt Valley, Maryland, April, 1990: Antibody Identification - How Much is Enough?
6. Testing, Testing, Testing - What to Use and When: Civic Hospital, Ottawa, Canada, May, 1990.

WORKSHOPS/PANEL DISCUSSIONS:

1. Investigation and management of immune hemolysis: autoantibodies and drugs. American Association of Blood Banks Annual Meeting, New Orleans, Louisiana, October, 1988.
2. Pretransfusion Testing for the 90's. American Association of Blood Banks Annual Meeting, New Orleans, Louisiana, October, 1988.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN PEER-REVIEWED JOURNALS:

1. McCoy-Pardington D, Judd WJ, Knafl P, Abruzzo LV, Coombes KR, Butch SH, Oberman HA. Blood utilization during extracorporeal membrane oxygenation. Transfusion, 1990;30:307-9.
2. Steiner EA, Judd WJ, Oberman HA, Hayashi RH, Nugent CE. Percutaneous umbilical blood sampling and umbilical vein transfusions: new roles for the blood bank. Transfusion 1990;30:104-8.
3. Judd WJ, Luban, NLC, Ness PM, Silberstein LE, Stroup M, Widmann FK. Prenatal and perinatal immunohematology: recommendations for serologic management of the fetus, newborn infant and obstetric patient. Transfusion 1990;30:175-83.
4. Gilsdorf JR, Judd WJ, Cinat M. Relationship of Haemophilus influenzae type b pilus structure and adherence to human erythrocytes. Infection and immunity 1989;57:3259-60.

CHAPTERS IN BOOKS:

1. Judd WJ. Pretransfusion testing. In: McClatchey KD, ed. Clinical laboratory medicine. Baltinore: Williams and Wilkins. Submitted.

ABSTRACTS/LETTERS:

1. Judd WJ, Steiner EA, Oberman HA, Nance S. Should the 37 C reading be eliminated from antibody screening? Transfusion 1989;29(S):58.

PAUL D. KILLEN, M.D.,PH.D.
ASSISTANT PROFESSOR AND
ASSISTANT RESEARCH SCIENTIST
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES: Autopsy Pathology.

II. TEACHING ACTIVITIES:

A. Pathology 631 - Pathology Laboratory for Dental Student. Approximately 60 contact hours.
B. Pathology 580 - 2 contact hours.
C. Gross Pathology Conference
D. Renal Pathology Conference
E. Resident Teaching Conference
G. Post Doctoral Fellows (2)
F. Graduate Students (2)

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. NIH-P01-HL31963, Principal Investigator, Project VI "Molecular Biology of Alveolar Wall Injury", (40%) $87,140/year, 3/1/89 - 2/28/94.
B. NIH-DC39225 Principal Investigator, Project XI "Monokine-Mediated Matrix Biosynthesis by Mesangial Cells." (10%) $39,110/year.
C. AHA of MI, Principal Investigator, "Mesangial Cell Expression of Collagen IV Genes". (5%) $24,500/year $49,000/2 years, 07/01/89-06/30/91.
D. MDRTC-Pilot and Feasibility, Principal Investigator, "Collagen IV Metabolism by Human Retinal Pigment Epithelial Cells in Vitro". (5%) $25,000/year, 12/01/89-11/30/90.

PENDING SUPPORT:

A. NIH-1R01-CA51806-01, Principal Investigator, "Regulation of Collagen IV Gene Transcription" (25%) 12/01/90-11/30/95 (pending).
B. AHA-Established Investigatorshiup Award, "Collagen IV Gene Regulation During Renal Development". $35,000/year, 07/01/91-06/30/96 (pending).
C. NIH-3-PO1-HL18575-14, Co-Investigator on Project 3, "Altered Ion Metabolism in Hypertension", $319,641 total, 01/01/91-12/31/95 (pending).
D. NIH-RO1-DK37448, Co-Investigator, "Cellular Function of the Juxtaglomerular Complex", $913,156 total, 07/01/91-06/30/96 (pending).
E. AHA-Grant-in-Aid, Principal Investigator, "Collagen IV Gene Regulation During Renal Development", $120,000 total, 07/01/91-06/30/94 (pending).

PROJECTS UNDER STUDY:

A. Basement membrane gene expression by alveolar wall cells.
B. Regulation of collagen IV gene expression during development.
C. Regulation of basement membrane gene expression by glomerular cells in culture.
D. Localization of nephron segment-specific genes by PCR_1.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL: None

MEDICAL SCHOOL/HOSPITAL:

A. Interviewed candidates for faculty positions.
B. Interviewed candidates for research fellowships.

REGIONAL AND NATIONAL:

A. Ad hoc reviewer, Division of Extramural Activities, NIDDK, NIH
B. Reviewer, Laboratory Investigation, American Journal of Pathology, Journal of Clinical Investigation
C. Ad hoc Reviewer, Juvenile Diabetes Foundation

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. "Collagen Production and Familial Nephritis", Chairmen, 22nd Annual Meeting American Society of Nephrology.
2. "Structure, Function and Pathobiology of Laminin" XI International Congress of Nephrology, 1990.
3. "Basement Membrane Biosynthesis in the Kidney" XI International Congress of Nephrology, 1990.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. McGuire, P.G., Brocks, D., Killen, P.D., and Orkin, R.W.: Increased deposition of basement membrane macromolecules in specific vessels of the spontaneously hypertensive rat. Amer. J. Pathol. 1989;135:291-299.
2. Laurie, G.W., Killen, P.D., Sequi-Real, B., Yamada, Y., Martin, G.R.: *In situ* hybridization reveals temporal and spatial changes in cellular expression of mRNA for a laminin receptor, Laminin and basement membrane (Type IV) collagen in the development kidney. J. Cell Biol., 1989;109:1351-1362.
3. Weiser, M.M., Sykes, D.E. and Killen, P.D.: Rat intestinal basement membrane synthesis epithelial versus nonepithelial contributions. Lab. invest. 1990;62:325-330.

4. Merritt, S., Killen, P., Phan, S., Downer, G., Wiggins: Intraglomerular inflammation is associated with extraglomerular collagen synthetic activity early in a crescentic model of antiGBM disease in the rabbit. Evidence from measurement of alpha 1(IV) collagen and beta-actin mRNA from glomeruli and renal cortex. Lab. Invest., 1990, in press.

ARTICLES SUBMITTED FOR PUBLICATION:

1. Killen, P.D., Yamada, Y., and Francomano, C.A.: TaqI and BclI polymorphisms in the COL4A1 gene. Nucl. Acid Res., 1989, submitted.
2. Francomano, C.A., Yamada, Y. and Killen, P.D.: MspI and EcoRV polymorphisms in the COL4A2 gene. Nucl. Acid Res., 1989, submitted.
3. Wolf, G., Killen, P.D., Neilson, E.G.: Cyclosporin A stimulates transcription and procollagen secretion in tubulointerstitial fibroblasts and proximal tubular cells. J. Amer. Soc. Nephr., 1990, submitted.

ABSTRACTS, BOOKS REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Hansch, G.M., Schonermark, M., Berger, B., Jahn, B., Killen, P.D., Rother, K.: Proline Analogs Inhibit the Extracellular Deposits of Collagen Type IV by Human Glomerular Epithelial Cells (GEC). Presented 22nd Annual Meeting American Society of Nephrology, 1989.
2. Briggs, J.P., Todd, K.M., Schnermann, J., Killen, P.D.: Feasibility Studies of mRNA Quantification in Single Dissected Nephron Segments by PCR Amplification of cDNA. Presented 22nd Annual Meeting American Society of Nephrology, 1989.
3. Killen, P.D., Long,R., DeMeester, C.A., O'Brien, E.: Transcriptional regulation of collagen IV genes. Presented 22nd Annual Meeting American Society of Nephrology, 1989.
4. Rother, K., Jahn, B., Schonermark, M., Berger, B., Killen, P.D., Hansch, G.M.: The Terminal Complement Components C5b-9 Stimulate the Collagen IV Synthesis in Human Glomerular Epithelial Cells (GEC). Presented 74th Annual Meeting FASEB.
5. Killen, P.D., DeMeester, C.A., Long, R., O'Brien, E.: Transcriptional Regulation of Collagen IV Gene Expression. Presented Annual Meeting American Federation for Clinical Research.
6. Trivedi, B., Briggs, J.P., Killen, P.D.: Identification of Multiple Rabbit Renin cDNAs by PCR Amplification of Renal Cortical RNA. Presented Annual Meeting American Federation for Clinical Research.
7. Henry, D.N., Greene, D.A., Del Monte, M.A., Killen, P.D.: Assessment of Aldose and Aldehyde Reductase mRNA in Cultured Human Retinal Pigment Epithelial Cells by Polymerase Chain Reaction Amplification of cDNA. Presented 50th Scientific Meeting American Diabetes Association, 1990.
8. Briggs, J.P., Trivedi, B., Schnermann, J., Killen, P.D.: Detection of b-actin and Renin mRNA in Microdissected Renal Vessels and Renal Tubules by PCR Amplification of cDNA. Presented XI International Congress of Nephrology, 1990.
9. Killen, P.D., DeMeester, C.A., Long, R., O'Brien, E.: Identification of Sequences which Enhance and Repress Collagen IV Gene Transcription. Presented XI International Congress of Nephrology, 1990.
10. Briggs, J.P., Trivedi, B., Todd, K.M., Chen, M., Schnermann, J., Lorenz, J.N., Weiprecht, H., Killen, P.D.: Application of Polymerase Chain Reaction to Study of Renin Gene Expression in Single Rabbit Juxtaglomerular Apparatus (JGA). Accepted 44th Annual Scientific Meeting American Council for High Blood Pressure Research.
11. Briggs, J.P., Trivedi, B., Todd, K.M., Chen, M., Schnermann, J., Lorenz, J.N., Weiprecht, H., Killen, P.D.: Application of Polymerase Chain Reaction to Study of Renin Gene Expression in Single Rabbit Juxtaglomerular Apparatus (JGA). Submitted 21st Kongreb der Gesellschaft fur Nephrologie.

STEVEN L. KUNKEL, PH.D.
ASSOCIATE PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES: None.

II. TEACHING ACTIVITIES:

A. Inflammation/Immunopathology Series ICS-600.
B. Pathology 580.
C. Epidemiology 570.
D. Clinical Pathology Grand Rounds.
E. Teaching/Research Seminars in various departments.
F. Department of Postgraduate medicine - "The practice of clinical nutrition: Science and application for the future".
G. Supervised the following postdoctoral fellows, residents, and students: Dr. Robert Spengler, Dr. Amanda Thornton, Dr. Lynn Abruzzo, Dr. Ted Standiford, Dr. Charles Gibb, Dr. Andy Metinko, Dr. Wendy Scales, Dr. Kieta Kasahara, Dr. John Ham, and Mark Milia..
H. Doctoral Committee Member/Oral Presentation Committee for the following graduate students: Nancy Long, Lin LeMay, Ron Allen, Cindy Hoorn and Paul Bohjanen.
I. Development of "Cellular and Molecular Basis of Disease" Course (with Dr. Jeffrey Bonadio)

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. NIH - Macrophage/Monocyte Signals in Lung Granuloma Formation; HL-R01-35276; Principal Investigator.
B. NIH - Monokine Gene Expression/Regulation in Lung Injury; HL-R01-31237; Principal Investigator.
C. NIH - Inflammatory Cells and Lung Injury; Program Project HL-31963; Principal Investigator for Section II and Core II.
D. American Heart Association Established Investigator - Regulation of Pulmonary Granuloma Formation by Macrophages; Principal Investigator.
E. NIH - Crescentic Nephritis; Program Project P01-DK38149; Principal Investigator - Section II.
F. NIH - Fibroblast Heterogeneity in Pulmonary Fibrosis; HL-39925; Co-investigator.
G. Tobacco Research Institute - Principal Inves.igator.

PROJECTS UNDER STUDY:

A. Regulation of macrophage signals that dictate immune responsiveness.
   1. Tumor necrosis factor production.

2. Interleukin-8 production.
3. Chemotactic cytokines.

B. Role of macrophages - lymphocyte interactions in the initiation, maintenance, and resolution of chronic immune response.
C. Regulation of macrophage gene expression.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Space Utilization and Research committee (Chairman).
B. Graduate Program Committee.
C. Conduct Research Seminar Series.
D. Interview Candidates for Residency Program/Graduate Program.

MEDICAL SCHOOL/HOSPITAL:

A. Medical School Financial Aid Committee.
B. Committee on Medical Student Research.
C. Medical School Admission Interviewer Committee.
D. Admission Executive Committee.
E. Medical Scientist Training Program Admission Committee.
F. Biomedical Research Council Committee.
G. Reviewer for Diabetes Research and Training Center Grants.
H. Member, Michigan Cancer Center.

REGIONAL AND NATIONAL:

A. Associate Editor, Journal of Immunology.
B. Section Editor, Journal of Immunology.
C. Associate Editor, American Journal of Respiratory Cell and Molecular Biology.
D. Associate Editor, Pathobiology.
E. Organizing Committee, Second International Workshop on Non-lymphocytic Cytokines.
F. Organizer, Second International Symposium on Chemotactic Cytokines.
G. Member, American Association of Pathology Program Committee.
H. Reviewer for the following journals: American Journal of Pathology, American Review of Respiratory Disease, Circulation, Clinical Immunology and Immunopathology, Infection and Immunity, Journal of Rheumatology, Laboratory Investigation, Science, Journal Immunology, American Journal ofRespiratory Cell and Molecular Biology.
I. Research Peer Review Committee of the American Heart Association (Michigan).
J. Grant Reviewer, United States Department of Agriculture.
K. Grant Reviewer, The Arthritis Society.
L. Grant Reviewer, Veterans' Administration
M. Session Chair, Second International Symposium on Chemotactic Cytokines.
N. Session Chair, Drug Modulation of Cytokine Production, International Association of Inflammatory Societies.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES AND SEMINARS:

1. Invited Speaker, The Practice of Clinical Nutrition: Science and Application for the Future, Post Graduate Education Conference, Ann Arbor, September, 1989.
2. Visiting Pulmonary Scholar/Lecturer, NIEHA, Duke University, University of North Carolina, October, 1989
3. Invited Speaker, Central Society for Clinical Research, Chicago, Illinois, November, 1989
4. Invited Speaker, Molecular and Cellular Biology of IL-1, TNF, and Lipocortins in Inflammation and Differentiation, Siena, Italy, October, 1989
5. Invited Speaker, Leukocytes and Endothelial Cells in Inflammation, Napa Valley, California, January, 1990
6. Visiting Professor, Department of Internal Medicine, Universita di Podova, Podova, Italy, February, 1990
7. Invited Speaker, International Meeting on Pathophysiology of Pulmonary Cells, Turin, Italy, February, 1990
8. Visiting Professor/Lecturer, Hunterian Institute, Royal College of Surgeons, London, United Kingdom, February, 1990
9. Invited Lecturer, Division of Pulmonary Medicine, Henry Ford Hospital, Detroit, Michigan, March, 1990
10. Visiting Professor, Center for Lung Research, Vanderbilt University, Memphis, Tennessee, April, 1990
11. Invited Speaker, International Endotoxin Society, San Diego, California, May, 1990
12. Invited Speaker, American Society Microbiology, Symposium on Molecular and Cellular Aspects of Chronic Inflammation, Anaheim, California, May, 1990
13. Invited Speaker, Department of Pathology, University California, Irvine, California, May, 1990
14. Invited Speaker, American Thoracic Society, Symposium on Molecular and Cellular Aspects of Chronic Inflammation, Boston, Massachusetts, May, 1990
15. Visiting Professor, Department of Pharmacology, Michigan State University May 1990
16. Invited Faculty/Lecturer, Second Wiggers-Bernard Conference on Sepsis, Shock, and Multiple Organ Injury, Vienna, Austria, June, 1990
17. Invited Speaker, Imperial Chemical Industries, Manchester, England, June, 1990
18. Invited Speaker, Second International Symposium on Chemotactic Cytokines, London, England, June, 1990
19. Invited Speaker, Pasteur Institute, Division of Cellular Pharmacology, Paris, France, June, 1990
20. Invited Speaker, International Association of Inflammation Societies, Norwidjk, The Netherlands, June, 1990

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Thompson, C.B., Lindsten, T., Ledbetter, J.A., Kunkel, S.L., Young, H.A., Emerson, S.G., Leiden, J.M., and June, C.H.: Activation of the CD28 pathway enhances the production of lymphokines/cytokines by normal human T-cells. Proc. Natl. Acad. Sci. USA, 1989;18:1333-1337.
2. Chensue, S.W., Shmyr-Forsch, C., Weng, A., Otterness, I.G., and Kunkel, S.L.: Biologic and immunohistochemical analysis of macrophage-1a, 1b and tumor necrosis factor production during the peritoneal exudative response. J. Leuk. Biol. 1989;46:529-537.

3. Baggiolini, M., Walz, A., and S.L. Kunkel: NAP-1/IL-8, a novel cytokine that activates neutrophils. J. Clin. Invest. 1989;57:2837-2841.
4. Spengler, R.N., Spengler, M.L., Lincoln, P., Remick, D.G., Strieter, R.M., and Kunkel, S.L.: Dynamics of dibutyryl cyclic AMP and prostaglandin E_2-mediated suppression of lipopolysacchride-induced tumor necrosis factor alpha gene expression. Infect. Immun. 1989;57:2837-2841.
5. Kunkel, S.L., Chensue, S.W., Strieter, R.M., Lynch, J.P. and Remick, D.G.: Cellular and molecular aspects of granuloma formation. Am. J. Respir. Cell. Mol. Biol. 1989;1:439-447.
6. Streiter, R.M., Chensue, S.W., Standiford, T.W., Basha, M.A., Showell, H.J., and Kunkel, S.L.: Disparate gene expression of chemotactic cytokines by human mononuclear phagocytes. Biochem. Biophys. Res. Comm. 1990;166:886-891.
7. Warren, J.S., Yabroff, K.R., Remick, D.G., Kunkel, S.L., Chensue, S.W., Kunkel, R.G., Johnson, K.J., and Ward, P.A.: Tumor necrosis factor participates in the pathogenesis of acute immune complex alveolitis in the rat. J. Clin. Invest. 1989:84:1873-1882.
8. Remick, D.G., Strieter, R.M., Eskandari, M.K., Nguyen, D.T., Genord, M.A., Raiford, C.L. and Kunkel, S.L.: Role of tumor necrosis factor-a in lipopolysaccharide-induced pathologic alterations. Am. J. Pathol. 1990;136:49-60.
9. Strieter, R.M., Remick, D.G., Ham, J.M., Colletti, L.M., Lynch, J.P. and Kunkel, S.L.: Tumor necrosis factor-alpha gene expression in tumor whole blood. J. Leuk. Biol. 1990;47:366-370.
10. Long, N.C., Kunkel, S.L., Vander, A.J., and Kluger, M.J.: Antiserum against tumor necrosis factor enhances lipopolysaccharide fever in rats. Am. J. Physiol. 1990;258:332-337.
11. Eskandari, M.K., Nguyen, D.T., Kunkel, S.L., and Remick, D.G.: WEHI 164 Subclone 13 Assay for TNF: Sensitivity, Specificity, and Realiability. Immuno. Invest. 1990:19(1):69-79.
12. Remick, D.G., Kunkel, S.L., Hanson, C.: Theory and application of the polymerase chain reaction. Am. J. Clin. Pathol. 1990;93:S49-S53.
13. Thornton, A.J., Streiter, R.M., Lindley, I., Baggiolini, M., and Kunkel, S.L.: Cytokine-induced gene expression of a neutrophil chemotactic factor/interleukin-8 in tumor hepatocytes. J. Immunol. 1990;144:2609-2613.
14. Strieter, R.M., Chensue, S.W., Basha, M.A., Standiford, T.J., Lynch, J.P., and Kunkel, S.L.: Human alveolar macrophage gene expression in interleukin-8 by TNF-alpha, LPS, and IL-1 beta. Amer. Rev. Respir. Cell. Mol. Biol. 1990;2:321-326.
15. Bagavandoss, P., Wiggins, R.C., Kunkel, S.L., Remick, D.G., and Keyes, P. L.: Tumor necrosis factor production and accumulation of inflammatory cells in the corpus luteum of pseudopregnancy and pregnancy in rabbits. Biol. of Reprod. 990;43:367-376.
16. Reynolds, S.R., Kunkel, S.L., Thomas, D.W., Higashi, G.I.: T cell clones for antigen selection and lymphokine production in murine *Schistosomiasis mansoni*. J. of Immunol. 1990;144:2757-2762.
17. Nguyen, D.T., Eskandari, M.K., Raiford, C.L., Strieter, R.M., Kunkel, S.L., and Remick, D.G.: Cyclosporin A modulation of tumor necrosis factor gene expression and effects *in vitro* and *in vivo*. J. Immunol. 1990;144:3822-3828.
18. Elner, V.M., Strieter, R.M., Elner, S.G., Baggiolini, M., Lindley, I.,and Kunkel, S.L.: Neutrophil chemotactic factor (IL-8) expression by cytokine treated retinal pigmented epithelial cells. Am. J. Pathol. 1990;136:745-750.
19. Colletti, L.M., Burtch, G.D., Remick, D.G., Kunkel, S.., Streiter, R.M., Guice, .S., Oldham, K.T., Campbell, D.A. Jr.: Production of tumor necrosis factor alpha and the development of a pulmonary capillary injury following hepatic ischemia/reperfusion. Transplantation 1990;49:268-272.
20. Colletti, L.M., Remick, D.G., Burtch, A.D., Kunkel, S.L., Strieter, R.M., and Campbell, D.A.: The role of tumor necrosis factor-alpha in the pathophysiologic alterations following hepatic ischemia/reperfusion injury in the rat. J. Clin. Invest. 1990;85:1936-1943.

BOOKS AND CHAPTERS IN BOOKS:

1. Kunkel, S.L., Strieter, R.M., Chensue, S.W., Basha, M., Standiford,T., Ham, J., and Remick, D.G.: Tumor necrosis factor-a, interleukin-8, and chemotactic cytokines. in, Melli, M., and Parente, L. (Eds.) Cytokines and Lipocortins in Inflammation and Differentiation, Alan R. Liss, Inc., New York, NY, 1990.
2. Colletti, L.M., Remick, D.G., Burtch, G.D., Strieter, R.M., Kunkel, S.L., and Campbell, D.A.: The role of TNF in local and systemic organ injury following ischemia/reperfusion. in, Powanda, M.C., Oppenheim, J.J., Kluger, J.J. and Dinarello, C.A. (Eds.) Proceedings of the Second International Workshop on Cytokines (1990).
3. Kunkel, S.L., Chensue, S.W., Remick, D.G., and Strieter, R.M.: Immunomodulation of pulmonary host defense in, Pozzi, E. (Ed) Pathophysiology of Pulmonary Cells (1990).
4. Long, N.C., LeMay, L., Otterness, I., Kunkel, S.L., Vander, A.J. and Kluger, M.S.: The roles of IL-1-alpha and beta, TNF, and IL-6 in LPS fever in the rat. in, Powanda, M.C., Oppenheim, J.J., Luger, M.J. and Dinarello, C.A. (Eds.) Proceedings of the Second International Workshop on Cytokines. (1990)
5. Kunkel, S.L., Standiford, T., Kasahara, K., and Strieter, R.M.: Stimulus specific induction of monocyte chemotactic protein-1 (MCP-1) gene expression. in, Kunkel, S.L., Lindley, I., and Westwick, J. (Eds.) Chemotactic Cytokines Karger (1990).
6. Strieter, R.M., Standiford,T., Chensue, S.W., Kasahara, K., and Kunkel, S.L.: Induction and regulation of IL-8 gene expression . in, Kunkel, S.L., Lindley, Z., and Westwick, J. (Eds.) Chemotactic Cytokines Karger (1989).

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

1. Standiford, T.J., Kunkel, S.L., Basha, M.A., Evanoff, H.L., Lynch, J.P.III, Toews, G.B., and Streiter, R.M.: Regulation of chemotactic cytokine gene expression from Pulmonary epithelial cells. FASEB, 1990.
2. Streiter, R.M., Chensue, S.W., Showell, H.J., Basha, M.A., Standiford, T.J., Remick, D.G., Allen, R., Lynch, J.P.III, and Kunkel, S.L. Interleukin-8 gene expression by human alveolar macrophages. FASEB, 1990.
3. Elner, V.M., Streiter, R.M., Elner, S.G., and Kunkel, S.: Monocyte chemotactic protein (MCP) gene expression by cytokine treated human retinal pigment epithelium (RPE) cells. FASEB, 1990.
4. Elner, S.G., Strieter, R.M., Elner, V.M., Baggioloni, M., Lindley, I., and Kunkel, S.L.: Neutrophil chemotactic factor (IL-8) gene expression by cytokine treated human retinal pigment epithelial (RPE) cells. FASEB, 1990.
5. Ham, J.M., Strieter, R.M., Westwick, J., Campbell, D.A., and Kunkel, S.L.: Chemotactic cytokine gene expression in human whole blood. FASEB, 1990.
6. Basha, M.A., Kunkel, S.L., Standiford, T.J., Popovich, J Jr., Phan, S.H., Wiggins, R., Evanoff, H.L., Wharram, B.L., and Strieter, R.M.: Hyperoxia augments tumor necrosis factor cytotoxicity and induces interleukin-8 gene expression. FASEB, 1990.
7. Thornton, A.J., Ham, J.M., and Kunkel, S.L.: Cytokine networks in the liver: Role of cell-cell communication in IL-8 gene expression. FASEB, 1990.
8. Scales, W.E. and Kunkel, S.L.: Expression of interleukin-6 (IL-6) in elicited murine peritoneal macrophages. FASEB, 1990.
9. Nguyen, D.T., Eskandari, M.K., Kunkel, S.L., and Remick, D.G.: Cyclosporin A (CsA) modulation of tumor necrosis factor (TNF) gene expression and effects *in vitro* and *in vivo*. FASEB, 1990.
10. DeForge, L.E., Nguyen, D.T., Kunkel, S.L., and Remick, D.G.: Comparison of the sensitivities of *in situ* hybridization (ISH) and Northern blot (NB) analysis in detecting tumor necrosis factor (TNF) mRNA. FASEB, 1990.

11. Remick, D.G., Eskandari, M.K., Nguyen, D.T., Strieter, R.M., and Kunkel, S.L.: Tumor necrosis factor gene expression tolerance occurs at the level of mRNA. FASAB, 1990.
12. Kunkel, R.G., Thornton, A.J., Evanoff, H.L., Kunkel, S.L., Johnson, K.J., and Remick, D.G.: TNF Cytotoxicity: Ultrastructural and molecular analysis. FASEB, 1990.
13. Standiford, T.J., Kunkel, S.L., Basha, M.A, Lynch, J.P, Toewe, G.B., and Strieter, R.M.: Human alveolar macrophage induced gene expression of neutrophil chemotactic factor/interleukin-8 from pulmonary epithelial cells. Clin. Res. 38:139A, 1990.
14. Strieter, R.M., Chensue, S.W., Basha, M.A., Standiford, T.J., Remick, D.G., Lynch, J.P, and Kunkel, S.L.: Human alveolar macrophage gene expression of interleukin-8 by TNF-a, LPS, and IL-1b. Am. Rev. Respir, Dis. 141:A676, 1990.
15. Standiford, T.J., Kunkel, S.L., Basha, M.A., Lynch II, J.P., Toews, G.B., and Strieter, R.M.: Human alveolar macrophage induced gene expression of neutrophil chemotactic factor/interleukin-8 and monocyte chemotactic peptide from pulmonary epithelial cells. Am. Rev. Respir. Dis. 141:A915, 1989.
16. Basha, M.A., Kunkel, S.L., Standiford, T.J., Popovich, J., Phan, S.H., Wiggins, R., Wharram, B.L., and Strieter, R.M.: Hyperoxia induces interleukin-8 gene expression and augments tumor necrosis factor cytotoxicity. Am. Rev. Respir. Dis. 141:A919, 1990.
17. Standiford, T.J., Strieter, R.M., Chensue, S.W., Westwick, J., Kasahara, K., and Kunkel, S.L.: Interleukin-8 from stimulated human monocytes. To be presented at Second International Symposium on Chemotactic Cytokines, London, UK, June, 1990.
18. Kasahara, K., Strieter, R.M., Chensue, S.W., Standiford, T.J., and Kunkel, S.L.: Adherence to plastic induced IL-8 gene expression from mononuclear phagocytes. To be presented at the Second International Symposium on chemotactic Cytokines, London, UK, June, 1990.

RICARDO V. LLOYD, M.D., PH.D.
ASSOCIATE PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES

A. Surgical pathology - 16 weeks.
B. Consultant for endocrine lesions.
C. Consultant to Veterans Administration Medical Center, Ann Arbor, Michigan.

II. TEACHING ACTIVITIES:

A. Lectures to sophomore medical students - Pathology 600
B. Fourth Year medical student rotation in Pathology - 1 month.
C. Lecture to dental students - Pathology 630.
D. Lectures to pathology house officers.
E. Immunoperoxidase Rounds - twice monthly.
F. Supervision of three postdoctoral fellows in research laboratory.
G. Honors Elective Course for undergraduate students - 1 semester.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Regulation of Rat Pituitary Hyperplasia and Neoplasia. NIH Grant 1R23 CA 37238, 3/84 - 2/87 and NIH CA 37238, 5/87 - 6/91, (PI - R. Lloyd).
B. Studies of Normal and Neoplastic Human Pituitary Tissues. NIH Grant CA 42951, 7/86 - 6/95 (PI - R. Lloyd). Competing Renewal Score - 5.7 percentile!

PROJECTS UNDER STUDY:

A. Regulation of pituitary growth and differentiation.
B. Applications of molecular biological techniques to diagnostic pathology.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Director of Immunoperoxidase Service.
B. Coordinator of Anatomic Pathology Journal Club.
C. Resident Selection Committee.
D. Residency Advisory Committee.
E. Pathology Graduate Training Program Committee.

F. Space Utilization Committee.

MEDICAL SCHOOL/HOSPITAL:

A. Thyroid Therapy Conference.
B. Endocrine Surgery Conference.
C. Pituitary Study Group.
D. Medical School Admissions Committee.
E. Pathology presentations at General Endocrine Conference.
F. Search Committee for Medical School Dean.

REGIONAL AND NATIONAL:

A. Editorial Board - American Journal of Pathology.
B. Editorial Board - Endocrine Pathology.
C. Editorial Board - American Journal of Surgical Pathology.
D. Reviewer of articles for Laboratory Investigation, Journal of the American Medical Association, Journal of Histochemistry and Cytochemistry, the American Journal of Medical Sciences, New England Journal of Medicine, Journal of Clinical Endocrine Metabolism, and others.
E. Review Committee for International Academy of Pathology Abstracts.
F. Pathology B Study Section, National Cancer Institute, Member 1987 - 1991.
G. College of Pathologist - Cell Markers Committee.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURE AND SEMINARS

1. Thyroid Club of Bologna, Italy. October 5, 1989. Chromogranins in Analysis by Immunohistochemistry and *in situ* hybridization.
2. University of Torino, Turrin, Italy. Study of cultured human pituitary cells. October 4th, 1989.
3. ASCP, Chicago, Illinois. Immunohistology techniques and interpretation. August, 1989.
4. ASCP San Francisco, California. Molecular techniques in diagnostic pathology. March, 1990.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Song, J., Jin, L., Lloyd, R.V.: Effects of estradiol on prolactin and growth hormone messenger RNA in cultured normal and neoplastic (MtT/W15 and GH_3) rat pituitary cells. Cancer Res. 1989;49:1247-1253.
2. Hankin, R.C., Lloyd, R.V.: Detection of messenger RNA in routinely processed tissue sections with biotinylated oligonucleotide probes. Am J. Clin Pathol 1989;92:166-171.
3. Lloyd, R.V., Dafoe, D.C., Campell, D.A., Jr., Merion, R.M., Turcott, J.G., Vinik, A.I.: Pancreas transplantation: An immunohistochemical analysis of pancreatic hormones and HLA-DR expression. Modern Pathol 1989;2:323-330.
4. Hawkins, K.L., Lloyd, R.V., Toy, K.A.: Immunohistochemical localization of chromogranin A in normal tissues from laboratory animals. Vet Pathol 1989;26:488-499.
5. Jin, L., Song, J., Lloyd, R.V.: Estrogen stimulates both prolactin and growth hormone mRNAs expression in the MtT/F4 transplantable tumor. Proc. Soc Expt Biol Med 1989;192:225-229.
6. Flint, A., Lloyd, R.V.: Hurthle cell neoplasms of the thyroid gland. Pathol Ann, 1990;25:37-52.

7. Lloyd, R.V.: Molecular probes and endocrine diseases. Am J Surg Pathol 1990;14 (Supplement 1):34-44.
8. Lloyd, R.V., Jin, L., Fields, K.: Detection of chromogranins A and B in endocrine tissues with radioactive and biotinylated oligonucleotide probes. Am J Surg Pathol 1990;14:35-43.
9. Lloyd, R.V., Long, J., Song, J., Kovacs, K., Horvath, G.: Effects of propylthiouracil on growth hormone and prolactin messenger ribonucleic acid in the rat pituitary. An *in situ* hybridization histochemical analysis. Lab Invest. 1990;62:347-354.
10. Song, J., Jin, L., England, B., Smart, J., Lloyd, R.V.: Gonadotropin releasing hormone regulates gonadotropin subunit and chromogranin B mRNAs in cultured chromogranin A positive pituitary adenomas. J. Clin Endocrinol Metab (In Press).
11. Jin, L., Song, J., Lloyd, R.V.: Hybridization studies of cultured human pituitary PRL and GH producing adenomas cells. Effects of thyrotropin-releasing hormone somatostatin and phorbol ester. Endocr Pathol 1990;1:25-36.
12. Vinik, A.I., McLeod, M.K., Fig, L.M., Shapiro, B., Lloyd, R.V., Cho, K.: Clinical features, diagnosis and localization of carcinoid tumors and their management. Gastroenterology Clinics of NA 1989;18:865-896.
13. Vinik, A.I., Lloyd, R.V., Cho, K. The use of somatostatin analogue in gastroenteropancreatic tumors other than carcinoid. Metabolism (In Press).
14. Horvath, E., Lloyd, R.V., Kovacs, K., Losinski, N.E.: PTU-induced hypothyroidism results in reversible transdifferentiation of somatotrophs into thyroidectomy cells. A Morphologic study of the rat pituitary including immunoelectron microscopy. Lab Invest (In Press).
15. Lloyd, R.V., Jin, L., Horvath, E., Kovacs, K.: Analysis of endocrine active and clinically silent corticotropic pituitary adenomas analyzed by *in situ* hybridization. Am J Pathol (In Press).
16. Lloyd R.V.: Ultrastructure of spontaneous and transplanted tumors in laboratory animals. J Electron Micro Tech (In Press).
17. Lloyd, R.V., Jin, L., Song, J.: Ultrastructural localization of chromogranin and prolactin mRNAs with colloidal gold in cultured human pituitary tumor cells. Lab Invest (In Press).

ARTICLES SUBMITTED FOR PUBLICATION

1. Lloyd, R.V., Jin, L., Fields, K., Kulig, E.: Regulation of prolactin gene expression in DMBA-estrogen induced transplantable rat pituitary tumor. (Submitted)
2. Lloyd, R.V., Jin, L., Fields, K., Kulig, E. Regulation of estrogen receptor mRNA in normal and neoplastic rat pituitary tissues. (Submitted)
3. Graham, D.M., Jin, L., Lloyd, R.V.: Detection of estrogen receptor in paraffin-embedded sections of breast carcinoma by immunohistochemistry and *in situ* hybridization. (Submitted)
4. Kovacs K., Stefaneanu L., Horvath E., Lloyd R.V., Lancronjan I, Buchfelder M, Fahlbusch R: Effect of dopamine agonist medication on prolactin-producing pituitary adenomas. A morphologic study including immunocytochemistry, electron microscopy and *in situ* hybridization. (Submitted)
5. Jin, L., Hemperly, J.J., Lloyd, R.V.: Expression of neural cell adhesion molecules (N-CAM) in normal and neoplastic human neuroendocrine tissues. (Submitted)
6. Kulig, E., Landefeld, T.D., Lloyd, R.V.: Estrogen regulates prolactin gene methylation in transplantable rat pituitary tumors. (Submitted)

BOOKS/CHAPTERS IN BOOKS

1. Lloyd, R.V.: Tumors of the pituitary, In Stinson, S.F., Schuller, H.M. and K, G. (Eds), Atlas of Tumor Pathology of the Fischer Rat, CRC Press, Boca Raton, Florida 1989. Chapter 13, 1990, pp. 265-289.
2. Lloyd, R.V.: Analysis of chromogranin A and B proteins and messenger ribonucleic acids in neuroendocrine tissues. In: CM Fenoglio and M Wolfe (eds) Progress in Surgical Pathology. Vol. 10 1989, pp. 153-166.

3. Lloyd, R.V.: Immunohistochemical localization of chromogranin in polypeptide hormone producing cells and tumors in J. Lechago and T. Kameya (eds.) (In Press), Endocrine Pathology Update. Field and Wood Publishers, PA. 1990. (In Press).
4. Lloyd, R.V.: Tumors of the pituitary gland in V.S. Turusov (ed.). Pathology of Tumors in Laboratory Animals. International Agency for Research on Cancer. World Health Organization, 1990. (In Press).
5. Lloyd, R.V.: Morphologic Methods, In Kovacs and Asa S. (eds) Functional Endocrine Pathology. Blackwell Scientific Publishers, Boston, MA 1990 (In Press).

BOOKS:

1. Endocrine Pathology, Springer Verlag, New York, March 1990.
2. Pathology of the Pituitary Gland. Sauders (In Preparation).

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Graham, D.M., Jin, L., Lloyd, R.V.: Detection of estrogen receptor in paraffin-embedded sections of breast carcinoma by immunohistochemistry and *in situ* hybridization. Lab Invest 62:38A Abstract 220.
2. Grossman, D.M., Jin, L., Lloyd, R.V.: Detection of tyrosine hydrogen and chromogranin. A proteins l chromogranin A MRMA in paraffin embedded tissue sections of endocrine neoplasms with scanty granules. Lab Invest 62:40A Abstract 229.
3. O'Donnell D.O., Jin L., Lloyd R.V.: Comparison of immunohistochemical (IH) analysis al *in situ* hybridization (ISH) with biotinylated probes for the detection of human papilloma virus H(PV) in tissue sections. Lab Invest 61:76A Abstract 444.
4. Stefaneaunu L., Kovacs K., Havvah G, Lloyd R.V.: Proapio (POMC) gene expression in human pituitary corticotrophs and their adenomas. Lab Invest 62:95A Abstract 560
5. Flint A., Davenport R.D., Lloyd R.V.: The tall cell variant of papillary thyroid carcinoma: comparison with the common form of papillary thyroid carcinoma by DNA al morphometric analysis. Lab Invest 62:34A Abstract 192.
6. Jin L., Fields K., Lloyd R.V.: Widespread distribution of estrogen MRNA in endocrine al other neoplasms analyze by *in situ* hybridization. Lab Invest 62:48A Abstract 278.
7. Lloyd R.V., Jin L., Hemperly J.J.: Neural cell adhesion molecule expression in neuroendocrine neoplasms. Lab Invest 62:59A Abstract 344.
8. Kulig E.J., Landefeld T.D., Lloyd R.V.: Estrogen regulates prolactin gene methylation in transplantable rat pituitary tumor. The Endocrine Society 72nd Ann Meeting; Atlanta, Geogia, June 20-23, 1990. Abstract 1320, p. 354.

JOHN B. LOWE, M.D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Clinical Immunology Diagnostic Service - sign out of serum and urine protein electrophoresis, immunofixation, and immunoelectrophoresis; terminal transferase immunofluorescence.

II. TEACHING ACTIVITIES:

A. Supervision of four postdoctoral fellows (Robert Larsen, Ph.D., Jolanta Kukowska-Latallo, Ph.D., Nozomu Hiraiwa, M.D., Ph.D., and Brent Weston, M.D.)
B. Lecturer - Graduate School - Pathology 630 (2 lectures: The Atherosclerotic Process I and II).
C. Clinical Pathology Grand Rounds - Clinical use of the TdT assay.
D. Clinical Pathology Grand Rounds - Molecular genetics concepts and tools.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Principal Investigator, " The Molecular Biology of Intracellular Lipid Transport", NIH DK-38482 (50% effort), $63,547/year direct cost ($317,737/five years), 8/1/86-7/31/91.
B. Co-investigator, "Fatty acid binding proteins - ligand specificity", NIH DK-41402 (F. Schroeder, University of Cincinnati Medical Center, Principal Investigator). (5% effort) $10,672/year direct cost, ($21,344/2 years), 4/1/89-3/31/91.

PROJECTS UNDER STUDY:

Structure and regulation of mammalian glycosyltransferase genes. Efforts are focused on the isolation and analysis of gene(s) for human and murine glycosyltransferases, using mammalian gene transfer techniques.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL: None.

REGIONAL AND NATIONAL: None.

V. OTHER RELEVANT ACTIVITIES:

A. Howard Hughes Medical Institute, Assistant Investigator.

INVITED LECTURES AND SEMINARS:

1. The molecular genetics of two distinct human blood group glycosyltransferase genes. McGill Univ. Medical School, Montreal, Canada, October, 1989.
2. Isolation and analysis of mammalian genes that determine terminal glycosylation events. Massachusetts Institute of Technology, Boston, Massachusetts, October, 1989.
3. Structure of the human H a(1,2)fucosyltransferase gene (Session Chair). Annual Meeting of the Society for Complex Carbohydrates, Ann Arbor, Michigan, November, 1989.
4. Expression cloning of human blood group genes. The Wistar Institute, Philadelphia, Pennsylvania, February, 1990.
5. The molecular biology of blood group antigens and mammalian glycosyltransferases. University of Georgia, Athens, Georgia, February, 1990.
6. Expression cloning of human blood group glycosyltransferase genes. Emory University Medical School, Department of Pathology, Atlanta, Georgia, March, 1990.
7. Animal genes that determine terminal glycosylation events. Glytec/Cytel Corporation, La Jolla, California, March, 1990.
8. Isolation of mammalian glycosyltransferase genes via gene transfer-mediated alteration of cellular glycosylation phenotype. American Chemical Society, Boston, Massachusetts, April, 1990.
9. Molecular cloning of glycosyltransferases; Mammalian genes that determine expression of complex carbohydrates. Genencor Corporation, South San Francisco, California, April, 1990.
10. The molecular genetics of human fucosyltransferase genes. Albert Einstein College of Medicine, Department of Cell Biology, Bronx, New York, May, 1990.
11. Molecular cloning of mammalian glycosyltransferase cDNAs by gene transfer. Washington University Medical School, Department of Pathology, St. Louis, Missouri, May, 1990.
12. Molecular cloning of human blood group fucosyltransferase cDNAs by gene transfer. Kimball Institute, New York Blood Center, New York, New York, May, 1990.
13. Cloning of the H blood group gene. Current Topics in Blood Banking. University of Michigan Medical School, Ann Arbor, Michigan, June, 1990.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFERRED JOURNALS:

1. Rajan, V.P., Larsen, R.D., Ajmera, S., Ernst, L.K. and Lowe, J.B.: A cloned human DNA restriction fragment determines expression of a GDP-L-fucose:b-D-galactoside 2-a-L-fucsoyltransferase in transfected cells. Evidence for isolation and transfer of the human H blood group locus. J. Biol. Chem. 1989, 264:11158-11167.
2. Zhu, X.X., Kozarsky, K., Trahler, J.R., Eckerskorn,C., Lottspeich, F., Melhem, R., Lowe, J.B., Fox, D.A., Hanash, S.M. and Atweh, G.F.: Molecular cloning of a novel human leukemia associated gene: evidence of conservation in animal species. J. Biol. Chem. 1989, 264:14556-14560.
3. Larsen, R.D., Rajan, V.P., Ruff, M.M, Kukowska-Latallo, J., Cummings, R.D. and Lowe, J.B.: Isolation of a cDNA encoding a murine UDP-Gal:b-D-Gal(1,4)-D-GlcNac a(1,3)-galactosyltransferase; expression cloning by gene transfer. Proc. Natl. Acad. Sci. USA, 1989, 86:8227-8231.

4. Smith, D.F., Larsen, R.D., Mattox, S., Lowe, J.B. and Cummings, R.D.: Transfer and expression of a murine UDP-Gal:b-D-Gal(1,4)-D-GlcNAc a(1,3)-galactosyltransferase in transfected Chinese hamster ovary cells: Competition reactions between the a1,3-galactosyltransferase and the endogenous a2,3-sialyl transferase. J. Biol. Chem., 1990, 265:6225-6234.
5. Larsen, R.D., Rivera-Marrero, C.A., Ernst, L.K., Cummings, R.D. and Lowe, J.B.: Frameshift and nonsense mutations in a human genomic sequence homologous to a murine UDP-Gal:b-D-Gal(1,4)-D-GlcNAc a(1,3)-galactosyltransferase. J. Biol. Chem. 1990;265:7055-7061.
6. Jefferson, J.R., Powell, D.N., Rymaszewski, Z., Kukowska-Latallo, J.F., Lowe, J.B. and Schroeder, F.: Altered membrane structure in transfected mouse L-cell fibroblasts expressing rat liver fatty acid binding protein. J. Biol. Chem., 1990, In Press.
7. Kukowska-Latallo, J.F., Larsen, R.D., Rajan, V.P. and Lowe, J.B.: A cloned human cDNA determines expression of a mouse stage-specific embryonic antigen and the Lewis blood group a1,3/1,4 fucosyltransferse. Genes and Development, 1990, Vol. 4, In Press.
8. Larsen, R.D., Ernst, L.K., Rajan, V.P. and Lowe, J.B.: Molecular cloning, sequence, and expression of a human GDP-L-fucose:b-D-galactoside 2-a-L-fucosyltransferase cDNA that can form the H blood group antigen. Proc. Natl. Acad. Sci. USA 1990, vol 87, In Press.

ARTICLES SUBMITTED OR IN PREPARATION:

1. Nemecz, G., Hubbel, T., Jefferson, J.R., Lowe, J.B. and Schroeder, F. Fatty acid interaction with rat intestinal and liver fatty acid binding proteins expressed in E. coli. Submitted to the Eur. J. Biochem.

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Schroeder, F., Butko, P., Nemecz, G., Jefferson, J.R., Powell, D., Rymaszewski, Z., Dempsey, M.E., Kukowska-Latallo, J. and Lowe, J.B.: Sterol carrier protein; ubiquitous protein in search of a function. In: Bioengineered Molecules: Basic and Clinical Aspects, Vol. 1, pp 29-45. Verna, R., Blumenthal, R., Frati, L., (Eds), Serono Symposia Series, Raven Press, 1989.
2. Lowe, J.B., Larsen, R.D., Ernst, L.K. and Rajan, V.P.: Structure of the human H (a1,2)fucosyltransferase gene. Glycoconjugate J. 1989;6:378a.
3. Lowe, J.B., Larsen, R.D., Rajan, V.P., Kukowska-Latallo, J.F., Kelly, R.J. and Gersten, K.M.: Isolation of mammalian glycosyltransferase genes via gene transfer-mediated alteration of cellular glycosylation phenotype. J. Am. Chem. Soc.
4. Rivera-Marrero, C.A., Larsen, R.D., Ernst, L.K., Cummings, R.D. and Lowe, J.B.: Frameshift and non-sense mutations in a human genomic sequence homologous to a murine UDPGAL:Galb1,4GlcNAc a1,3-galactosyltransferase cDNA. FASEB J. 1990;4:A1821.
5. Lowe, J.B., Kelly, R.J., Larsen, R.D., Ernst, L.K. and Rajan, V.P.: Structure of the human H a(1,2)fucosyltransferase (a(1,2)-FT) gene. FASEB J. 1990;4:A1929.
6. Larsen, R.D., Ernst, L.K., Rajan, V.P. and Lowe, J.B.: Molecular cloning of a cDNA that encodes the human H blood group GDP-L-fucose:b-D-galactoside 2-a-L-fucosyltransferase (a(1,2)-FT). FASEB J. 1990;4:A1929.
7. Gersten, K.M. and Lowe, J.B. The mouse genome contains multiple sequences similar to a human a(1,3/1,4)fucosyltransferase (a(1,3/1,4)-FT) cDNA. FASEB J. 1990;4:A1930.
8. Kukowska-Latallo, J.F., Larsen, R.D., Rajan, V.P. and Lowe, J.B. Structure and function of a cloned cDNA encoding a a(1,3/1,4)fucosyltransferase (a(1,3/1,4)-FT) analogous to the Lewis blood group a(1,3/1,4)-FT. FASEB J. 1990;4:A1930.
9. Smith, D.F., Larsen, R.D., Mattox, S., Lowe, J.B. and Cummings, R.D. Transfer and expression of a murine gene for a1,3galactosyltransferase in Chinese hamster ovary cells. FASEB J. 1990;4:A1979.

KENNETH D. MCCLATCHEY, M.D., D.D.S.
PROFESSOR AND ASSOCIATE CHAIRMAN
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
July 1, 1989 - June 30, 1990

I. CLINICAL ACTIVITIES

A. Surgical Pathology, consultant on all head and neck pathology cases.
B. Autopsy:
   1) Consultant on forensic odontology cases.
   2) Assistant Medical Examiner, Washtenaw County.
C. Director of Clinical Laboratories
D. Director of Clinical Microbiology Laboratory
E. Medical Director of Medical Technology Program; Eastern Michigan University.
F. Ann Arbor Veterans Administration Medical Center - monthly consultant.
G. Director, M-Labs, Department of Pathology, The University of Michigan.

II. TEACHING ACTIVITIES (Medical School/Hospitals)

A. Pathology 630/631; Course Director
   1) Five hours credit (M & W, 2-4:00 p.m.)
   2) 100 dental students, 20 medical technology and graduate students.
B. Oral Diagnosis 644; participant.
C. Pathology 600; lecturer, head and neck pathology.

III. RESEARCH ACTIVITIES

A. Consultant, Principal Investigator, Thomas E. Carey, Ph.D., Department of Otorhinolaryngology, The University of Michigan, Human Squamous Cell Carcinoma: Culture and Serology, NIH R01-CA28564-06, $139,388/year, $815,326/project period, 1985-90.
B. Consultant, Serologic Studies of Squamous Cell Carcinoma of the Head and Neck. Principal Investigator: Thomas E. Carey, Ph.D., Department of Otorhinolaryngology, The University of Michigan. NCI CA-49708-01, 6/1/89-3/31/92.
C. Consultant, Impact of Follow-Up on Control of High Blood Pressure and Cholesterol. Principal Investigator: Andrea Foote, Ph.D., Institute of Labor and Industrial Relations, The University of Michigan, 1988-
D. Veterans Administration Co-operative Studies Program, Executive Committee. G.T. Wolf, T.F. Beals, A.A. Forastiere, T. Carey, K.D. McClatchey, A. Flint, and J.L. Hudson: A New Strategy to Preserve the Voice Box in Advanced Laryngeal Cancer. Protocol 582-C, Clinical Research Center, The University of Michigan, 1985-

IV. ADMINISTRATIVE ACTIVITIES

DEPARTMENTAL

A. Medical Service Plan Executive Committee, Department of Pathology, 1979-present.

MEDICAL SCHOOL/HOSPITAL

A. Ambulatory Care Committee, The University of Michigan Hospitals, 1980-present.
B. Multi-Organ Transplant Program: Planning Group, Alternate, The University of Michigan Hospitals, 1985-present.
C. Advisor, Medical and Biological Illustration Program, The University of Michigan Medical School, 1986-present.
D. Infection Control Committee, The University of Michigan Hospitals, 1978-present.
E. Chairman, Laboratories Committee of the Medical Staff, The University of Michigan Hospitals, 1987-present.
F. Chairman, Quality Assurance Committee, The University of Michigan Hospitals, 1989-present.
G. Member, Claims Control Committee, The University of Michigan Hospitals, 1990-

REGIONAL AND NATIONAL

A. College of American Pathologists, Fellow, 1975-
   1) Board of Governors, 1986-
   2) Liaison, Standards Committee, 1986-
   3) Chairman, Commission on Anatomic Pathology, 1986-
   4) Council on Government Relations, 1987-
B. National Committee for Clinical Laboratory Standards, Corresponding Membership, 1987-
   1) Council of the National Reference System for the Clinical Laboratory, 1987-
   2) Subcommittee on Cost Accounting, member, 1986-90.
   3) Chairman, Area Committee on General Laboratory Practice, 1986-
   4) International Relations Committee, member, 1988-
C. American Society of Clinical Pathologists, 1975-
   1) ASCP Advisory Council, 1984-
   2) ASCP Advisory Council, State Councilor, 1987-
D. Michigan Society of Pathologists, 1982-
   1) Chairman, Program Committee, 1988-
   2) Editor, Newsletter, 1988-
E. Technical Advisory Committee, State of Michigan Department of Health, Bureau of Laboratory and Epidemiological Services, 1987-
F. American Society for Testing Materials (ASTM)
   1) Committee F31 on Health Care Services, member, 1988-

INTERNATIONAL

A. Secretariat, Commission on World Standards of World Association of Societies of Pathology, 1987-

V. OTHER RELEVANT ACTIVITIES

INVITED LECTURES/SEMINARS

1. Histopathology of the Maxilla and Mandible. Guest speaker, New Horizons in Laboratory Medicine, Lake Tahoe, Nevada, February, 1990.
2. Management Issues in Today's Laboratory: A Pathologist's View. Guest speaker, New Horizons in Laboratory Medicine, Lake Tahoe, Nevada, February, 1990.
3. Diagnostic Dilemmas of the Maxilla and Mandible. Guest speaker, Canadian American Medical Dental Association Annual Meeting, Steamboat Springs, Colorado, March, 1990.
4. Subtleties of Salivary Gland Disease. Guest speaker, Canadian American Medical Dental Association Annual Meeting, Steamboat Springs, Colorado, March, 1990.
5. Quality Assurance in Pathology. Guest speaker, American Academy of Oral Pathology Annual Meeting, San Diego, California, April, 1990.

VI. PUBLICATIONS

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFREED JOURNALS

1. Wolf, G.T., Hudson, J., Peterson, K.A., Poore, J.A. and McClatchey, K.D.: Interleukin 2 Receptor Expression in Patients With Head and Neck Squamous Carcinoma: Effects of Thymosin Alpha1 In Vitro. Arch.Otolaryngol.Head.Neck.Surg., 115:1345-1349, 1989.
2. Bradford, C.R., Hoffman, H.T., Wolf, G.T., Carey, T.E., Baker, S.R.and McClatchey, K.D.: Squamous Carcinoma of the Head and Neck in Organ Transplant Recipients: Possible Role of Oncogenic Viruses. Laryngoscope, 100:190-194, 1990.
3. Zappia, J., Telian and S., McClatchey, K.D.: Angiolymphoid Hyperplasia With Eosinophilia of the External Auditory Canal. Arch.Otolaryngol.Head.Neck.Surg., September, 1989.
4. Grenman, S.E., Worsham, M.J., Van Dyke, D.L., England, B., McClatchey, K.D., Babu, V.R., Roberts, J.A., Maenpaa, J. and Carey, T.E.: Establishment and Characterization of UM-EC-2, a Tamoxifen-Sensitive, Estrogen Receptor-Negative Human Endometrial Carcinoma Cell Line. Gynecol.Oncol., 1990. In press.
5. Wells, M.D., Hoffman, H.T., and McClatchey, K.D.: An Uncommon Case of Parotid Sialolithiasis. Ann.Dent., 1990.
6. Grenman, S.E., Van Dyke, D.L., Worsham, M.J., England, B., McClatchey, K.D., Hopkins, M., Babu, V.R., Grenman, R. and Carey, T.E.: Phenotypic Characterization, Karyotype Analysis and In Vitro Tamoxifen Sensitivity of New ER-Negative Vulvar Carcinoma Cell Lines, UM-SCV-1A and UM-SCV-1B. Int.J.Cancer, 1990. In press.

ARTICLES SUBMITTED FOR PUBLICATION

1. Zappia, J.J., Bunge, F.A., McClatchey, K.D. and Koopman, C.F.: Facial Nerve Paresis as the Presenting Symptom of Leukemia. Int J.Ped.Otorhinolaryng., November, 1989.
2. Zappia, J.J., Sullivan, M.J. and McClatchey, K.D.: Unilateral Multicentric Warthin's Tumors. Am.J.Otolaryngology, April, 1990.
3. Burkey, B.B., Hoffman, H.T., Baker, S.R., Thornton, A.F. and McClatchey, K.D.: Chondrosarcoma of the Head and Neck. Laryngoscope, January, 1990.
4. Wolf, G.T., Carey, T.E., Schmalz, S., McClatchey, K.D., Poore, J., Glaser, L., Hayashida, D.J.S. and Hsu, S.: Altered Antigen Expression Predicts Outcome in Squamous Carcinoma of the Head and Neck. J.Nat.Cancer Inst., February, 1990.
5. Zappia, J.J., Bradford, C.R., Winter, P.H. and McClatchey, K.D.: Asymptomatic Olfactory Neuroblastoma Associated With Kallman's Syndrome. Otolaryngology-Head and Neck Surgery, May, 1990.
6. Grenman, R., Carey, T.E., McClatchey, K.D., Wagner, J.G., Pekkola-Heino, K., Schwartz, D.R., Wolf, G.T., Lacivita, L.P., Ho, L., Baker, S.R., Krause, C.J. and Lichter, A.S.: In Vitro Radiation Resistance Among Cell Lines Established From patients With Squamous Cell Carcinoma of the Head and Neck. Cancer, June, 1990.

BOOKS AND CHAPTERS IN BOOKS

1. McClatchey, K.D.: The Jaws and Oral Cavity, in Diagnostic Surgical Pathology, Drs. Sternberg, Antonioli, Carter, Egglestonn, Oberman and Mills, Editors. Raven Press, New York, New York, 1989.
2. McClatchey, K.D. and McMahon Jr., L.F.: Laboratory Medicine, in Textbook of Internal Medicine, Kelley, Editor. J. B. Lippincott, Philadelphia, Pennsylvania, 1989.

CHAPTERS IN PREPARATION

1. McClatchey, K.D. and McMahon Jr., L.F.: Laboratory Medicine, in Textbook of Internal Medicine, Kelley, Editor. J. B. Lippincott, Philadelphia, Pennsylvania, 1989 (revision).
2. McClatchey, K.D.: Histology of the Periodontium, Minor Salivary Glands, and Maxillary Sinus, in Histology for Pathologists, Sternberg, Editor. Raven Press, New York, New York, 1989.

BOOKS OR JOURNALS EDITED

1. Laboratory Medicine, Williams & Wilkins (in preparation), 1989-90.

ABSTRACTS, PRELIMINARY COMMUNICATIONS, PANEL DISCUSSIONS

1. Hong, W.K., Wolf, G.T., Fisher, S., Spaulding, M., Endicott, J., Laramore, G., Hillman, R., McClatchey, K.D. and Fye, C.: Laryngeal Preservation With Induction Chemotherapy (CT) and Radiotherapy (XRT) in the Treatment for Advanced Laryngeal Cancer: Interim Survival Data of VACSP #268. VA Laryngeal Cancer Study Group. ASCO Annual Meeting, (Abstract), 1989.
2. Wolf, G.T., Carey, T.E., Schmaltz, S., McClatchey, K.D., Poore, J., Glaser, L., Hayashida, D.J.S. and Hsu, S.: A9 and ABH Antigen Expression Predicts Outcome in Head and Neck Cancer. Amer Assoc for Cancer Research, (Abstract), 1989.
3. Bradford, C.R., Hoffman, H.T., Wolf, G.T., Carey, T.E., Evans, D.A. and McClatchey, K.D.: Squamous Carcinoma of the Head and Neck in Organ Transplant Recipients: Possible Role of Oncogenic Viruses. American Academy of Otolaryngology Head and Neck Surgery Annual Meeting, (Abstract), 1989.
4. Zappia, J., Bunge, F., McClatchey, K.D., Koopman, C.: Facial Paresis as the Presenting Symptom of Leukemia. SENTAC Annual Meeting, (Abstract), August, 1989.
5. Zappia, J., Sullivan, M., Ridley, M. and McClatchey, K.D.: Unilateral Multicentric Warthin's Tumors. Southern Section of Triologic Society Annual Meeting, (Abstract), August, 1989.
6. Grenman, R., Carey, T.E., McClatchey, K.D., Wagner, J.G., Pekkola-Heino, K., Schwartz, D.R., Wolf, G.T., Ho, L., Baker, S.R., Krause, C.J. and Lichter, A.S.: In Vitro Radiation Resistance Among Cell Lines Established From Patients With Squamous Cell Carcinoma (SCC) of the Head and Neck. American Radium Society, (Abstract), November, 1989.
7. Hankerd, R.E., Pierson, C.L. and McClatchey, K.D.: Evaluation of the LAD Luminometric System for Screening Clinical Urines. 1990 ASM Annual Meeting, (Abstract), May, 1990.
8. Spaulding, M.B., Hong, W.K., Wolf, G.T., Fisher, S., Endicott, J., Laramore, G., Hillman, R., McClatchey, K.D. and Fye, C.: Induction Chemotherapy (CT) in a Randomized Trial Comparing CT and Radiotherapy (RT) to Standard Therapy in Advanced Laryngeal Carcinoma. VACSP #268. 1990 ASCO Annual Meeting, (Abstract), May, 1990.
9. Hillman, R.E., Wolf, G.T., Hong, W.K., Fisher, S.G., Spaulding, M., Endicott, J.N., Laramore, G.E., McClatchey, K.D. and Fye, C.: Preservation of the Larynx in Treatment of Advanced Laryngeal Cancer. ASHA Annual Meeting, (Abstract), 1990.

PAMPHLETS

1. McClatchey, K.D.: NCCLS Papanicolaou Technique Proposed Guidelines, NCCLS Publication GP-15, Villanova, Pennsylvania, 1989.

PAUL E. MCKEEVER, M.D., PH.D.
ASSOCIATE PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Gross and microscopic examination of autopsy neuropathologic material with House Officers and Faculty. The cases shared with other faculty members were from University Hospitals and other hospitals.
B. Daily supervision of House Officer or Staff participation in surgical neuropathology and electron microscopic neuropathology. Responsible for final report and diagnosis in each category.
C. Consultations on surgical neuropathology from other hospitals and medical centers.
D. Ceroid Service, buffy coat division.
E. Primary substitute for nerve and muscle biopsy diagnostician.
F. Weekly adult Brain Tumor Board Review of Neurosurgery, Nuclear Medicine, Neuroradiology, and Neuropathology in clinical research setting of brain tumor cases by staff. Shared responsibility for neuropathology segment of tumor review and clinical-pathologic correlation.

II. TEACHING ACTIVITIES:

MEDICAL SCHOOL/HOSPITAL:

A. Neural and Behavioral Sciences 600, Neuropathology for Second Year Medical Students. Lectures shared with other faculty.
B. Neuropathology 858. Intensive laboratory-lecture course for all beginning House Officers in Pathology and in several clinical services concerned with the nervous system, Graduate Students and Faculty. Annual, 16 hours of attendance, presentation and individual instruction.
C. House Officers:
   1. Review of microscopic neuropathological postmortem material with Pathology House Officers, shared with other Faculty Members.
   2. Weekly brain cutting with Pathology House Officers.
   3. Review all neurosurgically removed material in this hospital in CME-approved biweekly conference for Pathology, Neurology and Neurosurgery House Officers and Staff.
   4. Shared consultations with Pathology House Officers and staff.
   5. Invited presentations of neuropathologic observations at joint Pathology-Neurology-Neurosurgery and clinical conferences.
   6. Participated in teaching House Officers and Fellows who took electives in Neuropathology. One month or longer rotation with teaching shared with other Pathology Faculty and with Neurohistologists.
D. Medical Student:
   Primary research advisor of Mr. Kam Pillai in Oncology and brain tumor research projects.
E. Teach laboratory techniques to our Neurohistologists.

F. Individual daily instruction of Pathology House Officers over microscope.

REGIONAL AND NATIONAL:

Instructor of diagnostic neuropathology for visiting pathologist Song Wong, M.D. from University of Alabama, Mobile, 1989.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. National Institutes of Health Grant NIH CA-47558, "Antigenic Instabilities and Clonal Heterogeneity in Human Gliomas", Principal Investigator. Changes in malignancy and resistance to treatment of human gliomas, the most common and devastating group of brain tumors, are thought to be related in part to antigenic instabilities of these cells. Antigenic instabilities will be followed upon explantation of human glioma cells *in vitro* and correlated with studies designed to determine the mechanism of these instabilities. The extent of changes in antigens will be studied. Antigenic changes will be correlated with changes in cellular DNA over time intervals and correlated with changes in clones of cells from the gliomas of individual patients. 5/1/88 - 4/30/93.

B. National Institutes of Health Program Project NIH CA-42761,"Antimetabolite Selectivity: Regional Treatment and Modulation", Principal Investigator of Pathology Core Grant. 8/1/88 - 7/31/91.

C. National Institutes of Health Grant NIH CA43863, "Brain Tumor Imaging with Benzodiazepine Analogs", Co-investigator. 1/1/87 - 1/1/90.

D. National Institute of Health Program Project NS-15655, "PET Study of Biochemistry and Metabolism of the CNS" (Program Title). "Glioma Imaging with Benzodiazepine Analogs" (Section Title), Co-investigator. 12/1/89-11/30/94.

PROJECTS UNDER STUDY:

A. Growth, spread and antigenicity of ENU-induced gliomas in rats, with Constance D'Amato and Terry Hood. Submitted to Neurooncology.

B. Quantitative analysis of DNA in fresh and cultured cells of brain tumors, with Drs. Robertson Davenport, Curtis Hanson, William Ensminger, William Chandler, and James Varani.

C. Production of monoclonal antibodies to human brain tumors for diagnosis and therapy, with Drs. James A. Taren, Julian T. Hoff, and Richard L. Wahl.

D. Extracellular matrix products of gliomas with Drs. James Varani and Suzanne Fligiel.

E. Distribution of microspheres in tumor and normal tissues with Dr. William Ensminger.

F. Predictive value of bromodeoxyuridine uptake and other nuclear parameters on glioma prognosis (NIH grant submitted with Dr. Larry Junck).

G. Monoclonal anti-EGF receptor antibodies to diagnose and treat human gliomas (FDA grant submitted with Dr. Harry Greenberg).

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Chief, Section of Neuropathology.
B. Member, Photography Committee.

MEDICAL SCHOOL/HOSPITAL:

A. Organization and scheduling of Pathology, Neurology, Neuroradiology and Neurosurgery House Officer Neuropathology teaching conferences, individual instruction and consultation review.
B. Organization of call logistics, specimen handling, and schedules for coverage of diagnostic and postmortem neuropathology by staff.
C. Supervision of Neurohistologists and Neuropathology Laboratories, and quality control of histologic preparations.
D. Interaction with Chiefs and staff of other clinical services, particularly Neurosurgery, Neurology, Nuclear medicine and Neuroradiology.
E. Quality control of ultrastructural and immunodiagnostic neuropathology.

REGIONAL AND NATIONAL:

A. Editorial Board, Critical Reviews in Neurobiology.
B. M-Lab Neuropathology Services.
C. Reviewer of NASA Program Project Grant application.
D. International Editorial Board, Cellular and Molecular Biology.
E. Primary Review Pathologist, Children's Cancer Study Group CCG 9891 nation wide study of childhood low grade gliomas.
F. Reviewer, American Journal of Surgical Pathology.
G. Reviewer, Archives of Pathology & Laboratory Medicine.
H. Reviewer, American Journal of Pathology.
I. Reviewer, Journal of Neuro-Oncology.
J. Reviewer, Neurosurgery.
K. Reviewer, Laboratory Investigation.
L. Reviewer, Journal of Histochemistry & Cytochemistry.

V. OTHER RELEVANT ACTIVITIES:

A. Faculty of Graduate Program of Department of Pathology.
B. Member of the University of Michigan Cancer Center.
C. Pathology Committee, Children's Cancer Study Group, Columbus, Ohio.
D. Member, International Academy of Pathology, 1972 -
E. Member, Alpha Omega Alpha, Eta Chapter, 1972 -
F. Member, American Association of Neuropathologists, 1978 -
G. Member, New York Academy of Science, 1983 -
H. Member, Society of Neuroscience, 1983 -
I. Member, American Assocation of Pathologists, 1984 -
J. Member, Children's Cancer Study Group, 1985 -
K. Member, Histochemical Society, 1989 -
L. Member, Constitution Committee, American Association of Neuropathologists, 1990 -

INVITED LECTURES AND SEMINARS

1. "Phenotypic Alterations of Gliomas", Michigan State University, East Lansing, Michigan, 1990.
2. "Clinical Relevance of Changes in Glioma Antigens", Edward W. Sparrow Hospital, Lansing, Michigan, 1990.
3. "Phenotypic Changes in Gliomas", Henry Ford Hospital, Detroit, Michigan, 1989.
4. "Hybridoma Supernatant Reactivities for Human Gliomas", Tumor Immunology Program, University of Michigan Cancer Center, 1989.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. McKeever, P.E., Fligiel, S.E.G., Varani, J., Castle, R.L. and Hood, T.W.: Products of cells cultured from gliomas: VII, Extracellular matrix proteins of gliomas which contain glial fibrillary acidic protein. Lab. Invest. 1989; 60:286-293.
2. Hood, T.W. and McKeever, P.E.: Stereotaxic management of cystic brainstem gliomas. Neurosurg. 1989; 24:373-378.
3. Junck, L., Olson, J.M., Ciliax B.J., Koeppe, R.A., Watkins, L.G., Jewett, D.M., McKeever, P.E., Wieland, D.M., Kilbourn, M.R., Starosta-Rubinstein, S., Mancini, W.R., Kuhl, D.E., Greenberg, H.S. and Young, A.B.: PET imaging of human gliomas with ligands for the peripheral benzodiazepine binding site. Ann. Neurol. 1989; 26:752-758.
4. Mountz, J.M., Raymond, P.A., McKeever, P.E., Modell, J.G., Hood, T.W., Barthel, L.K. and Stafford-Schuck, K.A.: Specific localization of thalium-201 in human high-grade astrocytoma by microautoradiography. Cancer Res. 1989; 49:4053-4056.
5. McKeever, P.E., Feldenzer, J.A., McCoy, J.P., D'Amato, C.J., Laug, M., Chandler, W.F. and Varani, J.: Nuclear parameters as prognostic indicators in glioblastoma patients. J. Neuropathol. Exp. Neurol. 1990; 49:71-78.
6. Silverstein, A.M., Quint, D.J. and McKeever, P.E.: Intradural paraganglioma of the thoracic spine. Amer. J. Neuroradiol. 1990; 11:614-616.
7. Liebert, M., Wahl, R.L., Lawless, G., McKeever, P.E., Taren, J.A. and Beierwaltes, W.H.: Direct stereotactic intracerebral injection of monoclonal antibodies and their fragments: A potential approach to brain tumor radioimmunotherapy. Amer. J. Physiologic Imaging 1990 (in press).
8. Sackellares, C.J., Abou-Khalil, B.W., Siegel, G.J., Hood, T.W., Gilman, S., McKeever, P.E., Hichwa, R.D. and Hutchins, G.D.: Differences between lateral and mesial temporal metabolism interictally in epilepsy of mesial temporal origin. Neurology (In Press).
9. Liebert, M., Wedemeyer, G., Chang, J.H.C., Stein, J.A., McKeever, P.E., Carey, T.E., Flint, A., Steplewski, Z., Buchsbaum, D.J., Wahl, R.L. and Grossman, H.B.: Comparison of antigen expression on normal urothelial cells in tissue section and tissue culture. J. Urol. (in press).
10. Sitrin, R.G., Gyetko, M.R., Kole, K.L, McKeever, P.E. and Varani, J.: Expression of heterogeneous profiles of plasminogen activators and plasmingoen activator inhibitors by human glioma lines. Cancer Res. (in press).
11. Mukhopadhyay, S.K., McKeever, P.E., Greenberg, H.S., Junck, L., Chandler, W.F. and Ensminger, W.: Random sampling by glitter drop method. Life Sci. 1990; 46:507-512.
12. Davenport, R.D., Register, L.J., Schnitzer, B. and McKeever, P.E.: Non-Hodgkin's lymphoma of the brain following Hodgkin's Disease: An immunohistochemical study. Cancer (in press).
13. Freyer, D.R., Hutchinson, R.J. and McKeever, P.E.: Primary primitive neuroectodermal tumor of the spinal cord associated with neural tube defect. Ped. Neurosci. (in press).
14. McKeever, P.E., Wahl, R.L., Shakui, P., Jackson, G.A., Letica, L.H., Liebert, M., Taren, J.A., Beierwaltes, W.H. and Hoff, J.T.: Products of cells from gliomas: VIII. Multiple-well

immunoperoxidase asay of immunoreactivity of primary hybridoma supernatants with human glioma and brain tissue and cultured glioma cells. J. Histochem. Cytochem. 1990; 38:815-822.

BOOKS AND CHAPTERS IN BOOKS:

1. McKeever, P.E. and Blaivas, M.: Surgical pathology of the brain, spinal cord and meninges. Eds. Sternberg, S., Antonioli, D., Kempson, D., Carter, D., Eggleston, J., Oberman, H.A.: Diagnostic Surgical Pathology, vol. 1, Raven, New York, New York, 1989, pp. 315-370.
2. Greenberg, H.S., Chandler, W.F., Ensminger, W.D., Junck, L., Page, M.A., Thornton, A., Sandler, H., Gebarski, S.S., McKeever, P.E., Papadopoulos, S., Stetson, P.L. and Tankanow, R.: Radiosensitization with carotid arterial infusion of bromodeoxyuridine (BUdR) ±5 fluorouracil biomodulation with external beam radiation for gliomas. European Rev. Biomed. Technology. Cardiostim 1990. Sepsi Publish., Paris, 1990, vol. 12 (in press).
3. McKeever, P.E., Davenport, R.D. and Shakui, P.: Patterns of antigenic expression in cultured glioma cells. Ed. Nelson, J.S.: Critical Reviews in Neurobiology, CRC Press, Boca Raton, Florida, 1990, pp. 1-97. (in press).
4. McKeever, P.E.: Functional aspects of alterations in glioma cell antigens. Neuroimmunological Res., 2nd Conference Proceedings, Tokyo, 1989, pp. 19-39.

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

1. McKeever, P., Wahl, R., Shakui, P, Jackson, G., Letica, L., Liebert, M., Taren, J., Laug, M., Beierwaltes, W. and Hoff, J.: Immunoreactivity of primary hybridoma supernatants with human glioma tissue and cultured glioma cells. Lab. Invest. 1989; 80:61A.
2. Feldenzer, J.A., McKeever, P.E. and Hoff, J.T.: The effect of steroid therapy on postlaminectomy epidural fibrosis in the rabbit. Spine. Fifth Ann. Meeting of Joint Section on Spinal Disorders of the American Assoc. of Neurol. Surgeons and the Congress of Neurol. Surgeons, 1989, Cancun, Mexico, P331989.
3. Johnston, M.V., McDonald, J.W., Hood, T., Sackellares, C., Garofalo, E., McKeever, P.E., Troncoso, J. and Gilman, S.: Elevated NMDA receptor and reduced GABA receptor binding in hippocampus (HIP) from patients with temporal lobe epilepsy (TLE). Soc. Neurosci. Abstr. 1989; 15:1215.
4. McKeever, P.E., Genik, S.J., Rowe, J.M., Stetson, P.L., Prieskorn, D.M., Terrio, P.A., Knutsen, C.A., Knol, J.A. and Ensminger, W.D.: Quantitiave immunohistochemistry (QIHC) of cellular and regional bromodeoxyuridine (BUdR) incorporations. Third Joint Meeting of the Japan Society of Histochemistry and Cytochemistry and the Histochemical Society, 1990, Seattle, Washington.
5. Lawrence, T.S., Sondak, V.K., McKeever, P.E., Stetson, P.L. and Ensminger, W.D.: The use of radiation therapy with IdUrd in the treatment of soft tissue sarcomas. Ninth annual meeting of the European Society for Therapeutic Radiology and Oncology, 1990, Montecatini, Italy.
6. Roberson, P.L., Ten Haken, R.K., Pillai, K.M., McKeever, P.E. and Ensminger, W.D.: Three-dimensional dose computation for hepatic microsphere therapy. The Society of Nuclear Medicine 37th Annual Meeting, 1990, Washington, D.C.
7. Buchsbaum, D.J., Greenberg, H., McKeever, P., Terry, V., Guilbault, D., Glatfelter, A. and Steplewski, Z.: Binding and localization of ^{125}I-labeled 425 antibody and F(ab')$_2$ fragments of human glioma. American Academy of Neurology Annual Meeting, 1990, Miami Beach, Florida.
8. Liebert, M., Wedemeyer, G., Stein, J.A., McKeever, P.E., Carey, T.E., Flint, A., Steplewski, Z., Buchsbaum, D.J., Wahl, R.L. and Grossman, H.B.: Antigen expression on normal urothelial cells cultured using a simplified technique. American Urological Association, Annual Meeting, 1990, New Orleans.
9. Junck, L, Watkins, G.L., Jewett, D., Koeppe, R.A., Wieland, D.M., Kilbourn, M.R., Starosta-Rubinstein, S., Mancini, W.R., Olson, J.M.M., Ciliax, B.J., McKeever, P.E., Kuhl, D.E.,

Greenberg, H.S. and Young, A.B.: Successful PET imaging of gliomas using the peripheral benzodiazepine binding site ligand PK 11195. Amer. Acad. Neurol. Annual Meeting, 1989.

10. Mountz, J.M., Mountz, J.D., Sherman, P.S., McKeever, P.E. and Rowe, J.M.: ^{99m}Technetium autoradiographic analysis of brain lesions in T-cell receptor transgenic autoimmune mice. Society for Neuroscience, 20th Annual Meeting, 1990, St. Louis, Missouri.
11. McDonald, J.W., Hood, T., Sackellares, J.C., Garofalo, E.A., Khalil, B.W., McKeever, P.E., Gilman, S. and Johnston, M.V.: Temporal lobe epilepsy: Excitatory and inhibitory amino acid receptors binding changes in excised hippocampus. Epilepsia 1989; 30:719.
12. McDonald, J.W., Hood, T., Sackellares, J.C., Garofalo, E.A., Khalil, B.W., McKeever, P.E., Gilman, S. and Johnston, M.V.: Alterations in excitatory amino acid and GABA receptor binding in excised hippocampus from patients with temporal lobe epilepsy. Ann. Neurol. 1989; 26:44.
13. McKeever, P.E. and Ross, D.A.: Review of book titled, "Stereotactic Brain Biopsy", by Parakrama T.Chandrasoma and Michael L.J. Apuzzo. New York: Igaku-Shoin. 1989. Amer. J. Surg. Path. (in press).

A. REES MIDGLEY, M.D.
PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES: None.

II. TEACHING ACTIVITIES:

A. Taught portion of Physiology 581, "Mammalian Reproductive Endocrinology", plus occasional other lectures.

B. Primary Supervision of five graduate students:
   1. Mahmoud Ghazzi, Bioengineering (recipient of an NIH Physician Scientist Award; presented at the Society for the Study of Reproduction; invited.)
   2. Hal Cantor, Bioengineering (invited to address the Consortium for the Scientific and Industrial Use of the Macintosh; presented at the Society for the Study of Reproduction; presenting at the Third International Meeting on Chemical Sensors.)
   3. Rhonda Brand, Bioengineering (presented at the Society for the Study of Reproduction.)
   4. Jane Wiesen, CMB
   5. Craig Halberstadt, Bioengineering.

C. Served on several other dissertation committees.
   1. Saddetin Ozturk, Ph.D. 1990
   2. Kevin Ferreri (current)
   3. Gyun Min Lee (current)
   4. Joanne Savinell (current)
   5. Seung Kwak (current)

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. NIH, P30 HD18258, "Center for the Study of Reproduction", $388,380 TDC year #1, 3/1/89-2/28/94, Principal Investigator, 10% effort.

B. NIH, T32 HD-07048, "Training Program in Reproductive Endocrinology", $186,439 direct and stipends year #05, 7/1/85-6/30/90, Principal Investigator, 5% effort (renewed for 5 years).

C. Mellon Foundation "Mellon Young Investigator Program in Reproductive Endocrinology", $300,000 Total for 4 years, 7/1/85-6/30/89, 5% effort.

D. W.K. Kellogg Foundation, Presidential Initiatives Fund, "Cellular Bioengineering: Positioning The University of Michigan for the 1990s and Beyond", 7/1/87-6/30/90, $270,000 Total for 3 years, $83,500 TDC year #3, 8% effort, Principal Investigator: M. Savageau, (Department of Microbiology).

E. NSF EET-871256, Cluster research proposal for molecular biosensing, "Efficient Monoclonal Antibody Production", 9/15/87-9/14/90, $167,192 year #3, TDC, 8% effort, Principal Investigator: B. Palsson, (Department of Chemical Engineering).
F. NIH, R01 HD 18018-04, "Gonadotropin Control of the Ovary", $101,894 TDC year #1, 12/1/88-11/30/91, Principal Investigator, 10% effort.
G. NIH K11 HD00828-02, "Nutritional influence on hypothalamic control of reproduction", $62,258 TDC year #2, 9/30/87-8/31/92, 5% effort (sponsor), PI: Mahmoud Ghazzi (Physician Scientist Award).
H. NSF ECS-8915497, "Site-directed bioreagent immobilization for development of microbiosensor arrays", 9/1/89-8/31/92, $190,931,year #1 (TDC + IDC), 5% effort, PI: R. Brown (Dept. Electrical Engineering & Computer Sciences).

PROJECTS UNDER STUDY:

A. Development of a computer-controlled perifusion system for on-line analysis of cellular responses to pulsatile and other controlled signalling.
B. Analysis of dynamic control of ovarian function by gonadotropins: the role of intercellular signalling.
C. Localization and regulation of mRNAs in rat granulosa cells.
D. Application of principles of cellular bioengineering to the growth and function of mammalian cells.
E. Development of novel biosensors, especially immunosensors.
F. Examination of the relationships between changes in hormones, behavior and peer reactions during pre-adolescent development of children.

IV. ADMINISTRATIVE ACTIVITIES:

MEDICAL SCHOOL/HOSPITAL:

A. Director, Reproductive Sciences Program.
B. Director, Center for Study of Reproduction.
C. Director, Mellon New Investigator Grant.
D. Director, NIH Training Grant.

REGIONAL AND NATIONAL:

A. Member, NICHD Population Research Committee, 1986-1989.
B. Member, NIDDK Endocrinology Research Program Advisory Committee, 1986-.
C. Member, NIDDK Hormone Distribution Program Subcommittee, 1986-.
D. Member, NIH Reviewers Reserve, 1989-.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. July 15, 1989, Annual meeting of NICHD Center Directors, Evanston, Illinois.
2. July 18-19, 1989, Symposium on Cellular Regulation in the Hypothalamo-Pituitary-Gonadal Axis, Evanston, Illinois.
3. August 6-9, 1989, 22nd Annual Meeting of the Society for the Study of Reproduction, University of Washington, Columbia, Missouri.

4. September 7, 1989, Ad Hoc Review Committee for review of RFP's submitted to the NIDDK, Bethesda, Maryland.
5. March 5, 1990, Seminar, University of Western Ontario, London, Ontario, Canada.
6. June 25, 1990, Meeting of NICHD Center Directors, Nashville, Tennessee.
7. June 26, 1990, Meeting on Molecular Mechanisms of Cellular Growth and Differentiation, Vanderbilt University.

OTHER ACTIVITIES

1. Developing an immunoassay analysis system to meet the needs of the Ligand Assay Laboratory.
2. Prepared data and organized a meeting with Representative Carl Pursell regarding the funding crisis being faced by individual investigators and the unique problems of the NICHD (meeting held on April 11, 1990).
3. Implementing ELISA assays in Standards and Reagents Core as a partial replacement for radioimmunoassays (and thereby reduction in usage of radioactive isotopes).

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Ozturk, S.S., Palsson, B.O., Midgley, A.R. and Halberstadt, C.R.: Transtubular bioreactor: A perfusion device for mammalian cell cultivation. Biotechnology Tech. 1989;3:55-60.

ARTICLES SUBMITTED:

1. Miyauchi, F. and Midgley, A.R., Jr.: Morphologically and functionally distinct subpopulations of rat luteal cells. Submitted.

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Canton, H.C. and Midgley, A.R.: Development of an active biosensor for use in studying the ovarian/pituitary axis, 22nd Annual Meeting, Society for the Study of Reproduction, 1989.
2. Ghazzi, M., Wise, K., Newman, S.W. and Midgley, A.R.: Analysis of single unit activity and communicative interactions of discrete neurons in hypothalamic oscillators. 23rd Annual Meeting, Society for the Study of Reproduction, 1990.
3. Cantor, H.C. and Midgley, A.R.: Towards real-time monitoring of neuroendocrine and gonadal humoral activity. 23rd Annual Meeting, Society for the Study of Reproduction, 1990.
4. Cha, G.S., Brown, D.V., Meyerhoff, M.D., Cantor, H.C., Midgley, A.R., Goldberg, H.D. and Brown, R.B.: Performance, biocompatibility and adhesion of various polymer matrices for preparation of micro-ion/biosensor arrays, Invited paper, Microsensor Symposium, FACSS 17th Annual Meeting, Cleveland, Ohio, October 7, 1990.
5. Brand, R.M.: Continous on-line monitoring of ovarian tissue responsiveness to luteinizing hormone in vitro. 23rd Annual Meeting, Society for the Study of Reproduction, 1990.
6. Cantor, H.C.: Utilization of a commercially available analog-digital data acquisition system with the Macintosh computer for studying real-time changes in circulating molecules in the living rat. Invited paper. Consortium for the Scientific and Industrial Use of the Macintosh. October, 1990.

RAJ S. MITRA, PH.D.
ASSISTANT RESEARCH SCIENTIST IN PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES: None

II. TEACHING ACTIVITIES:

A. Member Ph.D. Thesis Committtee
B. Supervised Ph.D. Dissertation

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT: Principal Investigator: B.J. Nickoloff
Co-investigator: R.S. Mitra

A. Role of adhesion molecules in Psoriasis 1-R01-AR40065
B. Interaction of gamma interferon with keratinocytes AR 38957-03

PENDING: Principal Investigator: B.J. Nickoloff
Co-investigator: R.S. Mitra

A. Dermal dendrocytes and AID-related Psoriasis 1 R01 AR40488-01A1

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Responsible for smooth and productive daily operation of Dr. Nickoloff's laboratories.
B. Responsible for teaching theoretical as well as technical new comers to the laboratory.

MEDICAL SCHOOL/HOSPITAL: None

REGIONAL AND NATIONAL: None

V. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Varani, J., Nickoloff, B.J., Dixit, V.M., Mitra, R.S. and Voorhees, J.J.: All-transretinoic acid stimulated growth of adult human keratinocytes cultured in growth factor - deficient medium, inhibits production of thrombospondin and fibronectin, and reduces adhesion. J. Invest. Dermatol. 1989;93:449.
2. Nickoloff, B.J. and Mitra, R.S.: Inhibition of ^{125}I-Epidermal growth factor binding to cultured keratinocytes by antiproliferative molecules gamma interferon, cyclosporin A, and transforming growth factor-beta. J. Invest. Dermatol. 1989;93:799.
3. Riser, B.L., Varani, J., Nickoloff, B.J., Mitra, R.S. and Dixit, V.M.: Thrombospondin binding by keratinocytes: modulation under conditions which alter thrombospondin bioraynthesis. Dermatologica 1990;180:60.
4. Barker, J.N.W.N., Sarma, V., Mitra, R.S., Dixit, V.M. and Nickoloff, B.J.: Marked synergism between tumor necrosis factor-a and interferon-g in regulation of keratinocyte-derived adhesion molecules and chemotactic factors. J. Clin. Invest. 1990;85:605.
5. Varani, J., Mitra, R.S.,Gibbs, D., Phan, S.H., Dixit, V.M., Mitra, R., Wang, T., Siebert, K.J. and Nickoloff, B.J.: All-trans retinoic acid stimulates growth and extracellular matrix production in growth-inhibited cultured human skin fibroblasts. J. Invest. Dermatol. 1990;94:717.
6. Varani, J., Shayevitz, J., Perry, D., Mitra,, R.S., Nickoloff, B.J. and Voorhees, J.J.: Retinoic acid stimulation of human dermal fibrobast proliferation is dependent on suboptimal extracellular Ca^{2+} concentration. Amer. J. Pathol. 1990;136.

ARTICLES SUBMITTED FOR PUBLICATION:

1. Nickoloff, B.J., Barker, J.N.W.N., Karabin, G.D., Griffiths, C.E.M., Sarma, V., Mitra, R.S., Elder, J.T., Kunkel, S.L. and Dixit, V.M.: Cellular localization of interleukin-8 and its inducer tumor necrosis factor in psoriasis. Am. J. Pathol.
2. Barker, J.N.W.N., Jones, M.L., Swenson, C., Sarma, V., Mitra, R.S., Ward, P.A., Johnson, K., Fantone, J.C., Dixit, V.M. and Nickoloff, B.J.: Monocyte chemotaxis and activating factor (MCAF) production by keratinocytes in response to interferon-g.
3. Mitra, R.S., Stoof, T., Barker, J., Karabin, G. and Nickoloff, B.J.: Molecular charcterization of interactions between all-trans retinoic acid, gamma interferon and cultured human keratinocytes. Manuscript in preparation; to be submitted to J. Biol. Chem.

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

1. Barker, J.N.W.N., Jones, M.L., Swenson, C., Mitra, R.S., Elder, J.T., Fantone, J.C., Ward, P.A., Dixit, V.M. and Nickoloff, B.J.: Keratinocyte production of a biologically active monocyte chemoattractant. Presented at the Annual meeting of the Soc. Invest. Dermatol. Vol 94, No. 4, 1990.
2. Karabin, G.D., Mitra, R.S., Stoolman, L. and Nickoloff, B.J.: Characterization of a model keratinocyte-lymphocyte adhesion system which is modulated by gamma interferon. Presented at the Annual meeting of the Soc. Invest. Dermatol. Vol 94. No. 4, 1990.
3. Varani, J., Shayevitz, J., Perry, D., Mitra, R.S., Nickoloff, B.J. and Voorhees, J.J.: Retinoic acid stimulation of human dermal fibroblast proliferation is associated with mobilization of intracellular Ca^{2+}. Presented at the Annual meeting of the Soc. Invest. Dermatol. Vol. 94, No. 4, 1990.
4. Griffiths, C.E.M., Barker, J.N.W.N., Mitra, R.S. and Nickoloff, B.J.: The influence of ion exchange inhibitors and TGFb on keratinocyte/lymphocyte interactions. Presented at the Annual meeting of the Soc. Invest. Dermatol. Vol. 94, No. 4, 1990.

5. Mitra, R.S., Karabin, G., Barker, J., Voorhees, J.J. and Nickoloff, B.J.: Molecular interactions between all-trans retinoic acid, gamma interferon and human keratinocytes. Presented at the Annual meeting of the Soc. Invest. Dermatol. Vol. 94, No. 4, 1990.

BERNARD NAYLOR, M.D.
PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Cytopathology - 26 weeks.
B. Director, Cytopathology Laboratory - full time.
C. Consultation Service, Department of Pathology: Cytopathology, pulmonary pathology and gynecologic pathology - 12 months.
D. Necropsy service - on call coverage.
E. Consultant, Breast Care Center - 12 months.

II. TEACHING ACTIVITIES:

A. Pathology residents - supervision and teaching during cytopathology rotation and when covering necropsies.
B. Pathology residents - biweekly cytopathology conferences.
C. Gynecology - Pathology - Radiation Oncology Conference-backup coverage.
D. Senior medical students during pathology electives.
E. Sophomore medical students: class lectures and laboratory.

III. RESEARCH ACTIVITIES:

A. Cytopathology, with particular reference to serous fluids, cytologic technique, and aspiration cytology.

PROJECTS UNDER STUDY:

A. Cross contamination in the cytologic staining circuit.
B. Cytologic manifestation of systemic lupus erythematosus.
C. The use of stained wet films in cytologic diagnosis.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Director, Cytopathology Laboratory.
B. Chairman's Advisory Committee.
C. Advisory Committee on Appointments and Promotions.

D. Department of Pathology Medical Service Plan Executive Committee.

REGIONAL AND NATIONAL:

A. Secretary-Treasurer, American Society of Cytology.
B. North American Review Board, Acta Cytologica.
C. Editorial Board, The Cytotechnologist's Bulletin.
D. Editorial Board, Cytopathology
E. Chairman, Editorial and Publications Committee, International Academy of Cytology.
E. Membership Committee, International Academy of Cytology.
F. Scientific Program Committee, International Academy of Cytology.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES AND SEMINARS:

1. Naylor, B.: a) From Battle Creek to Hartford, Connecticut (lecture), b) Transthoracic fine needle aspiration cytology (workshop). Update in cytopathology - current practice and future directions. Second Annual Northeast Regional Conference, Hartford, Connecticut, September, 1989.
2. Naylor, B.: Use of toluidine blue-stained wet films for rapid evaluation of cytologic specimens. Teleconference, American Society of Cytology, September, 1989.
3. Naylor, B.: Non-neoplastic entities in routine cytologic specimens. Workshop, Ontario Society of Medical Technologists, Kitchener, Ontario, October, 1989.
4. Naylor, B. and Toivonen, T.: The use of toluidine blue-stained wet film for rapid evaluation of cytology specimens. Poster, Annual Scientific Meeting of the American Society of Cytology, Louisville, Kentucky, November, 1989.
5. Naylor, B.: Non-neoplastic entities in gynecologic cytology specimens: A selection. Teleconference, American Society of Clinical Pathologists, June, 1990.
6. Naylor, B.: Serous effusions: Aspects of technique and cytology of mesothelioma and rheumatoid disease. Lecture, Michigan Society of Cytology, Sterling Heights, Michigan, June, 1990.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REREREED JOURNALS:

1. Helvie, M.A., Baker, D.E., Adler, D.D., Anderson, I., Naylor, B., Buckwalter, K.A.: Radiographically guided fine-needle aspiration of nonpalpable breast lesions. Radiology, 1990;174:657-661.
2. Naylor, B., Bartziota, E.V., Gross, B.H. and Glazer, G.M.: Rapid on-site evaluation of percutaneous fine needle aspirates: Successful collaboration between pathologists and radiologists. Acta Cytol., (In press).
3. Naylor, B.: Curschmann's spirals in pleural and peritoneal fluids. Acta Cytol., (In press).
4. Naylor, B.: The pathognomonic cytologic picture of rheumatoid pleuritis. Acta Cytol., (In press).
5. Pennes, D.R., Naylor, B., Rebner, M.: Fine needle aspiration biopsy of the breast: Influence of sample size on diagnostic yield. Acta Cytol., (In press).

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

1. Naylor, B.: The 10th International Congress of Cytology. Cytotechnol. Bull., 1989:26:54-57.
2. Naylor, B.: Advertised positions for cytotechnologists: The first 26 years. Cytotechnol. Bull., 1990;27:19.

BRIAN J. NICKOLOFF, M.D., PH.D.
ASSISTANT PROFESSOR OF PATHOLOGY AND DERMATOLOGY
DEPARTMENT OF PATHOLOGY
DEPARTMENT OF DERMATOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Dermatopathology, University of Michigan Hospitals.
B. Dermatopathology, M-Labs.
C. Dermatopathology, Private Consultations.
D. Dermatology, Melanoma Clinic.

II. TEACHING ACTIVITIES:

A. Pathology and Dermatology House Officers Lecture Series.
B. Clinical Pathology Orientation Lecture and Laboratory.
C. 5 Week Medical Student (Year 2) Research Elective.
D. Year 1 Medical Student Dermatopathology Lecture Series.
E. Dermatology Grand Rounds - Dermatopathology Presentations.
F. 10 Week Undergraduate Student Research Elective

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. NIH First Award (50% effort: $90,000 Direct Costs; Aug 1989 - Aug 1990): Interaction of Gamma Interferon with Keratinocytes.
B. NIH RO-1 (40% effort: $147,702 Direct Costs; June 1990-July 1991). Role of Adhesion Molecules in Psoriasis.
C. NIH RCDA (50% effort: $40,000 Direct Costs; July 1990-June 1991). Role of Adhesion Molecules in Skin Diseases.

PROJECTS UNDER STUDY:

A. Role of Gamma Interferon in Modulating Adherence Reactions Between Resting and Activated Mononuclear Leukocytes and Keratinocytes.
B. Characterization of Gamma Interferon Receptor on Normal and Psoriatic Keratinocytes.
C. Gamma Interferon Activation of Protein Kinase C in benign and malignant keratinocytes.
D. Binding of lymphocytes to epidermis and vessels of frozen sections of psoriatic skin and other dermatoses.
E. Characterization of type of Beta Interferon produced by virally infected keratinocytes.
F. Interrelationship between gamma interferon, and tumor necrosis factor and PGE_2 and IL-1 production by keratinocytes and monocytes.
G. Characterization and biological significance of thrombospondin production by keratinocytes and melanocytes.

H. Role of extracellular matrix in adherence reactions involving resting and activated mononuclear leukocytes.
I. Characterization of epidermal growth factor receptor on normal and psoriatic keratinocytes.
J. Influence of retinoids on keratinocyte, melanocyte, and fibroblast function in-vitro and in-vivo.
K. Characterization of effect of Cyclosporin A on phorbol ester induced cutaneous inflammation and hyperplasia.
L. Role of endothelial cell adhesion molecules (ICAM-1, ELAM-1, VCAM-1) on cutaneous leukocyte trafficking.

IV. ADMINISTRATIVE ACTIVITIES:

REGIONAL AND NATIONAL:

A. Editorial Board - American Journal of Dermatopathology, Journal of Cutaneous Pathology, Autoimmunity Forum In Dermatology.
B. Reviewer of articles for: Journal of Investigative Dermatology, Journal of Cutaneous Pathology, American Journal of Dermatopathology, Archives of Dermatology, Journal of American Academy of Dermatology, American Journal of Plastic Surgery, Journal of Cellular Physiology, American Journal of Pathology, British Journal of Dermatology, New England Journal of Medicine, Journal of National Cancer Institute, Journal of Clinical Investigation, Journal of Dermatological Science, Journal of Immunology,(Review 4 manuscripts per month).
C. Ad-hoc Review Committee - NIH Study Section - Skin Disease Research Center Grant Applications.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. Inflammatory dermatoses: The role of Keratinocyte cell surface modulation in pathogenesis. Gordon Research Conference on Epithelial Differentiation and Keratinization, August 4, 1989, Tilton, New Hampshire.
2. Identification of Dermal Dendrocytes (macrophages) as the spindle-shaped cells in Kaposi's Sarcoma, Invited participant-Annual Meeting of The Laboratory of Tumor Cell Biology, Dr. Robert Gallo, National Cancer Institute, August 24, 1989, Bethesda, Maryland.
3. Lymphocyte Trafficking as it involves keratinocytes. Symposium, Mayo Clinic, Rochester, Minnesota, September 8, 1989.
4. First International Parapsoriasis Symposium-Organizing Co-Chairman; Mayo Clinic, September 7-8, 1989, Rochester, Minnesota.
5. T-Lymphocyte Trafficking in Psoriasis, Invited Speaker-Molecular, Immunologic and Pharmacologic Aspects of Psoriasis Workshop; Deer Valley, September 16, 1989, Park City, Utah.
6. Matrix Adhesion Molecules in Psoriasis. Invited Speaker and Session Co-Chairman, Cell Receptors in Cutaneous Biology: Interleukin, Immunoglobulin-Family and Matrix Receptors; 30th Annual Symposium on the Biology of the Skin; Salishan Lodge, September 26, 1989, Gleneden Beach, Oregon.
7. Role of Dermal Dendrocytes in AIDS-Related Skin Diseases, Visiting Professor, The Oregon Health Sciences University, Dept of Dermatology, September 28, 1989, Portland, Oregon.
8. Role of Dermal Dendrocytes in AIDS-Related Psoriasis and Kaposi's Sarcoma, Visiting Professor, Wayne State University, Dept of Dermatology, Oct 4, 1989, Detroit, Michigan.

9. Adhesion Molecules and Skin Diseases. Visiting Professor, Department of Dermatology, Free University of Amsterdam, Sctober 10, 1989, The Netherlands.
10. The Molecular Basis for Cellular Pattern Recognition-A Dermatopathology Viewpoint. Invited Speaker and Session Co-Chairman 2nd International Dermatology Symposium-Interferons and Related Lymphokines. October 12, 1989, Berlin, West Germany.
11. Topobiology of the Skin. Invited Speaker, Department of Anatomy, University of Michigan, November 8, 1989, Ann Arbor, Michigan.
12. Isolation and Characterization of Dermal Dendrocytes. Midwestern AFCR-SID, November 10, 1989, Chicago, Illinois.
13. Alpha Interferon and Basal Cell Carcinoma, Consultant-FDA-Vaccines and Related Biological Products Advisory Committee, November, 13, 1989, Rockville, Maryland.
14. Factor XIIIa positive dermal dendrocytes are prominent constitutents of the spindle-shaped cell population in Kaposi's sarcoma and histological simulators. Annual Meeting of American Society of Dermatopathology, December 1, 1989, San Francisco, California.
15. The Use of Immunomodulating Drugs in Dermatologic Disease, Invited Speaker-Modulating the Immune Response to Benefit the Patient Symposium. St. Louis University Medical Center, December 2, 1989, St. Louis, Missouri.
16. Modulation of Keratinocyte Motility, Proliferation, Matrix Production and Epidermal Growth Factor Receptors by Gamma Interferon, Invited Speaker-3rd International Symposium on Tissue Repair, January 11, 1990, Miami, Florida.
17. Tissue Repair Program Annoucement, Ad-Hoc Advisory Group Meeting-NIAMS, January 13, 1990, Miami, Florida.
18. Role of Keratinocyte Derived Adhesion Molecules, Chemotactic Factors, and their Modulatory Cytokines in the Epidermal Trafficking of T lymphocytes and Monocytes. Invited Speaker, Department of Dermatology, Harvard University-Cutaneous Research Biology Center-MGH East, February 12, 1990, Boston, Massachusetts.
19. The Role of Dermal Dendrocyte in AIDS-Related Psoriasis and Other Skin Diseases. Invited Speaker. Michigan Dermatological Society Meeting, University of Michigan, March 14, 1990, Ann Arbor, Michigan.
20. Molecular Basis For T Cell Trafficking in Skin Disease. Invited Speaker. Isadore Bernstein Symposium on Recent Developments in Keratinocyte Biology. University of Michigan, May 18, 1990, Ann Arbor, Michigan.
21. The Histology and Immunophenotyping of Psoriasis. Invited Speaker. Clinical Dermatology in the Year 2000 Symposium, May 23, 1990, London, England.
22. The Pre-Eminent Role of the Keratinocyte in T-Cell Mediated Skin Diseases. Invited Speaker. Clinical Dermatology in the Year 2000 Symposium, May 24, 1990, London, England.
23. Adhesion Molecules for T Lymphocytes. Invited Speaker. Clinical Dermatology in the Year 2000 Symposium. May 25, 1990, London, England.
24. Role of ELAM-1 and VCAM-1 in Disorders of the Skin. Invited Speaker. Biogen Scientific Board of Directors Meeting on Endothelial cells. June 3, 1990, Cambridge, Massachusetts.
25. Molecular, Immunologic and Pharmacologic Aspects of Psoriasis. Visiting Professor, Department of Dermatology, Johns Hopkins University. June 20, 1990.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. McClenic BD, Mitra RS, Riser BL, Nickoloff BJ, Dixit VM, Varani J: Production and utilization of extracellular matrix components by human melanocytes and malignant melanoma cells. Exp Cell Res 1989;180:314-325.

2. Headington JT, Gupta AK, Goldfarb MT, Nickoloff BJ, Hamilton TA, Ellis CN, Voorhees JJ: A morphometric and histologic study of the scalp in psoriasis: Paradoxical sebaceous gland atrophy and decreased hair shaft diameters without alopecia. Arch Dermatol 1989;125:639-642.
3. Nickoloff BJ, Mitra RS, Elder JT, Fisher GJ, Voorhees JJ: Decreased growth inhibition by recombinant gamma interferon is associated with increased production of transforming growth factor alpha in keratinocytes cultured from psoriatic lesions. Br J Dermatol 1989; 121:161-174.
4. Shiohara T, Nickoloff BJ, Moriya N, Nagashima M: Expression of intercellular adhesion molecule-1 (ICAM-1) in fixed drug eruptions. Arch Dermatol. 1989;125:1371-1376.
5. Cerio R, Griffiths CEM, Cooper KD, Nickoloff BJ, Headington JT: Characterization of dermal dendritic cells with factor FXIIIa in normal and inflamed skin. Br J Dermatol 1989;121:421-432.
6. Gupta AK, Fisher GJ, Elder JT, Talwar HS, Esmann J, Duell EA, Nickoloff BJ, Voorhees JJ: Topical Cyclosporine A inhibits the phorbolester induced hyperplastic inflammatory response but not the activation of protein kinase C in mouse epidermis. J Invest Dermatol 1989;93:379-386.
7. Whittemore AS, Holly E, Lee IM, Abel EA, Adams R, Nickoloff BJ, Bley L, Peters J, Gibney C: Mycosis fungoides in relation to environmental exposures and immune response: A case control study. JNCI (In Press, 1989).
8. Varani J, Nickoloff BJ, Dixit VM, Mitra RS, Voorhees JJ: All-trans retinoic acid stimulated growth of adult human keratinocytes cultured in growth factor-deficient medium, inhibits production of thrombospondin and fibronectin, and reduced adhesion. J Invest Dermatol 1989;93:449-454.
9. Nickoloff BJ, Griffiths CEM: The spindle-shaped cells in cutaneous Kaposi's sarcoma: Histologic simulators include factor XIIIa dermal dendrocytes. Am J Pathol 1989;135:793-800.
10. Nickoloff BJ, Mitra RS: Inhibition of ^{125}I-Epidermal growth factor binding to cultured keratinocytes by antiproliferative molecules gamma interferon, Cyclosporin A, and transforming growth factor-beta. J Invest Dermatol 1989;93:799-803.
11. Griffiths CEM, Nickoloff BJ: Keratinocyte intercellular adhesion molecule-1 (ICAM-1) expression preceeds dermal T lymphocytic infiltration in allergic contact dermatitis (Rhus dermatitis). Am J Pathol 1989;135:1045-1053.
12. Holly EA, Wittemore AS, Aston DA, Ahn DK, Nickoloff BJ, Kristiansen JJ: Anal Cancer Incidence: Genital warts, fissures, fistula, hemorrhoids and smoking. JNCI (In Press, 1989).
13. Gupta AK, Ellis CN, Nickoloff BJ, Voorhees JJ: Development of cutaneous T-lymphocytic papules in association with cyclosporine A therapy. J Am Acad Dermatol (In Press, 1989).
14. Gupta AK, Ellis CN, Siegel M, Duell E, Griffiths CEM, Nickoloff BJ, Voorhees JJ: Sulphasalazine improves psoriasis: A double blind analysis. J Am Acad Dermatol (In Press, 1989).
15. Nickoloff BJ, Griffiths CEM, Barker JNWN: The role of adhesion molecules, chemotactic factors and cytokines in inflammatory and neoplastic skin diseases-1990 update. J Invest Dermatol (In Press, 1989).
16. Nickoloff BJ, Griffiths CEM: Lymphocyte trafficking in psoriasis: A new perspective emphasizing the dermal dendrocyte with active dermal recruitment mediated via endothelial cells followed by intraepidermal T-cell activation. J Invest Dermatol (In Press, 1989).
17. Elder JT, Klein SB, Tavakkol A, Fisher GJ, Nickoloff BJ, Voorhees JJ: Growth factor and protooncogene expression in psoriasis. J Invest Dermatol (In Press, 1989).
18. Nickoloff BJ, Griffiths CEM: Abnormal cutaneous topobiology: The molecular basis for dermatopathological mononuclear cell patterns in inflammatory skin disease. J Invest Dermatol (In Press, 1989).
19. Nickoloff BJ: Dermal dendrocytes in psoriasis. Autoimmunity Dermatology Forum, 1989;1:2-4.
20. Nickoloff BJ, Wood GS, Griffiths CEM, Chu M, Beckstead JH: Disseminated dermal dendrocytes: A new cutaneous fibrohistocytic proliferative disease? Am J Surgpath (In Press, 1989).
21. Ho VC, Gupta AK, Ellis CN, Nickoloff BJ, Voorhees JJ: Cyclosporine in lamellar icthyosis. Arch Dermatol 1989;125:511-514.

22. Gupta AK Ellis CN, Cooper KD, Nickoloff BJ, HO VC, Chan LS, Tellner BC, Voorhees JJ: Cyclosporine A for the treatment of alopecia areata. J Am Acad Dermatol 1990;22:242-250.
23. Riser BL, Varani J, Nickoloff BJ, Mitra RS, Dixit VM: Thrombospondin binding by keratinocytes: Modulation under conditions which alter thrombospondin biosynthesis. Dermatologica 1990;180:60-65..
24. Ho V, Griffiths CEM, Gupta AK, McCuaig CC, Nickoloff BJ, Cooper KD, Voorhees JJ: Intralesional Cyclosporine-A in the treatment of psoriasis: A clinical immunologic and pharmacokinetic study. J Am Acad Dermatol 1990;22:94-100.
25. Ho VC, Gupta AK, Ellis CN, Nickoloff BJ, Voorhees JJ: Treatment of severe lichen planus with Cyclosporine A. J Amer Acad Dermatol 1990;22:64-68.
26. Griffiths CEM, Esmann J, Fisher GJ, Voorhees JJ, Nickoloff BJ: Gamma interferon differentially modulated keratinocyte expression of HLA-DR and intercellular adhesion molecule-1 (ICAM-1): Evidence for a protein kinase C-dependent and independent pathway. Br J Dermatol 1990;122:333-342.
27. Taylor RS, Griffiths CE, Brown M, Swanson N, Nickoloff BJ: Constitutive absence of expression of adhesion molecules on basal cell carcinoma. J Am Acad Dermatol 1990;22:721-727.
28. Gupta AK, Ellis CN, Nickoloff BJ, Goldfarb MT, Ho VC, Griffiths CEM, Voorhees JJ: Oral Cyclosporine A in the treatment of inflammatory and non-inflammatory dermatoses. Arch Dermatol 1990;126:339-350.
29. Varani J, Shayevitz J, Perry D, Mitra RS, Nickoloff BJ, Voorhees JJ: Retinoic acid stimulation of human dermal fibroblast proliferation is associated with an increase in intercellular Ca^{2+}. J Invest Dermatol 1990;94:717-723.
30. Barker JNWN, Sarna V, Dixit V, Nickoloff BJ: Marked Synergism between tumor necrosis factor-alpha and interferon gamma in regulation of keratinocyte derived chemotactic and adhesion molecules. Rapid Communication: J Clin Invest 1990;85:605-608.
31. Eisen D, Griffiths CEM, Ellis CN, Nickoloff BJ, Voorhees JJ: Cyclosporin wash for oral lichen planus. Lancet 1990;335:535-537.
32. Nickoloff BJ, Griffiths CEM: Intraepidermal but not dermal T lymphocytes are positive for a cell-cycle associated antigen (Ki-67) in mycosis fungoides. Am J Pathol 1990;136:261-266.
33. Bulengo S, Brown MC, Dubin H, Rasmussen JE, Nickoloff BJ: Sweet's Syndrome presenting as an unusual periorbital eruption. J Am Acad Dermatol (In Press, 1990).

BOOKS/CHAPTERS IN BOOKS:

1. Nickoloff BJ: Interferons and Cutaneous Metabolism. In: Biochemistry and Physiology of the Skin, Oxford University Press, New York. (In Press, 1990).
2. Nickoloff BJ: Leukocyte Adhesion Molecules and Inflammatory Cell Migration Pathways in the Skin: Skin Immune System, CRC Press Inc, Boca Raton, Florida pp 49-71, 1990.
3. Nickoloff BJ: Role of Epidermal T-cell Migration in Parapsoriasis and Cutaneous T-cell Lymphoma. In: Proceedings of the First International Parapsoriasis Symposium. AS Muller (Ed), Mayo Clinic Press. (In Press, 1990).
4. Nickoloff BJ, Varani J, Mitra RS: Modulation of Keratinocyte Biology by Gamma Interferon: Revelance to Cutaneous Would Healing. In: Clinical and Experimental Approaches to Dermal and Epidermal Repair: Normal and Chronic Wounds, Alan R. Liss Inc (A. Barbul-Ed), New York, N.Y. (In Press, 1990).

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR, ARTICLES PUBLISHED IN UNREFEREED JOURNALS:

1. Barker JNWN, Sarma V, Dixit V, Nickoloff BJ: Regulation of keratinocyte-dermal monocyte and T cell chemotactic factors by gamma interferon and tumor necrosis factor. J Invest Dermatol 93:540, 1989.

2. Nickoloff BJ, Griffiths CEM: The molecular basis for cellular pattern recognition-A dermatopathology viewpoint. J Invest Dermatol 93:566, 1989.
3. Griffiths CEM, Nickoloff BJ: Urushiol directly induces keratinocyte intercellular adhesion molecule-1 expression in rhus dermatitis. J Invest Dermatol 93:548, 1989.
4. Elder JT, Mitra RS, Voorhees JJ, Nickoloff BJ: Modulation of TGF-alpha and EGF receptor gene expression in normal and psoriatic human keratinocytes. J Invest Dermatol 93:549, 1989.
5. Nickoloff BJ, Griffiths CEM: Isolation and characterization of dermal dendrocytes from psoriatic plaques. Clin Res 37:969, 1989.
6. Griffiths CEM, Nickoloff BJ: Ion exchange inhibitors and TGF-beta block gamma interferon-induced keratinocyte HLA-DR but not ICAM-1 expression. Clin Res 37:969, 1989.
7. Barker, JNWN, Sarma V, Dixit V, Nickoloff BJ: Kinetics of cytokine-regulated keratinocyte derived interleukin-8 and monocyte chemotactic and activating factor transcription. Clin Res 37:968, 1989.
8. Nickolfff BJ, Barker JNWN, SARMA V, Griffiths CEM, Dixit V: Coordinate regulation of keratinocyte adhesion molecule expression and chemotactic factor production by gamma interferon and tumor necrosis factor-alpha. Cytokines (In Press, 1989).
9. Nickoloff BJ, Varani J, Mitra RS: Modulation of keratinocyte motility, proliferation, matrix production and epidermal growth factor receptors by gamma interferon, J Invest Dermatol (In Press, 1989).
10. Nickoloff BJ: Wats New in Interferon-Related Research? Dermatology Quaterly-Summer; pp 6-7, 1989.
11. Barker JNWN, Sarma V, Dixit V, Nickoloff BJ: Kinetics of cytokine modulated keratinocyte intercellular adhesion molecule-1 (ICAM-1) transcription. J Cut Pathol 16:294, 1989.
12. Nickoloff BJ, Griffiths CEM: Factor XIIIa positive dermal dendrocytes are prominent constituents of the spindle-shaped cell population in Kaposi's sarcoma and histological simulators. J Cut Pathol 16:318, 1989.
13. Jones ML, Karabin G, Stoolman L, Nickoloff BJ, Fantone J: Monocyte chemoattractant mRNA expression and activity in the human Jurkat cell line clone JS9-78. FASEB, 1990.
14. Winterrowd GE, Fleming WE, Krezsicki RF, Nickolff BJ, Chin JE, Sanders ME: Mechanisms of memory T cell accumulation in inflamed tissues: Interleukin-2 induces naive to memory phenotype switch and enhanced adhesion. Clin Res 38:390, 1990.
15. Fleming WE, Winterrowd GE, Krezsicki RF, Nickoloff BJ, Sanders ME: Enhanced mechanisms of memory T cell enrichment in rheumatoid synovium: adhesion and altered phenotype of cytokine-treated T cells. Clin Res (In Press, 1990).
16. Nickoloff BK: Pathophysiology of Cutaneous T Cell Lymphoma (Mycosis Fungoides). J Cancer Res (In Press, 1990).
17. Barker JNWN, Griffiths CEM, Mitra RJ, Elder JT, Dixit V, Kunkle S, Nickoloff BJ: Keratinocyte-derived interleukin-8: Regulation by TPA and urushiol and detection in inflamed skin. ESDR Abstract.
18. Barker JNWN, Jones ML, Swenson C, Mitra RJ, Elder JT, Fantone J, Ward PA, Dixit VM, Nickoloff BJ: Keratinocyte production of a biologically active monocyte chemoattractant. J Invest Dermatol 94:505, 1990.
19. Fisher GJ, Griffiths CEM, Duell EA, Elder JT, Karabin G, Nickoloff BJ, Voorhees JJ: Cellular, Immunological and biochemical characterization of topical all-trans-retinoic treated human skin. J Invest Dermatol 94:524, 1990.
20. Griffiths CEM, Barker JNWN, Mitra RJ, Nickoloff BJ: The influence of ion exchange inhibitors and transforming growth factor beta on keratinocyte/lymphocyte interaction. J Invest Dermatol 94:531, 1990.
21. Karabin GD, Mitra JR, Stoolman L, Nickoloff BJ: Characterization of a model keratinocyte-lymphocyte adhesion system which is mediated by gamma interferon. J Invest Dermatol 94:541, 1990.
22. Mahoney SE, Duvic M, Nickoloff BJ: HIV transcripts detected in HIV-associated Kaposi's sarcoma and psoriasis. J Invest Dermatol 94:552, 1990.

23. Mitra JR, Karabin GD, Barker JNWN, Varani J, Voorhees JJ, Nickoloff BJ: Molecular characterization of interaction between all-trans-retinoic acid, and gamma interferon on cultured human keratinocytes. J Invest Dermatol 94:556, 1990.
24. Nickoloff BJ, Barker JNWN, Griffiths CEM, Elder JT, Kunkel S, Dixit V: Molecular and cellular localization of IL-8 and its inducer-TNF in psoriasis. J Invest Dermatol 94:559, 1990.
25. Nickoloff BJ, Griffiths CEM, Barker JNWN, Kunkel S: Primary role for acitvated keratinocytes in rhus dermatitis. Clin Res 38:525, 1990.
26. Barker J, Griffiths CEM, Mitra RJ, Fisher G, Nickoloff BJ: Immunophenotypic modulation of cutaneous dendritic cell by various cytokines. Clin Res 38:421, 1990.
27. Nickoloff BJ, Griffiths CEM,: Not all spindled-shaped cells embedded in a collagenous stroma are fibroblasts: Recognition of the "collagen-associated dendrophage". J Cut Path (In Press, 1990).
28. Nickoloff BJ, Mitra RS: Growth modulatory effects of tumor necrosis factor-alpha on human keratinocytes-response. J Invest Dermatol (In Press, 1990).
29. Barker JNWN, Griffiths CEM, Nickoloff BJ, Allen MH, MacDonald DM: Expression of the myelomonocytic antigens L1 and CD36 in human epidermis. Br J Dermatol (In Press, 1990).
30. Nickoloff BJ, Mitra RS: Direct antiproliferative effects of cyclosporin A on cultured human keratinocytes and fibroblast. Br J Dermatol (In Press, 1990).

HAROLD A. OBERMAN, M.D.
PROFESSOR OF PATHOLOGY
CO-DIRECTOR OF CLINICAL PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Co-Director, Section of Clinical Pathology, University Hospitals.
B. Director, Blood Bank, University Hospitals.
C. Diagnosis of surgical specimens from University Hospital patients.
D. Diagnosis of surgical specimens from M-Labs.
E. Diagnosis of consultation cases on surgical pathology of breast.
F. Medical coverage of Transfusion Service.
G. Medical coverage of Necropsy Service.
H. Member, University of Michigan Breast Care Center.

II. TEACHING ACTIVITIES:

MEDICAL SCHOOL/HOSPITALS:

A. Lectures on breast pathology (two) and transfusion medicine (four) to sophomore class.
B. Instruction of sophomore (M-2) pathology laboratory, Pathology 600.
C. Postgraduate course, "Current Topics in Blood Banking", Planning Committee.
D. Course on Transfusion Medicine presented to Pathology and Hematology/Oncology House Officers.
E. Seminars and lectures on Pathology of Breast to Pathology House Officers.
F. Responsible for senior student (M-4) elective in pathology (Nov-Dec, 1988).
G. Lecture to Department of Surgery, Section of General Surgery: Blood Component Therapy. August 18, 1988.
H. Presentation to Section of Orthopedic Surgery, Department of Surgery, Grand Rounds: "Infectious and non-infectious complications of blood transfusion". October 29, 1988.
I. Lecture to Department of Anesthesiology: "Complications of Blood Transfusion". November 3, 1988.
J. Section of Clinical Pathology Grand Rounds: "Medical-Legal Problems in Blood Banking". January 6,1989.

III. RESEARCH ACTIVITIES:

PROJECTS UNDER STUDY:

A. Transfusional requirements in extracorporeal membrane oxygenator treatment.
B. Detection of source of blood in percutaneous umbilical blood sampling procedures.
C. Significance of intraductal carcinoma and lobular carcinoma in-situ presenting in adenofibromas or in sclerosing adenosis.
D. Adenomyoepithelial neoplasms of breast.

E. Pleomorphic adenomas of breast.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Co-Director, Division of Clinical Pathology.
B. Laboratory Communication Committee.
C. M-Labs Operation Committee.
D. Chairman's Advisory Committee.
E. Director, Fellowship program in Blood Banking/Transfusion Medicine.

MEDICAL SCHOOL/HOSPITAL:

A. Transfusion Committee, Chairman
B. Breast Care Center
C. Liver homotransplantation task force
D. Bone marrow homotransplantation task force
E. AIDS task force
F. Advisory Committee on Appointments, Promotions and Titles of Medical School
G. Mentor, M-1 students

REGIONAL AND NATIONAL:

A. American Association of Blood Banks:
   1. Awards Committee, Chairman.
   2. Publications Committee.
B. American Society of Clinical Pathologists:
   1. Council on Anatomical Pathology.
   2. Chairman, Check Sample Program, Anatomical Pathology.
   3. Expert Review Panel in Anatomic Pathology.
C. Michigan Society of Pathologists:
   1. Medical Legislation Committee.
   2. Medical Care Insurance Committee.
D. Southeastern Michigan Red Cross Blood Program:
   1. Blood Operations Committee.
   2. Medical Advisory Committee.
E. Consultant, Veterans Administration Hospital, Ann Arbor.
F. Test Committee on Blood Banking/Transfusion Medicine, American Board of Pathology.
G. Breast Cancer Task Force, Michigan Department of Public Health.

V. OTHER RELEVANT ACTIVITIES:

EDITORIAL BOARDS:

A. Associate Editor, TRANSFUSION.
B. Editorial Board, American Journal of Surgical Pathology.
C. Editorial Board, American Journal of Clinical Pathology.
D. Editorial Board, Archives of Pathology and Laboratory Medicine.
E. Associate Editor, Critical Reviews in Clinical Laboratory Sciences.
F. Editor, Anatomical Pathology Check Sample Program, American Society of Clinical Pathologists.
G. Reviewer, Cancer.

H. Reviewer, Journal of the American Medical Association.

INVITED LECTURES/SEMINARS:

1. Lecture, "Legal Aspects of Blood Banking". Course on Hematology and Blood Banking, Flint Osteopathic Hospital. July 13, 1988.
2. Platform presentation: Prozones due to potent hemolytic anti-A and anti-B: How safe is the immediate spin crossmatch? (with Judd WJ, Steiner EA) Int. Soc. Blood Trans. London. July, 1988.
3. Poster presentation: Should hospitals draw donors? A cost appraisal. (with Butch SH, Judd WJ) Int. Soc. Blood Trans. London. July, 1988.
4. Poster presentation: Blood use by DRG in a U.S. tertiary care hospital (with Butch SH, Dieterle RA). Int. Soc. Blood Trans. London. July, 1989.
5. Platform presentation: PUBS: A new role for the blood bank (with Steiner EA, Hayashi RH, Judd WJ) Int. Soc. Blood Trans. London. July, 1988.
6. Lecture to Grand Rounds of Department of Obstetrics and Gynecology, Henry Ford Hospital, "Complications of Blood Transfusion". September 22, 1988.
7. Lecture to Department of Surgery, St. Joseph Mercy Hospital, Pontiac, Michigan, "Diagnosis and Management of Non-invasive Breast Cancer". October 19, 1988.
8. Poster presentation: ECMO: Minimal impact on the blood bank (with McCoy-Pardington D, Knafl P, Butch SH, Judd WJ). Annual Mtg, Am Assoc Blood Banks. Kansas City, Missouri. October, 1988.
9. Platform presentation: PUBS: A new role for the Blood Bank (with Steiner EA, Hayashi RH, Nugent CE, Judd WJ) Annual Meeting, Am Assoc Blood Banks. Kansas City, Missouri. October, 1988.
10. Poster presentation: Computer-assisted utilization review (with Butch SH, Dieterle RC). Annual Meeting, Am Assoc Blood Banks. Kansas City, Missouri. October, 1988.
11. Lecture, "Diagnostic Problems in Surgical Pathology". Annual Meeting, American Society of Clinical Pathologists. Las Vegas, Nevada. October 26, 1988.
12. Seminar, "Diagnostic Problems in Surgical Pathology of the Breast". Annual Meeting, American Society of Clinical Pathologists. Las Vegas, Nevada. October 27, 1988.
13. Microscopic Tutorial, "Problems in Surgical Pathology of Breast Disease". Annual Meeting, American Society of Clinical Pathologists. Las Vegas, Nevada. October 26, 1988.
14. Course (three days), "Problems in the Diagnosis and Management of Breast Cancer". American Society of Clinical Pathologists, Tucson, Arizona. December 7-9, 1988.
15. Lecture, "Informed Consent for Blood Transfusion". American Association of Blood Banks. Miami, Florida. February 24, 1989.
16. Platform presentation, "Mammary Hamartomas: A unifying Concept" Annual Meeting, International Academy of Pathology. San Francisco, California. March 6, 1989.
17. Presentation of seminar to New York Society of Pathologists, "Problems in Diagnostic Pathology of Breast Disease". New York, New York. April 28, 1989.
18. Annual lectureship, "History of Blood Transfusion". Massachusetts Association of Blood Banks. Boston, Massachusetts. May 10, 1989.
19. Workshop, "Problem-solving in the Blood Bank". Annual Course, "Current Topics in Blood Banking". Department of Postgraduate Medicine, University of Michigan. May 31, 1989.
20. Lecture, "Legal Issues Related to Blood Transfusion". Annual Course, "Current Topics in Blood Banking", Department of Postgraduate Medicine, University of Michigan, June 1, 1989.
21. Visiting Professor, William Beaumont Army Hospital, El Paso, Texas. June 7-9, 1989.
22. Lecture, "Benign Breast Lesions Simulating Carcinoma". El Paso Society of Pathologists. El Paso, Texas. June 8, 1989.

HONORS AND AWARDS:

1. Commissioner's Medal, American Society of Clinical Pathologists.

2. Commission on Education Distinguished Service Award, American Society of Clinical Pathologists.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Judd WJ, Steiner EA, O'Donnell DB, Oberman HA: Discrepancies in ABO typing due to prozone: How safe is the immediate spin crossmatch? Transfusion 28:334-338, 1988.
2. Flint A, Oberman HA, Davenport RD: Cytophotometric measurements of metaplastic carcinoma of the breast: Correlation with pathologic features and clinical behavior. Mod. Path. 1:193-197, 1988.
3. Judd WJ, Steiner EA, Oberman HA, Giacherio D: False positive results with clinically modified anti-D do not indicate a need to use a separate, immunologically inert Rh control reagent. Transfusion 28:339-341, 1989.
4. Oberman HA: Strategies for blood transfusion. Mayo Clin. Proc. 63:950-951, 1988.
5. Helvie MA, Rebner M, Sickles EA, Oberman HA: Calcifications in metastatic breast carcinoma in axillary lymph nodes. J. Radiol. 151:921-922, 1988.
6. Helvie MA, Adler DD, Rebner M, Oberman HA: Breast hamartomas: variable mammographic appearance. Radiology 170:417-421, 1989.
7. Oberman HA: Hamartomas and hamartoma variants of the breast. Semin. Diag. Path. 6:135-145, 1989.

BOOKS/CHAPTERS IN BOOKS:

1. Oberman HA: Complications of blood transfusion. In: Greenfield, L. (ed.) Complications in Surgery and Trauma. J.B. Lippincott, Philadelphia, PA (in press).
2. Sternberg S, Antonioli D, Carter D, Eggleston J, Mills S, Oberman HA: Diagnostic Surgical Pathology. Raven Press, New York 1988 (2 vols, 1776 pages).
3. Oberman HA: The history of Blood Transfusion. In: "Clinical Practice of Blood Transfusion, ed. 2. Swisher SN and Petz LD, eds. New York, Churchill Livingstone, 1989. p. 9-30.
4. Oberman HA: Surgical Blood Ordering, Blood Shortage Situations, and Emergency Transfusion. In: "Clinical Practice of Blood Transfusion", ed. 2. Swisher SN and Petz LD, eds. New York, Churchill Livingstone, 1989. pp 213-222.

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Blood review: Blood, Textbook of Hematology (Jandl). Arch Pathol Lab Med 112:857, 1988.
2. Letter to the Editor: Appropriateness of autologous transfusion. J Am Med Assoc 260:181-2, 1988.
3. Blood review: Soft Tissue Tumors (Enzinger and Weiss). Arch Pathol Lab Med 113:702, 1989.

SEM H. PHAN, PH.D., M.D.
ASSOCIATE PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Autopsy Service

II. TEACHING ACTIVITIES:

A. Course Director, Pathology 650.
B. Soverin Karmiol, Ph.D. - Postdoctoral Fellow.
C. Terezila Coimbra, M.D., - Postdoctoral Fellow.
D. Jung Woo Noh, M.D., - Postdoctoral Fellow
E. Masud Malik, Undergraduate/Research

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Mechanisms and Genetic Regulation of Pulmonary Fibrosis, R01-HL28737-04. Principal Investigator, S.H. Phan, Ph.D., M.D.
B. Macrophage Function in Lung Injury and Fibrosis. P01-HL31963, Section IV. Principal Investigator, S.H. Phan, Ph.D., M.D.
C. Fibroblast Heterogeneity in Pulmonary Fibrosis, R01-HL39925. Principal Investigator, S.H. Phan, Ph.D., M.D.
D. Crescentic Nephritis. P01DK38149, Section IV, P.I. S.H. Phan, Ph.D., M.D.

PROJECTS UNDER STUDY:

A. Lung macrophage/monocyte, recruitment and activation during lung injury and fibrosis.
B. Cytokine regulation of fibroblast function - in terms of chemotaxis, collagen metabolism and proliferation during lung injury.
C. Isolation and characterization of lung fibroblast clones from normal and fibrotic lung to examine extent of and mechanistic basis for heterogeneity.
D. Regulation of mesangial cell proliferation and collagen gene expression by mediators from diseased renal tissue.
E. Regulation of production of fibrogenic mediators and cytokines by pulmonary endothelial cells.
F. Analysis of bleomycin receptors on alveolar macrophages and fibroblasts.
G. Production of monocyte chemotactic factors by alveolar macrophages and fibroblasts and endothelial cells, and its regulation by bleomycin and cytokines.
H. Mechanisms of xanthine dehydrogenase to oxidase conversion in rat pulmonary endothelial cells.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Member, Departmental Research and Space Advisory Committee.
B. Member, Graduate Program Committee

MEDICAL SCHOOL/HOSPITAL:

A. Member, Ann Arbor VA Hospital Research & Development Committee.
B. Member, Medical Scientist Training Program Operating Committee.

REGIONAL AND NATIONAL:

A. Reviewer for the following journals: Journal of Immunology, Laboratory Investigation, Journal of Clinical Investigation, American Review of Respiratory Diseases, Experimental Lung Research, Infection and Immunity, American Journal of Pathology, Chest.
B. Ad hoc member, NIH Respiratory and Applied Physiology Study Section.
C. Member, Site Visit Team for NIH program project grant.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES AND SEMINARS:

1. 33rd Aspen Lung Conference on Lung Repair, Aspen, CO, June 6-9.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Strieter, R.M., Phan, S.H., Showell, H.J., Remick, D.G., Lynch, J.P. III, Genord, M., Raiford, C., Eskandari, M., Marks, R.M. and Kunkel, S.L.: Monokine-induced neutrophil chemotactic factor gene expression in human fibroblasts. J. Biol. Chem. 1989;264:10621-10626.
2. Strieter, R.M., Wiggins, R., Phan, S.H., Wharram, B.L., Showell, H.J., Remick, D.G., Chensue, S.W., and Kunkel, S.L.: Monocyte chemotactic Protein Gene Expression by cytokine-treated human fibroblasts and endothelial cells. Biochem. Biophys. Res. Commun. 1989;162:694-700.
3. Phan, S.H., Dillon, R.G., McGarry, B.M. and Dixit, V.M.: Stimulation of fibroblast proliferation by thrombospondin. Biochem. Biophys. Res. Commun. 1989;163:56-93.
4. Denholm, E.M., Wolber, F.M. and Phan, S.H.: Secretion of monocyte chemotactic activity by alveolar macrophages. Am. J. Pathol. 1989;135:571-580.
5. Varani, J., Mitra, R.S., Gibbs, D., Phan, S.H., Dixit, V.M., Mitra, R. Jr., Wang, T., Nickoloff, B. and Voorhees, J.J.: All-trans retinoic acid stimulates growth and extracellular matrix production in quiescent, cultured human skin fibroblasts. J. Invest. Dermatol. 1990; 94:717-723.
6. Denholm, E.M. and Phan, S.H.: Specific bleomycin binding sites on rat macrophages. J. Leukocyte Biol. 1990; in press.
7. Varani, J., Phan, S.H., Gibbs, D.F., Ryan, U.S., and Ward, P.A. H_2O_2-mediatred cytotoxicity of endothelial cells: Changes in ATP and purine products and effects of protective interventions. Lab. Invest. 1990;in press.

8. Markey, B.A., Phan, S.H., Varani, J., Ryan, U.S., and Ward, P.A.: Inhibition of cytotoxicity by intracellular superoxide dismutase supplementation. Free Radical Biol. & Med. 1990; in press.
9. Merritt, S., Killen, P., Phan, S.H., and Wiggins, R.: Analysis of a1(I) procollagen, a1(IV) collagen and b-actin mRNA in glomerulus and cortex of rabbits with experimental anti-GBM disease. Evidence of for early extraglomerular collagen synthetic activity. Lab. Invest. 1990;in press.
10. McClurkin, C., Jr., Phan, S.H., Hsu, C-H., Patel, S.R., Spicker, J.K., Kshirsagar, A.M., Yuan, W. and Wiggins, R.C.: Colchicine-induced protection of renal function and reduction of fibrosis in a model of anti-GBM disease in the rabbit. J. Am. Soc. Nephrol. 1990; in press.

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Strieter, R.M., Cornicelli, J., Remick, D.G., Phan, S.H., Wiggins, R., and Kunkel, S.: Low density lipoproteins (LDL) modulate cytokine production by human umbilical vein endothelium. Xth International Symposium on Drugs Affecting Lipid Metabolism, November 8-11, Houston, Texas, 1989.
2. Phan, S.H., McGarry, B.M., and Wiggins, R.: Characterization of the collagen synthesis stimulatory activity in renal cortical conditioned media and its role in renal fibrosis. 22nd Annual Meeting of the American Society of Nephrology, December 3-6, Washington, D.C., 1989.
3. McClurkin, C., Phan, S.H., Hsu, C., Patel, S. and Wiggins, R.: Colchichine-induced protection of renal function and renal fibrosis in a rabbit model of crescentic nephritis. 22nd Annual Meeting of the American Society of Nephrology, December 3-6, Washington, D.C., 1989.
4. Phan, S.H., Gharee-Kermani, M., Wolber, F., and Ryan, U.S.: Secretion of collagen synthesis stimulatory activity by bleomycin-treated endothelial cells. Fed. Proc. 1990;
5. Markey, B.A., Phan, S.H., Varani, J., Ryan, U.S. and Ward, P.A.: Inhibition of H_2O_2 and neutrophil-induced endothelial cell cytotoxicity by intracellular superoxide dismutase supplementation. Fed. Proc. 1990;
6. Basha, M.A., Kunkel, S.L., Standiford, T.J., Popovich, J. Jr., Phan, S.H., Wiggins, R., Evanoff, H.L., Wharram, B.L., and Strieter, R.M.: Hyperoxia augments tumor necrosis factor cytotoxicity and induces interleukin-8 gene expression. Fed. Proc. 1990;
7. Gibbs, D.F., Varani, JU., Phan, S.H. and Ward, P.A.: Hydrogen peroxide-mediated cytotoxicity of rat endothelial cells: Changes in ATP and purine products and the effects of protective interventions. Fed. Proc. 1990;
8. Phan, S.H., Wolber, F. and Ryan, U.S.: Secretion of monocyte chemotactic activity by bleomycin treated rat pulmonary artery endothelial cells. Am. Rev. Respir Dis., 1990;
9. Basha, M.A., Kunkel, S.L., Standiford, T.J., Popovich, J.Jr., Phan, S.H., Wiggins, R., Wharram, B.L., and Strieter, R.M.: Hyperoxia induces interleukin-8 gene expression and augments tumor necrosis factor cytotoxicity. Am. Rev. Respir. Dis. 1990;
10. Phan, S.H., Coimbra, T.N., McGarry, B.M., and Wiggins, R.: TGFbproduction in renal cortex and its role in renal fibrosis. XIth International Congress of Nephrology, Tokyo, Japan, June, 1990.
11. Wiggins, R.C., Merritt, S., Phan, S.H., and Killen, P.: Extraglomerular collagen mRNA transcription associated with intraglomerular inflammation in antiGBM disease in the rabbit. XIth International Congress of Nephrology, Tokyo, Japan, June, 1990.

CARL L. PIERSON, PH.D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Associate Director, Clinical Microbiology Laboratory.
B. Coordinator, Infectious Disease Laboratory Rounds.

II. TEACHING ACTIVITIES:

A. Coordinator, Pathology House Officer Microbiology Laboratory rotation.
B. Lecturer, Clinical Pathology Ground Rounds
C. Lecturer, Microbiology 201
D. Coordinator, Microbiology Laboratory Inservice

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. "National survey of the susceptibility of the *Bateroides fragilis* group", Merck, Sharp & Dohme and Beecham Laboratories
B. "Nasal spray stability study," Eli Lilly
C. "Prevention of antibiotic-associated colitis with *Saccharomyces boulardii* administration," Biocodex
D. "Evaluation of CDTOX Immunocube," Difco Labs

PROJECTS UNDER STUDY:

A. Application of gas-liquid chromatography for rapid identification of microorganisms
B. *In vitro* evaluation of meropenem
C. *In vitro* evaluation of cefmetazole
D. *In vitro* evaluation of sparfloxacin, CI-960 and PD 131638-2b
E. Antibiotic synergy studies with *Enterococcus spp* using time-kill kinetics
F. Epidemiology of antimicrobic resistance patterns in intensive care units, Lederle Labs and Symedco

IV. SERVICE ACTIVITIES:

DEPARTMENTAL:

A. Clinical Pathology Laboratory Director's Committee
B. M-Labs Technical Advisory Committee (Chairperson)
C. Clinical Microbiology Senior Staff Meeting (Chair)
D. Clinical Microbiology Inservice Program (Coordinator)

MEDICAL SCHOOL/HOSPITAL:

A. Hospital Infection Control Committee
B. Task Force on AIDS (alternate)

REGIONAL/NATIONAL:

A. Co-chair, TriCounty Clinical Microbiology Association.
B. Alternate, Technical Advisory Committee, Bureau of Laboratory and Epidemiological Services, Michigan Department of Public Health.
C. College of American Pathologists site inspection team member at U. of Cincinnati.
D. Coordinator, Clinical Microbiology Laboratory Directors of Michigan Group meetings.

V. OTHER RELEVANT ACTIVITIES:

A. Reviewer, Journal of Clinical Microbiology.
B. Editorial Consultant, Bozell, Jacobs, Kenyon and Eckhardt Healthcare, Inc., New York, New York.
C. Lecturer, Roche Pharmaceutical Training series.

INVITED LECTURES/SEMINARS:

1. American Society of Hospital Pharmacists, Annual meeting, Boston. "Financial impact of antimicrobial resistance."
2. Hot Springs, Virginia, sponsored by Lederle Labs, "Managing the impact of ICU-acquired infections."
3.. Michigan branch meeting of the American Society for Microbiology, Annual meeting, Flint, Michigan, "Infections in transplant patients."

IV. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Cuchural, G.J., Snydman, D.R., McDermott, L., Iannini, P., Hill, G., Cleary, T., O'Keefe, J.P., Pierson, C.L., Yu, V. and Fingold, S.M.: The antimicrobial susceptibility patterns of the *Bacteroides fragilis* group in the United States, 1989. Reviews of Infectious Disease (In Press).
2. Cornick, N.A., Cuchural, G.J., Snydman, D.R., Jacobus, N.V., Iannini, P., Hill, P., Cleary, T., O'Keefe, J.P., Pierson, C.L. and Finegold, S.M.: Comparison of newer antimicrobial agents against the *Bacteroides fragilis* group. J. of Antimicrob. Chemother. (In press).
3. Lockwood, W., Friedman, C., Bus, N., Pierson, C.L. and Gaynes, R.: An outbreak of *Mycobacterium terrae* in clinical specimens associated with potable water. Amer. Rev. Respir. Dis. 1989;140:1614-1617.

4. Wakefield, T.W., Pierson, C.L., Schaberg, D.R., Messina, L.M., Lindenauer, M., Greenfield, L., Zelenock, G. and Stanley, J.: "Artery, periarterial adipose tissue and blood microbiology during vascular reconstructive surgery,: J. of Vascular Surgery, 1990;11:624-628.

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Hankerd, R., Pierson, C.L. and McClatchey, K.D.: "Evaluation of the LAD luminometric system for screening clinical urines," Abstracts, American Society for Microbiology, 1990, p. 382, C-231.

JOSEPH A. REGEZI, D.D.S., M.S.
ASSOCIATE PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Oral Pathology biopsy service: four months/year (5,000 biopsies /year.).
B. Patient consultations: Oral Pathology/Dermatology Referral Service--Friday mornings.

II. TEACHING ACTIVITIES:

A. Course Director and Lecturer in Senior Oral Pathology 816 and 818.
B. Laboratory section director for General Pathology for Dental Students 631.

III. RESEARCH ACTIVITIES:

PROJECTS UNDER STUDY:

A. Histologic and immunohistologic study of mucoepidermoid carcinomas.
B. Immunohistochemical differentiation of adenocystic carcinoma from terminal duct carcinoma.
C. Immunohistochemical study of oral lymphoid lesions.
D. Develoment of vehicles for delivery of topical drugs to oral mucous membranes.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Thesis Committee Chairman for Dr. D.E. Turunen, Department of Periodontics.
B. Coordinator of oral pathology clinical consultative services.

DENTAL SCHOOL:

A. Member of Transition Committee, 1987-1989.
B. Interim Director of Graduate Studies.

REGIONAL AND NATIONAL:

A Member of Editorial Board for Oral Surgery, Oral Medicine and Oral Pathology.
B. Member of the Task Force to Plan the Future of Oral Pathology.

V. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATIONS IN REFEREED JOURNALS:

1. Zarbo, R., Regezi, J., Hatfield, J., Maisel, H., Trojanowski, J., Batasakis, J. and Crissman, J.: Immunoreactive glial fibrillary acidic protein in normal and neoplastic salivary gland: a combined immunohistochemical and immunoblot study. Surg. Pathol. 1988;1:55-63.
2. Chan, Il, Regezi, J., Cooper, K.: Linear IgA disease. J. Am. Acad. Dermatol. (in press).
3. Regezi, J., Zarbo, R., and Crissman, J.: Immunoreactivity of granular cell lesions of skin, mucosa and jaw. Cancer (in press).

ARTICLES SUBMITTED FOR PUBLICATION:

1. Weiss, J., Gupta, A., Regezi, J., Rasmussen, J.: Oral ulcers and cobblestone plaques. J. Am. Acad. Dermatol.
2. Batsakis, J., Regezi, J., Luna, M., El-Naggar, A.: Histogenesis of salivary gland neoplasms: a postulate with prognostic implications. J. Larying. Oto.

BOOKS/CHAPTERS IN BOOKS:

1. Regezi, J. and Sciubba, J. Oral Pathology: Clinical Pathologic Correlations, Saunders Pub., Philadelphia, 1989.

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREED JOURNALS:

1. Regezi, J., Smith, F., Smith, R.: Langerhans cell immunoreactivity in chemically fixed gingival tissue. Abstract #347, A.A.D.R., Montreal, Canada, March, 1988.
2. Regezi, J., Zarbo, R., Courtney, R., Crissman, J.: Immunoreactivity of granular cell lesions of skin, mucosa, and jaw. Abstract #884, A.A.D.R., San Francisco, California, March, 1989.
3. Turunen, D., Regezi, J., Lopatin, D., Caffessee, R., Smith, B.: Immunologic identification of sulcular epithelial differentiation antigens in cytology preparations. Abstract #1429 A.A.D.R., San Francisco, California, March, 1989.
4. Zarbo, R., Raju, U., Regezi, J., Krutchkoff, D., Perrin, E.: Melanotic neuroectrodermal tumors (MNT) in Infancy: intermediate filament, neuroendocrine and melanoma associated antigen profile. U.S. and Canadian Acad. of Pathol., San Francisco, California, March, 1989, in Lab. Invest. 60:109A, 1989, #650.

DANIEL G. REMICK, M.D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Director of Autopsy Service.
B. Supervision of Autopsies (4.5 months)
C. Coordinator of Senior Staff Autopsy Call Schedule
D. Surgical Pathology (heart biopsies)

II. TEACHING ACTIVITIES:

A. Course Director - Pathology 631
B. Urology Conference.
C. Morbidity and Mortality Conference.
D. Coordinator - Pathology Gross Conference.
E. Mentor - Fourth Year Medical Student Clerkship Rotation.
F. Lectures to Pathology House Officers.
G. Lecturer, Pathology 600 Course

III. RESEARCH ACTIVITIES:

A. Regulation of Soluble Mediators of Inflammation.
B. Toxic Effects of Immunomodulators.
C. Pathophysiology of Septic Shock

SPONSORED SUPPORT:

Current:

A. National Institutes of Health - Granulomatous Inflammation and Interleukin-2 - Principal Investigator, 5 years, $350,000
B. National Institutes of Health - The Role of Cytokines in Sepsis and Trauma - Principal Investigator, 5 years, $906,182
C. American Heart Association of Michigan - The Role of TNF and PAF in Septic Shock, Principal Investigator, 1 year, $24,500
D. National Institutes of Health - Monokine Gene Expression/Regulation in Lung Injury - Co-investigator - 5 years
E. National Institutes of Health - Inflammatory Cells and Lung Injury - Co-Investigator on Core II of Program Project, 5 years,

Pending:

A. National Institutes of Health - Hepatic Ischemia-Induced TNF and Multi-Organ Injury - Principal Investigator

B. National Institutes of Health - Anesthetics and Viral Pulmonary Immunopathy - Co-Investigator
C. National Institutes of Health - Mechanisms of Pulmonary Fibrosis - Co-Investigator.
D. National Institutes of Health - Myocardial Preconditioning in Conscious Dogs and Pigs - Co-Investigator
E. National Institutes of Health - Regional Function in Ischemic and Infarcted Myocardium - Co-Principal Investigator

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Director - Autopsy Service.
B. Member - Quality Assurance Committee
C. Member - Microcomputer Advisory Committee

MEDICAL SCHOOL/HOSPITAL:

A. Medical School Admissions Committee

REGIONAL AND NATIONAL:

A. Member - Dementia Subcommittee, Other Chronic Disease. Advisory Committee to the Michigan Department of Public Health.
B. Deputy Medical Examiner for Washtenaw County (16 cases).
C. Member, Michigan Association of Medical Examiners.
D. Member, Shock Society.
E. Member, American Association of Immunologists.
F. Member, Adam James French Society.
G. Member, American Association of Pathologists.
H. Member, United States-Canadian Academy of Pathology.
I. Reviewer, American Review of Respiratory Diseases.
J. Reviewer, Laboratory Investigation.
K. Reviewer, Journal of Immunology.
L. Reviewer, American Journal of Applied Physiology.
M. Reviewer, Journal Immunopharmacology
N. Reviewer, Journal Leukocyte Biology
O. Reviewer, American Journal of Pathology

INVITED LECTURES/SEMINARS:

1. Invited Lecturer - Pfizer Pharmaceutical, Groton, Connecticut, October, 1989.
2. Invited Lecturer, Department of Surgery, Michigan State University, East Lansing, Michigan, May, 1990.

V. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Davis, P.K., Remick, D.G., Parascandola, S.A., Spangler, S., Wise, R.K. and Martin, L.F.: Intravascular plastic catheters potentiate tumor necrosis factor release and cardiac dysfunction secondary to infection. Current Surgery 1989; 46:486-489.
2. Podrazik, R.M., Obedian, R.S., Remick, D.G., Zelenock, G.B. and D'Lacey, L.G.: Attenuation of structural and functional damage from acute renal ischemia by the 21-amino steroid U74006F in rats. Current Surgery 1989; 46:287-292.
3. Warren, J.S., Yabroff, K.R., Remick, D.G., Kunkel, S.L., Kunkel, R.G., Johnson, K.J. and Ward, P.A.: Tumor necrosis factor participates in the pathogenesis of acute immune complex alveolitis in the rat. J. Clin. Invest. 1989; 84:1873-1882.
4. Strieter, R.M., Remick, D.G., Lynch, J.P., III and Kunkel, S.L.: The role of tumor necrosis factor-alpha (TNF) in multiple organ injury: A cellular and molecular analysis. Chest 1989; 95(Suppl):233S-234S.
5. Remick, D.G., Kunkel,S.L., Holbrook, E.A. and Hanson, C.A.: Theory and applications of the polymerase chain reaction. Am. J. Clin. Pathol. 1990; 93:549-553.
6. Remick, D.G., Strieter, R.M., Eskandari, M.K., Nguyen, D.T., Genord, M.A., Raiford, C.L. and Kunkel, S.L.: Role of tumor necrosis factor-a in lipopolysaccharide-induced pathologic alterations. Am. J. Pathol. 1990; 136:46-60.
7. Bagavandoss, P., Wiggins, R.C., Kunkel, S.L., Remick, D.G. and Keyes, P.L.: Tumor necrosis factor production and accumulation of inflammatory cells in the corpus luteum of pseudopregnancy and pregnancy in rabbits. Biol. Reprod. 1990; 42:367-376.
8. Spengler, R.N., Spengler, M.L., Strieter, R.M., Remick, D.G., Larrick, J.W. and Kunkel, S.L.: Modulation of tumor necrosis factor-a gene expression. Desensitization of prostaglandin E_2-induced suppression. J. Immunol. 1989; 142:4345-4350.
9. Kunkel, S.L., Chensue, S.W., Strieter, R.M., Lynch, J.P. and Remick, D.G.: Cellular and molecular aspects of granuloma formation. Am. J. Respir. Cell. Molec. Biol. 1989; 1:439-447.
10. Kunkel, S.L., Remick, D.G., Strieter, R.M. and Larrick, J.W.: Mechanisms that regulate the production and effects of tumor necrosis factor-alpha. CRC Reviews in Immunology 9:93-117, 1989.
11. Eskandari, M.K., Nguyen, D.T., Kunkel, S.L. and Remick, D.G.: Tumor necrosis factor measurement: Evaluation of parameters affecting a highly sensitive bioassay. Immunol. Invest. 1990; 190:69-79.
12. Colletti, L.M., Burtch, G.D., Remick, D.G., Kunkel, S.L., Strieter, R.M., Guice, K.S., Oldham, K.T. and Campbell, D.A.: Production of tumor necrosis factor-a and the development of capillary injury following hepatic ischemia/reperfusion. Transplantation 1990; 49:268-272.
13. Strieter, R.M., Remick, D.G., Ham, J.M., Colletti, L.M., Lynch, J.P. III and Kunkel, S.L.: Tumor necrosis factor-alpha gene expression in human whole blood. J. Leuk. Biol. 1990;47:366-70.
14. Ulich, T.R., Guo, K., Irwin, B., Remick, D.G., Davatelis, G.N. and del Castillo, J.: Endotoxin-induced cytokine gene expression in vivo: II: Evidence for post-transcriptional regulation of expression and suppression of tumor necrosis factor/Cachectin. Am. J. Pathol. Accepted.
15. Colletti, L.M., Remick, D.G., Burtch, G.D., Kunkel, S.L., Strieter, R.M. and Campbell, D.A. Jr.: The role of tumor necrosis factor-a in the pathophysiologic alterations following hepatic ischemia/reperfusion injury in the rat. J. Clin. Invest. 1990; 85:1936-1943..
16. Caty, M.G., Guice, K.S., Oldham, K.T., Remick, D.G. and Kunkel, S.L.: Evidence for TNF-related pulmonary microvascular injury following intestinal ischemia-reperfusion injury. Ann. Surg. Accepted.
17. DeForge, L.E., Nguyen, D.T., Kunkel, S.L. and Remick, D.G.: Regulation of the pathophysiology of tumor necrosis factor. J. Lab. Clin. Med. In press.

BOOKS/CHAPTERS IN BOOKS:

1. Kunkel, S.L., Strieter, R.M., Chensue, S.W. and Remick, D.G.: Regulation of tumor necrosis factor and neutrophil activating protein-1 gene expression: Potential role of cytokine-directed cell communication during multiple organ injury. In, Brigham, K., and Stalhman, M. (Eds.) Respiratory Distress Syndrome: Molecules to Man, Vanderbilt Press, Nashville, TN, 1989.

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Caty, M.G., Remick, D.G., Schmeling, D.J., Kunkel, S.L., Guice, K.S. and Oldham, K.T.: Evidence for endotoxin related tumor necrosis factor (TNF) release in intestinal ischemia-reperfusion injury. The National Conference on Pediatric Trauma, Ann Arbor, Michigan, 1989.
2. Caty, M.G., Remick, D.G., Schmeling, D.J., Kunkel, S., Guice, S.K. and Oldham, K.T.: Evidence for endotoxin related tumor necrosis factor (TNF) release in intestinal ischemia-reperfusion injury. Twelfth Annual Conference on Shock, Marco Island, Florida, 1989.
3. Colleti, L.M., Remick, D.G., Burtch, G.D., Kunkel, S.L. Strieter, R.M. and Campbell, D.A. Jr.: The role of TNF in pathophysiologic alterations following hepatic ischemia/reperfusion. Second International Workshop on Cytokines. Hilton Head Island, South Carolina, December, 1989.
4. Kunkel, S.L., Remick, D.G. and Strieter, R.M.: Stimulus-specific induction of chemotactic cytokine gene expression by immune and non-immune cells. Second International Workshop on Cytokines, Hilton Head Island, South Carolina, December, 1989.
5. Colletti, L.M., Burtch, G.D., Guice, K.S., Oldham, K.T., Remick, D.G., Kunkel, S.L. and Campbll, D.A. Jr.: Increased pulmonary microvascular permeability following hepatic ischemia/reperfusion injury with protection by antibody to tumor necrosis factor. American Society of Transplant Surgeons. Chicago, Illinois, 1989.
6. Caty, M.G., Remick, D.G., Schmeling, D.J., Kunkel, S.L., Guice, K.S. and Oldham, K.T.: Evidence for endotoxin related tumor necrosis factor (TNF) release in intestinal ischemia-reperfusion injury. Twelfth Annual Conference on Shock. Marco Island, Florida, 1989.
7. Guice, K.S., Oldham, K.T., Remick, D.G., Kunkel, S.L. and Ward, P.A.: Anti-tumor necrosis factor (TNF) antibody augments edema formation in Caerulein-induced acute pancreatitis. Surgical Forum, 1990.
8. Kunkel, R.G., Thornton, A.J., Evanoff, H.L., Kunkel, S.L., Johnson, K.J. and Remick, D.G.: TNF cytoxicity: Ultrastructural and molecular analysis. FASEB, 1990.
9. Remick, D.G., Eskandari, M.K., Nguyen, D.T., Strieter, R.M. and Kunkel, S.L.: Tumor necrosis factor gene expression tolerance occurs at the level of mRNA. FASEB, 1990.
10. Tait, A., Davidson, B., Johnson, K., Remick, D. and Knight, P.: The effect of halothane on the immune response to influenza virus infection in mice. FASEB, 1990.
11. Strieter, R.M., Chensue, S.W., Showell, H.J., Basha, M.A., Standiford, T.J., Remick, D.G., Allen, R., Lynch, J.P. and Kunkel, S.L.: IL-8 gene expression by human alveolar macrophages. FASEB, 1990.
12. DeForge, L.E., Nguyen, D.T., Kunkel, S.L. and Remick, D.G.: Comparison of the sensitivities of *in situ* hybridization and Northern blot analysis in detecting tumor necrosis factor mRNA. FASEB, 1990.
13. Strieter, R.M., Chensue, S.W., Basha, M.A., Standiford, T.J., Remick, D.G., Lynch, J.P. and Kunkel, S.L.: Human alveolar macrophage gene expression by interleukin-8 by TNF-a, LPS, and IL-1b. 1990 World Conference on Lung Health.
14. Negussie, Y., Griffin, G.E., Eynon, A., Kunkel, S. and Remick, D.: Elevation of plasma tumour necrosis factor (TNF) is associated with Jarisch-Herxheimer Reaction of Louse Bourne Relapsing Fever (RF). Association of Physicians of Great Britian and Ireland, 1990.
15. Morganroth, M.L., Ljungman, A.G., Remick, D.G., Mody, C.H., Strieter, R.M., Toews, G.B. and Grum, C.M.: Ischemia-reperfusion lung injury impairs neutrophil recruitment and tumor necrosis factor production. Cardiovascular Research Forum, American Heart Association of Michigan, 1990

CHARLES W. ROSS, M.D.
FELLOW/LECTURER IN HEMATOPATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Diagnostic Surgical Pathology, Hematopathology
B. Clinical Flow Cytometry Laboratory
C. Clinical Hematology Laboratory
D. Hematopathology Consultation Cases

II. TEACHING ACTIVITIES:

A. Medical Students
   1. Laboratory Instructor (2 sessions), Hematopathology - Pathology 600 course
   2. M4 Clerkship, Hematology portion of Clinical Pathology Rotation
B. House Officers
   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
C. Hematopathology teaching
   1. Hematopathology unknown conferences/biweekly
   2. Leukemia conference/biweekly
   3. Lymphoma conference/weekly
D. Clinical Pathology Grand Rounds (one lecture)

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT: None

PROJECTS UNDER STUDY:

A. Aberrant Antigen Expression in Acute Leukemia
B. Immunophenotyping in Chronic Lymphoproliferative Disorders
C. Detection of EBV Genomes by Polymerase Chain Reaction
D. EBV Infection-Associated Hemophagocytic Syndrome

IV. ADMINISTRATIVE ACTIVITIES:

MEDICAL SCHOOL/HOSPITAL:

Hospital Laboratories Committee

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. Lecturer, Acute Lymphoproliferative Diseases, Course presented at American Society of Clinical Pathologists (ASCP) National Meeting, March 24, 1990.
2. Student Scholarship: Society for Analytical Cytology Conference XIV, March 18-23, 1990.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Hanson, C.A., Thamilarasan, M., Ross, C.W., Stoolman, L.M. and Schnitzer, B.: Kappa light chain gene rearrangement in T-cell acute lymphoblastic leukemia. Am. J. Clin. Pathol. 1990;93:563-568.
2. Ross, C.W., Stoolman, L.M., Schnitzer, B., Schlegelmilch, J.A. and Hanson, C.A.: Immunophenotypic aberrancy in adult acute lymphoblastic leukemia. Am. J. Clin. Pathol. (In Press).
3. Hanson, C.A. and Ross, C.W.: The molecular genetics of the immunoglobulin and T-cell receptors: Applications in diagnostic hematopathology. Adv. Pathol. (In Press).

ARTICLES SUBMITTED FOR PUBLICATION:

1. Ross, C.W., Schnitzer, B., Weston, B. and Hanson, C.A.: Chronic active Epstein-Barr virus infection and viral-associated hemophagocytic syndrome.

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

1. Ross, C.W., Schnitzer, B. and Hanson, C.A.: Chronic active Epstein-Barr virus infection and virus-associated hemophagocytic syndrome. Presented at International Academy of Pathology; Boston, March 1990. Lab. Invest. 1990;62:85A.

NATHANIEL H. ROWE, D.D.S., M.S.D.
PROFESSOR OF PATHOLOGY, DENTISTRY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Responsible for biopsy service four months/year.
B. Responsible for clinical patient diagnostic problems (both in house and state-wide referral at U.M. Hospital) and management thereof on an as needed basis eleven months per year.

II. TEACHING ACTIVITIES:

A. Oral Pathology, Course 516, to Freshmen Dental Students (course director).
B. Graduate Oral Pathology Seminar in Periodontics, Course 781 (course director).
C. General Pathology, Course 630, to Sophomore Dental Students.
D. Oral Pathology, Course 624, to Sophomore Dental Students.
E. Oral Pathology Elective, course 818, to Senior Dental Students.
F. Dental Hygiene, Course 220, to Freshmen Students.
G. Dental Hygiene, Course 321, Senior Seminar.
H. Graduate Oral Pathology, Course 694.
I. Advanced Pathology Seminar, Course 698, to Graduate Students.
J. Journal Club, Course 699, to Graduate Students.

III. RESEARCH ACTIVITIES:

SPONSORED RESEARCH:

A. Oral Zovirax for the Treatment of Recurrent HSV Labialis. Project Director. 3% Effort. Burroughs Wellcome Company. 09/01/89 - 08/31/91. Total Direct Costs: $39,600.00.

UNDER CURRENT NEGOTIATION:

A. Prevention of Ultraviolet-Induced Recurrent Herpetic Labialis. Squibb Co. 5% Effort. Project Director. (Amount approximately $100,000.00, 2 years).

IV. ADMINISTRATIVE ACTIVITIES:

A. Director of Diagnostic Laboratory and Consultative Services, Department of Oral Medicine, Pathology, Surgery. Activities include:

1. Plan and supervise all activities of the various laboratories and consultative services. These include: the Research Services, C.T. Hanks, Director, Patient Consultative Services, J.A. Regezi, Director, Anatomic Pathology Services, R.M.

Courtney, Director, and Clinical Pathology Services, N.H. Rowe and J.C.B. Stewart, Co-Directors.
2. Supervision and duty assignment of 7 support staff.
3. Responsible for fiscal management and accounting.

B. Co-Director: Clinical Pathology Services, Department of Oral Medicine, Pathology, Surgery. Activities include:
1. Provide Clinical Laboratory tests requisite to the needs of the intramural diagnostic and surgical program.
2. Provide infection control monitoring services for the School of Dentistry.
3. Provide, on a fee-for-service basis, infection control monitoring services for dental health care practitioners in the State of Michigan.

C. School of Dentistry Committees include:
1. Department of Oral Medicine/Pathology/Surgery Advisory Committee.
2. Guest Relations Task Force Committee, Chairman.
3. Infection Control Committee, School of Dentistry.

REGIONAL AND NATIONAL:

STATE OF MICHIGAN

A. Member, AIDS Speaker's Bureau, Michigan State Medical Society.
B. State of Michigan, Department of Health, Tobacco Use Reduction. Associate Co-Chairman, Committee on Legislation.
C. Member, Executive Committee, American Cancer Society, Michigan Division.
D. Member, Board of Directors, American Cancer Society, Michigan Division.
E. Area Delegate Director, American Cancer Society, Michigan Division.
F. Member, Public Issues Committee, American Cancer Society, Michigan Division.
G. Consultant, Committee on Cancer and Infection Control, Michigan Dental Association.
H. Member, Research Screening Committee, Delta Dental Fund.
I. Member, Michigan Coalition on Smoking or Health.
J. Member, Special Committee on Health and Hazard Regulation, Michigan Dental Association.
K. Member, Coalition for Access to Health Care.
L. Member, Tobacco-Free Michigan Action Coalition, State of Michigan Department of Health.

NATIONAL

A. Civilian Professor and Consultant, Office of the Surgeon General, United States Army.
B. National Board of Directors, American Cancer Society, Medical Delegate.
C. Member, National Public Issues Committee, American Cancer Society.
D. Member, National Credentials Committee, American Cancer Society.
E. Member, Science Information Committee, American Association for Dental Research.
F. Member, Appeals Board, Commission on Dental Accreditation, American Dental Association.
G. Consultant, Council on Dental Therapeutics, American Dental Association.

INTERNATIONAL

A. External examiner in Oral Pathology, University of Malaysia, Kuala Lumpur, Malaysia.

V. OTHER RELEVANT ACTIVITIES:

A. Clinical and Patient Care
   1. Intradepartmental
      a. Oral Pathology Service Clinic, University Hospitals, Department of Dentistry and Oral Surgery.
      b. Oral Pathology Biopsy Service Rotation.
      c. Clinical Pathology Service, Co-Director.
   2. Interdepartmental
      a. Oral Pathology, clinical consultations on an as needed basis, The University of Michigan Medical School of Dentistry Clinics.
      b. Consultant to VA Hospital, Ann Arbor.

B. Continuing Education
   1. University
      a. Past President, Science Research Club, The University of Michigan.
   2. Other: Lecturer to various groups including:
      a. West Detroit Dental Society, "Is There a Rational Approach to Infection Containment?" Novi Hilton, September 12, 1989.
      b. Oakland County Dental Society, "Is There a Rational Approach to Infection Containment?" Bloomfield Hills, Michigan, September 9, 1989.
      c. President's Week-end, "How to Protect Your Smile, Your Speech, and Your Vitality from Becoming Casualties of Old Age", the University of Michigan, October 6, 1989.
      d. Detroit Clinic Club, Perio. Section, Orchard Lake, Michigan, October 17, 1989.
      e. Press Conference - Tobacco Reduction Task force, Department of Public Health, Capitol, Lansing, January 16,1990.
      f. Trident Seminar, "Diagnosis and Management of Oral Disease", Cancun, Mexico, January 24 - February 4, 1990.
      g. Muskegon Dental Society, "Update on AIDS, Hepatitis and Relevant Pathology Issues", March 13,1990.

C. Manuscript Consultant and Reviewer
      a. BARRIER, Infection Control in Dental Practice (Consulting Editor)
      b. Journal of the American Medical Association
      c. Journal of Oral Pathology
      d. Journal of the American Dental Association
      e. Cancer
      f. Journal of the Academy of General Dentistry

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Spruance, S.L., Stewart, J.C.B., Rowe, N.H., McKeough, M., Wenerstrom, G. and Freeman, D.: Treatment of recurrent herpes simplex labialis with oral acyclovir. J. Infec. Dis. 1990;161:185-190.

2. Spruance, S.L., Stewart, J.C.B., Freeman, D.J., Brightman, V.J., Cox, J.L., Wenerstrom, G., McKeough,, M.B. and Rowe, N.H.: Early application of topical 15% idoxuridine in dimethyl sulfoxide shortens the course of herpes simplex labialis: A multicenter placebo-controlled trial. J. Infec. Dis. 1990;161:191-197.
3. Rowe, N.H.: Glove use in dentistry. Part I. Preventing glove damage to hands. J. Mich. Dent. Assoc. 1990;72(3):147.

BOOKS AND CHAPTERS IN BOOKS:

1. Rowe, N.H.: Jaw, Neuroectodermal Pigmented Tumor. Birth Defects Encyclopedia. #711. In Press.
2. Rowe, N.H.: "HEENT". A Physician's Guide. AIDS/HIV in Michigan, Michigan State Medical Society, 1989.

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Spruance, S.J., Stewart, J., Freeman, D., Brightman, V., Cox, J., Wenerstrom, G., McKeough, M. and Rowe, N.: Early application of topical 15% idoxuridine (IDU) in dimethyl sulfoxide (DMSO) shortens the course of herpes simplex labialis. Abstracts of 29th Interscience Conference on Antimicrobial Agents and Chemotherapy. Abstract #796, p. 234, September 1989.
2. Spruance, S.L., Freeman, D.J., Stewart, J.C.B., McKeough, M.B., Wenerstrom, G., Krueger, G.G. and Rowe, N.H.: Treatment of experimental ultraviolet radiation (UVR)-induced herpes labialis with peroral and topical acyclovir (ACV). Antiviral Res. (Prog. of the Third International Conference on Antiviral Research), Abstract #118:101, April 22-27, 1990.
3. Spruance, S.L., Stewart, J.C.B., Freeman, D.J., Brightman, V.J., Cox, J.L., Wenerstrom, G., McKeough, M.B. and Rowe, N.H.: Comparison of peroral acyclovir (ACV) and topical 15% idoxuridine in dimethyl sulfoxide (IDU/DMSO) for the treatment of herpes labialis. Antiviral Res. (Prog. of the Third International Conference on Antiviral Research), Abstract #127:101, April 22-27, 1990.

ARTICLE SUBMITTED FOR PUBLICATION

1. Spruance, S.L., Freeman, D.J., Stewart, J.C.B., McKeough, M.B., Wenerstrom, G., Krueger, G.G., Piepkorn, M.W., Stroop, W.G. and Rowe, N.H.: Peroral acyclovir is superior to topical acyclovir cream for the prophylaxis and treatment of herpes simplex labialis induced by ultraviolet radiation. J. Am. Med. Assoc.

BERTRAM SCHNITZER, M.D.
PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Director, Clinical Hematology Laboratory.
B. Director, University of Michigan Health Services Laboratories.
C. Diagnostic Surgical Pathology, Hematopathology.
D. Diagnostic Hematopathology Consultant, Veterans Administration Hospital.
E. Diagnostic Hematopathology of M-Lab clients.
F. Consultant for External and Transfer Hematopathology cases.
G. Review of Southwest Oncology Group (SWOG) cases (circa 200/year).
H. Review of lymphoma cases entered into Children's Cancer Study Group protocols.

II. TEACHING ACTIVITIES:

MEDICAL SCHOOL/HOSPITALS:

A. Daily sign-out of bone marrow biopsies and aspirates.
B. Daily review of blood smears and body cavity and joint fluids in the Hematology Laboratory.
C. Daily review of in-house and consultation hematopathology cases and correlation with flow cytometry data and immunoperoxidase studies.
D. Daily review of outside consultation cases.
E. House Officer Conferences in Hematopathology. (Clinical Pathology Grand Rounds).
F. Biweekly House Office Hematopathology conference.
G. Monthly lectures to house officers on acute leukemias and lymphomas.
H. Dental student lecture in Hematopathology.
I. Sophomore Medical student lectures in Hematopathology.
J. Sophomore Medical student laboratory sessions in Hematopathology.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Southwest Oncology Group (SWOG). Combination chemotherapy of unfavorable histology non-Hodgkin's lymphomas with CHOPP and CBV, with Dr. L. Dabich.
B. Southwest Oncology Group (SWOG). Combination chemotherapy of unfavorable histology non-Hodgkin's lymphomas with alternating regimens of CHOPP and CVB, with Dr. L. Dabich.
C. Pathology Coordinator, SWOG studies numbers 8515 and 8516.

SERVICE ACTIVITIES:

DEPARTMENTAL:

A. Diagnostic Surgical Pathology, Hematopathology.
B. Diagnostic Clinical Pathology, Hematology.

MEDICAL SCHOOL/HOSPITALS:

A. Hematology Laboratory.
   1. During the past fiscal year, there was an overall increase in the total number of tests from 463,000 to 475,000.
   2. The increase in labor-intensive tests included: a) a 5 per cent increase in differential white blood cell counts from 118,000 to 124,000; b) a 22 per cent increase of microscopic examinations by hematopathologists of blood smears and body cavity fluids .
   3. Reticulocyte counting was transferred to the Flow Cytometry Laboratory in February, 1990.
   4. The Rapimat semi-aumated dip stick reader for urinalysis was put into routine laboratory use in March, 1990.
   5. Daily in-house, transfer cases, cases from UM clients, and outside consultations are reviewed and signed out with house officers and fellows. When immunologic data (flow cytometry and/or immunohistochemistry) are generated, they are correlated with morphologic findings.
B. University of Michigan Health Service Laboratories.

REGIONAL AND NATIONAL:

A. President, Society for Hematopathology.
B. Society for Hematopathology, Executive Committee.
C. Southwest Oncology Group:
   1. Lymphoma Subcommittee.
   2. Leukemia Subcommittee.
D. Children's Cancer Study Group: Review of in house cases of lymphoma cases.
E. Regional Center Review Pathologist, Southwest Oncology Group.
F. Review Panel for Lymphomas, Southwest Oncology Group.

V. OTHER RELEVANT ACTIVITIES:

EDITORIAL BOARD:

A. American Journal of Clinical Pathology.
B. Human Pathology.
C. Hematologic Pathology. Designated reviewer.

INVITED LECTURES/SEMINARS:

1. "A Practical Approach to Diagnostic Hematological Problems", ASCP Educational Course, St. Petersburg, FL, November, 1989: Lectures given included: a) Non-Hodgkin's Lymphomas; b) Hodgkin's Disease; c) A Practical Approach to the Diagnosis and Classification of Lymphomas

and Leukemias by Flow Cytometry, and Electron Microscopy; d) Extranodal lymphomas; e) Immunologic Classification of Acute Lymphoblastic Leukemias.
2. ASCP Workshop. October, 1989. Acute Lymphoproliferative Disorders. Washington, D.C..
3. ASCP Workshop. October, 1989. Extranodal Lymphomas. Washington, D.C.
4. ASCP Workshop. April, 1990. Acute Lymphoproliferative Disorders, San Francisco, CA.
5. ASCP Workshop. April, 1990. A Practical Approach to the Diagnosis of Extranodal Lymphomas.
6. Application of New Methods in the Diagnosis and Classification of Lymphomas and Leukemias. Dept of Medicine, Michigan State University, East Lansing, MI, February, 1990.
7. Diagnosis and Classifications of Leukemias. Dept of Medicine, Hurley Hospital, Flint, MI, April 1990.
8. Slide Seminar. Lake Superior Society of Pathology. Duluth, MN, May, 1990.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Dana B, Dahlberg S, Schnitzer B, et al: Mitoxantrone, cisplatin, and methyl-glyoxal bis-guanylhydrazone chemotherapy for refractory malignant lymphoma: A Southwest Oncology Group phase II trial. Invest New Drugs 7:247-250, 1989.
2. Hanson CA, Ward PCJ, and Schnitzer B: A multilobular variant of hairy cell leukemia with morphologic similarities to T-cell lymphoma. Am Surg Pathol 13:671-679, 1989.
3. Hanson CA, Thamilarasun M, Ross CW, Stoolman LM, and Schnitzer B: Kappa light chain gene rearrangement in T-cell acute lymphoblastic leukemia. Am J Clin Pathol 1990;93:563-568.
4. Hanson CA, Stoolman LM, Gribbon TE, Schnitzer B: CDIIc expression in B cell chronic lymphoproliferation disorders distinct from hair cell leukemia. Blood (In Press, 1990).
5. Hanson CA, Holbrook EA, Roth MS, Sheldon S, Schnitzer B: Detection of Philadelphia-chromosome positive cells from glass slide smears and paraffin sections using the polymerase chain reaction. Am J Pathol (in press, 1990).

BOOKS AND CHAPTERS IN BOOKS:

1. Schnitzer B: Reactive Lymphoid Hyperplasia. In: Surgical Pathology of the Lymph Nodes and Related Organs. 2nd Edition. ES Jaffe, (Ed). WB Saunders Co. (in press, 1990).
2. Schnitzer B: Benign Lymphoproliferative Disorders. Neoplastic Hematopathology. DM Knowles, (Ed). Williams-Wilkins Co. (in press, 1990).

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

1. Ross CW, Schnitzer B, Hanson CA: Chronic active Epstein-Barr virus infection and virus-associated hemophagocytic syndrome. Lab Invest 62:85A, 1990.
2. Hanson CA, Holbrook EA, Roth MS, Sheldon S, and Schnitzer B: Detection of Philadelphia-chromosome positive cells from glass slide smears and paraffin sections using the polymerase chain reaction. Lab Invest. 62:42A. 1990.
3. Hanson CA, Stoolman LM, Gribbon TE, and Schnitzer B: CDIIc expression in B cell chronic lymphoproliferative disorders distinct from hairy cell leukemia. Lab Invest. 62:42A, 1990.

LUCIA SCHUGER, M.D.
RESEARCH INVESTIGATOR IN PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

None

II. TEACHING ACTIVITIES:

A. Mentor of undergraduate student who ha worked in our laboratory over the Summer of 1989.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. "Role of laminin and other basement membrane-related glycoproteins in mouse lung developement." The Council for the Tobacco Research, 1/1/90-1/31/90.

PENDING:

None

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

None

MEDICAL SCHOOL/HOSPITAL:

None

REGIONAL AND NATIONAL:

None

V. OTHER RELEVANT ACTIVITIES:

EDITORIAL BOARDS:

None

INVITED LECTURES/SEMINARS:

None

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Schuger, L., Varani, J., Marks, R., Kunkel, S., Johnson, K.J., Ward, P.: Cytotoxicity of Alpha TNF for human umbilical vein endothelial cells. Lab. Invest. 1989;61:62-67.
2. Varani, J., Ginsburg, I., Schuger, L., Gibbs, D.F., Johnson, K.J., Ryan, U.S., Ward, P.A.: Endothelial cell killing by neutrophils: Synergistic interaction of oxygen products and proteases. Am. J. Pathol. 1989;135:435-438.
3. Ginsburg, I., Gibbs, D.F., Schuger, L., Johnson, K.J., Ryan, U.S., Ward, P.A., Varani, J.: Vascular endothelial cell killing by combinations of membrane-active agents and hydrogen peroxide. Free Radical Biol. Med. 1989;7:369-376.
4. Schuger, L., O'Shea, K.S., Rheinheimer, J., Varani, J.: Laminin in lung development: Effects in anti-laminin antibody in murine lung morphogenesis. Devel. Biol. 1990;137:26-32.
5. Schuger, C., Sheinman, R., Lehmann, N., Schuger, L., Spears, J.R.: Percutaneous laser baloon ablation via the coronary sinus: Implications for the Wolff Parkinson White syndrome. Lasers in Surg. and Med. 1990;10:140-148.
6. Schuger, L., Dixit, V.M., Carey, T.E., Varani, J.: Modulation of squamous carcinoma cell growth, morphology, adhesiveness and extracellular matrix production by interferon-g and tumor necrosis factor-a. Pathobiology (In Press)
7. Schuger, L., O'Shea, K.S., Nelson, B.B., Varani, J.: Organotypic rearrangement of mouse embryonic lung cells on a basement membrane extract: Role of laminin in cell-cell interaction. Development (In Press).

ARTICLES SUBMITTED FOR PUBLICATION:

1. Schuger, L., Skubitz, A.P.M., O'Shea, S., Varani, J.: Identification of Laminin domains involved in epithelial branching morphgenesis.
2. Varani, J., Stoolman, L., Wang, T., Schuger, L., Flippin, C., Dame, M., Dixit, V.M., Johnson,K.J., Todd, R.F. III, Ryan, U.S. and Ward, P.A.: Thrombospondin production and thrombospondin-mediated adhesion in U937 cells. (Submitted)

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

1. Schuger, L., Varani, J., Marks, R., Ward, P.: Cytotoxicity of Alpha TNF for human umbilical vein endothelial cells. FASEB 1989 J.1:2321.
2. Schuger, L., O'Shea, S., Rheinheimer, J., Varani, J.: Laminin in lung development. The effects of anti-laminin antibody in murine lung morphogenesis. J. Cell Biol. 1989;109:29a.
3. Varani, J., Schuger, L., Chakrabarty, S.: Growth factor-induced extracellular matrix production and growth control in human colon carcinoma cells. J. Cellular Biochem. 1990 Suppl 14A:183.
4. Schuger, L., O'Shea, S., Nelson, B.B., Varani, J.: Inductin of organotypic pattern formation of murine embryonic lung cells on a basement membrane extract. FASEB 1990 J.4:A772.

SUSAN SHELDON, Ph.D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

Clinical Cytogenetics Laboratory.

II. TEACHING ACTIVITIES:

A. Pathology house officers
   1. Instruction in genetics and cytogenetics.
   2. Weekly review of bone marrow and relevant peripheral blood cases with house officers on Hematopathology rotation.

B. Medical Genetics fellows and medical students.
   Instruction in cytogenetics as it relates to both genetic and acquired disease.

C. Hematology/Oncology fellows.
   Instruction in cytogenetics as it relates to hematologic disease.

D. Clinical Pathology Grand Rapids.

E. Medical Genetics Rounds, weekly participant, two lectures.

F. Leukemia Conference, biweekly.

III. RESEARCH ACTIVITIES:

PROJECTS UNDER STUDY:

A. Role of the use of growth factors and mitogens for cytogenetic examination of hematologic malignancies in a clinical laboratory.

B. Use of growth factors to elaborate expression of a Philadelphia chromosome.

C. Use of intercalating agents to enhance resolution of chromosome bands.

D. Correlation of ploidy with expression of differentiated function.

E. Role of deletions of 12p in eosinophilia.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

Assistant director, Clinical Cytogenetics Laboratory

REGIONAL AND NATIONAL:

Planning committee, Cytogenetics Technologist Program, Eastern Michigan University.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. The Role of Cytogenetics and Molecular Genetics in Hematology; lecture to medical technology students at Eastern Michigan University, Ypsilanti, Michigan, October, 1989.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Hanson, C.A., Holbrook, E.A., Roth, M.S., Sheldon, S., Schnitzer, B.: Detection of Philadelphia chromosome (Ph') positive cells from glass slide smears and paraffin sections using the polymerase chain reaction (pcr) IAP, March 1990.

2. Hanson, C.A., Holbrook, E.A., Roth, M.S., Sheldon, S., Schnitzer, B.: Detection of Philadelphia chromosome (Ph') positive cells from glass slide smears and paraffin sections using the polymerase chain reaction (pcr). Am. J. Pathol. (In Press).

SUYU SHU, PH.D.
ASSOCIATE PROFESSOR OF SURGERY
DEPARTMENT OF SURGERY
ASSOCIATE PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Director, Oncology Laboratory
B. Establishment of a clinical laboratory for culture and immunologically stimulated human T lymphocytes for cancer treatment.

II. TEACHING ACTIVITIES:

A. Supervision of two postdoctoral fellows.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Principal Investigator, "Generation of Therapeutic T Cells from Tumor-Bearing Hosts", American Cancer Society, IM-494 (20%), $135,000/year (270,000/2 years), 1/1/88 - 12/31/90.
B. Principal Investigator, "Adoptive T Cell Immunotherapy of Nonimmunogenic Tumors", NIH Grant 1 R01 CA47285 (50%), $151,921/year ($796,763/5 years), 6/1/88 - 5/31/93.

PENDING:

A. Co-Principal Investigator, "T Cell Therapy of Human Cancer with IVS Lymphocytes", NIH, R01 (15%), $197,601/year ($1,083,756/5 years), 12/1/89 - 11/30/94.
B. Co-Investigator, "Multidisciplinary Treatment of Esophageal Cancer", NIH, R01 (5%), $204,999/year ($718,984/3 years), 12/1/89 - 11/30/92.
C. Co-Principal Investigator, "Adoptive Cellular Therapy of Cancer with Vaccine-Primed Lymphocytes Secondarily sensitized to Autologous Tumor and Expanded in INterleukin-2 In Vitro", American Cancer Society (20%) ($626,531/3 years), 1/1/90 - 12/31/93.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Interview candidates for faculty positions in Division of Surgical Oncology.

B. Participate in surgical resident research program.

MEDICAL SCHOOL/HOSPITAL:

A. Member, Cancer Center of the University of Michigan.

REGIONAL AND NATIONAL:

A. Reviewer for the following journals: Cancer Research, Journal of Immunology, Cancer Immunology and Immunotherapy and Journal of Biological Response Modifiers.

V. OTHER RELEVANT ACTIVITIES:

A. Member, Experimental Therapeutics II Study Section, NCI, NIH, 1989-.
B. Special reviewer, Small Business Innovation Research (SBIR) Study Section, NIH, July 26, 1988 and April 4, 1989.

INVITED LECTURES AND SEMINARS:

1. Department of Pathology, University of Kansas, "Therapy of Cancer with Sensitized Lymphocytes", November 30, 1988.
2. Department of Microbiology, Medical College of Ohio, "Principles and Potential for Cancer Therapy with Immune T Lymphocytes", June 7, 1989.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Ward, B.A., Shu, S., Chou, T., Perry-Lalley, D.M. and Chang, A.E.: Cellular basis of immunologic interactions in adoptive T cell therapy of established metastases from a syngeneic murine sarcoma. J. Immunol. 141:1047-1053, 1988.
2. Chou, T., Bertera, S., Chang, A.E., and Shu, S.: Adoptive immunotherpay of microscopic and advanced visceral metastases with in vitro sensitized lymphoid cells from mice bearing progressive tumors. J. Immunol. 141:1775-1781, 1988.
3. Stephenson, K.R., Perry-Lalley, D.M., Griffith, K.D., Shu, S., and Chang, A.E.: Development of antitumor reactivity in regional draining lymph nodes from tumor-immunized and tumor-bearing murine hosts. Surgery 105:523-528, 1989.
4. Chang, A.E., Perry-Lalley, D.M., and Shu, S.: Distinct Immunologic Specificity of Tumor Regression Mediated by Effector Cells Isolated from Immunized and Tumor-Bearing Mice. Cell. Immunol. 120:419-429, 1989.
5. Shu, S., Chou, T., Sakai, K: Lymphocytes generated by in vivo priming and in vitro sensitization demonstrate therapeutic efficacy against a murine tumor that lacks apparent immunogenicity. J. Immunol. 143 (in press), 1989.

BOOKS/CHAPTERS IN BOOKS:

1. Shu, S., Chou, T., Saki, K., and Chang, A.E.: Development of adoptive immunotherapy with in vitro sensitized T lymphocytes from mice bearing progressively growing tumors. In: Role of Interleukin-2 Activated Killer Cells in Cancer. Ed. E. Lotzova. Published by CRC Press, Inc. Boca Ration, FL., 1988.

ABSTRACTS, BOOK REVIEWS, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Shu, S., Chou, T., and Sakai, K.: Generation of T lymphocytes with therapeutic efficacy against a nonimmunogenic murine tumor. American Association for Cancer Research (Annual Meeting), 1989.
2. Logan, T.F., Shu, S.,, Bahnson, R.R., Leong, S.P.L., Banner, B.B.: Generation of specific cytolytic cells from patients with melanoma and renal cell carcinoma by in vitro sensitization. American Association for Cancer Research (Annual Meeting), 1989.
3. Chang, A.E., Perry-Lalley, D.M., and Shu, S.: Different immunologic specificity of tumor regression mediated by effector cells from immunized versus tumor-bearing mice. American Association for Cancer Research (Annual Meeting), 1989.
4. Sondak, V.K., Shu, S., and Chang, A.E.: Differences in the induction of antitumor reactive T cells by visceral versus subcutaneous tumor growth. Society of Surgical Oncology (Annual Meeting), 1989.

LAWRENCE SILBART, PH.D.
RESEARCH INVESTIGATOR IN PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. None

II. TEACHING ACTIVITIES:

A. Eastern Michigan University

1. Immunotoxicology lecture, 2/19/90 for Chem 412 (Toxicology II).

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. The Smokeless Tobacco Research Council, Inc. "Optimizing the Secretory IgA Responses to Carcinogens Absorbed by Mucosa." Funded from 1/1/90 to 12/31/90. Total Costs, $31,197.00.

B. The Department of Health and Human Services, Public Health Service, National Institutes of Health, National Cancer Institute. "The Mucosal Immune Response to Aflatoxin B_1." Funded 5/1/89 to 4/31/92. Total Costs, $276,367.00.

C. The University of Michigan Cancer Center Grant from the American Cancer Society. "Development of Anti-idiotypic Vaccines as Mucosal Immunogens for Reduction of Carcinogen Absorption." Funded 10/1/89 to 9/30/90. Total Costs, $6968.00.

D. The Smokeless Tobacco Research Council, Inc. "Continued Development of Mucosal Vaccines for Carcinogens." Funding period; 7/1/90 to 6/31/93. Total Costs Requested, $274,989.00.

PENDING: None

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL: None

MEDICAL SCHOOL/HOSPITAL: None

REGIONAL AND NATIONAL: None

V. OTHER RELEVANT ACTIVITIES:

EDITORIAL BOARDS: None

INVITED LECTURES/SEMINARS:

1. The University of Michigan-School of Public Health, Toxicology Seminar, "The Mucosal Immune Response to Chemical Carcinogens." September 22, 1989.
2. The University of Michigan-Immunology Colloquium, "Development of Vaccines to Block Mucosal Absorption of Chemical Carcinogens." January 24, 1990.
3. The American Cancer Society, Michigan Division, Cancer Research Conference, Ypsilanti, Michigan. "Development of Vaccines Capable of Eliciting a Mucosal Immune Response to Chemical Carcinogens. June 22, 1990.
4. Sixth International Congress of Mucosal Immunology, Tokyo, Japan. "Strategies for eliciting a mucosal immune response to the chemical carcinogens 2-acetylaminofluorene and aflatoxin B_1. July 24, 1990.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Silbart, L.K. and D.F. Keren: Reduction of Intestinal Carcinogen Absorption by Carcinogen-Specific Secretory Immunity. Science 1989; 243:1462-1464 .
2. Kilbane, A.J., Silbart, L.K., Manis, M., Beitins, E.Z. and Weber, W.W.: Human N-acetylation genotype determination with urinary caffeine metabolites. J. Pharmacol. Exp. Therap. 1990; 47(4):470-7.
3. Silbart, L.K., D.F. Keren, R.A. McDonald, L. Goslinoski, B. Miller, J.D. Clements, and J. Smart. Strategies for eliciting a mucosal immune response to the chemical carcinogens 2-acetylaminofluorene (AAF) and aflatoxin B_1 (AFB_1). Exerpta Medica International Congress Series (accepted).

ARTICLES SUBMITTED FOR PUBLICATION:

1. Silbart L.K., R.A. McDonald, P.M. Lincoln, L. Goslinoski, and D.F. Keren. The adjuvant effect of cholera toxin and its B subunit on the elicitation of a mucosal immune response to 2-AAF-thyroglobulin conjugates.
2. Silbart L.K., R.A. McDonald, P.M. Lincoln, L. Goslinoski, and D.F. Keren. Elicitation of a secretory immune response to the carcinogen 2-acetylaminofluorene (2-AAF) is enhanced by conjugation to the mucosal immunogen cholera toxin.

BOOKS/CHAPTERS IN BOOKS:

1. Keren, D.F., Brown,J.E., Silbart, L.K., McDonald, R.A., and Wassef, J.S. Enterotoxins as Stimulators of Mucosal Immunity: Shiga Toxin and Cholera Toxin. In: Progress in Cholera Research, 1989.
2. Keren,D.F., and Silbart, L.K. Strategies to Achieve Mucosal Immunity. (Submitted)

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

1. Silbart, L.K., Miller, B.F., McDonald, R.A., and Keren, D.F. Secretory IgA response in rabbit intestinal secretions to the carcinogen aflatoxin B_1 (AFB_1). The FASEB Journal 4(3) 1358A, 1990.
2. Keren, D.F., Silbart, L.K., Goslinoski, L., McDonald, R.A. and Smart, J. The adjuvant effect of cholera toxin, cholera toxin B subunit, and glutaraldehyde modified cholera toxin on the mucosal immune response of rabbits to 2-acetylaminofluorene-thyroglobulin conjugates. The FASEB Journal 4(3):1359A 1990.
3. Silbart, L.K., D.F. Keren, R.A. McDonald, L. Goslinoski, B. Miller, J.D. Clements, and J. Smart. Strategies for eliciting a mucosal immune response to the chemical carcinogens 2-acetylaminofluorene and aflatoxin B_1. Abstract submitted for presentation at the 6th International Congress of Mucosal Immunology, Tokyo, Japan (7/22/90).

EUGENE M. SILVERMAN, M.D.
CLINICAL ASSOCIATE PROFESSOR
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Surgical Pathology Coverage of M-Labs cases including most cases from:

1. Albion Community Hospital, Albion, Michigan.
2. Thorn Hospital
3. University of Michigan Health Service, Ann Arbor, Michigan.
4. Falzone Laboratories.
5. Perry Health Net.
6. Other various institutions.

B. Autopsy Coverage for Albion Community Hospital, Albion, Michigan, and Thorn Hospital.

C. Rotation with other staff pathologists.
1. Five weeks coverage at the University Hospital of weekend autopsy call.

D September 1989 through January 1990-Surgical and Clinical Pathology coverage at Lapeer Regional Hospital, Lapeer, Michigan, 2-3 days per week.

II. TEACHING ACTIVITIES:

A. Supervise residents in gross cutting of M-Labs cases and review microscopic material with residents in all interesting cases.

B. Read out some M-Labs autopsies and some University of Michigan autopsies with residents.

III. RESEARCH ACTIVITIES:

A. Investigation of hepatic fatty change in exogenous obesity and following gastric exclusion surgery.

B. Investigation of malacoplakia of the endometrium.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Associate Director, M-Labs.
1. Participate in planning, marketing, and implementation of M-Labs programs.

B. Director, Laboratory at Albion Community Hospital, Albion, Michigan.

C. Chairman, Tissue/Transfusion Committee, Albion Community Hospital, Albion, Michigan.

D. Chairman, Infection Control Committee, Albion Community Hospital, Albion, Michigan.

E. Member of Surgery and Pharmacy and Therapeutics Committees, Albion Community Hospital.
F. Director of Laboratories, Thorn Hospital, Hudson, Michigan.
G. Chairman, Tissue/Transfusion Committee, Thorn Hospital, Hudson, Michigan.
H. Chairman, Infection Control Committee, Thorn Hospital, Hudson, Michigan.
I. Director of Laboratories, Lapeer Regional Hospital, Lapeer, Michigan.
J. Member, Tissue/Transfusion Committee, Infection Control Committee, Lapeer Regional Hospital, Lapeer, Michigan.

V. **OTHER RELEVANT ACTIVIES:** None.

VI. **PUBLICATIONS:** None.

LLOYD M. STOOLMAN, M.D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Flow Cytometry Diagnostic Service - interpretation of cell surface marker studies and cellular DNA analyses in the evaluation of hematologic disorders, primary and secondary immune deficiencies and autoimmune processes.

B. Hematopathology Diagnostic Service - interpretation of peripheral smears, body fluid cytologies, bone marrow aspirates and biopsies, cytochemical stains.

II. TEACHING ACTIVITIES:

A. Research supervisor for undergraduate, graduate and post-doctoral investigators:
   1. Jim Grober, M.D., Rheumatology Fellow, Department of Internal Medicine, University of Michigan, School of Medicine- recipient of NIH post-doctoral fellowship to study the adhesion molecules mediating attachment of leukocytes to the endothelium of rheumatoid synovium.
   2. Tai-Ling Wang, M.D. Chairwomen, Department of Pathology, Japanese-Chinese Friendship Hospital, Bejing, China-visiting scholar studying the expression of receptors for the extracellular matrix in cultured human T-lymphoblastic leukemias.
   3. Zhiwei Song, M.S., Graduate student, University of Michigan, School of Medicine, Department of Biochemistry - (1) distribution and functional significance of leukocytic glycoconjugates containing terminal mannose residues recognized by the Snow Drop lectin and (2) characterization of the endogenous carbohydrate ligand for the peripheral lymph node homing receptor of normal and malignant lymphoid cells.
   4. Praveen Reidy, Undergraduate student, University of Michigan, School of Arts and Sciences, Departments of Archeology and Psychology- co-investigator with Dr. Jim Grober in the study of adhesive interactions between leukocytes and endothelium in rheumatoid synovium.

B. Daily sign-out of cases in flow cytometry and hematopathology with pathology residents and medical students (3-4 monthes).

C. Weekly case-studies/seminars on the clinical applications of flow cytometry for the residents, fellows and medical students.

D. Lecturer, Hematopathology, Medical School.

E. Preceptor, Senior medical student (M4) elective in Pathology.

F. Lecturer, Clinical Applications of Flow Cytometry, Pathology Residents Core Lecture Series.

G. Pediatric/Adult Leukemia Conferences.

H. Adult Lymphoma Conferences.

I. Speaker, Rheumatology, Hematology/Oncology and Cancer Center Research Seminars.

III. RESEARCH ACTIVITIES:

SPONSORED RESEARCH:

FUNDED:

A. NIH, R01 ($425,000; 3 years; 30 September 1989 through 31 August 1992): Endothelial Binding Lectins of Lymphoid Malignancies.
B. NIH, NCI Physician Investigator Award, competitive renewal ($136,000; 2 years; 1 April 1988 through 31 May 1990): Lymphocyte migration and the metastatic process.
C. NIH, Multipurpose Arthritis Center, Development and Feasability Grant ($143,469; 3 years; 1 February 1988 through 31 January 1991): The role of lymphocyte migration in chronic inflammatory arthritis.

IN PREPARATION:

A. NIH, R01: Leukocyte-endothelial interactions in chronic rheumatoid synovitis.

PROJECTS UNDER STUDY:

A. Transmembrane signalling and the control of endothelial adhesion receptors during lymphocytic migration and activation. Specifically, the detection of transmembrane signals initiated by the organ-selective attachment of lymphocytes to the high endothelial venules of lymph nodes.
B. Characterization of the endogenous carbohydrate ligand for the lymph node homing receptor of normal and malignant lymphocytes. Recently purified lectins specific for sialic acid in the 2,3 and 2,6 linkages will be used to confirm the role of endothelial sialic acid in the lymphocyte-endothelial adhesive interaction, establish the linkage of the endogenous carbohydrate ligand and attempt purification.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Coordinator, M4 clerkship in clinical pathology.
B. Member, Quality Assurance Committee.
C. Member, Equipment and Space Allocation Committee.

MEDICAL SCHOOL HOSPITAL:

A. Coordinator, Pathology Services (clinical) in The University of Michigan Cancer Center.
B. Member, The University of Michigan Cancer Center Clinical and Basic Research Implementation Committees.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES AND SEMINARS:

1. Miles Pharmaceuticals, Inc. Research Laboratories, invited speaker, 1988
2. Genentech, Inc., invited speaker, 1989

3. University of Wisconsin Department of Pathology, invited speaker 1989
4. University of California at San Francisco Department of Laboratory Medicine, invited speaker, 1989
5. Federation of American Societies for Experimental Biology, workshop, chairman, 1989
6. Federation of American Societies for Experimental Biology, minisymposium speaker, 1989
7. American Thoracic Society Annual Meeting, invited speaker, 1989
8. American Society of Clinical Pathologists, workshop, invited speaker, 1989
9. Biogen Inc., invited speaker, 1989
10. FASEB Summer Symposium Series, invited speaker, 1989

MANUSCRIPT/GRANT REVIEWS:

A. Journal of Clinical Investigation.
B. Journal of Laboratory Investigation.
C. American Journal of Pathology.
D. Journal of Cell Biology.
E. Journal of Biological Chemistry.
F. Journal of Leukocyte Biology.
G. Journal of Immunology.
H. Immunology Today.
I. Journal of Cellular Biochemistry.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Stoolman, l.M. 1989. Adhesion molecules controlling lymphocyte recirculation. Cell. 56: 907.
2. Stoolman, L.M and H. Ebling. 1989. Adhesion molecules of cultured hematopoetic malignancies: a calcium-dependent lectin is the principle mediator of binding to the high endothelial venule of lymph nodes. J. Clin. Invest. (in press).
3. Strahler, J.R., Kuick, R., Eckerskorn, Lottspeich, F., Richardson, B.C., Fox, D.A., Stoolman, L.M., Hanson, C.A., Nichols, D., Tueche, H.J. and S.M. Hanash. 1989. Identification of two related markers for common acute lymphoblastic leukemia as heat shock proteins. J. Clin. Invest. (in press).
4. Hanson, C.A., Thamilarasan, M., Ross, C.W., Stoolman, L.M. and Schnitzer, B. 1989. Kappa light-chain gene rearrangement in T-cell acute lymphoblastic leukemia. Am. J. Clin. Path. (in press).

ARTICLES SUBMITTED FOR PUBLICATION:

1. Ross, C.W., Stoolman, L.M., Schnitzer, B., Schlegelmilch, J.A. and Hanson, C.A. 1989. Immunophenotypic aberrancy in adult acute lymphoblastic leukemia.
2. Stoolman, L.M., Wang, L. and J. Varani. 1989. Regulation of fibronectin and laminin binding activity in human T-lymphoblastic cell lines.

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Hanson, C.A., Thamilarasan, M., Ross, C.W., Patel, M.J., Schnitzer, B. and Stoolman, L.M. 1989. Immunoglobulin, T-cell receptor and BCR gene rearrangements in adult acute lymphoblastic leukemia (ALL). International Academy of Pathology Annual Meeting.
2. Ross, C.W., Schnitzer, B., Stoolman, L.M. and C.A. Hanson. 1989. Aberrant antigen expression in adult acute lymphoblastic leukemia. International Academy of Pathology Annual Meeting.
3. Stoolman, L.M., Wang, L., Ebling, H. and J. Varani. 1989. The Regulation of intercellular, matrix and HEV adhesion during phorbol activation of human lymphoblastic cell lines. FASEB Journal. 3(4): A1319.
4. Stoolman, L.M. and H. Ebling. 1989. Rapid up and down regulation of the human lymphocyte-nodal HEV interaction by phorbol esters. J. Cellular Biochem. 13A(Supplement): 146.

GERD O. TILL, M.D.
ASSOCIATE PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Functional tests of neutrophils isolated from patient blood samples

II. TEACHING ACTIVITIES:

A. Medical students (ICS 600 Immunopathology, one one hour session)
B. Dental students (Dental Course 630, seven one hour sessions)
C. Postdoctoral fellows, residents, undergraduate students

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Thermal Injury, ATP Depletion and Oxygen Radicals (GM-39397). Principal Investigator.
B. Thermal Injury, "Complement and Leukocyte Dysfunction (GM-28499). Co-Principal Investigator with Dr. P.A. Ward.
C. Lung Injury Produced by Oxygen Metabolites (GM-29507). Co-Principal Investigator with Dr. P.A. Ward.

PROJECTS UNDER STUDY:

A. Pathophysiology of acute pulmonary injury: Role of complement, neutrophils, histamine, xanthine oxidase, and toxic oxygen species.
B. Experimental thermal injury: Role of complement, leukocytes, mast cells, xanthine oxidase, and oxygen radicals in the pathophysiology of edema formation and secondary organ injury.
C. Mechanisms of ischemia-reperfusion injury of the eye.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Interviewed candidates for faculty positions
B. Participation in undergraduate research program

MEDICAL SCHOOL/HOSPITAL:

A. Interviewed candidates for faculty positions
B. Consultant for clinical research programs

C. Reviewer of intra-departmental grant proposals

REGIONAL AND NATIONAL:

A. Reviewer for the following scientific journals: American Journal of Pathology, American Journal of Physiology, American Review of Respiratory Disease, Immunobiology, Infection and Immunity, International Archives of Allergy and Applied Immunology, Journal of Applied Physiology

V. OTHER RELEVANT ACTIVITIES:

Member Editorial Advisory Board Immunobiology.

INVITED LECTURES/SEMINARS:

1. Session Chair/Speaker, Workshop on "Leukocyte Migration" 7th International Conference of Immunology, August, 1989, West Berlin.
2. University of Freiburg, Department of Experimental Dermatology, West Germany, August, 1989, Invited Speaker
3. University of Homburg, Department of Trauma Surgery, West Germany, August, 1989, Invited Speaker
4. National Conference on Pediatric Trauma, Ann Arbor, Michigan, September, 1989, Invited Speaker
5. Seminar on Oxygen Free Radicals, Dallas, Texas, November, 1989, Invited Speaker
6. 53rd Annual Conference of the German Society for Trauma Surgery, West Berlin, Germany, November, 1989, Invited Speaker
7. 2nd International Conference on Bio-Oxidative Medicine, Dallas, Texas, March, 1990, Invited Speaker
8. Visiting Professor, University of Homburg, Department of Trauma Surgery, Germany, May, 1990, Seminar
9. Institute of Immunology, University of Heidelberg, Germany, May, 1990, Invited Speaker
10. 13th Annual Conference on Shock, Durango, Colorado, June, 1990, Invited Speaker

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Till, G.O., Guilds, L.S., Mahrougui, M. Friedl, H.P., Trentz, O., Ward, P.A.: Role of xanthine oxidase in thermal injury of skin. Amer J. Pathol. 135:195-202, 1989
2. Friedl, H.P., Till, G.O., Trentz, O., Ward, P.A.: Roles of histamine, complement and xanthine oxidase in thermal injury of skin. Amer. J. Pathol. 135:203-217, 1989
3. Lawton, J.W.M., Robinson, J.P., Till, G.O.: The effect of intravenous immunoglobulin on the in vitro function of human neutrophils. Immunopharmacol. 18:97-105, 1989.
4. Sullivan, J.L., Till, G.O., Ward, P.A., Newton, R.B.: Nutritional iron restriction diminishes acute complement-dependent lung injury. Nutrition Res. 9:625-634, 1989.
5. Friedl, H.P., Caty, M.G., Guice, K.S., Oldham, K.T., Till, G.O.: Oxygen radical-mediated acute pancreatitis: a pathogenic role for histamine. Surg. Forum 15:144-146, 1989
6. Wolter, J.R., Till, G.O.: Multinucleated giant cells on Bruch's membrane in recurrent retinal and subretinal hemorrhaging. Ophthalmologica 199:53-59, 1989.
7. Friedl, H.P., Smith, D.J., Thomson, P.D., Louis, D.S., Till, G.O., Ward, P.A.: Histamine and xanthine oxidase activity in a human model of ischemia-reperfusion injury. Surg. Forum 15:587-589. 1989.

8. Friedl, H.P., Till, G.O., Ryan, U.S., Ward, P.A.: Mediator-induced activation of xanthine oxidase in endothelial cells. FASEB J. 3:2512-2518, 1989.
9. Morganroth, M.L., Schoeneich, S.O., Till, G.O., Pickett, W., and Ward, P.A.: Lung injury caused by cobra venom factor is reduced in rats raised on an essential fatty acid-deficient diet. Am. J. Physiol. 257:H1192-H1199, 1989.
10. Caty, M.G., Schmeling, D.J., Friedl, H.P., Oldham, K.T., Guice, K.S., Till, G.O.: Histamine: a promoter of xanthine oxidase activity in intestinal ischemia/reperfusion. J. Pediatr. Surg. 25:218-223, 1990.
11. Friedl, H.P,. Guerra, E.E, Cramer, T., Giacherio, D. , Toledo-Pereyra, L.H., Till, G.O.: Histamine and xanthine oxidase in hepatic ischemia-reperfusion injury. Transplant. Proc. 22:513-515, 1990.
12. Woolliscroft, J.V., Prasad, J.K., Thomson, P., Till, G.O., Fox, I.H.: Metabolic alterations in burn patients: detection of adenosine triphosphate degradation products and lipid peroxides. Burns 16: 92-96, 1990.
13. Friedl, H.P., Smith, D.J., Till, G.O., Thomson, P.D., Louis, D.S., Ward, P.A.: Ischemia-reperfusion in humans: Appearance of xanthine oxidase activity. Am.J.Pathol. 136:491-495, 1990
14. Sannomiya P, Craig RA. Clewell DB, Suzuki A, Fujino M, Till GO, Marasci WA: Characterization of a class of nonformylated Enterococcis faecalis-derived neutrophil chemotactic peptides: The sex pheromones. Proc. Natl. Acad. Sci. (USA): 87:66-70, 1990
15. Morganroth, M.L., Schoeneich, S.O., Till, G.O., Ward, P.A., Glovsky, M.M.: C3a 57-77, a C-terminal peptide, causes thromboxane-dependent pulmonary vascular constriction in isolated perfused rat lungs. Am. Rev.Resp.Dis. 141:196-300, 1990
16. Hatherill JR, Till GO, Ward PA: Neutrophil-derived oxygen free radicals and erythrocyte toxicity. J. Biol. Resp. Modifiers (in press)
17. Thomson PD, Till GO. Paul J, Woolliscroft JO, Prasad JK, Smith DJ: Superoxide dismutase prevents lipid peroxidation in burn patients. Burns (in press)
18. Wakefield TW, Kirsh MM, Till GO, Brothers TE, Hantler CB, Stanley JC: Absence of complement-mediated events in cardiopulmonary bypass patients undergoing protamine reversal of heparin anticoagulation. Surgery (in press)
19. Wolter, J.R., Till, G.O.: Granulocyte invasion related to detachment and degeneration of corneal endothelium in acute kerato-uveitis. Cornea (in press).
20. Friedl, HP, Till, GO, Smith, DJ, Thomson, PD, Trentz, O, Ward, PA: Zur Pathogenese Tourniquet-induzierter Ischèmie-Reperfusionsschèden beim Menschen. Chir. Forum (in press)
21. Winn, W.C., Davis, G.S., Durda, J.P., Till, G.O.: The effect of neutropenia on experimental Legionella pneumonia. Infec. Immun. (in press).
22. Marak, G.E., Till, G.O., Ward, P.A.: Xanthine oxidase generation of toxic oxygen metabolites in acute uveitis. Int. Ophthalmol. (in press)
23. Till, G.O.: Startreaktionen des traumatischen Schocks: experimentelle Ergebnisse. Hefte Unfallheilkunde (in press)
24. Till, G.O., Paul, J.B., Smith, R.L., Marak, G.E.: Protection of the eye from ischemic damage: Preliminary observations on ocular reperfusion injury in the rat. Int. Ophthalmol. (in press)

ARTICLES SUBMITTED FOR PUBLICATION:

1. Yang VC, Port FK, Reng C-LC, Kim J-S, Till GO, Wakefield TW: Prevention of heparin-induced hemorrhage and protamine-induced complications in animals during an extracorporeal blood circulation procedure. Surgery (submitted)
2. Till, G.O., Friedl, H.P., Ward, P.A.: Role for histamine and xanthine oxidase in complement- and oxidant-mediated acute lung injury. Free Radicals Biol. Med. (submitted).
3. Thomson, P.D., Till, G.O., Moore, N.P., Prasad, J.K., Smith, D.J.: Enhancement of humor al immunity by heterologous lipid peroxidation products from burn injury. J. Burn Care Rehab. (submitted)

4. Punch, J., Rees, R.S., Cashmer, B.A., Wilkens, E., Smith, D.J., Till, G.O.: Xanthine oxidase: Its role in the no-reflow phenomenon. Ann. Surg. (submitted)

BOOKS AND CHAPTERS IN BOOKS:

1. Till, G.O., Friedl, H.P., Ward, P.A.: Mechanisms of phagocytic cell-mediated injury and its relationship to ischemic injury. In: Clinical Ischemic Syndromes: Mechanisms and Consequences of Tissue Injury; Chapter 19, pp 327-345; Eds.: Zelenock, G.B., D'Alecy, L.G., Fantone III, J.C., Shlafer, M., Stanley, J.C.; Mosby Co., St. Louis 1990
2. Till, G.O., Friedl, H.P., Ward, P.A.: Antioxidant treatment in experimental thermal injury. In: Emerit, I., Auclair, C., Packer, L. (eds). Antioxidants in Therapy and Preventive Medicine, Plenum Publishing Co., London, (in press).
3. Till, G.O., Friedl, H.P., Ward, P.A.: Histamine-dependent modulation of oxygen radical production. In: Proceedings of the Second International Conference of Bio-Oxidative Medicine, Ed.: C.H. Farr; (in press)
4. Till, G.O., Ward, P.A.: Complement-induced lung injury; In: Said, S.I. (editor), The Pulmonary Circulation and Acute Lung Injury, 2nd Edition. Futura Publishing, Co., New York, (in press).
5. Ward, P.A., Warren, J.S., Till, G.O., Varani, J., Johnson, K.J.: Free radicals in lung disease. In: Proceedings on Free Radicals, Diseased States and Anti-Radical Interventions, Ed.: C. Rice-Evans; The Richelieu Press, London 1989 (in press).
6. Ward PA, Friedl HP, Till GO: Role of oxygen radicals in experimental shock. Ed.: Coran/Harris, Ped. Trauma (in press)
7. Ward, P.A., Till, G.O., Johnson, K.J.: Oxygen-derived free radicals and inflammation. In: Sports-Induced Inflammation, Chapter 18, Am. Acad. Orthopaed. Surg., Park Ridge, IL, (in press)
8. Ward, P.A., Till, G.O., Gannon, D.E., Varani, J., Johnson, K.J.: The role of iron in injury of endothelial cells in vitro and in vivo. In: Oxygen Radicals in Biology and Medicine (in press).
9. Morganroth M.L., Till, G.O., Ward, P.A.: Pathophysiology of ischemia-reperfusion lung injury. In: Pathophysiology of Reperfusion Injury , D.K. Das, editor. CRC Press, Inc. (in press)
10. Till, G.O., Ward, P.A.: Antioxidants in shock and ischemic injury. In: Perspectives in Shock Research: Progress in Clinical and Biological Research. (in press)

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Ward,, P.A., Warren, J.S., Till, G.O., Johnson, K.J.: Complement activation, cytokines, oxygen radicals and lung injury. Proc. Int. Union Physiol. Soc. 17:231, 1989
2. Friedl, H.P., Till, G.O., Ward, P.A., Trentz, O.: Role of histamine in oxygen radical-mediated microvascular damage following experimental thermal injury.33rd World Congress of Surgery, Toronto, September, 1989
3. Friedl, H.P., Till, G.O., Ward, P.A.: Role of histamine, complement and xanthine oxidase in experimental thermal injury of the skin. Abstracts: 128-5. 7th International Congress of Immunology, Berlin, 30 July-5 August, 1989.
4. Friedl, H.P., Trentz, O., Toledo-Pereyra, L., Till, G.O.: Zur Pathogenese von Reperfusionsschèden nach partieller Leberischèmie mit internem shunt. 53. Jahrestagung der Deutschen Gesellschaft f*f*r Unfallheilkunde. Berlin 22.-25. November, 1989
5. Friedl, H.P., Till, G.O., Trentz, O., Ward, P.A.: Komplementsystem, Histamin und Xanthinoxidase als initiale Trigger-Mechanismen des akuten Lungenversagens. 53. Jahrestagung der Deutschen Gesellschaft f*f*r Unfallheilkunde. Berlin 22.-25. November, 1989
6. Till, G.O.: Histamine-dependent modulation of oxygen radical production. In: Proceedings of Second International Conference of Bio-Oxidative Medicine, Dallas, March 1-4, 1990
7. Mahrougui, M., Till, G.O., Ward, P.A.: Calcium responses of rat pulmonary artery endoth elial cells. FASEB J. 4:A349, 1990

8. Scovic, J.S., Friedl, H.P., Mahrougui, M.,, Paul, J.B., Till, G.O., Ward, P.A.: Release by inflammatory mediators of xanthine oxidase and histamine from vascular endothelial cells. FASEB J. 4:A890, 1990
9. Thomson, P.D., Till, G.O., Moore, N.P., Boyne, L.J., Prasad, J.P., Smith, D.J.: Effect of heterologous lipid peroxidation products (conjugated dienes) on humoral immunity. Proc. Am. Burn Assoc. 22:20, 1990
10. Prasad, J.K., Patel, B.P., Till, G.O., Smith, Fox, I.H., Thomson, P.D., Woolliscroft, J.O.: Lipid peroxidation in relation to total purines in burn patients with intravenous superoxide dismutase. Am. Burn Assoc. 22:28, 1990
11. Woolliscroft, J.O., Prasad, J.K., Thomson, P.D., Till, G.O., Fox, I.H.: Adenosine triphosphate (ATP) breakdown and lipid peroxidation products in burn patients. Am. Burn Assoc. 22:30, 1990
12. Punch, J.D., Rees, R.S., Till, G.O., Cashmer, B.A., Smith, D.J.: Xanthine oxidase: A source of oxy-radicals in the no-reflow phenomenon. Proc. Plast.Surg.Res.Councel, 1990
13. Wilkins, E.G., Punch, J.D., Rees, R.S., Cashmer, B.A., Till, G.O., Smith, D.J.: Evidence for xanthine oxidase activity in human free flaps following reperfusion. Proc. Plast.Surg.Res.Councel, 1990
14. Marak, G.E., Till, G.O.;, Paul, J.P., Friedl, H.P., Smith, R.: Treatment of ocular ischemia in rats. Proc. ARVO Meeting, 1990
15. Guice, K.S., Oldham, K.T., Bagnasco, J.M., Till, G.O.: Histamine enhances xanthine oxidase activity in acute pancreatitis. Am. Pancreatic Assoc.,1990.

JAMES VARANI, PH.D.
ASSOCIATE PROFESSOR OF MICROBIOLOGY AND IMMUNOLOGY
DEPARTMENT OF PATHOLOGY
UNIVERSITY OF MICHIGAN

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Implementation of Clostridium difficile toxin B test for diagnosis of Cl. difficile.

II. TEACHING ACTIVITIES:

A. Lecturer, Pathology 580.
B. Course Director, Pathology 850.
C. Member, Dissertation Committee of Mr. Todd Kroll.
D. Mentor for various students who have worked in my laboratory over the past year; includes 5 post-doctoral students, 1 medical student, 2 graduate students, 5 undergraduate students and 1 high school teacher through Kellogg Fellowship Program.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Extracellular matrix in immune cell recognition of targets. American Cancer Society IM-432. Principal Investigator.
B. Biochemical control of microcarrier culture. NIH CA33052. Principal Investigator.
C. Thrombospondin receptors on squamous carcinoma cells. American Cancer Society PDT-324. Co-Investigator.
D. Protease-oxidant interactions in lung inflammation. NIH HL42607. Co-Investigator.
E. Retinoic acid and cells of the skin. Ortho Pharmaceutical Co. Co-Investigator.

PROJECTS UNDER STUDY:

A. The development of substrates for optimum growth of cells in large-scale culture.
B. The role of laminin and laminin receptors in mediating NK/NC-tumor cell interactions.
C. The role of thrombospondin in the biology of human squamous carcinoma cells.
D. Influence of retinoic acid on proliferation and matrix production by dermal fibroblasts and epidermal keratinocytes.
E. Mechanisms of endothelial injury in lung inflammation.

IV. SERVICE ACTIVITIES:

DEPARTMENTAL:

A. Member, Departmental Advisory Committee on Appointments, Promotions and Tenure.
B. Member, Departmental Space and Research Committee.

C. Member, Department of Pathology Graduate Program Committee.

MEDICAL SCHOOL/HOSPITAL:

A. Member, University Committee on Use and Care of Animals.
B. Member, Jody C. Ungeleiter Award Selection Committee.
C. Chairman, Jody C. Ungeleiter Award Selection Committee.
D. Member, Medical School Committee on Summer Research Opportunities.
E. Program Director, University of Michigan Cancer Center Program on Tumor Cell Metastasis and the Extracellular Matrix.
F. Member, University of Michigan Cancer Center Basic Research Committee.

REGIONAL AND NATIONAL:

A. Editorial Board of Invasion and Metastasis.
B. Manuscript reviewer for: Cancer Research, Journal of the National Cancer Institute, International Journal of Cancer, American Journal of Pathology, Laboratory Investigation, Experimental Cell Research, Clinical and Experimental Metastasis, Invasion and Metastasis, Science, Proceedings of the National Academy of Sciences.
C. Grant reviewer for the Medical Research Council of Canada and for the Veterans Administration.
D. NIH Study Section Member: National Drug Development Cooperative Grants review panel.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. Invited Lecturer, Department of Pathology; VAMC - Wayne State University, Allen Park, Michigan.
2. Invited Lecturer, Department of Physiology; Wayne State University, Detroit, Michigan, March 13, 1990.
3. Invited Lecturer, Department of Pharmacology; Baylor College of Medicine, Houston, Texas.
4. Invited Lecturer, Department of Internal Medicine; University of Vermont, Burlington, Vermont, January 10, 1990.
5. Invited Lecturer, Engineering Foundation Symposium on Large-Scale Cell Cultivation; Santa Barbara, California, December 5, 1989.
6. Invited Lecturer, FASEB Symposium on Oxygen Radicals; Washington, D.C., April 4, 1990.
7. Invited Lecturer, NATO Sponsored Symposium on: Endothelial Cells: Physiological Basis of Clinical Problems; Corfu, Greece, June 20, 1990.
8. Invited Lecturer, Department of Pathology; Southern Maine Medical Center, Portland, Maine, December, 12, 1989.

PATENTS:

1. U.S. Patent No. 4,829,004. Roller bottle system for culture of suspension cells and cells on microcarriers. Issued May 4, 1989.
2. U.S. Patent No. 124,699. Collagen-coated microcarriers (pending).

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Hutchinson, R., Fligiel, S.E.G., Appleyard, J., Varani, J., Wicha, M.: Attachment of neuroblastoma cells to extracellular matrix: A necessary but not sufficient determinant of organ-specific metastasis. J. Lab. Clin. Med. 1989;113:561-568.
2. McClenic, B.K., Mitra, R.S., Riser, B.L., Nickoloff, B.J., Dixit, V.M., Varani, J.: Production and utilization of extracellular matrix components by human melanocytes. Exp. Cell Res. 1989;180:314-325.
3. Laybourn, K.A., Hiserodt, J.C., Varani, J.: Laminin Receptor expression on murine tumor cells: Correlation with sensitivity to natural cell-mediated cytotoxicity. Int. J. Cancer. 1989;43:737-742.
4. Wencel, M.L., Morganroth, M.L., Schoeneich, S.O., Bannon, D.E., Varani, J., Todd, R.F., Ryan, U.S., Boxer, L.A.: Cytoplasts and MO-1 deficient neutrophils pretreated with plasma and LPS induced lung injury. Am. J. Physiol. 1989;256:H751-H759.
5. Soong, J.K., Hassan, T., Varani, J., Huang, S.C.M., Brennan, M.: Fibronectin does not enhance EGF-mediated acceleration of corneal epithelial wound closure. Arch. Ophthalmology. 1989;107:1052-1054.
6. Soong, H.K., McClenic, B., Varani, J., Hassan, T., Huang, S.C.M., Brenz, R.: EGF does not enhance corneal epithelial cell motility. Invest. Ophthalmology Visual Sci. 1989;30:128-132.
7. McKeever, P.E., Fligiel, S.E.G., Varani, J., Castle, R.L., Hood, T.H.: Products of cells cultured from gliomas: VII. Extracellular Matrix Proteins of gliomas which certain glial fibrillary acidic protein. Lab. Invest. 1989;60:286-295.
8. Gibbs, D., Varani, J., Ginsburg, I.: Formation and use of poly-L-histidine-Catalase complexes: Protection of cells from hydrogen peroxide-mediated injury. Inflammation 1989;13:465-474.
9. Ginsburg, I., Gibbs, D.F., Varani, J.: Interaction of Mammalian cells with polymorphonuclear leukocytes: Relative sensitivity to monolayer disruption and cell killing. Inflammation. 1989;13:529-542.
10. Riser, B.L., Mitra, R., Jr., Perry, D., Dixit, V., Varani, J.: Monocyte killing of human squamous epithelial cells: Role for thrombospondin. Cancer Res. 1989;49:6123-6129.
11. Riser, B.L., Varani, J., Nickoloff, B.J., Mitra, R.S., Dixit, V.M.: Thrombospondin binding by keratinocytes: Modulation under conductions which alter thrombospondin biosynthesis. Dermatologica. 1990;180:60-65.
12. Varani, J., Mitra, R.S., McClenic, B.J., Fligiel, S.E.G., Inman, D.R., Dixit, V.M., Nickoloff, B.J.: Modulation of fibronectin production in normal human melanocytes and malignant melanoma cells by interferon-g and tumor necrosis factor-a. Am. J. Path. 1989;134:827-836.
13. Chakrabarty, S., Jan, Y., Brattain, M.J., Tobon, A., Varani, J.:Transforming growth factor-B elicits diverse cellular responses from human colon cancer cells. Cancer Res. 1989;49:2112-2117.
14. Chakrabarty, S., Jan, Y., Levine, A., McClenic, B., Varani, J.: Fibronectin/laminin and their receptors in aberrant growth control in Ha-ras oncogene transformed and epidermal growth factor gene transformed FR3T3 cells. Int. J. Cancer. 1989;44:325-331.
15. Phan, S.H., Gannon, D.E., Varani, J., Ryan, U.S., Ward, P.A.: Xanthine oxidase activity in rat pulmonary artery endothelial cells and its alteration by activated neutrophils. Am. J. Path. 1989;134:1201-1212.
16. Schuger, L., Varani, J., Marks, R.M., Kunkel, S.L., Johnson, K.J., Ward, P.A.: Cytotoxicity of TNF-a for human umbilical vein endothelial cells. Lab. Invest. 1989;61:62-68.
17. Varani, J., Nickoloff, B.J., Dixit, V.M., Mitra, R.S., Voorhees, J.J.: All-trans retinoic acid stimulates growth of adult human keratinocytes cultured in growth factor-deficient medium, inhibits production of thrombospondin and fibronectin and reduces adhesion. J. Invest. Dermatol. 1989;93:449-454.

18. Shapiro, D.N., Varani, J., Ginsburg, I.: Activation of Murine T-Cell hybridoma by cationized bacteria. Immunology (In Press).
19. McKeever, P.E., Feldenzer, J.A., McCoy, J.P., Laug, M., D'Amato, C., Varani, J.: Nuclear parameters as prognostic indicators in gliobastoma patients. J. Neuropath. Exp. Neurol. 1990;49:71-78.
20. Ginsburg, I., Gibbs, D.F., Schuger, L., Johnson, K.J., Ryan, U.S., Ward, P.A., Varani, J.: Vascular endothelial cell killing by combinations of membrane-active agents and hydrogen peroxide. Oxy. Rad. Biol. Med. 1989;7:369-376.
21. Varani, J., Ginsburg, I., Schuger, L., Gibbs, D.F., Bromberg, J., Johnson, K.J., Ryan, U.S., Ward, P.A.: Endothelial cell killing by neutrophils: Synergistic interaction of oxygen products and proteases. Am. J. Path. 1989;135:435-438.
22. Varani, J., Mitra, R., Jr., Wany, T., Phan, S.H., Mitra, R.S., Nickoloff, B.J., Voorhees, J.J.: All-trans retinoic acid stimulates proliferation and extracellular matrix production by quiescent, cultured human dermal fibroblasts. J. Invest. Dermatol. 1990;94:717-723.
23. Schuger, L., O'Shea, S., Rheinheimer, J., Varani, J.: Laminin in lung development: Effects of anti-laminin antibody in murine lung morphogenesis. Develop. Biol. 1990;137:26-32.
24. Sitrin, R.G., Gyetko, M.R., Kole, K.L., McKeever, P.E., Varani, J.: Expression of heterogeneous profiles of plasminogen activators and plasminogen activator inhibitors by human glioman lines. Cancer Res. (In Press).
25. Varani, J., Chakrabarty, S.: Modulation of fibronectin synthesis and fibronectin binding during transformation and differentiation of mouse AKR fibroblasts. J. Cell. Physiol. (In Press).
26. Chakrabarty, S., Fan, D., Varani, J.: Modulation of differentiation and proliferation in human colon carcinoma cells by transforming growth factor beta 1 and beta 2. Int. J. Cancer (In Press).
27. Varani, J., Shyevitz, J., Perry, D., Mitra, R.S., Nickoloff, B.J., Voorhees, J.J.: Retinoic acid stimulation of human dermal fibroblast proliferation is dependent on suboptimal extracellular Ca^{2+} concentration. Am. J. Path. (In Press).
28. Schuger, L., Dixit, V.M., Carey, T.E., Varani, J.: Modulation of squamous carcinoma cell growth, morphology, adhesiveness and extracellular matrix production by interferon-g and tumor necrosis factor-a. Immunopath. (In Press).
29. Gannon, D.E., He, X., Ward, P.A., Varani, J., Johnson, K.J.: Time-dependent inhibition of oxygen radical-induced lung injury. Inflammation (In Press).
30. Varani, J., Phan, S.H., Gibbs, D.F., Ryan, U.S., Ward, P.A.: H_2O_2-mediated cytotoxicity of rat pulmonary endothelial cells: Changes in ATP and purine products and effects of protective interventions. Lab. Invest (In Press).
31. Schuger, L., O'Shea, S., Varani, J.: Development of an organotypic model of embryonic lung morphogenesis: role of the basement membrane. Development (In Press).
32. Markey, B.A., Phan, S.H., Varani, J., Ryan, U.., Ward, P.A.: Inhibition of H_2O_2 and neutrophil-induced cytotoxicity by intracellular superoxide dismutase supplementation. Oxy. Radicals Biol. Med. (In Press).

BOOKS AND CHAPTERS IN BOOKS:

1. Ward, P.A., Till, G.O., Gannon, D.E., Varani, J.A., and Johnson, K.J.: The role of iron in injury of endothelial cells in vitro and in vivo, in Simic, M.D., Taylor, K.A., Ward, J.F. and Sonntag, C.C. (eds.) Oxygen Radicals in Biology and Medicine. 4-ICOR Conference, Plenum Press, New York, pp. 969-974, 1989.
2. Ward, P.A., Warren, J.S., Till, G.O., Varani, J., and Johnson, K.J.: Modification of disease by preventing free radical formation: A new concept in pharmacologic intervention, in Hershko, C. (ed) Iron Chelating Therapy, Bailliere's Clinical Hematology. Bailliere Tindall Limited, Harcourt Brace Jovanovich, Publishers, London, England, p. 391-402, 1989.
3. Ward, P.A., Warren, J.S., Johnson, K.J., and Varani, J.: Cytokines and oxygen radical responses, in Faist, Ninnemann, and Green (eds) Proceedings of the 1st International Congress on "The

Immune Consequences of Trauma, Shock, and Sepsis: Mechanisms and Therapeutic Approaches". Springer Verlag, Berlin, Heidelberger, pp. 173-178, 1989.

4. Marak, G.E., Jr., Rao, A., Gannon, D.E., Varani, J., Ward, P.A., and Till, G.O.: Antiphlogistic mechanisms of benzoic acid derivatives in experimental uveitis, in Secchi, A.G. and Fregona, I.A. (eds) Modern Trends in Immunology acid and Immunopathology of the Eye. Masson, Milano, Italy, pp. 137-139. 1989.
5. Ward, P.A., Warren, J.S., Remick, D., Varani, J., Gannon, D., and Johnson, K.J.: Cytokines and oxygenradical-mediated tissue injury, Chapter 6, in Bihari, D.U. and Cerra, F.B. (eds) New Horizons: Multiple Organ Failure. Society of Critical Care Medicine, pp. 93-100, 1989.
6. Ward, P.A., Warren, J.S., Till, G.O., Varani, J., and Johnson, K.J.: Free radicals in lung disease, in Rice-Evans, C. (ed) Free Radicals, Diseased States and Anti-Radical Interventions. London, England (In Press).
7. Varani, J.: Extracellular Matrix Production and Squamous cell Differentiation, in Weiss, L., Buchanan, M. and Orr, F.W. (eds) The Microcirculation and Cancer Metastasis. CRC Press, Inc. (In Press).
8 Ward, P.A., Varani, J.: Mechanisms of neutrophil-mediated killing of endothelial cells. J. Leuk. Biol. (In Press).
9. Varani, J.: Leukocyte-endothelial cell interactions, in Catravas, J. and Ryan, U. (eds) Vascular Endothelium: Physioloigcal Basis of Clinical Problems. (In Press).
10. Ward, P.A., Warren, J.S., Varani, J., Johnson, K.J.: P.A.F., Cytokines, Toxic oxygen products and cell injury. Molecular Aspects of Medicine. (In Press).

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Mitra, R.S., Karabin, G., Barker, J., Varani, J., Voorhees, J.J., Nickoloff, B.J.: Molecular characterization of interactions between all-trans retinoic acid (RA), gamma interferon (IFN-g) and cultured human keratinocytes. J. Invest. Derm. 1990;94:556.
2. Varani, J., Shayevitz, J., Perry, D., Mitra, R.S., Nickoloff, B.J., Voorhees, J.J.: Retinoic acid stimulation of human dermal fibroblast proliferation is associated with mobilization of intracellular Ca^{2+}. J. Invest. Derm. 1990;94:556.
3. Riser B., Varani, J.: Squamous epithelial cell differentiation is associated with reduced extracellular matrix production and reduced cell-substrate adhesion. J. Cell Biochem. Supp 1990;14A:182.
4. Varani, J., Schuger, L., Chakrabarty, S.: Growth factor-induced extracellular matrix production and growth control in human color carcinoma cells. J. Cell. Biochem. Supp. 1990;14A:183.
5. Shayevitz, J.R., Varani, J., Knight, P.R.: Volatile anesthetics enhance hydrogen peroxide-mediated increases in endothelial cell Ca^{2+}. FASEB J. 1990;4:A344.
6. Gibbs, D.F., Varani, J., Phan, S.H., Ward, P.A.: Hydrogen Peroxide-mediated cytotoxicity of rat endothelial cells: Changes in ATP and purine products and the effects of protective interventions. FASEB J. 1990;4:A629.
7. Schuger, L., O'Shea, K.S., Nelson, B.B., Varani, J.: Induction of organotypic pattern formation of murine embryonic lung cells on a basement membrane extract. FASEB J. 1990;4:A772.
8. Inman, D., Fligiel, S.E.G., Gibbs, D.F., Shah, B., Voorhees, J.J., Varani, J.: Human squamous epithelial cell proliferation adhesion and extracellular matrix production: Modulation by retinoic acid and external Ca^{2+}. FASEB J. 1990;4:A2028.
9. Markey, B.A., Phan, S.H., Varani, J., Ryan, U.S., Ward, P.A.: Inhibition of H_2O_2 and neutrophil-induced endothelial cell cytotoxicity by intracellular superoxide dismutase supplementation. FASEB J. 1990;4:A1019.

PETER A WARD, M.D.
PROFESSOR AND CHAIRMAN
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. These have been chiefly related to administrative responsibility for all clinical service functions of the Department.
B. Autopsy Service.

II. TEACHING ACTIVITIES:

A. Graduate students:

1. Responsible during the current academic year for teaching activities for the following:
   a. Blair A.Walker, M.D. , Postdoctoral Fellow.
   b. Rory A. Marks, M.D. , Postdoctoral Fellow.
   c. Cheryl Swenson, D.V.M., Ph.D. Postdoctoral Fellow
   d. Michael M. Mandell, 3rd Year Medical School.
   e. Gordon Yu, M.D., Postdoctoral Fellow.
   f. Jonathon W. Homeister, Ph.D. Dissertation Committee member.
2. Indirect supervision of four Research Scientists.
3. Gross Autopsy Conference, 25 hours.

B. Undergraduate students:
   a. Lawrence E.Stern, research mentor for Honors Project.
   b. Lecture, ICS 600, two hours.
   c. Two hour lecture to Alpha Omega Alpha members, April, 1990.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Principal Investigator, "Thermal Injury, Complement, and Leukocyte Dysfunction", NIH GM-28499 (10%), $111,434/year ($577,063/five years), 1/1/86-12/31/90.
B. Principal Investigator, "Lung Immunopathology", NHLBI HL-07517 (5%), $257,166/year ($1,291,531/five years), 7/1/86-6/30/91.
C. Principal Investigator, "Leukocyte Chemotaxis", NIH HL-28442 (10%), $93,628/year ($505,936/five years), 7/1/86-6/30/91.
D. Principal Investigator, "Lung Injury Produced by Oxygen Metabolites", NIH GM-29507 (20%), $116,376/year ($507,078/five years), 7/1/82-6/30/87
E. Principal Investigator, "Inflammatory Cells and Lung Injury", NHLBI HL-31963 (35%), $619,303/year ($3,876,003/five years), 3/1/84-2/28/94.
F. Co-Investigator, "Mechanisms of Glomerular and Tubular Injury", NIH-DK39255 (5%), $40,524 (Project V only), 9/1/87-8/31/92.

PENDING:

A. Principal Investigator, "Lung Immunopathology", NHLBI-HL07517 (5%), $280,508 ($1,462,151/5 years), 6/1/91-5/31/96.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Chief, Section of General Pathology.
B. MSP Executive Committee.
C. Pathology Associates.

MEDICAL SCHOOL/HOSPITAL:

A. Dean's Council of Clinical Chairmen, 1985--.
B. Michigan Eye Bank Research Review Committee, 1980--.
C. Michigan Diabetes Research and Training Center Policy Committee, 1981--.
D. National Task Force on Organ Transplantation, 1985--.
E. Professional Fee Policy Committee, 1984--.
F. Interdepartmental Coordinating Committee, 1984--.
G. Dean's Advisory Council, 1985--.
H. Dean's Advisory Committee on Clinical Affairs, May, 1985--.
I. Advisory Committee for the Howard Hughes Medical Institute, 1984--.
J. Internal Advisory Board Committee of the Michigan Gastrointestinal Peptide Research Center, 1985--.
K. Council of Operations and Quality Assurance, 1986--.
L. Board of Directors, M-Care, 1986--.
M. Member, Neuromuscular Program Policy Committee, The University of Michigan Medical School, 1987--.
N. Member, Center Advisory Committee for The University of Michigan Multipurpose Arthritis Center, 1987--.
O. Member, Medical Service Plan Advisory Committee, 1987--
P. Member, Medical Service Plan Executive Committee, 1987--.
Q. Member, Gilford Upjohn Endowed Chair in Internal Medicine and Oncology, Department of Internal Medicine, Hematology and Oncology Unit, The University of Michigan, February, 1987--.
R. Member, Presidential Initiatives Fund, The University of Michigan, March, 1987--.
S. Member, Hospitals Advisory Group, 1988--
T. Member, University of Michigan Multipurpose Arthritis and Musculoskeletal Diseases Center, 1989--
U. Member, Committee to Review VA FTE's, The University of Michigan Medical School, October, 1988--

REGIONAL AND NATIONAL:

A. American Society for Clinical Investigation.
B. American Association of Pathologists.
    1. Member, Nominating Committee, 1985-present.
    2. Executive Committee, Intersociety Pathology Council and Universities Associated for Research and Education in Pathology, Inc.

3. Representative to the Universities Associated for Research and Education in Pathology, 1988-89.

C. Trustee, American Board of Pathology, effective January 1, 1988.
D. Member, Advisory Committee, Health Policy Agenda for the American People.
E. Member, American Association for Advancement of Science.
F. Member, American Association of Immunologists.
G. Member, American Pathology Foundation.
H. Member, Association of Pathology Chairmen.
I. Charter Member, A. James French Society of Pathologists, 1988--.
J. Member, Michigan Society of Pathologists.
K. Member, Center for Alternatives to Animal Testing, Johns Hopkins University.
L. Member, International Academy of Pathology.
   1. Council Member, April 1, 1986-1989.
   2. Member, Finance Committee, April 1, 1986-1990.
M. Member, The New York Academy of Sciences.
N. Member, Society of Medical Consultants to the Armed Forces.
O. Member, Michigan Thoracic Society, 1988--.
Q. Member, The Oxygen Society, 1988--
   1. President, 1988
R. Ann Arbor Veterans Administration Medical Center, Consultant, 1980--.
S. Board of Directors, Universities Associated for Research and Education in Pathology, Inc.
T. Phi Rho Sigma, President, The University of Michigan Chapter, September, 1988
U. Cytogen, 1983--.
V. Mallinckrodt, Inc., Advisory Board, 1984--.
W. Member, Institute of Medicine, July 1, 1990

V. OTHER RELEVANT ACTIVITIES:

EDITORIAL BOARDS:

A. American Journal of Pathology, Editorial Board, 1982--.
B. American Review of Respiratory Diseases, Consulting Editor, 1977--.
C. Archives of Pathology and Laboratory Medicine, Reviewer, 1973--.
D. Arthritis and Rheumatism, Consulting Editor, 1975--.
E. Cancer Research, Associate Editor, 1987--.
F. Clinical Immunology and Immunopathology, Consulting Editor, 1977--.
G. CRC Critical Reviews in Free Radical Research, Advisory Board, 1986--.
H. CRC Critical Reviews in Toxicology, Advisory Board, 1986--.
I. Experimental Cell Research, Consulting Editor, 1980--.
J. Experimental Lung Research, Consulting Editor, 1980--.
K. Human Pathology, Consulting Editor, 1980--.
L. Infection and Immunity, Editorial Board, 1978--.
M. Journal of Clinical Investigation, 1982--.
N. Journal of Experimental Cell Research, Consulting Editor.
O. Journal of Experimental Lung Research, Consulting Editor.
P. Journal of Experimental Pathology, 1986--.
Q. Journal of the Reticuloendothelial Society, Consulting Editor.
R. Journal of Clinical Investigation, Consulting Editor.
S. Laboratory Investigation, Editorial Board, 1981--.
T. Nature, Consulting Editor, 1980--.
U. New England Journal of Medicine, Consulting Editor, 1980--.
V. Journal of Critical Care, Editorial Board.

W. Review Committee for new Editor-in-Chief, Human Pathology, April 1987--.
X. Toxicologic Pathology, Editorial Board, 1988--.

INVITED LECTURES/SEMINARS:

1. Cochair Workshop, "Mediators of Immediate-Type Hypersensitivity, at the 7th International Congress of Immunology, Berlin, German, September 8, 1989.
2. Invited Lecturer, "The Role of Reactive Oxygen Species in Inflammatory and Allergic Processes", XIVth Congress of the European Academy for Allergology and Clinical Immunology, Berlin, West Germany, September 18, 1989.
3. Invited Lecturer, "Injurious Interactions of Leukocytes and Endothelial Cells", 26th National Meeting of the Society for Leukocyte Biology, Marco Island, Florida, October 11-13, 1989.
4. Invited State-of-the-Art Lecturer, "Overview of the Process of Cellular Injury in Interstitial Lung Disease", 1989 Chicago Lung Conference, Markfield Symposium on Interstitial Lung Disease, Chicago, Illinois, October 19, 1989.
5. Invited Lecturer, "Leucocyte-Endothelial Interaction: Consequences", NIH Workshop on Biology of Renal Microvasculature, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, Maryland October 24, 1989.
6. Invited Lecturer, "Cytokines, Oxygen Radicals and Tissue Injury", 1989 Education Meeting of the American College of Veterinary Pathologists, Baltimore, Maryland, October 31-November 1, 1989.
7. Organizer and Lecturer, "Interaction of Oxygen Free Radicals and Tissue Injury", in Oxygen Free Radicals Workshop sponsored by Marion Laboratories, Inc., Dallas, Texas, November 16-18, 1989.
8. Invited Lecturer, "Inflammation and Vascular Injury", Department of Medicine, Michigan State University College of Human Medicine, Lansing, Michigan, November 22, 1989.
9. Invited Lecturer, "Role of ATP in Leukocyte Activation", and Co-Chair Session II: Biological Effects of Extracellular ATP and Nucleotides II, with Dr. Samuel Silverstein, at the New York Academy of Sciences Meeting, "Biological Actions of Extracellular ATP", Philadelphia, Pennsylvania, November 27, 1989.
10. Invited Lecturer, "Thermal Trauma, Oxygen Radicals and Tissue Injury", Thermal Trauma, Oxygen Radicals and Tissue Injury Research Conference, sponsored by the University of Utah School of Medicine, Department of Surgery, Snowbird, Utah, January 25, 1990.
11. Invited Lecturer, "Neutrophils, Macrophages and Cytokines", in the International Symposium on "Pathophysiology of Pulmonary Cells", Turin, Italy, February 16, 1990.
12. Invited Lecturer, "Lessons from Polio", College Honors Seminar 250, Cholera Pandemics: Models for Examining Societal Attitudes, Wednesday, February 21, 1990.
13. Distinguished Lecture Series, "Mechanisms of Endothelial Cell Injury", Department of Physiology, Louisiana State University, New Orleans, Louisiana, March 12, 1990.
14. Special Review Committee (Chairman), Department of Pathology Site Visit, Duke University, Durham, North Carolina, May 1-2, 1990.
15. Program Project Advisory Board Meeting, Section of Pulmonary and Critical Care Medicine, New England Deaconess Hospital, Harvard Medical School, Boston, Massachusetts, May 13-14, 1990.
16. RJR Nabisco Selection Committee Meeting for Immunopathology, Hot Springs, Virginia, May 25-26, 1990.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Friedl, H.P., Till, G.O., Ryan, U.S. and Ward, P.A.: Mediator-induced activation of xanthine oxidase in endothelial cells. FASEB J. 1989;3:2512-2518.
2. Friedl, H.P., Till, G.O., Trentz, O. and Ward, P.A.: Roles of histamine, complement and xanthine oxidase in thermal injury of skin. Amer. J. Pathol. 1989;135:203-217.
3. Ginsburg, I., Gibbs, D.F., Schuger, L., Johnson, K.J., Ryan, U.S., Ward, P.A. and Varani, J.: Vascular endothelial cell killing by combinations of membrane-active agents and hydrogen peroxide. Free Radical Biology and Medicine. 1989;7:369-376.
4. Guice, K.S., Oldham, K.T., Caty, M.G., Johnson, K.J. and Ward, P.A.: Neutrophil-dependent oxygen radical mediated lung injury associated with acute pancreatitis. Annals Surg. 1989;210:740-747.
5. Kennedy, T.P., Johnson, K.J., Kunkel, R.G., Ward, P.A., Knight, P.R. and Finch, J.S.: Acute acid aspiration lung injury in the rat: Biphasic pathogenesis. Anesth. Analg. 1989;69:87-92.
6. Morganroth, M.L., Schoeneich, S.O., Till, G.O., Pickett, W. and Ward, P.A.: Lung injury caused by cobra venom factor is reduced in rats raised on an essential fatty acid-deficient diet. Am. J. Physiol. 1989;257:H1192-H1199.
7. Till, G.O., Guilds, L.S., Mahrougui, M., Friedl, H.P., Trentz, O. and Ward, P.A.: Role of xanthine oxidase in thermal injury of skin. Amer. J. Pathol. 1989;135:195-202.
8. Varani, J., Ginsburg, I., Schuger, L., Gibbs, D.F., Bromberg, J., Johnson, K.J., Ryan, U.S. and Ward, P.A.: Endothelial cell killing by neutrophils: Synergistic interaction of oxygen products and proteases. Lab. Invest. 1989;135:435-438.
9. Walker, B.A.M., Cunningham, T.W., Freyer, D.R., Todd, R.F., III, Johnson, K.J. and Ward, P.A.: Regulation of superoxide responses of human neutrophils by adenine compounds: Independence of requirement for cytoplasmic granules. Lab. Invest. 1989;61:515-521.
10. Ward, P.A. and Marks, R.M.: The acute inflammatory reaction. Current Opinions in Immunol. 1989;2:5-9.
11. Ward, P.A., Warren, J.S., Till, G.O., Varani, J. and Johnson, K.J.: Modification fo disease gy preventing free radical formation: A new concept in pharmacological intervention. Baillieres Clin. Haematol. 1989;1:391-402.
12. Warren, J.S., Mandel, D.M., Johnson, K.J. and Ward, P.A.: Evidence for the role of platelet-activating factor in a rat model of immune complex vasculitis. J. Clin. Invest. 1989;83:669-678.
13. Warren, J.S., Yabroff, K.R., Remick, D.G., Kunkel, S.L., Chensue, S.W., Kunkel, R.G., Johnson, K.J. and Ward, P.A.: Tumor necrosis factor participates in the pathogenesis of acute immune complex alveolitis in the rat. J. Clin. Invest. 1989;84:1873-1882.
14. Axtell, R.A., Sandborg, R.R., Smolen, J.E., Ward, P.A. and Boxer, L.A.: Exposure of human neutrophils to exogenous nucleotides causes elevation in intracellular calcium, transmembrane calcium fluxes, and an alteration of a cytosolic factor resulting in enhanced superoxide production in response to FMLP and arachadonic acid. Blood 1990;75:1324-1332.
15. Dixit, V.M., Green, S., Sarma, V., Holzman, L.B., Wolf, F.W., Ward, P.A., Prochownik, E.V. and Marks, R.M.: Tumor necrosis factor-a induction of novel gene products in human endothelial cells including a macrophage-specific chemotaxin. J. Biol. Chem. 1990;265:2973-2978.
16. Friedl, H.P., Smith, D.J., Thomson, P.D., Louis, D.S. and Ward, P.A.: Ischemia-reperfusion in humans: Appearance of xanthine oxidase activity. Amer. J. Pathol. 1990;136:491-495.
17. Gannon, D.E., He, X., Ward, P.A., Varani, J. and Johnson, K.J.: Time-dependent inhibition of oxygen radical induced lung injury. Inflammation 1990;14:509-522.
18. Hagenlocker, B.E., Walker, B.A.M. and Ward, P.A.: Superoxide responses of immune complex-stimulated rat alveolar macrophages: Intracellular calcium priming. J. Immunol. 1990;144:3898-3906.

19. Walker, B.A.M., Hagenlocker, B.E., Douglas, V.K. and Ward, P.A.: Effects of adenosine on inositol 1,4,5-triphosphate formation and intracellular calcium changes in Formyl-met-leu-phe-stimulated human neutrophils. J. Leukocyte Biol. 1990;48:281-283.
20. Ward, P.A. and Varani, J.: Mechanisms of neutrophil-mediated killing of endothelial cells. J. Leukocyte Biol. 1990;48:97-102.
21. Warren, J.S., Johnson, K.J. and Ward, P.A.: PAF and immune complex-induced injury. J. Lipid Mediators 1990;2:S229-S237.
22. Warren, K.S., Yabroff, K.R., Mandel,D.M., Johnson, K.J. and Ward, P.A.: Role of 02- in neutrophil recruitment into sites of dermal and pulmonary vasculitis. Free Radical Biol. Med. 1990;8:163-172.

ARTICLES SUBMITTED FOR PUBLICATION:

1. Guice, K.S., Oldham, K.T., Johnson, K.J. and Ward, P.A.: Mechanisms of capillary endothelial cell injury in acute pancreatitis. Surg. Forum, In Press.
2. Guice, K.S., Oldham, K.T., Caty, M.G., Johnson, K.J. and Ward, P.A.: Neutrophil-dependent oxygen radical mediated lung injury associated with acute pancreatitis. Ann. Surg., In Press.
3. Hatherill, J.R., Till, G.O. and Ward, P.A.: Mechanisms of oxidant-induced changes in erythrocytes. Agents and Actions, In Press.
4. Morganroth, M.L., Schoeneich, S.O., Till, G.O., Pickett, W. and Ward, P.A.: Complement and neutrophil-mediated injury of perfused rat lungs. Lab. Invest. In Press.
5. Morganroth, M.L., Schoeneich, S.O., Till, G.O., Ward, P.A., Horvath, S.J. and Glovsky, M.D.: C3a57-77, a C-terminal peptide, causes thromboxane-dependent pulmonary vascular constriction in isolated perfused rat lungs. Amer. Rev. Resp. Dis., In Press
6. Oldham, K.T., Guice, K.S., Till, G.O. and Ward, P.A.: Evidence of local complement activation in cutaneous thermal injury in rats. Adv. Shock. Res., In Press.
7. Riva, C.M., Morganroth, M.L., Ljungman, A.G., Schoeneich, S.O., Marks, R.M., Todd, R.F., III, Ward, P.A. and Boxer, L.A.: Iloprost inhibits neutrophil-induced lung injury and neutrophil adherence to endothelial monolayers. Aerm. J. Resp. Cell Molec. Biol., In Press.
8. Shayevitz, J.R., Varani, J., Ward, P.A. and Knight, P.R.: Halothane and isoflurane increase pulmonary artery endothelial cell sensitivity to oxidant-mediated injury. J. Anesthesiology, submitted
9. Till, G.O., Friedl, H.P. and Ward, P.A.: Lung injury and complement activation: Role of neutrophils and xanthine oxidase. Free Radical Biology and Medicine, submitted.
10. Till, G.W. and Ward, P.A.: Immunologic and phagocytic cell defects in thermally injured patients. J. Cric. Care Med., In Press.
11. Varani, J., Gibbs, D.F., Johnson, K.J., Weinberg, J.M., Ryan, U.S., Ginsburg, I. and Ward, P.A.: Hydrogen peroxide-induced cell and tissue injury: Protective effects of Mn^{2+}.
12. Varani, J., Phan, S.H., Gibbs, D.F., Ryan, U.S. and Ward, P.A.: H_20_2-mediated cytotoxicity of rat endothelial cells: Changes in adenosine triphosphate and purine products and effects of protective interventions. Lab. Invest. In Press.
13. Walker, B.A.M., Hagenlocker, B.E., Douglas, V.K., Tarapchak, S.J. and Ward, P.A.: Nucleotide responses of human neutrophils. Lab. Invest., In Press.
14. Ward, P.A.: Overview of the process of cellular injury in interstitial lung disease. Chest, submitted.
15. Ward, P.A.: Oxidant damage. Submitted to Task Force on Allergy and Immunology.
16. Ward, P.A.: Mechanisms of endothelial killing by H_20_2 or products of activated neutrophils. Amer. J. Med., submitted.
17. Ward, P.A. and Johnson, K.J.: Lung inflammatory mechanisms. J. Human. Path., In press.
18. Ward,P.A., Johnson, K.J. and Till, G.O.: Mechanisms of lung injury. Prax. Klin. Pneumolon., In Press.
19. Ward, P.A. and Till, G.O.: Pathophysiological events related to thermal injury of skin. J. Trauma, In Press.

20. Warren, J.S., Yabroff, K.R., Mandel, D.M., Johnson, K.J. and Ward, P.A.: Role of O_2^- in neutrophil recruitment into sites of dermal and pulmonary vasculitis. Free Rad. Biol. Med., In press.
21. Yu, G.H. and Ward, P.A.: Structural requirements for binding of adenosine-5'0-(3-thiotriphosphate) (ATPgS) to human neutrophils. Immunopharmacology, In press.

BOOKS/CHAPTERS IN BOOKS:

1. Marak, G.E., Jr., Rao, A., Gannon, D.E., Varani, J., Ward, P.A. and Till, G.O.: Antiphlogistic mechanisms of benzoic derivatives in experimental uveitis, in, Secchi, A.G. and Fregona, I.A. (eds), Modern Trends in Immunology and Immunopathology of the Eye, Masson, Milano, Italy, 137-139, 1989.
2. Till, G.O., Friedl, H.P. and Ward, P.A.: Phagocytic cell-mediated injury: Relationship to ischemic injury, Zelenock, G.B., D'Alecy, L.G., Fantone, J.C., III, Shlafer, M. and Stanley, J.C. (eds), Clinical Ischemic Syndromes: Mechanisms and Consequences of Tissue Injury, The C.V. Mosby Co., St. Louis, Missouri, pp. 327-345, 1989.
3. Ward, P.A., Till, G.O., Gannon, D.E., Varani, J.A. and Johnson, K.J.: The role of iron in injury of endothelial cells in vitro and in vivo, in, Simic, M.D., Taylor, K.A., Ward, J.F. and Sonntag, C.C. (eds), Oxygen Radicals in Biology and Medicine, 4-ICOR Conference, Plenum Press, New Yor, pp. 969-974, 1989.
4. Ward, P.A., Till, G.O. and Johnson, K.J.: Oxygen-dervied free radicals in inflammation. Chapter for Workshop on Inflammation and Healing of Sports Induced Soft Tissue Injury, held in Bethesda, Maryland, May 23, 1989.
5. Ward, P.A., Warren, J.S., Johnson, K.J. and Varani, J.: Cytokines and oxygen radical responses, in, Faist, Ninnemann and Green (eds), Proceedings of the 1st International Congress on "The Immune Consequences of Trauma, Shock and Sepsis: Mechanisms and Therapeutic Approaches", Springer-Verlag, Berlin, Heidelberger, pp. 173-178, 1989.
6. Ward, P.A., Warren, J.S., Remick, D., Varani, J., Gannon, D. and Johnson, K.J.: Cytokines and oxygen-radical-mediated tissue injury, Chapter 6, in, Bihari, D.J. and Cerra, F.B. (eds), New Horizons: Multiple Organ Failure, Society of Critical Care Medicine, pp. 93-100, 1989.
7. Ward, P.A., Warren, J.S., Till, G.O., Varani, J. and Johnson, K.J.: Modification of disease by preventing free radical formation: A new concept in pharmacological intervention, Chapter 7, in, Hershko, C. (guest ed.), Bailliere's Clinical Haematology, Vol. 1, No. 2, Bailliere Tindall, London, England, pp. 391-402.
8. Ward, P.A., Warren, J.S., Till, G.O., Varani, J. and Johnson, K.J.: Free radicals in lung disease, Rice-Evans, C.(ed.) Free Radicals, Diseased States and Anti-Radical Interventions, Proceedings of the Special Colloquim, London, England, pp. 57-77, 1989.
9. Warren, J.S., Ward, P.A. and Johnson, K.J.: Immune complex injury, Cantor, J.D. (ed.), CRC Handbook of Animal Models of Pulmonary Disease, CRC Press, Boca Raton, Florida, pp. 107-114, 1989.
10. Warren, J.S., Ward, P.A. and Johnson, K.J.: Oxygen radicals as "mediators of inflammation", Volume 6, in, Henson, P. (ed.), Mediators of the Infammatory Process, The Handbook of Inflammation, Elsevier Biomedical Division, Amerstand, The Netherlands, pp. 159-176, 1989.
11. Fantone, J.C. and Ward, P.A.: Inflammation, Chapter 2, in, Rubin, E. and Farber, J.L. (eds), Essential Pathology, J.B. Lippincott Company, Philadelphia, Pennsylvania, pp. 20-39, 1990.
12. Johnson, K.J., Chensue, S.W., Kunkel, S.L. and Ward, P.A.: Immunopathology, Chapter 4, in, Rubin, E. and Farber, J.L. (eds.), Essential Pathology, J.B. Lippincott Company, Philadelphia, Pennsylvania, pp. 58-93, 1990.
13. Warren, J.S., Ward, P.A. and Johnson, K.J.: The inflammatory response, Chapter 8, in, Williams, W.J., Beutler, E., Erslev, A.J. and Lichtman, M.A. (eds.), Hematology, McGraw-Hill Publishing Company, New York, New York, pp. 63-70, 1990.

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

1. **Ward, P.A.**, Varani, J., Phan, S.H., Friedl, H.P., Till, G.O. and Ryan, U.S.: Consequences of interactions between neutrophils and endothelial cells. Workshop on the Biology of Renal Microvasculature, Bethesda, Maryland, October 23-24, 1989, pp. 27-28.
2. Barker, J.N.W.N., Jones, M.L., Swenson, C., Mitra, R.S., Elder, J.T., Fantone, J.C., **Ward, P.A.**, Dixit, V.M. and Nickoloff, B.J.: Keratinocyte (KC) production of a biologically active monocyte chemoattractant. Clinical Research 1990:38:643A.
3. Barton, P.A., Warren, J.S., Yabroff,K.R. and **Ward, P.A.**: Neutrophil recruitment in acute immune complex alveolitis: Roles of complement and intrapulmonary TNF. FASEB J. 1990:4;A361.
4. Gibbs, D.F., Varani, J., Phan, S.H. and **Ward, P.A.**: Hydrogen peroxide-mediated cytotoxicity of rat endothelial cells: Changes in ATP and purine products and the effects of protective interventions. FASEB J. 1990:4;A629.
5. Hagenlocker, B.E., Walker, B.A.M., Yu, G.H. and **Ward, P.A.**: Subclassification of the responses of human neutrophils to extracellular ATP and other nucleotide triphosphates. FASEB J. 1990:4;A349.
6. Mahrougui, M., Till, G.O. and **Ward, P.A.**: Calcium responses of rat pulmonary artery endothelial cells. FASEB J. 1990:4;A349.
7. Markey, B.A., Phan, S.H., Varani, J., Ryan, U.S. and **Ward, P.A.**: Inhibition of H_20_2 and neutrophil-induced endothelial cell cytotoxicity by intracellular superoxide dismutase supplementation. FASEB J. 1990:4;A1019.
8. Marks, R.M., Boxer, L.A. and **Ward, P.A.**: Complement mediated neutrophil adhesion to endothelium is defective in leukocyte adhesion deficiency. FASEB J. 1990:4;A643.
9. Scovic, J.S., Friedl, H.P., Mahrougui, M., Paul, J.B., Till, G.O. and **Ward, P.A.**: Release by inflammatory mediators of xanthine oxidase and histamine from vascular endothelial cells. FASEB J. 1990:4;A890.
10. Walker, B.A.M., Hagenlocker, B., Tarapchak, S.J., Douglas V., Yu, G.H. and **Ward, P.A.**: Nucleotide triphosphate enhancement of $0_2^{-\cdot}$ responses of human neutrophils. FASEB J. 1990:4;A349.
11. Warren, J.S., Barton, P.A., Mandel, D.M., Matrosic, K. and **Ward, P.A.**: Intrapulmonary tumor necrosis factor triggers endogenous platelet activating factor in acute immune complex alveolitis. FASEB J. 1990:4;A1215.
12. Yu, G.H., Walker, B.A.M., Tarapchak, S.T., Hagenlocker, B.E. and **Ward, P.A.**: Evidence for an ATP˝S binding site on human neutrophils. FASEB J. 1990:4;A349.

JEFFREY S. WARREN, M.D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Director, Clinical Immunopathology Laboratory
B. Autopsy pathology, staff coverage (2 weeks)

II. TEACHING ACTIVITIES:

A. Pathology 631 (60 contact hours)
B. Microbiology 505 - lecture: "The acute inflammatory response"
C. Clinical Pathology Grand Rounds:
   "Granulocyte function testing" (11/3/90).
   "Anti-neutrophil cytoplasmic antibody" (11/17/90)
D. Immunopathology journal clubs (biweekly)
E. Immunopathology signout: Pathology residents, M-4 medical students, EMU medical technology students (daily; every other week)
F. Supervsion of research activities for:
   1. David M. Mandel (M-2); (6/1/89 - 8/30/89)
   2. Kevin Matrosic (M-2); (5/15/89 - 8/15/89); sponsored in student Biomedical Research Program.
   3. Michael L. Jones, Ph.D. candidate - postdoctoral fellow; (4/1/89-present); recipient of AHA-Michigan Fellowship (salary support).

III. RESEARCH ACTIVITIES:

A. Role of cytokines (tumor necrosis factor, interleukin 1) in immune complex lung injury.
B. Platelet-activating factor in immune complex alveolitis.
C. Rat homolog of monocyte chemotactic and activating factor (MCAF): role in post-acute inflammatory lung injury.

SPONSORED SUPPORT:

A. NIH (R29 - HL40526), Principal Investigator (50% effort), "Monocyte-Macrophage Cytokines in Immune Complex Lung Injury": 4/1/89 - 3/31/94 ($350,000; direct costs).
B. American Heart Association of Michigan Grant-in-Aid, Principal Investigator (10% effort), "Platelet-Activating Factor in Immune Alveolitis": 7/1/89 - 6/30/91 ($44,400; direct costs).

IV. ADMINISTRATIVE ACTIVITIES:

MEDICAL SCHOOL:

A. Medical school admissions committee

DEPARTMENTAL:

A. Members search committee for biochemistry section director
B. Interviewer, graduate pathology program applicants
C. Interviewer, pathology residency applicants

REGIONAL AND NATIONAL:

A. Ad hoc referee for following journals: American Journal of Pathology; Laboratory Investigation; Journal of Applied Physiology; Blood; Journal of Leukocyte Biology; Pediatric Research; Chest; American Review of Respiratory Diesase; American Journal of Respiratory Cell and Molecular Biology; Journal of Pharmacology and Experimental Therapeutics; Lung; Human Pathology; Journal of Laboratory and Clinical Medicine; Circulation; Ophthamology.

V. INVITED LECTURES/SEMINARS:

1. Warren, J.S., Ward, P.A., Till, G.O., and Johnson, K.J.: Complement activation, cytokines, oxygen radicals and lung injury. XXXI International Congress of Physiological Sciences. Helsinki, Finland, July 12, 1989 (symposium).
2. Warren, J.S.: Oxygen radicals and cytokine mediators of inflammation. ASCP Pathology Update 1989, Chicago, Illinois, September 13, 1989 (Postgraduate course).

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Warren, J.S., Yabroff, K.R., Remick, D.G., Kunkel, S.L., Chensue, S.W., Kunkel, R.G., Johnson, K.J., and Ward, P.A.: Tumor necrosis factor participates in the pathogenesis of acute immune complex alveolitis in the rat. J. Clin. Invest., 1989;84:1873-1882.
2. Warren, J.S., Yabroff, K.R., Mandel, D.M., Johnson, K.J., and Ward, P.A.: Role of O_2^- in neutrophil recruitment into sites of dermal and pulmonary vasculitis. Free Rad. Biol. Med., 1990;8:163-172.
3. Warren, J.S., Johnson, K.J., and Ward, P.A.: PAF and immune complex induced injury. J. Lipid Mediators, 1990;2:229-237.
4. Warren, J.S., Barton, P.A., Mandel, D.M., and Matrosic, K.: Intrapulmonary tumor necrosis factor triggers local platelet-activating factor production in rat immune complex alveolitis. Lab. Invest. (in press).

SUBMITTED FOR PUBLICATION:

1. Warren, J.S., Barton, P.A., Jones, M.L.: Contrasting roles for tumor necrosis factor in the pathogeneses of IgA and IgG immune complex lung injury. (Submitted for publication).
2. Ward, P.A., Till, G.O., Varani, J., Todd, R.F., Warren, J.S.: Role of rat neutrophil adhesive molecules in complement and oxygen radical-mediated inflammatory reactions. (Submitted for publication).

BOOKS/CHAPTERS IN BOOKS:

1. Warren, J.S., Ward, P.A., Johnson, K.J.: The inflammatory response, in Williams, W.J., (ed.) Hematology, 4th Edition, McGraw-Hill, New York, NY, pp. 63-70, 1990
2. Warren, J.S., Ward, P.A., Johnson, K.J.: Immune complex injury, in Cantor, J.O. (ed.) Handbook of Animal Models of Pulmonary Disease, CRC Press, Inc., Boca Raton, FL, pp. 107-114, 1989.
3. Warren, J.S., Ward, P.A., Johnson, K.J.: Oxygen radicals as 'mediators of inflammation' in Henson, P.M. (ed.) Mediators of the Inflammatory Process, Handbook of Inflammation, Vol 6, Elsevier, Amsterdam, The Netherlands, pp. 159-176, 1989.
4. Ward, P.A., Warren, J.S., Johnson, K.J. and Varani, J.: Cytokines and oxygen radical responses, in Maier, R. (ed.), Proceedings of the 1st International Congress on The Immune Consequences of Trauma, Shock, and Sepsis: Mechanisms and Therapeutic Approaches, (In press).
5. Ward, P.A., Warren, J.S., Till, G.O., Varani, J. and Johnson, K.J.: Free radicals in lung disease, Rice-Evans, C.(ed.) Free Radicals, Diseased States and Anti-Radical Interventions, Proceedings of the Special Colloquium, London, England, (In press).
6. Ward, P.A., Warren, J.S., Varani, J., and Johnson, K.J.: PAF, cytokines, toxic oxygen products and cell injury. Molecular Aspects of Medicine, Proceedings of the VIIth Annual Inflammation Meeting, Birmingham, U.K. Pergammon Press, (In press).
7. Ward, P.A., Warren, J.S.: Neutrophils, macrophages, and cytokines. International Symposium on Pathophysiology of Pulmonary Cells, Proceedings of the Symposium, Turin, Italy, 1990.
8. Warren, J.S., Johnson, K.J., and Ward, P.A.: Immunoglobulin and complement mediated immune injury, in Crystal, R.G., and West, J.B. (eds.) The Lung: Scientific Foundations, Raven Press, New York, NY, (In press).
9. Warren, J.S., Johnson, K.J., and Ward, P.A.: Consequences of oxidant injury, in Crystal, R.G. and West, J.B. (eds.) The Lung: Scientific Foundations, Raven Press, New York, NY, (In press).
10. Warren, J.S.: Role of cytokines in experimental lung injury, in Remick, D.G. and Kunkel, S.L. (eds.) Cytokines in Health and Disease: Physiology and Pathophysiology, Marcel Dekker, New York, NY (in press).

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

1. Warren, J.S.: Interleukins and tumor necrosis factor in inflammation, in Batsakis, J.G. and Savory, J. (eds.) Critical Reviews in Clinical Laboratory Sciences, CRC Press, Boca Raton, FL, (In press).
2. Warren, J.S., Barton, P.A., Mandel, D.M., Matrosic, K. and Ward, P.A.: Intrapulmonary tumor necrosis factor triggers endogenous platelet-activating factor in acute immune complex alveolitis. FASEB, 1990, (minisymposium).
3. Barton, P.A., Warren, J.S., Yabroff, K.R., and Ward, P.A.: Neutrophil recruitment in acute immune complex alveolitis: roles of complement and intrapulmonary TNF. FASEB, 1990 (abstract).
4. Warren, J.S.: Cytokine mediators of inflammation. Clin. Immunol. Newsl. (In press).

LEE WEATHERBEE, M.D.
ASSOCIATE PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Chief, Laboratory Service, VA Medical Center, Ann Arbor, Michigan and VA Outpatient Clinic, Toledo, Ohio.
B. Consultant for referred bone pathology cases at University of Michigan.
C. Primary activities in surgical and autopsy pathology.

II. TEACHING ACTIVITIES:

A. Three days per week read out surgical cases with the resident on an individual basis.
B. Reviewed autopsy gross and microscopic material with the residents for forty-two autopsies.
C. Participated regularly in VA autopsy and surgical pathology conferences with assigned residents.
D. Assumed primary responsibility for coordinating interdepartmental conferences including the monthly Medicine Morbidity and Mortality Conference.
E. Gave two lectures in bone pathology for the dental students and for the second year medical students.
F. Participated in the pathology laboratory for second year medical students.
G. Coordinated the fourth year medical student rotation at the VA Medical Center.
H. Informally consulted on bone and joint cases primarily at the University of Michigan and reviewed material with the residents involved.

III. RESEARCH ACTIVITIES:

COOPERATIVE STUDIES: Ongoing:
With Richard Turnage, study of hepatic changes in intestinal ischemia - reperfusion.

SPONSORED SUPPORT: None.

IV. ADMINISTRATIVE ACTIVITIES:

LOCAL:

A. Overall responsibility for VA Medical Center Laboratory Service and for Laboratory at VA Outpatient Clinic, Toledo, Ohio.
B. Executive Faculty, The University of Michigan.
C. Admissions Committee, The University of Michigan Medical School.
D. Clinical Executive Board, VA Medical Center. Major advisory board to the Chief of Staff and Director, VA Medical Center, regarding clinical affairs.
E. Dean's committee, VA representative.

F. Quality Assurance Board, VA Medical Center.
G. Professional Standards Board, VA Medical Center.
H. Radiation Safety Committee, VA Medical Center.
I. Acting Chief of Staff, VA Medical Center. Serve in the role of Chief of Staff in his absence.
J. General responsibility for Laboratory Service management, budget, staffing and personnel activities, quality assurance, establishment of resource needs and coordination with other clinical services.
K. Responsible for Laboratory Service representation in other major committees and hospital activities such as Blood Utilization, Surgical Case Review, Ambulatory Care and Infection Committees, as well as ad hoc review boards and special studies.

REGIONAL AND NATIONAL:

A. Red Cross Medical Advisory Board, Southeastern Michigan Region.
B. Clinical and Programs Advisory Council to Chief Medical Director, VA Central Office. 1987 to present.

V. OTHER RELEVANT ACTIVITIES:

A. Inspector for College of American Pathologists Inspection and Accreditation Program.
B. Deputy Medical Examiner, Washtenaw County.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Case Report 572 - Osteosclerotic myeloma. C. Brandon, W. Martel, L. Weatherbee, P. Capek. Skeletal Radiol (1989) 18:542-546.

BERNARD WEISS, M.D.
PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES: None.

II. TEACHING ACTIVITIES:

MEDICAL SCHOOL/HOSPITALS:

A. Co-organizer and lecturer, short course on DNA Repair, sponsored by Human Genetics. Department.
B. Supervised research of postdoctoral fellow, Jie Wu, and medical student, Vernon Stevenson.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. American Cancer Society, Mutants for DNA Enzymes; MV-205

PROJECTS UNDER STUDY:

A. The consequences of replacing thymine with uracil in DNA.
B. A gene of *Escherichia coli* affecting DNA and pantothenate synthesis.
C. A superoxide response regulation of *Escherichia coli.*

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Co-director, Graduate Training Program in Pathology.

REGIONAL AND NATIONAL:

A. Ad hoc grant reviewer, National Science Foundation, Genetics Study Section.
B. Reviewer for the following journals:
   1. Proceedings of the National Academy of Sciences, U.S.A.;
   2. Journal of Bacteriology;
   3. Biochemistry; and
   4. Molecular and General Genetics.
C. Session convener, UCLA Symposium on Mammalian DNA repair.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. UCLA Symposium on Mammalian DNA Repair, Lake Tahoe, Nevada, Invited Speaker.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Tsaneva, I.R. and Weiss, B.: soxR, a locus governing superoxide response regulon in *Escherichia coli* K-12. J. Bacteriol. 1990:171;(in Press).

BOOKS/CHAPTERS IN BOOKS:

1. Weiss, B., Tsaneva, I.R. and Wu, J.: A superoxide response regulon in *Escherichia coli*, in, Wallace S. and Painter, R. (Eds), UCLA Symposia on Molecular and Cellular Biology, New Series, Wiley/Liss, New York, New York, 1990, In Press.

SHARON W. WEISS, M.D.
PROFESSOR OF PATHOLOGY
DIRECTOR OF ANATOMIC PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Surgical Pathology Service - 3 1/2 months
B. Consultant for Bone and Soft Tissue - 12 months
C. Secondary Consultant for Breast Pathology - 12 months
D. Necropsy Service - on call
E. M-Lab Surgical Pathology Service - as needed

II. TEACHING ACTIVITIES

A. Sophomore Medical Class
Pathology 600 - lecture - 1 contact hour
B. House Officers
1. Training in Surgical Pathology
2. Lectures, slide seminar, and journal club - 7 hours
C. Hospital Conferences
1. Sarcoma Conference - monthly
D. Graduate Student
Responsible for training of Dr. Mark Smith, Imperial Cancer Research Fund, London England - 11/89-11/90

III. RESEARCH ACTIVITIES

SPONSORED SUPPORT:

A. Southwest Oncology Group, SWOG study 9055 ($3,197).

PROJECTS UNDER STUDY:

A. Immunophenotype of angiomatoid malignant fibrous histiocytoma.
B. Dedifferentiation in low grade liposarcoma.
C. Epithelioid malignant Schwannoma.
D. Angiomatosis.
E. Prognostic factors in retroperitoneal sarcoma.

IV. SERVICE ACTIVITIES

DEPARTMENTAL:

A. Director, Division of Anatomic Pathology, Surgical Pathology.

B. Member, Chairman's Advisory Committee.
C. Member, Photography Committee.
D. Member, Program Committee, Residency Training Program.
E. Director, Surgical Pathology Fellowship Program.
F. Member, Tissue and Invasive Procedures Committee.

REGIONAL AND NATIONAL

A. Chairman, WHO Committee for Classification of Soft Tissue Tumors.
B. US-Canadian Academy of Pathology.
   1. Councillor
   2. Benjamin Castleman Award Committee.
C. American Society of Clinical Pathology.
   1. Anatomic Pathology Council
   2. Editor, Check Sample APII
D. Association of Directors of Anatomic Pathology.
   1. Organizing Committee
   2. Program Chairman
E. Chairman, Sarcoma Pathology Subcommittee, Southwest Oncology Group.
F. Editorial Board, American Journal of Surgical Pathology.
G. Editorial Board, American Journal of Dermatopathology.
H. Editorial Board, American Journal of Clinical Pathology.
I. Editorial Board, Seminars Diagnostic Pathology.
J. Editorial Board, Journal of the National Cancer Institute.
K. Editorial Board, AFIP Fascicles (3rd Series).
L. Consultant in Pathology, National Institutes of Health.
M. Member, Michigan Society of Pathologists.
N. Member, Arthur Purdy Stout Society of Surgical Pathologists.

V. INVITED LECTURES

1. "Hemangioendothelioma: Vascular Tumors or Intermediate Malignancy," British Society of Dermatopathologists, Glasgow, Scotland, February 1990.
2. "Lipomatous Lesions: The Issue of Dedifferentiation," 2nd Annual Soft Tissue Symposium, Riva Del Garda, Italy, April 1990.
3. "Vascular Tumors," Washington Society of Pathologists, Seattle, Washington, March 1990.
4. Visiting Professor, "Lipomatous Tumors," University of Washington, Seattle, Washington, March 1990.
5. Moderator, Soft Tissue Slide Seminar, US-CAP Meeting, Boston, Massachusetts, March 1990.
6. 10th Annual Slide Seminar, Florida West Coast Association of Pathologists, Long Boat Key, Florida, June 1990.

V. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS

1. Shmookler, B.M., Enzinger, F.M. and Weiss, S.W.: Giant cell fibroblastoma: A juvenile form of dermatofibrosarcoma protuberans. Cancer 64:2154-2161, 1989.
2. Enzinger, F.M., Weiss, S.W. and Liang, C.Y.: Ossifying fibromyxoid tumors of soft tissue: A clinicopathology analysis of 59 cases. Amer. J. Surg. Pathol. 13:817-827, 1989.

3. Weiss, S.W.: Vascular tumors: A deductive approach to diagnosis. Surg. Pathol. 2:185-201, 1989.
4. Kransdorf, M.J., Moser, R.P., Jelinek, J., Weiss, S.W., Buetow, P.C. and Berrey, B.H.: Intramuscular myxoma: An expanding radiologic spectrum. J. Comp. Ass. Tomog. 13:836-839, 1989.
5. Wenig, G., Gnepp, D. and Weiss, S.: Liposarcoma of the larynx: A report of 10 cases. Amer. J. Surg. Pathol. 14:134-141, 1990.
6. Fetsch, M.D. and Weiss, S.W.: Ectopic hamartomatous thymoma. Clinicopathologic, immunohistochemical and histogenetic considerations in four new cases. Human Pathol. 21:662-668, 1990.
7. Kao, G.F., Laskin, W.B. and Weiss, S.W.: Eccrine spiradenoma occurring in infancy: A lesion mimicking a mesenchymal tumor. J. Cut. Pathol. (In Press).
8. Luthringer, D.J., Virmani, R., Weiss, S.W. and Rosai, J.: A distinctive cardiovascular lesion resembling histiocytoid hemangioma: Report of 11 cases. Amer. J. Surg. Pathol. (In Press).
9. Costa, M.J. and Weiss, S.W.: Angiomatoid malignant fibrous histiocytoma: A long-term follow-up study of 108 cases with evaluation of histologic predictors of outcome. Amer. J. Surg. Pathol. (In Press).

BOOKS AND CHAPTERS IN BOOKS

1. Laskin, W.B. and Weiss, S.W.: Benign Fibrous Lesions of Upper Limb, in Bogumull, G.P. and Fleegerl, E.S. (ed.), Tumors of the Hand and Upper Limb, Churchill Livingstone, London (In Press).

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

1. Becker, R.L., Venzon, D., Lack, E., Mikel, U., Weiss, S.W. and O'Leary, T.O.: Flow cytometry and morphometry of malignant fibrous histiocytoma of the extremities: Prognostic prediction for recurrence and survival. Lab. Invest. 62:8A, 1990.
2. Costa, M.J. and Weiss, S.W.: Angiomatoid malignant fibrous histiocytoma: A long term follow-up study of 108 cases with evaluation of histologic predictors of outcome. Lab. Invest. 62:23A, 1990.
3. Rosenberg, A. and Weiss, S.W.: Case Records of the Massachusetts General Hospital, N. Engl. J. Med. 322:683-690, 1990.

J. REIMER WOLTER, M.D.
PROFESSOR OF OPHTHALMOLOGY
DEPARTMENTS OF OPHTHALMOLOGY AND PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

I. CLINICAL ACTIVITIES:

A. Finishing of retirement furlough on June 30, 1990. Starting of Emeritus Professorships July 1, 1990.
B. Phasing out of functions in Ophthalmic Pathology Service, Departments of Ophthalmology and Pathology with continuation of examination of complicated lens implants removed surgically from the human eyes.

II. TEACHING ACTIVITIES:

A. Taking part in regular teaching rounds in the Kellogg Eye Center intended for students, residents, fellows, and staff - as well as in the postgraduate programs in Ophthalmology.
B. Orderly completion of my functions of representing Ophthalmic Pathology at this University - locally and at national or international meetings.

III. RESEARCH ACTIVITIES:

A. Experts in both, the Pathology and Ophthalmology Departments, have continuously contributed very valuable support and advice to the research effort in Ophthalmic Pathology.

SPONSORED SUPPORT:

A. Research in Ophthalmic Pathology has had continuous support from The Research to Prevent Blindness, Inc., New York, New York for more than ten years.

PROJECTS UNDER STUDY:

A. Reactions of the inner eye to lens implants.
B. Pathology of granulomatous ocular reactions of the inner eye to foreign substances like cotton, cardboard, displaced hair, mechanical oil, or old blood, fungus and bacteria, for example.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Handing on of planning and organization of daily routine, teachin and research in Ophthalmic Pathology in the two Departments to successor in addition to the usual functions of a professor.

MEDICAL SCHOOL/HOSPITAL:

A. Completion of memberships in Medical Student Research Committee and Tissue Committee.
B. Change to Emeritus Member of Medical Staff of University Hospital.

REGIONAL AND NATIONAL:

A. Member, AMA.
B. Member, American Academy of Ophthalmology.
C. Emeritus member, American Ophthalmological Society
D. Member, German Ophthalmological Society.
E. Member, Association for Research in Ophthalmology.
F. Member, Michigan Ophthalmological Society.
G. Member, Detroit Ophthalmology Club.
H. Member, Association of American Ophthalmic Pathologists.
I. Member, Theobald Society of Ophthalmic Pathology.
J. Honorary Member, Association of Pediatric Ophthalmology.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. Wolter, J.R. and Vine, A.K.: Immediate Tenonectomy added to enucleation for grossly observed extraocular melanoma extension. International Symposium Tumors of the Eye, Essen, Germany 9.21-23, 1989.
2. Wolter, JR and Benz, SC: Melanophages in Tenon's capsule following tenonectomy for extraocular melanoma extension. International Symposium on tumors of the eye. Essen, Germany Sept. 89.
3. Wolter, J.R.: One week of invited lectures on ophthalmic pathology to residents at University of California, San Diego, 2. 16-24, 1990.
4. Wolter J.R.: Cytopathology of the reactions to intraocular lenses. Biological Science Program of Scanning Microscopy International, in Bethesda, Maryland 5. 5-10, 1990.
5. Wolter, J.R. and Bromley, W.C.: Intraepithelial sebaceous epithelioma of the lids, Conjunctiva and cornea treated with minimal orbital exenteration. Theobald Society of Ophthalmic Pathology, Philadelphia, Pennsylvania 5 11-12, 1990.
6. Wolter, J.R. and Bromley, W.C.: Tenonectomy as part of minimal orbital exenteration for sebaceous epithelioma. Scientific Program of 6th Annual Alumni/Resident Day, Department of Ophthalmology U of M, 5.17, 1990.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Wolter, J.R. and Soong, H.K.: Flat sections for detailed endothelial pathology of corneal buttons. Refract Corn Surg 15: 274-277, 1989.
2. Wolter, J.R.: Pathology and general significance of fibrin deposition on lense implants. J Cat Refract Surg 15: 572-576, 1989.
3 Wolter, J.R. Precipitates on cornea and lens implants in pseudophakia: indicators of granulomatous anterior uveitis. Implants in Ophth, Singapore, 3: 51-54, 1989.
4. Wolter, J.R. and Till, G.O.: Multinucleated giant cells on Bruch's membrane late in recurrent retinal and subretinal hemorrhaging. Ophthalmologica 199: 53-59, 1989.
5. Wolter, J.R.: Cytopathology of the reactions to IOL's. Transactions of Congress on Biomaterials in Ophthalmology, Bologna, Italy, pp. 195-202.
6. Wolter, J.R. and Pavilack, M.A.: Unsuspected paperboard-endophthalmitis in ruptured eye. Ophth Surg 21: 355-362, 1990.
7. Wolter, J.R: Detachment of intact posterior lens capsule secondary to contusion in penetrating ocular trauma. J Ped Ophth 27: 91-93,1990.
8. Wolter, J.R.: Chapter on "Hematologic and cardiovascular disorders." in Fraunfelder, FT and Roy, FH "Current Ocular Therapy." WB Saunders, Phil. 1990, pp. 164-165.
9. Wolter, J.R. and Vine, A.K.: Immediate Tenonectomy added to enucleation for grossly observed extraocular melanoma extension. Transactions International Symposium Tumors of the Eye, Essen, in press.
10. Wolter, J.R. and Benz, S.C.: Melanophages in Tenon's capsule following Tenonectomy for extraocular melanoma extension. Transactions International Symposium tumors of the Eye, Essen, in press.
11. Wolter, J.R.: Cytopathology of ocular reactions to IOL's. Scanning Microscopy, in press.
12. Wolter, J.R. and Till, G.O.: Granulocyte invasion, detachment and degeneration of corneal endothelium in acute Kerato - uveitis. Cornea, in press.
13. Wolter, J.R.: Fixation fibrosis. J Cat Refract Surg, in press.
14. Wolter. J.R. and Wenzel, MR: Spontaneous breaks in Proteinaceous membranes on IOL's. J. Cat Refract Surg, in press.

SECTION REPORTS

DIVISION OF ANATOMIC PATHOLOGY

DEPARTMENT OF PATHOLOGY
ANNUAL REPORT
1 JULY 1989 - 30 JUNE 1990

My first year as director of this division has passed swiftly and was marked by a variety of challenges and changes. Our professional staff was expanded with the addition of Dr. Thomas Frank and myself last summer to the surgical pathology service, and we look with anticipation to the arrival of Dr. Anders Sima this summer. His expertise in the area of neuromuscular disease will complement our already strong and active neuropathology service. Dr. Reimer Wolter officially retired this year, but we will continue to avail ourselves of his expertise in ophthalmic pathology in his capacity of Emeritus Professor.

Several administrative and programmatic changes have been effected in order to improve the quality of medical care and our educational programs. The supervision of all of the anatomic pathology laboratories has been consolidated under the capable direction of Lizabeth Binns. The Ophthalmic Pathology service has been fully integrated into our Surgical Pathology service in order to ensure the timely process of specimens as well as to afford our residents training in this subspecialty area. With the advent of Belinda Davis, the new Cytology supervisor, we anticipate an enhancement of the level of training and co-operation among our cytotechnologists. Our surgical pathology fellowship program will open its doors on July 1, 1990 to two of our own residents, Drs. DelBuono and Graham. This fellowship is an important stride to making our residency training program highly competitive. A "Residents' Visiting Professorship" was initiated this year as an opportunity for the housestaff to select a distinguished pathologist of their choice with whom they might interact over a two day period. Dr. Lauren Ackerman graciously accepted our invitation to become our first visiting professor and provided us with his typical blend of erudition and wit. We have striven to involve a greater number of staff at all levels in the autopsy service to emphasize our commitment to this important teaching service. Lastly, a systematic QA/QC program was put in place, thereby culminating the efforts begun by my predecessor, Dr. Gerald Abrams.

Over the next year we look to a completion of our recruitment activities in surgical and cytopathology and to a closer interaction between the Molecular Diagnostic Laboratory and the service and research activities of this division.

On a personal note, I would like to conclude by saying that the past year has been an exhilarating and satisfying experience. I could not have wished for a department abounding in more good will and collegiality. I thank my predecessors Drs. Abrams and Appelman for the wisdom of their counsel, my colleagues for their support, and the residents for their uplifting humor. Finally, I want to acknowledge Dr. Ward for the sense of purpose and excellence with which he has imbued the department.

Sharon W. Weiss, M.D.
Director, Anatomic Pathology

AUTOPSY SERVICE

DEPARTMENT OF PATHOLOGY
ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

The Autopsy Service of The University of Michigan continues to perform autopsies on University of Michigan patients. There has been significant activity on three fronts of the Autopsy Service:

I. Alzheimer's Disease

Public Act 441 of Michigan (1988) has directed the Department of Public Health to study Alzheimer's disease in the State of Michigan. It is anticipated that there will be an increase in the number of "brain only" autopsies performed at The University of Michigan on patients with dementing illnesses. If these patients are former University of Michigan patients, the autopsies are conducted without charge. If, however, the patients belong to the Alzheimer's Disease Related Disorders Association (ADRDA), the brain only autopsy may be performed and the patient's family billed for the procedure. It is difficult to predict the total number of cases this will involved, although the State would like to target for 1,500 autopsies performed yearly on a State-wide basis. The Department of Pathology actively participates in this program, however, we have been careful to delineate our responsibilities, especially in regards adequate reimbursement for our professional services.

II. Medical Examiner Cases

House Bill 4416 is legislation which would allow counties to return bodies to the county of injury for autopsy. This bill, in its present form, has passed the House but there is strong opposition from certain members of the Michigan Association for Medical Examiners (MAME). Currently, this bill is effectively blocked in the Senate Subcommittee and most likely will not be passed into law this year. After negotiations with the University of Michigan and MAME, compromise legislation was written to replace House Bill 4416. This new legislation, if approved, would allow the following:

A. By mutual agreement, the county of death may return the body to the county of injury at any time. Discussions with medical examiners from neighboring counties show strong support for this procedure and hopefully will allow the Service to return bodies to the county of injury.

B. If death occurs within 48 hours of the injury, the body may be sent back to the county of injury or may be autopsied in the county where the death occurred. If the autopsy is performed in the county of death, the county of injury **MUST** pay for the cost of the autopsy.

The Executive Committee of MAME has endorsed this policy, and it is anticipated that if this new legislation is re-introduced this Fall, it will easily pass both the House and Senate and become law. This law would allow us to send the bodies back to the county of injury, or submit a reasonable bill to the county of injury which must then pay.

III. Improved Turn-Around Time

The turn-around time for completion of autopsy cases continues to be unacceptably slow. There are a number of factors which account for this, two primary reasons being slow return on neuropathology slides and slow return on typed protocols. To correct these deficiencies, the following procedures will be initiated:

A. Assistance in typing of autopsy protocols. Workloads have been re-adjusted within the Department, such that there will be additional assistance available for typing of protocols. This support will be provided by an experienced transcriptionist (Ms. Peggy Otto).

B. Weekly monitoring of turn-around time. Every Tuesday morning, the turn-around time for both histology and neuropathology slides will be evaluated. A list of all cases where histology is older than two weeks, or neuropathology older then three weeks, will be prepared.

AUTOPSY STATISTICS

	1989/90
Total U of M Autopsies	389
M-Labs Cases	11
Medical Examiner Cases	39
In-Hospital Deaths	17
Outside Cases	22
Percent of U of M Deaths Autopsied (includes Tetralogy Cases)	38

	85/86	86/87	87/88	88/89	89/90
Total Autopsies	394	381	385	383	389
Autopsy Rate, U of M	38%	36%	35%	40%	38%
Medical Examiner Cases	70	62	35	49	39
Number of Attending Staff	16	15	15	16	19

CYTOPATHOLOGY LABORATORY

DEPARTMENT OF PATHOLOGY
ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

As predicted one year ago, the workload in the cytopathology laboratory has increased dramatically during the last twelve months due to the influx of gynecologic cytology specimens from M-Labs. We are now dealing with approximately 40,000 gynecologic cytology specimens per year, twice as many as we dealt with two years ago. The number of non-gynecologic specimens, 7,188, decreased slightly, probably due to the nursing strike in July, 1989. With the streamlining of laboratory operations, we have generally managed to keep up with the increased workload, but it has deprived the cytotechnologists of all activities apart from routine screening.

We live in an era of extreme shortage of cytotechnologists and have experienced a complete turnover of our cytotechnologist staff during the past six months. As a result, we have been forced to send gynecologic cytology specimens to other laboratories for staining, examination and reporting. Not all of the cytotechnologists have been replaced, and competition to obtain any available cytotechnologists is severe.

As in surgical pathology, we are experiencing an increased number of cases that are complex and which require more than just the routine examination. Most of the patients requiring this additional attention are immunosuppressed, and the specimens from these patients bring their own particular type of problems, especially the need to identify opportunistic microorganisms and to type complicating neoplasms.

With the impending retirement of Dr. Schmidt, we have been fortunate to be able to recruit Dr. Suzanne M. Selvaggi of Wayne State University.

Bernard Naylor, M.D.
Director
Cytopathology Laboratory

DERMATOPATHOLOGY SERVICE

DEPARTMENT OF PATHOLOGY
ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

The Dermatopathology Service receives case material from four different sources: (1) UMMC (ID) cases; (2) outside contractual (MD) cases; (3) personal consultations (HE) cases and; (4) cases from outside sources reviewed for patients referred to UMMC for additional care and management, (TD) cases. During 1989-1990, the total number of cases received for personal consultations declined slightly, while there was a 10% increase in total volume to 6433 cases.

Correlative activities included regular participation in Melanoma Clinics, and Cutaneous Lymphoma Conferences.

Teaching included scheduled presentations to medical and dental students, Dermatopathology conferences and seminars as well as Dermatopathology tutorials.

1990-1991 promises to continue to show an increase in cases for diagnoses with the recruitment of two new dermatologic surgeons.

John T. Headington, M.D.

Brian J. Nickoloff, M.D., Ph.D.

ELECTRON MICROSCOPY SERVICE
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

The electron microscopy laboratory continues to provide an important service function for both the clinical and research programs in the Department of Pathology as well as the Medical Center as a whole. During this past year, 391 clinical biopsy specimens were processed by the electron microscopy service. Of this total, 122 were renal biopsies. Many of these renal biopsies are submitted by outside hospitals continuing a long standing tradition of service to these institutions. The remaining clinical specimens submitted include tumors of varying types as well as sural nerve biopsies to assess for peripheral neuropathies. Tumor ultrastructure provides an important tool for the diagnosis of many types of tumors when used in conjunction with light microscopy and immunoperoxidase.

The research use of the laboratory continues to expand dramatically. Most of this material comes from the Department of Pathology but virtually every department of the Medical School utilizes the core laboratory. Over 800 specimens were submitted to the laboratory from research projects. Most of these specimens did not require complete EM processing but rather were processed to the level of thick sections and used for histology and morphometric analysis. However, 73 research specimens were completely processed to the level of ultrastructure. Many of the research specimens were not only processed but were also assessed morphometrically which requires large numbers of sections but does allow for precise quantitation of histologic abnormalities. Immunoelectron microscopy is now being offered as a service to the research community and this, in conjunction with in-situ hybridization, studies should allow for precise localization of proteins in tissues.

In summary, the electron microscopy service continues to provide an important clinical and research function for the Department and the Medical Center. It is anticipated that demand for services from this core facility will continue to increase in the future particularly in the area of research.

Kent J. Johnson, M.D.
Director
Electron Microscopy Service

NEUROPATHOLOGY SERVICE

DEPARTMENT OF PATHOLOGY
ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

The Laboratory of Neuropathology continues to have three interrelated functions: Laboratory diagnostic service, teaching and research. Dr. Samuel P. Hicks was on Active Emeritus status. Constance J. D'Amato, B.S., Assistant Professor and Mila Blaivas, M.D., Ph.D., Clinical Assistant Professor, spent 60% of their time on the Neuropathology Service. Full time faculty was Paul E. McKeever, M.D., Ph.D., Associate Professor.

CLINICAL ACTIVITIES:

The following examinations were completed with the cooperation of our excellent neurohistology, electron microscopic, general histology, immunohistology, and secretarial staff.

1. There were 543 neurosurgical cases examined this year from Main, Mott and outside hospitals in consultation. 54 cases (a 20% increase over the previous year) were referrals from other institutions, a portion of which were part of the NIH funded study of BUDR radio-sensitization of gliomas CA33768. Ninety surgical specimens required special neurohistologic procedures.
2. There were 298 brains examined out of 372 autopsies which is 80% of all autopsies at this Medical Center. 32 were from other institutions and hospitals. Drs. Blaivas and McKeever, in collaboration with Ms. D'Amato interpreted macroscopic neuropathology at the University Hospital. While all neuropathology faculty have participated, Dr. Hicks and Ms. D'Amato collaborated to prepare macroscopic and microscopic descriptions of most UM autopsy brains, and other brains referred for consultation. These are given to the house officer prosectors to compare with their findings, and to facilitate completion of the autopsy reports; in consultation they become the report.
3. There were 145 muscle biopsies (a 9% increase), nearly all with histochemistry, some with electron microscopy. There were 60 peripheral nerve biopsies. Teased fiber preparations and electron microscopy were performed on appropriate nerve biopsies. 79 cases were referrals from other institutions. Dr. Mila Blaivas provides quality diagnoses and consultations. The combination of nerve teasing, muscle histochemistry, electron microscopy and morphometry make the service regionally competitive for diagnostic consultation.
4. Drs. Blaivas and McKeever examined, interpreted and reported 134 cases in semithin section and electron micrographs of 85 cases. The majority were nerve, ceroid and neurosurgical biopsy cases.
5. The ceroid service, buffy coat division, reported 9 cases.
6. The Brain Tumor Board of the University of Michigan Cancer Center and Hospitals reviewed neuropathology and clinical aspects of more than 100 difficult neurooncology cases.

TEACHING ACTIVITIES:

1. Medical Students: This year the faculty taught the regular Neuropathology sequence to our medical students (13 hours) in the Neural and Behavioral Sciences (NBS) 600

curriculum. NBS Neuropathology consists of lectures, handouts, and posters for all second year medical students. In addition to being Director of the NBS Program for 40% of her time, Ms. D'Amato conducted 12 hours of brain cutting sessions for small groups of the second year students. She also again received "The Excellence in Teaching Award" from the 2nd year medical student class.

2. House Officers, Graduate students, Postgraduate and other students and faculty: These include a conference every other month where neuropathology is reviewed; twice monthly Continuing Medical Education (CME) accredited conferences where all biopsies are presented and interpreted; a conference where abnormal brains are examined with all clinicians invited weekly; three types of nerve and muscle biopsy conferences (one weekly, one twice a month and one monthly accredited for CME); individual instruction on autopsies and biopsy material; Neuropathology 858, an 18 hour laboratory-lecture course; and bimonthly conferences with Neuroradiology and Pediatric Neurology.
3. Electives: Dr. Lynne Abruzzo and two Neurology House Officers chose elective rotations on the Neuropathology Service.
4. Dr. James S. Nelson, Head of Neuropathology at Henry Ford Hospital, was appointed Clinical Professor I in the Department of Pathology. Dr. Nelson contributed to neuropathology teaching including Neuropathology 858.

RESEARCH ACTIVITIES:

1. Dr. Hicks' and Ms. D'Amato's research has centered principally on the development of the nervous system in mammals, mechanisms of malformation and recovery from injury caused by radiation, mutant genes or other agents. They also provide neuropathologic support for a biochemical study of Alzheimer's and other dementias conducted by Anne B. Young and John B. Penney, Department of Neurology.
2. Dr. Blaivas and associates continue to investigate ocular muscle (normal and pathology), peripheral nerve grafting and mitochondrial disorders.
3. Dr. McKeever and associates are determining the extent and cause of differences in antigens in brain tumor tissue versus cells in culture. These differences may result from a separate population of cells within brain tumors or from instability of antigen expression by neoplastic cells. They are measuring DNA content and BUdR labeling indices in tumor specimens in vivo and in vitro.
4. The Tumor Immunology, Extracellular Matrix and Neurooncology Groups of the University of Michigan Cancer Center faculty and staff with clinical research interests in brain tumors, met and generated a number of project considerations from Pathology, Neurosurgery, Nuclear Medicine, Neuropathology, Neurology and Neuroradiology collaborations.
5. Collaboration with Neurology, and Epidemiology Departments, Eastern Michigan University, the State of Michigan Department of Public Health, the Alzheimer's Disease and Related Disorders Association and Henry Ford Hospital proposes to establish a registry for dementias and Alzheimer's disease.

Paul E. McKeever, M.D., Ph.D.
Director
Neuropathology Service

PEDIATRIC PATHOLOGY SERVICE

DEPARTMENT OF PATHOLOGY
ANNUAL REPORT
1 JULY 1989 - 30 JUNE 1990

The activities of this service were carried out as in the past, primarily by Kathleen P. Heidelberger, M.D. and Mason Barr, Jr., M.D.

Necropsy figures are as follows:

M/W/H Unit Deaths (20 weeks gestation or any liveborn, to 18 years)	= 194
Necropsies on Above	= 117
Necropsy Percentage	= 60%

Of the 117 posts, 48 patients' bodies were released to Anatomy for study and disposal. These posts were performed by Mason Barr, Jr., M.D. Sixty-nine patients were posted by the residents and senior staff in Pathology, primarily Dr. Heidelberger. Necropsies categorized in the general hospital statistics as "Medical Legal" posts included six additional posts on pediatric patients including SIDS cases and emergency room trauma cases.

A total of 426 necropsies for UMMC Hospitals patients was performed (including the six pediatric "Medical Legals"); 48 by Dr. Barr in the Teratology Unit and 378 by the Pathology Department Staff. Thus, 28% of the total posts at the UMMC were pediatric posts.

It should be noted that as a regional center, with a wide range of subspecialities, the total number of cases performed in the Teratology Unit was 171 - including both all referred fetuses and infants and inborn fetal losses at less than 20 weeks' gestational age.

The total number of pediatric surgical specimens (including placentas) examined is almost 2300. This represents an increase of 9.5% from the previous academic year, in spite of the lengthy nurses' strike in Summer - Fall, 1989.

Kathleen P. Heidelberger, M.D.
Director
Pediatric Pathology Service

SURGICAL PATHOLOGY SERVICE

DEPARTMENT OF PATHOLOGY
ANNUAL REPORT
1 JULY 1989 - 30 JUNE 1990

The surgical pathology service continues to be one of the most active services within the clinical laboratory system. Despite the nursing strike in July of 1989, the annual work volume of this service increased slightly over that of the previous fiscal year. The nearly 4000 cases referred to the staff for expert consultation, an increase of 29% over the previous year, brought the total annual accessions to 27,000. We continue to witness a growing complexity of our case material, as reflected in the fact that 5-10% of cases require additional studies and a supplementary report. The increasing activities of our clinical transplant teams have been reflected in a need for more immediate diagnoses and 24-hour availability of our surgical pathologists for interpretation of these biopsies.

For the moment these growing demands have been met by the recruitment of two surgical pathologists this past year and within the next year a third. The institution of a "surgical pathology fellowship" experience for selected senior residents offers the staff additional support while at the same time providing an in-depth experience to our house officers in the handling of all types of diagnostic material. Under appropriate supervision surgical pathology fellows handle all frozen sections and diagnostic biopsies and have sufficient elective time to pursue research activities.

Over the next year the we anticipate a close and enhanced working relationship with the Flow Cytometry and Molecular Diagnostic Laboratory with the expectation this will result in a more sophisticated evaluation of certain cases with the generation of an integrated report. Finally, we are making a concerted effort to update our capital equipment in the histopathology laboratory.

Sharon W. Weiss, M.D.
Chief, Surgical Pathology

CLINICAL PATHOLOGY LABORATORIES

DEPARTMENT OF PATHOLOGY
ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

Clinical laboratory personnel were extremely busy in the past year with increased volume, in addition to consolidation of laboratories and new initiatives in the areas of quality assurance and cost effective management. Additionally, the M-Labs program continued to develop. Specific laboratory activities can be found on the following pages, yet certain activities of the clinical laboratories are worthy of special mention.

In the face of ever-increasing laboratory volume, the clinical laboratory staff met the challenge of further consolidation of special limited function laboratories, including the consolidation of the Gyn/Endocrine Laboratory. Laboratory personnel have demonstrated a profound commitment to high quality laboratory medicine in their approach to the consolidation and the numerous issues that have to be addressed in a smooth transition.

In the process of the consolidation, a College of American Pathologists (CAP) inspection was carried out. The inspection was passed with only a few minor deficiencies. In addition, the Clinical Toxicology Laboratory is now a CAP certified forensic drug testing lab.

The Quality Assurance Committee, made up of members of the laboratory staff and chaired for Dr. McClatchey by Suzanne Butch, Chief Technologist for the Blood Bank, has demonstrated a visionary approach to quality assurance in the clinical laboratories. The quality assurance program that the laboratory professionals now have in place is exemplary, with both intralaboratory and interlaboratory indicators established.

The M-Labs program in the clinical laboratories is continuing to grow and mature, becoming part of the daily routine. It is important to note that the M-Labs program is constantly monitored by the M-Labs Technical Group, which is made up of laboratory personnel, insuring the quality performance of the M-Labs program. One of the many positive outcomes of the M-Labs programs has been a stronger commitment by laboratory professionals to a high quality, extremely efficient, cost effective laboratory system. The continual monitoring of our M-Labs program, and ultimately, our laboratory program in general, has led to changes in our system that have produced a high quality product, not only for M-Labs clients but University Hospitals in general.

Kenneth D. McClatchey, M.D., D.D.S.
Director, Clinical Pathology Division

UNIVERSITY HOSPITALS BLOOD BANK AND TRANSFUSION SERVICE

DEPARTMENT OF PATHOLOGY
ANNUAL REPORT
1 JULY 1989 - 30 JUNE 1990

PATIENT CARE:

Blood utilization in University Hospitals continued to increase, although there was some evidence of reduced utilization during the last half of the fiscal year. The increased utilization related primarily to workload in cardiac surgery and in liver transplantation. In an effort to reduce blood utilization, a number of educational programs were provided to those clinical services which transfuse blood. In addition, the appropriateness of Red Blood Cell transfusion was audited between January and June, 1990, by requesting justification of seemingly inappropriate transfusions from the patient's attending physician. During the coming year these efforts will be intensified, and will focus on those clinical services which transfuse the largest proportion of blood.

The laboratory's Transfusion and Apheresis Service was extremely active, and continued its program of harvesting autologous peripheral blood stem cells for subsequent bone marrow transplantation. Whereas the previous collection method required 8-10 apheresis procedures on each prospective bone marrow recipient, a procedural modification implemented during the past year provided for collection of the same number of cells in 5-7 collections. While this had a positive effect on utilization of the laboratory, it required overtime effort on the part of the nurses.

Testing for anti-hepatitis C virus was implemented in May, 1990. The entire inventory was converted to a "tested" one within one week. During the months leading up to implementation of this test, surgeons were counseled to postpone elective operations which might require transfusion, or, at the very least counsel their patients accordingly.

TEACHING ACTIVITIES:

For the first time, the Fellowship position in Blood Banking/Transfusion Medicine was filled, Dr. Robertson Davenport completed his training program on June 30, and will join the faculty as Assistant Professor. His presence will permit expansion of both clinical consultative and instructional activities. In addition, the Fellowship Program received accreditation, following inspection by the Licensing Committee on Graduate Medical Education.

Members of the laboratory were involved in a number of teaching activities. The 17th annual postgraduate Course, "Current Topics in Blood Banking" was held on June 4-6, 1990, with over 320 attendees. This was the largest postgraduate course presented in the Towsley Center during the past year. Mr. John Judd and Ms. Dianna McCoy-Pardington were program directors, assisted by Ms. Suzanne Butch and Dr. Oberman.

Training for Pathology House Officers was enhanced by the implementation of a daily "morning report" conference. This allowed review of all current patient-related problems, as well as discussion of a variety of topics which might not otherwise have been covered in the program.

Members of the laboratory provided a large number of local, regional, and national lectures and courses. These are reflected in the annual reports of faculty (Dr. Oberman, Ms. Barnes, Mr. Judd). In addition, Suzanne Butch, Chief Technologist of the Blood Bank and Transfusion service provided lectures to the National Institutes of Health Blood Bank Symposium; Northwest Medical Laboratory

Symposium in Portland, Oregon; American Association of Blood Banks (AABB) Annual Meeting in New Orleans, Louisiana; Virginia Society for Medical technology in Williamsburg, Virginia; and the Colorado Association for Continuing Medical Laboratory Education in Denver. In addition, She was a participant in the AABB Conference on Compliance with Federal Regulations and Inspections as well as providing a Workshop and two lectures for programs at the Towsley Center.

Ms. Smitka and Mr Meade provide bi-weekly orientation lectures on Blood Product Administration, and bi-monthly lectures on Adverse Reactions to Transfusion to the Nursing Services. In addition, Mr. Meade and Ms. McIvor presented a paper, "Quality Assurance in Automated Hemapheresis" to the Annual Meeting of the American Society for Apheresis in San Francisco in March, 1990. Mr Meade also presented a Workshop on Quality Assurance in the Blood Bank during the postgraduate course, "Current Topics in Blood Banking".

Ann Steiner presented Invited Lectures at the Annual Meeting of the AABB on Percutaneous Umbilical Blood Sampling. She also lectured to the Indiana Association of Blood Banks, the Michigan Association of Blood Banks, and was responsible for a Research in Progress session at the Annual Meeting of the AABB. Finally, she provided a lecture during the postgraduate Course, "Current Topics in Blood Banking".

Margaret Stowe provided a Workshop on "Problem-solving in the Blood Bank" at the Towsley Center postgraduate Course. Deborah Williams chaired the Membership Committee of the Michigan Association of Blood Banks.

PROFESSIONAL ACTIVITIES:

Suzanne Butch, Chief Technologists of the Blood Bank, is a member of the Committee on Standards of the AABB, participates as an inspector for the AABB, serves on the Educational Committee of the Michigan Association of Blood Banks and is on the Examination Council of the National Certification Agency for Clinical Laboratory Science. Finally, she reviews manuscripts for the Journal, TRANSFUSION, and co-edits the Journal, "Clinical Laboratory Science".

Dr. Oberman is Associate Editor of TRANSFUSION, the most prestigious Journal in the field, and as Chairman of the Committee on Awards of the AABB. Mr Judd serves on the Board of Directors of the AABB and was Associate Editor of the Technical Manual of the AABB.

Dianna McCoy-Pardington, Ann Steiner, and Margaret Stoe are inspectors for the AABB, and Ms. McCoy-Pardington is a member of the Workshop Committee of the Michigan Association of Blood Banks.

RESEARCH ACTIVITIES:

Faculty and staff of the Blood Bank and Transfusion Service published original papers on extracorporeal membrane oxygenation, percutaneous umbilical blood sampling, prenatal and perinatal immunohematology and transfusion, directed and limited-exposure blood donation and blood component therapy for neonatal patients. In addition, a paper on pretransfusional testing was presented at the Annual Meeting of the AABB in New Orleans, LA. Dr. Davenport began an investigational program related to the pathogenesis of the febrile response in hemolytic transfusion reactions.

Harold A. Oberman, M.D.
Director, Blood Bank

CLINICAL BIOCHEMISTRY SECTION

DEPARTMENT OF PATHOLOGY
ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

SECTION OVERVIEW:

During the past year, the Clinical Biochemistry Section experienced increases in laboratory test volumes, the acquisition of major instrumentation, and a change in the actual structure of the laboratory group itself. During the fall of 1989, the Clinical Immunology Laboratory was officially removed from the formal structure of the Division. Nonetheless, Dr. Warren continues to participate in the weekly Director's Meeting and provides valuable input into problem solving strategies. This loss of the Clinical Immunology Laboratory was partly offset by the new addition of the Gynecologic Endocrine Laboratory into the section.

Despite the potential impact of the nurses' strike in 1989, the overall volume of testing performed in the laboratories continued to increase over the last 12 months. The minimal impact of the strike can be attributed to the high volume of outpatient testing, as well as the volume of M-Labs activity performed within the Clinical Biochemistry Section. This group of laboratories continues to be a major contributor to the success of the M-Labs program.

Although detailed further in the individual laboratory reports, several accomplishments deserve special notation. First, the Chemical Pathology Laboratory acquired and integrated five Kodak Ektachem analyzers during the last year. This arduous task could not have been successfully accomplished without the efforts of the supervisory and technical staff of Chemical Pathology. Second, the Gynecologic Endocrine Laboratory has been successfully folded into the section. The staff of this laboratory have devoted special effort to satisfying CAP accreditation standards and were inspected during the last midcycle internal inspection. Third, the Ligand Laboratory has continued to expand its technology to include more automated, non-isotopic immunoassay analyzers. Fourth, the Drug Analysis and Toxicology Laboratory has successfully been recertified by the CAP Forensic Drug Testing Program. The staff of this laboratory deserve special credit for achieving and maintaining this difficult certification.

GENERAL CHEMISTRY LABORATORY - Donald Giacherio, Ph.D., Laboratory Director

The last year saw dramatic changes in the organization and operation of the Chemistry Laboratory. In August 1989, the laboratory began performing the majority of its high volume tests on Kodak Ektachem 700 analyzers. This allowed for considerable consolidation of work areas and enhanced the lab's capabilities of providing rapid turnaround times for lab testing 24 hours a day. During the past year, the lab experienced an approximate 5% increase in the number of tests performed, to slightly over 2.7 million tests. The efficiencies afforded by the changes described above allowed the Chemistry lab to absorb this increase in testing and still manage to decrease its overall operating budget from the previous year.

During the past year, the Chemistry Lab implemented off-shift and week-end STAT serum beta-HCG testing to supplement the services of the Gyn-Endocrine Lab. In addition, the lab staff have completed the development and evaluation of two soon to be offered new tests, Urine Homovanillic acid (HVA), and Lipoprotein (a).

Alternate site testing was an area of greatly increased activity for the Chemistry Lab. The lab remained very active in cholesterol screening programs, supplying instrumentation and technologists for an increasing number of health fairs and mass screenings. These were performed in conjunction with the U of M MedSport Clinic and the M-Care sites. The lab has also evaluated glucose meters for bedside testing and submitted a proposal for the establishment of a quality assurance program for all bedside glucose testing done within University Hospitals. Finally, the lab evaluated three whole blood analyzers for combined blood gas and electrolyte testing. Recommendations were made for the placement of such an analyzer in Mott and Holden ICUs, and for the acquisition of a third analyzer by the Chemistry Lab to supplement the lab functions located in the operating room suites of Main and Mott Hospitals.

DRUG ANALYSIS AND TOXICOLOGY LABORATORY - Thomas Annesley, Ph.D., Laboratory Director

During the last year, the volume of testing performed in the laboratory increased slightly greater than 9%. Although this increase was smaller than prior years, the volume of the labor intensive speciality and reference testing has increased substantially. The volume of aluminum assays using graphite furnace increased, special cardiac drugs up 32%, drug screens up over 8%, and the volume of cyclosporine assays increased 28%. Cyclosporine analyses, which are vital to the success of the medical center organ transplant program, now total in excess of 16,000 assays per year.

The laboratory underwent a rigorous inspection and was recertified by the College of American Pathologists for its forensic drug testing program. Very few laboratories have successfully passed initial certification, with even fewer recertified, which places the Drug Analysis and Toxicology Laboratory in a very select group of laboratories.

As part of the quality assurance projects undertaken during the last year, the laboratory has revised personnel scheduling times to provide better coverage throughout the entire day. Part of this improvement has included opening the laboratory one hour earlier.

The laboratory was well represented at both the local and national levels. The staff were actively involved in the training of House Officers and also training students from the laboratory science training program coordinated between Eastern Michigan University and the University of Michigan. The research and development efforts of the staff resulted in several abstracts and presentations at a regional scientific symposium, as well as a manuscript that has been accepted for publication in a peer reviewed international journal. The laboratory has been involved in collaborative research with the Departments of Surgery, Dermatology, and Pharmacology, in addition to research projects for two outside corporations. Dr. Patel has also been active locally through presentations at schools about drugs and drug testing. Both Drs. Annesley and Patel have been actively involved in the NCAA Drug Testing Program.

GYNECOLOGIC ENDOCRINE LABORATORY - K.M.J. Menon, Ph.D., Laboratory Director

In 1989 - 90, the Gynecologic Endocrine Laboratory experienced a 12.2% increase in activity compared to the same period in the previous year. The services of the laboratory continue to support the special needs for treatment of infertility/pregnancy related disorders and the in vitro fertilization program of the University Hospital. In October 1989, the laboratory formally became a unit of the Department of Pathology. Duplication of the three laboratory tests which were also offered by the Ligand Laboratory was eliminated. Serum estradiol and progesterone determinations were transferred to the Gyn/Endocrine Laboratory and dehydroepiandrosterone sulfate assay was transferred to the Ligand Laboratory. This resulted in improved efficiency and reduction in the overall cost of running these procedures. Serum b subunit HCG assay has been converted to a non-isotopic assay.

The laboratory provides training opportunities for pathology residents in the area of Gynecologic Endocrinology and attempts to familiarize them with the special tests needed for the treatment of infertility/pregnancy related disorders.

LIGAND ASSAY LABORATORY - Barry England, Ph.D., Director

The number of specimens processed in Ligand during the past year increased approximately 17% over the previous year's volume to a new high of 150,000 samples. This increase represents the initiation of ACTH and serum aldosterone as "in-house" assays, the consolidation of DHEA sulfate specimens into Ligand and the transfer of estradiol and progesterone to the OB-GYN laboratory and in addition, reflects an increased utilization of the previously existing Ligand test repertoire.

Efforts to convert radioimmunoassay procedures to the more efficient non-isotopic immunoassay methods continued throughout the past year with the conversion of ferritin, free T_4 and T_3 from the radioimmunoassay technique to the chemiluminescence (CLIA) method of CIBA-Corning. Evaluation for the conversion of the T_3 uptake from a radioisotopic methodology to that of CLIA is continuing. The laboratory also obtained a fluorescence analyzer from Abbott Laboratories that is capable of analyzing large and small molecules. This represents an advance over the TD_x based methods that are suitable only for use with small molecules. During the past fiscal year, evaluations were completed for the inclusion of LH, FSH, B_2-microglobulin, IgE and B-hCG on the Abbott IM_x early in fiscal year 1990-91. These changes bring to a total of 13 radioimmunoassay methods that have been converted to fluorescence polarization or chemiluminescence methods, with the imminent addition of 5 more within the next month. The non-radioisotopic assay procedures have decreased assay turnaround time and reduced the technical time required to complete the assay procedures.

Work is continuing on the migration of the laboratory data analysis system from the Digital Electronics Corporation PDP 11/44 to a Macintosh II computer based data analysis, storage and retrieval system. This project is scheduled for completion during the 1990-91 fiscal year.

Thomas M. Annesley, Ph.D.
Interim Director
Clinical Biochemistry Laboratory
Kenneth D. McClatchey, M.D., D.D.S.
Director
Clinical Pathology Division

CLINICAL CYTOGENETICS LABORATORY

DEPARTMENT OF PATHOLOGY
ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

ORGANIZATION:

The Department of Pathology assumed administration of the clinical cytogenetics laboratory one year ago. During this period, we have seen a number of changes.

The laboratory made two moves during the pat year. First, the entire laboratory moved from Mott Hospital to the second floor of Med Sci II. This space was inadequate from the beginning. This additional space was made available in the Pathology portion of MSI. About one-half of the service was moved to this space last month. While having the lab split is inconvenient and not the most efficient way for me to keep on top of things, the new space is very much welcomed by all of us. Overcrowding is, for the first time perhaps in the history of the lab, not presently an issue. Once the lab is completely staffed with new technologists, this new space will, however, be filled.

STAFFING:

The cytogenetics laboratory has been severely hurt by chronic understaffing. Not only was keeping up with routine specimens difficult but the lab could not properly keep on top of new demands and new technologies. As a result, the lab was not able to keep up with expectations for decreased turn around time (base don national trends) and meet the demands of a large increase in the complexity of tests.

I am now pleased to say that new staff has and will be added to the lab. Dr. Susan Sheldon joined us as Assistant Director. Her experience in the area of cytogenetics of hematological disorders will be a boon to the lab. In addition, we have recently been given the "OK" to hire two new cytogenetic technologists and a full time lab aid. This will bring our total number to techs to 8 with one supervisor (1/2 at scope). This will bring our staffing level to a point where each tech is expected to perform less than 200 analyses per year based on our current load of 1600 specimens per year. This is (finally) where we should be to meet current demands. The national expectation from labs like ours (full service and in an academic setting with training demands, etc.) is 175-200 samples per tech per year.

OTHER:

Our shift to Pathnet computer system has begun. This will make sign-outs and reporting faster and more efficient. I am, so far, very impressed with the system.

Thomas W. Glover, Ph.D.
Acting Director,
Clinical Cytogenetics Laboratory

CLINICAL FLOW CYTOMETRY LABORATORY

DEPARTMENT OF PATHOLOGY
ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

The Clinical Flow Cytometry Laboratory has enjoyed a stable year without the major changes that have characterized the recent past. The Laboratory has continued its active role in Diagnostic Clinical Pathology. A total of 1,500 specimens were handled by the laboratory during the past twelve months, which is an increase of 25% over the previous year. Approximately 600 specimens were processed for cell surface markers or cellular DNA content studies. Approximately 50% of these latter specimens were evaluated for hematologic disorders while the remainder of the specimens were for the evaluation of transplant patients or individuals with primary or acquired immune deficiencies. A sizeable proportion of the latter group is in the area of cellular monitoring of transplant patients receiving OKT3 monoclonal antibody therapy. Approximately 600 specimens were studied for platelet-associated immunoglobulins and neutrophil-specific antibodies. Each specimen requires from 10-30 individual staining, quantitation and analytic procedures. Quality control and calibration procedures further add to the specimen load. Thus, the laboratory staff conducted approximately 28,000 individual marker studies in Fiscal Year 88/89. The laboratory continues to provide 12-24 hour turnaround studies on acute leukemia and selected transplant patients. Overall, patient revenue continues to climb and the significant reduction in commodity expenses seen last year has continued through this year as well. This again has led to a gross margin that is 300% better than the gross margin expected by budget.

The Flow Cytometry Laboratory has undergone a major change in how many of the specimens are processed. All primary and acquired immunodeficiencies along with the immune monitoring of post-transplantation patients are now evaluated by direct, 2-color immunofluorescent analysis. In addition, a flow cytometric accessory from Coulter Corporation (Q-prep) has substantially reduced the processing time required for immunofluorescent analysis. Together, these two steps have enhanced our efficiency as a laboratory and decreased the turnaround time for results. In addition, these method changes have allowed us to evaluate lymphopenic patients who could not be consistently analyzed by previous preparation methods.

The Flow Cytometry Laboratory also underwent a major change in its quality control and quality assurance programs. The entire procedure manual was rewritten and a more exhaustive quality control program instituted. This was done in preparation for the recent CAP inspection, which the laboratory passed with deserved accolades. These changes have enabled the laboratory to become a truly "clinical" pathology laboratory.

The molecular diagnostic aspect of the laboratory has been implemented with the use of technologists currently in the laboratory. We have successfully implemented immunoglobulin and T-cell receptor gene rearrangement studies with over 300 assays evaluated during the previous year. Detection of bcr gene rearrangements in chronic myeloproliferative disorders and acute leukemia is also being analyzed in the laboratory. The use of restriction fragment length polymorphisms (RFLP) studies to evaluate allogenic post-bone marrow transplantation patients for evidence of either engraftment of normal marrow or recurrence of disease will be implemented as soon as the allogenic bone marrow transplant program begins here at the University.

New developments in the flow cytometry area in the upcoming year will include further implementation of direct and two-color staining with monoclonal antibodies. Reticulocyte analysis by flow cytometry will also be evaluated as a means of providing the laboratory with a routine, clinical assay. Future developments in the molecular diagnostic area will depend on the clinical demand for the studies and the technical skills that are required. The polymerase chain reaction (PCR) is being

evaluated as a possible technique that may enhance the implementation of DNA studies into the clinical laboratory. Also, a semi-automated DNA instrument is being evaluated that may aid in these assays becoming a more routine procedure. A limited number of biotinylated probes are being used on a trial basis to assess the possibility of moving away from P^{32} radioactive probes. Investigative work will continue in the area of hematologic and genotypic markers in acute and chronic leukemias and malignant lymphoma, as well as studying the role of adhesion molecules and homing receptors in various benign and malignant hematopoietic diseases.

Curtis A.Hanson, M.D.
Lloyd M. Stoolman, M.D.

Directors
Clinical Flow Cytometry Laboratory

CLINICAL HEMATOLOGY LABORATORY

DEPARTMENT OF PATHOLOGY
ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

LABORATORY ACTIVITIES:

A. There was an overall increase in the total number of tests from 427,000 in 1987-1988 to 463,000 in 1988-1989 and to 475,000 in 1989-1990.

B. The increase in labor-intensive tests is as follows: a) a 5% increase in differential white blood cell counts; b) reticulocyte counts rose by 8 per cent; c) the number of microscopic fluid examinations and abnormal peripheral blood smears requiring review by the hematopathologist rose by 30 per cent despite the fact that the criteria for reviewing fluids were not as stringent as in previous years.

C. New instrument: Two Coulter STKS instruments were installed. These latest state-of-the-art hematology counters employ the VCS technology for automated differential counts. Preliminary studies indicate that at minimum 40% of the differentials currently performed manually will be successfully analyzed by the STKS. This should lead to better utilization of technologists' time and higher efficiency within the laboratory.

D. New instrument: A Rapimat urinalysis instrument was also integrated into the laboratory this year. The Rapimat is a semi-automated urine dipstick reader that has eliminated virtually all manual dipstick evaluations previously performed. This has led to increased efficiency within the urinalysis station in the laboratory and higher reproducibility of results.

E. Daily bone marrow signout.

F. Daily signout of in-house and UM clients' cases, abnormal blood smears and body and joint fluids takes place 7 days per week.

G. A quality assurance program has been implemented in the area of bone marrow cytochemical stains for leukemia and other labor-intensive "specialty" tests within the laboratory. The House Officer assigned to the Hematology Service reviews all cytochemistry requests as well as requests for all other special tests to determine the appropriateness of the test. This has led to a substantial decrease in the number of special tests and cytochemical stains performed, resulting in improved utilization of resources.

TEACHING ACTIVITIES:

A. Pathology House Officers participated in the following activities:
   1. Daily review of abnormal blood smears, body fluids, joint fluids for crystals, bone marrow aspirates and bone marrow biopsies.
   2. Daily review of in-house and transfer consultation cases in hematopathology (lymph node biopsies, bone marrow biopsies, aspirates, splenectomy specimens, etc.).
   3. Daily review of outside consultation cases of Drs. Schnitzer and Hanson.
   4. Correlation of morphology with special studies (cytochemistry, flow cytometry, immunoperoxidase and occasionally electron microscopy).
   5. Daily review of abnormal blood smears from M-Lab clients.
   6. A formal teaching conference for House Officers has been implemented.
   7. Review of SWOG cases.
   8. Weekly Interdepartmental Lymphoma Conference.
   9. Biweekly Interdepartmental Leukemia Conference.
   10. Pediatric Hematology/Oncology Fellows participate in signouts.

B. Hematopathology Fellowship Program

FY 89/90 GOALS:

A. Continuation of Fellowship program in Hematopathology as of July 1, 1989.
B. Begin to monitor test utilization within the laboratory as a quality assurance function.

Bertram Schnitzer, M.D.

Curtis A. Hanson, M.D.

Directors
Clinical Hematology Laboratory

CLINICAL MICROBIOLOGY LABORATORY

DEPARTMENT OF PATHOLOGY
ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

CLINICAL ACTIVITIES:

The specimen volume increased 11.4% compared to last year's volume; we currently process over 12,000 specimens/month. M-Labs specimen volume increased 128T and accounted for 8.5% of the total laboratory volume.

New tests implemented by the laboratory were: Clostridium difficile culture and toxin assay, Sputum Quality Gram stain procedure, Leptospira culture, E coli K1 antigen test for neonates and Antimicrobial Synergy testing.

Under the direction of Patricia Shalis, numerous microbiology software changes were made to the Cerner program to enhance specimen handling and reporting. She also participated in 13 site visits by laboratory personnel interested in our system.

Laboratory quality and safety issues continued to receive attention as exemplified by the implementation of new quality assurance programs and the introduction of "Q-Probe" sponsored by the College of American Pathologists (CAP). The laboratory successfully completed a CAP inspection this spring. A "Body Substance Precaution" procedure was instituted in compliance with federal guidelines to enhance employee safety while handling potentially infectious material.

DEVELOPMENTAL ACTIVITIES:

Commercially prepared DNA probe kits were valuated for:
- the direct detection of Mycobacterium spp. in sputum
- the combined detection of the Mycobacterium avium complex organisms from culture
- the direct detection on Chlamydia using a chemoluminescent labelled probe.

New antibiotic and antibiotic combination studies were sponsored by various pharmaceutical companies to test for effectiveness against clinical isolates. The Laboratory continues to be participants in a multicenter Bacteroides fragilis group study and recently began contributing information for a multicenter mycology study.

Several cooperative studies with other departments are on-going.
- Two clinical trails with investigational antibiotics are being performed with Pulmonary Medicine.
- Clinical isolates of C. difficile, Enterococcus and Lactobacillus are being isolated and provided to the Infectious Disease section.
- IV catheter contamination studies were conducted with the Pharmacy Department and a PEN team procedure is currently being conducted in the laboratory.
- A vascular graft infection study with the Vascular Surgery section was completed and the results accepted for publication.
- Granulocyte bactericidal function studies for CGD patients are being done for Pediatric Hematology.
- A vaginosis study is underway with the Ob/Gyn section.

EDUCATIONAL ACTIVITIES:

A. PRESENTATIONS AT NATIONAL MEETINGS:

Shalis, P.: "Microbiology applications of Cerner Command Language", 1989 American Society for Microbiology meeting, New Orleans, Louisiana.

B. PRESENTATIONS AT REGIONAL MEETINGS:

Pierson, C.: "Detecting Tuberculosis with DNA Probes- Is it prudent and practical?", and "Impact of Transplants on the Microbiology Laboratory", 1988 Region IV annual meeting of American Society for Medical Technology, Detroit, Michigan.

C. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFERED JOURNALS:

Lookwood, W., Friedman, C., Bus, N., Pierson, C.L. and Gaynes, R.: "An outbreak of Mycobacterium terrae in clinical specimens associated with potable water," American Review of Respiratory Diseases, in press.

Wakefield, T.W., Pierson, C.L., Schaberg, D.R., Messina, L.M., Lindenauer, M., Greenfield, L., Zelenock, G. and Stanley, J.: "Artery, periarterial adipose tissue and blood microbiology during vascular reconstructive surgery," J. of Vascular Surgery, in press.

D. PATHOLOGY HOUSEOFFICER TRAINING PROGRAM:

All Senior Technologists presented an introductory lecture and conducted a laboratory session for the first year houseofficers.

The laboratory provided 19 months of training for 12 Pathology houseofficers. In addition, 16 Pediatric houseofficers and students were rotated through all areas of the laboratory.

E. OTHER EDUCATION ACTIVITIES:

Four technologist were sent to regional and national meetings or workshops.

Assistance was given to two senior medical residents by providing data and advice for their assigned projects leading to departmental presentations:

- "Pseudomonas sepsis"
- "Anaerobic sepsis"

Kenneth D. McClatchey, M.D., D.D.S.
Director
Clinical Microbiology Laboratory

Carl L. Pierson, Ph.D.
Associate Director
Clinical Microbiology Laboratory

MOLECULAR DIAGNOSIS/FLOW CYTOMETRY LABORATORY

DEPARTMENT OF PATHOLOGY
ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

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Curtis A.Hanson, M.D.
Lloyd M. Stoolman, M.D.

Directors
Clinical Flow Cytometry Laboratory

PATHOLOGY DATA SYSTEMS

DEPARTMENT OF PATHOLOGY
ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

The activities of Pathology Data Systems for the past year can be divided into four distinct categories: (1) personnel and organizational changes; (2) hardware and software upgrades; (3) new system features to help system users; and (4) educational activities.

One of the major events in PDS during the last year was a significant personnel turnover -- five individuals resigned last Fall, including the manager of the unit. Rebuilding of the personnel team was accomplished very rapidly, starting with the appointment of Bruce Barnes in October, 1989, as the new manager of PDS. Bruce, a former and highly valued employee of PDS, was recruited from Hospital Information Services at the University of Michigan Hospitals where he had ben employed for a total of five years, three as a network system programmer and two as the manager of systems support. PDS has now been reorganized with a more hierarchical personnel structure and divided into four teams: operations headed by Ron Salisbury, user support headed by Kathy Davis, systems and communications headed by Ken Thurman, and Personal Computer and Network Systems headed by Tom Peterson. These new team leaders combine many years of experience with medical information systems with a commitment to meet the increasingly sophisticated demands of system users.

With regard to hardware and software upgrades, Version 3.03 of the PathNet software was installed in the late Fall. This new version provided a number of advantages over the previous version and new features for users, including the conversion to a standard software release, enhanced security, enhancements to the test order entry program, an infection control application, and a blood bank donor package. The following interfaces between the PathNet system and automated testing devices in the clinical laboratories were also deployed during the year: the Ektachems in Chemistry; the Coulter Stacker Plus and Rapimat in Hematology.

Due to the growth of the on-line pathology data base and the need for more rapid response time, four additional disk drives (RA-90s) were purchased and installed on the VAX cluster. A Novell microcomputer network was installed to support the Tissue Typing Laboratory. This network will be the prototype for handling distributed information processing in other laboratories such as the Ligand Laboratory. A fully functional "test system" for evaluating new software in a controlled environment before it is brought up live on the production system was installed. Oracle relational data base software and some of the associated networking data bases were installed on one of the CPUs in the VAX cluster. This software will be the basis for the future integration of the laboratory data base into other clinical data bases in the hospital in order to provide a "patient view" of information for physicians.

With regard to new system features, a program for use by physicians and nurses when retrieving patient laboratory results was developed by PDS personnel and installed on PathNet. This program is more user-friendly than Patient Result Inquiry (PRI), the standard Cerner application, in that it has a command line on the bottom of the screen like many popular microcomputer programs. This software also supports patient list management by house officers so that they do not have to repeatedly enter patient registration numbers into the system to retrieve laboratory results. Other user support features which have been introduced during the year include on-line help and access to an electronic version of the pathology laboratory manual. A Help Desk has also been established within Pathology Data Systems for user account management, problem reporting, and problem solving via telephone. A detailed plan is

also being developed to provide detailed laboratory information, extracted from the very large pathology data base, for analysis on microcomputers by authorized users.

Finally and with regard to educational activities, PDS personnel were very active participants in the recently completed three-day eighth annual symposium on laboratory information systems held at the Towsley Center. The meeting attracted 220 registrants from 30 states and Canada, as well as 20 system vendors, and is considered the premiere meeting of its kind in the country. Ron Salisbury and Kathy Davis were invited speakers at the Cerner Users' Group meeting in Kansas City in the Spring. Bruce Friedman was selected as the Chairman-Elect of the Users' Group at that time. PDS personnel have also participated in an intensive training course for new house officers in pathology on PathNet.

Bruce A. Friedman, M.D.
Director
Pathology Data Systems

ADMINISTRATIVE/FINANCIAL AFFAIRS SECTION

DEPARTMENT OF PATHOLOGY
ANNUAL DEPARTMENTAL REPORT
1 July 1989 - 30 June 1990

The Administrative and Financial Affairs Section, which is under the auspices of the Office of the Chairman and his designee, includes five subsections which are organized as follows:

A. ADMINISTRATIVE SUPPORT CENTER - PATHOLOGY LABORATORIES:

- Thomas D. Morrow, Assistant Administrator for Finance and Operations
- Deborah Day Jansen, Administrative Coordinator for Pathology Laboratories
- Beverly J. Smith, Administrative Assistant, Personnel and Payroll functions
- Nancy A. Coray, Financial Analyst and Billing Coordinator

Surgical Pathology Transcription:

- Edith M. Brayton, Office Manager
- June M. Possley, Office Supervisor

B. CLINICAL FACULTY OFFICES, UNIVERSITY HOSPITALS:

- Holly A. Wagner, Office Supervisor

C. MEDICAL SERVICE PLAN BILLING OFFICE:

- Douglas M. Kennedy, Manager
- John J. Gilbert, Financial Analyst

D. OFFICE OF RESEARCH AND EDUCATION ADMINISTRATION:

- Maria A. Ceo, Administrative Associate
- Kathleen L. Atkins, Student Services Assistant

E. OFFICE OF THE CHAIRMAN:

- Laura Blythe, Staff Assistant
- Mary Anne Tishma, Staff Assistant

In addition to the management of daily activities, each of the units completed major projects. They are as follows:

ADMINISTRATIVE SUPPORT CENTER:

1. The M-Labs Program has continued to expand and this year we have initiated clinical and anatomic pathology services to Thorn Hospital in Hudson, Michigan and Lapeer Regional Hospital in Lapeer, Michigan. Additionally we have initiated service with several other extramural clients.
2. The Pathology Laboratories Handbook intramural and extramural versions (and mini-book) have been placed into an online data base resident in Pathology Data Systems, allowing Hospital staff to access this information through its network.
3. The implementation of a Quality Assurance Program has been completed at the M-Care Satellite Clinics.
4. Renovations have been completed for a Anatomic Pathology Fellows room. Renovation and expansion of the Pathology Data Systems Unit should be completed in the Fall of 1990.
5. The training of new medical assistants and radiographers for the UMMC Satellite clinics continues as required. All sites have now been enrolled in the CAP Proficiency Testing Program. Since the Microbiology module was not suitable to the testing performed at these sites, our Microbiology staff developed a modified module for use.

CLINICAL FACULTY OFFICES:

1. A new Director of Anatomic Pathology was appointed in August 1989 and is housed in the Faculty Office Suite. This necessitated the appointment of a secretary to support the Director.
2. The addition of two FAX machines has reduced the time committed to long distance calls and significantly reduced overnight carrier costs associated with Pathology extramural consult cases.
3. Training programs for Word Perfect and Microsoft Word have been initiated for secretarial support staff with a goal of replacing use of the IBM5520 word processing system by the Fall of 1990.

1. MEDICAL SERVICE PLAN OFFICE:

1. The Billing Office developed a special report with the assistance of PDS and began using the APB report to initiate the professional charges. Use of this report has produced accurate results through the capture and billing record of every report that is verified by our Pathologist. Operational savings have been produced in personnel time, paper and print time.
2. The initiation of patient registration for our MLabs Program by the Billing Office Staff has expedited the charge entry process and has resulted in more timely, accurate and updated registrations.
3. In March 1990, we recorded the largest month of collections, exceeding $500,000, and in FY1990 we experienced a record year in cash collections of approximately $4,000,000. In addition, we were able to reduce the number of days in receivables from approximately 100 to 75 days.
4. A paperless collection system implemented this past year has allowed groups of claim forms to be queued for revision prior to submission. This has produced a savings in both staff time and paper.
5. The preparation of an All Funds Budget, as requested by the Medical School, was completed in April 1990.

6. With the addition of Lapeer Regional Hospital as an MLabs client, the Billing Office began client billing in September 1989 and patient billing in February 1990.

MSP OFFICE - OTHER ACTIVITIES:

1. With the addition of a research faculty member, Dr. Bernard Weiss, renovation of space including a laboratory and office, (M4214) was completed.
2. Space assigned to the MLabs Program and Administrative Support Staff was redesigned and renovation completed in February 1990.
3. Co-authored the Category II Risk proposal for the Department of Pathology which has been placed in abeyance.

OFFICE OF RESEARCH AND EDUCATION ADMINISTRATION:

1. Coordinated the establishment of the Pathology Education Office in December 1989 to manage all departmental teaching activities. Implementation of the Graduate Program in Pathology. Sixteen applications were received and four offers extended, of which three were accepted. Three students will begin the Program in the Fall of 1990.
2. Supervision of the Photography Laboratory including monitoring expenses in addition to the personnel functions. Served as a member of the Photography Laboratory Committee which develops and implements policies for this unit.
3. Assisted with the revision of the five year MSP forecast; the development of an All Funds Budget and the gathering of documentation for the Medicare/CME Audit.
4. Jointly conducted the Pathology New Employee Orientation with the Administrative Support Center staff. The orientation program, which acquaints new, regular employees with the policies and structure of the Department continues to be a success.
5. Participated with the Medical School Information System Goals Group which is instrumental in addressing the problems and future needs of system users. The major accomplishment this year was the development of the Batch Merit Increase Program.

GENERAL:

1. Successfully negotiated a four year MSP agreement with the University Hospitals for the period 1 July 1990 through 30 June 1994.
2. Reorganization of the Pathology Data Systems Unit following the departure of the manager and several key staff in 1989. This reorganization was accomplished with virtually no disruption of service to the Department and the University Hospitals.
3. Development of a document justifying the projected need for additional space for the Anatomic and Clinical Pathology Laboratories for the next five years.
4. Assisted with the implementation plans for new blood drawing activities on the evening and midnight shifts which was mandated by the new House Officer contract.
5. Provided support for the reorganization of the Cytopathology Laboratories necessitated by the departure of several experienced cytotechnologists which created an emergency situation in the laboratory.

SUMMARY OF FINANCIAL DATA:

1. Grants and Contracts:

   73 active grants, contracts and other accounts

   Total Direct Expenditures $4,214,180

Indirect Research Expenditures	$1,964,231
Total Sponsored Projects	$6,178,411
Other Expenditures (General Funds, MSP subaccounts, gifts, etc.	$1,750,306
TOTAL EXPENDITURES	$7,928,717

2. Medical Service Plan:

Average number of active accounts	13,584
Total number of charge entries	67,988
Gross Anatomic/Clinical Pathology Billings	$8,569,581
Net Anatomic and Clinical Pathology Collections	$4,009,047
Part A. Payment	$2,572,667

(Source: MSP Billing Office Reports)

3. Pathology Laboratories:

Number of fee code procedures	3,039,790
Number of laboratory test results (est.)	12,000,000
Gross Revenue	$78,533,282
Direct Expenses	$27,113,834

Details regarding the financial data included in this report are available in the Office of the Chairman.

Respectfully Submitted,

Eugene J. Napolitan
Administrator

EDUCATIONAL ACTIVITIES*

DEPARTMENT OF PATHOLOGY
ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

The Department of Pathology has continued to offer a number of diverse programs within the Medical School Dental School, School of Public Health, College of Literature, Science and the Arts, and the Rackham School of Graduate Studies. These include courses requiring formal lecture and laboratory exercises, as well as providing for senior medical student pathology elective clerkships. Many faculty continue to serve on graduate student thesis committees and supervise medical student research experiences. Within the Medical Center context, Departmental teaching activities extend not only to medical students, but also house officers and the staff of many clinical departments in the form of regularly scheduled formal conferences. Departmental teaching also extends to practitioners in the region and nation through courses given through Continuing Medical Education Programs of the University of Michigan and the International Association of Pathologists (IAP).

The Sophomore Pathology Course (Path 600) continues to be the primary focus of faculty teaching of medical students. The structure of the course is predicated on the students' acceptance of a significant responsibility for their own education, under faculty guidance. This is achieved through the use of focused faculty lectures, directed laboratory sessions, and more emphasis placed on student home study requiring text reading, utilization of microscopes, and slide sets, and descriptive syllabi. Formal evaluation indicated that the course continues to function smoothly and is generally well accepted by the students. In particular, the laboratory size was viewed as having a positive impact on the students' education by both students and faculty. Efforts to closely correlate the Introduction to Clinical Sciences Course (ICS-601) with the Sophomore Pathology Course continues to function to enhance the students' educational experience and reinforce "core material". The primary area of concern continues to be the relative lack of contact time that the faculty have with students within the Medical School curriculum. This was highlighted by student comments during the recent LCME review.

The Department of Pathology continues to have primary responsibilities for the teaching of general and systemic pathology to dental students. This includes the presentation of formal lectures (Pathology 630) and preceptoring of laboratory sessions (Pathology 631). Formal student evaluation indicates that the course functions smoothly and is well received by the students.

Following review of the combined Dental/Graduate Student Course three years ago a separate graduate student section was formulated as an alternative to teaching systemic pathology to graduate students. This section was composed of approximately 15 students and focused on the study of the cellular/molecular basis of the inflammatory response and the role of the extracellular matrix in disease. This allowed more indepth discussion of the specific topic areas in a small group seminar format and was generally well received by the students. Further development of a graduate course in general pathology separate from the Dental course has continued and will be offered in the upcoming year.

During the past year, the implementation of a graduate program based in the Department of Pathology was initiated. The primary goal of the Doctoral in Pathology Program is to train individuals for careers as independent scientific investigators with a focus on the study of the cellular and molecular basis of disease processes. Four new graduate level courses have been developed and the Department accepted its first three graduate students into the program: Douglas Gibbs, Susan Moore, and Haining Shao.

*House Officer training and postdoctoral research training are discussed elsewhere.

Formal courses given within the Department include:

I. COURSES IN THE "STANDARD" MEDICAL CURRICULUM

A. ICS 500:
   1. Introductory Lectures on General Pathology (20 contact hours).
B. ICS 600/601:
   1. Immunopathology Sequence (15 contact hours).
   2. Clinicopathologic Conferences (10 contact hours).
   3. Selected Topics in Surgical Pathology.
C. NBS 600:
   1. Neuropathology (15 contact hours).
D. Pathology 600:
   1. 61 hours of whole-class lecture, 51 hours of laboratory (in each of six sections) (112 contact hours).
E. Pathology Clerkships:
   1. Elected by 45 students at University Hospitals.

II. COURSES IN THE DENTAL CURRICULUM

A. Pathology 630:
   1. General Pathology Lectures (44 contact hours).
B. Pathology 631:
   1. Pathology Laboratory (60 contact hours) each of two sections (assisted by Oral Pathology staff).

III. GRADUATE COURSES IN PATHOLOGY

A. Pathology 580: General Pathology for Biologic Scientists
B. Pathology 581: Cellular and Molecular Basis of Disease
C. Pathology 583 General Pathology Laboratory - Histopathology
D. Pathology 650: Laboratory Techniques in Experimental Pathology
E. Pathology 850: Special Topics in Pathology
F. Pathology 583: General Pathology Laboratory - Histopathology
G. Pathology 599: Non-Dissertation Research
H. Pathology 990: Pre-Candidate Dissertation Reseach
I. Pathology 995: Candidate Dissertation Research

IV. POSTGRADUATE MEDICINE/CONTINUING MEDICAL EDUCATION:

A. Current Topics in Blood Banking, June 6-June 8, 1990.
B. Clinical Laboratory Computers, June 13-15, 1990.
C. Pathology 858:
   1. Neuropathology (18 contact hours).

V. CLINICAL CONFERENCES:

The Department of Pathology provides an important educational service to many other clinical departments through regular participation in interdepartmental working/teaching conference. The

Department is involved in many such conferences on a weekly, bi-weekly, and monthly basis. The units served include:

Internal Medicine

- Gastroenterology
- Nephrology
- Hematology/Oncology
- Nuclear Medicine
- Pulmonary Medicine
- Arthritis
- Cardiology
- General (Necropsy Review, CPC)

Dermatology

Thoracic Surgery

Urology

Pediatrics

- Cardiology
- Oncology
- Gastroenterology
- General (Death Conference, CPC)

Obstetrics and Gynecology

- Oncology

Oral Surgery

General Surgery (Breast, GI)

Otorhinolaryngology

Joseph C. Fantone, M.D.
Coordinator
Educational Activities

M-LABS

DEPARTMENT OF PATHOLOGY
ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

The M-Labs program continues to grow in both areas of Anatomic and Clinical Pathology. In addition to increased volume, the profit margin of the M-Labs program continues to improve based on increased efficiency and maturation of the clinical laboratory system to a reference laboratory system within the central pathology laboratories. The credit for such an increased profit margin as well as increased volume is attributed to the many laboratory professionals who have labored to make M-Labs work.

M-Labs now has over 90 clients, of which approximately 20 can be considered major clients. These clients include hospital accounts, independent laboratories, and large doctor office accounts. The newest large account is Lapeer Regional Hospital, requiring full-time pathologist coverage to maintain the quality that is required. M-Labs also acquired a management contract with Thorn Hospital in Hudson, Michigan.

In addition, it should be noted that M-Labs also maintains the laboratory quality improvement programs in all the M-Care sites.

The forecast for the coming year for M-Labs is for continued growth with no foreseeable increase in costs of the program.

Kenneth D. McClatchey, M.D., D.D.S.
Director, M-Labs Program

RESIDENT TRAINING PROGRAM

DEPARTMENT OF PATHOLOGY
ANNUAL REPORT
JULY 1, 1989 - JUNE 30, 1990

The Department of Pathology offers high quality resident training in both anatomic and clinical pathology with opportunities to pursue basic research training in experimental pathology. The program continues to be exceedingly competitive with 119 completed applications received, and 42 candidates invited to interview in the Department this past year. Six outstanding residents were recruited to the Department: Sonya K. Brown, M.D., Jane S. Chen, M.D., Eric D. Hsi, M.D., Charles J. Hunter, M.D., Jeffrey P. Pearson, M.D., and David A. Start, M.D.

Currently, there are 24 residents in the Department; 22 of whom are receiving training in both anatomic and clinical pathology and two receiving training in anatomic pathology alone. Three residents graduated from the program this past year. Two graduates assumed positions as staff pathologists at Toledo Hospital (Toledo, Ohio), and Mt. Sinai Hospital (Detroit, Michigan). The third graduate is a Hematopathology Fellow at the National Institutes of Health (Bethesda, Maryland).

A significant number of residents continue to be involved in both clinical and experimental research projects which have resulted in the presentation of their work at national meetings, as well as publications in peer-reviewed journals. The residents again this year took the American Society of Clinical Pathologists' in-service examination and performed very well.

Publications:

1. McQuillan AC and Appelman HD: Superficial Crohn's Disease: A study of 10 patients. Surg Pathol 1989; 2:231-239.
2. Coral A, Van Holsbuck M and Hegg C: Secondary oxalosis complicating chronic renal failure (Oxalate Gout". Case Report 599, Skeletal Radiol 1990; 19:147-149
3. Hegg CA and Flint A: Neurofibroma of the ovary, Case Report. Gyn Oncol 1990; 37:437-438.
4. Markey BA, Phan SH, Varani J, Ryan US and Ward PA: Inhibition of cytotoxicity by intracellular superoxide dismutase supplementation. Free Rad Biol Med 1990;in press.
5. Oberman HA and Markey BA: Non-invasive carcinoma of the breast presenting in adenosis. Modern Pathol 1990;in press.
6. Davenport RD, Register LJ, Schnitzer B, and McKeever PE: Non-Hodgkin's lymphoma of the brain following Hodgkin's disease: An immunohistochemical study. Cancer 1990;in press.
7. Selwa LM, Garofalo EA, Brunberg JA and Mandell SH: Spinal cord Schistomiasis in a child mimics intrinsic cord neoplasm. (Submitted - Ann Neurol).
8. Quint LE, Van Erp JS, Bland PH, Mandell SH, DelBuono EA, Grossman HB, Glazer GM and Gikas PW: Prostate cancer tumor volumes: M.R.I./Pathologic correlation. (Submitted - Am J Roentgenology).

Abstracts:

1. Grossman DM and Lloyd RV: Detection of tyrosine hydrolase and chromogranin A proteins and chromogranin A mRNA in paraffin-embedded tissue sections of endocrine neoplasms with secretory granules. United States and Canadian Academy of Pathology, Boston, MA, 1990.

2. Markey BA and Oberman HA: Non-invasive carcinoma arising in adenosis. Internal Academy of Pathology Annual Meeting, Boston, MA, 1990.
3. Markey BA, Phan SH, Varani J, Ryan US, and Ward PA: Inhibition of H_2O_2 and neutrophil-induced endothelial cell cytotoxicity by intracellular superoxide dismutase supplementation. FASEB, Washington, DC, 1990.
4. Van Erp JS, Quint LE, Bland PH, Mandell SH, DelBuono EA, Grossman HB, Glazer GM and Gikas PW: Prostate cancer tumor volumes: M.R.I./Pathological correlation. American Roentgen Ray Society, Washington D.C., 1990.
5. Quint LE, Van Erp JS, Bland PH, Mandell SH, DelBuono EA, Grossman HB, Gikas PW, and Glazer GM: Prediction of prostate cancer tumor volumes: An M.R.I./Histopathological correlation study. Society of Computed Body Tomograph, Palm Springs, FL, 1990.
6. Caplan MJ and Sulavik D: Clinical Utility of postmortem cultures. International Academy of Pathology, Boston, MA, 1990.

Joseph C. Fantone, M.D.
Director
Resident Training Program

THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF PATHOLOGY
HOUSE OFFICERS
1980 - 1981



Elizabeth A. Del Buono, M.D.
Chief Resident
House Officer IV
(4th Year)



David M. Graham, M.D.
House Officer V
(5th Year)



Michael J. Caplan, M.D.
House Officer IV
(4th Year)



Randall J. Shannon, M.D.
House Officer IV
(4th Year)



Denise E. Sabatk, M.D.
House Officer IV
(4th Year)



Paul F. Mazzara, M.D.
Assistant Chief Resident
House Officer IV
(4th Year)



Cynthia A. Hegg, M.D.
House Officer V
(4th Year)



Steven H. Mandell, M.D.
House Officer IV
(4th Year)



Barbara A. Markey, M.D.
House Officer III
(3rd Year)



Loretta M. O'Donnell, M.D.
House Officer III
(3rd Year)



Cheryl A. Unger, M.D.
House Officer III
(3rd Year)



Sarah E. Campbell, M.D.
House Officer III
(3rd Year)



Philip L. Perkins, M.D.
House Officer IV
(3rd Year)



Kyle A. Carr, M.D.
House Officer II
(2nd Year)



Suzanne M. Cook, M.D.
House Officer II
(2nd Year)



John R. Goldblum, M.D.
House Officer II
(2nd Year



Eric P. Kaldjian, M.D.
House Officer II
(2nd Year)



Priscilla R. Lindley, M.D.
House Officer II
(2nd Year)



Sonya K. Brown, M.D.
House Officer I
(1st Year)



Jane S. Chen, M.D.
House Officer I
(1st Year)



Eric D. Hsi, M.D.
House Officer I
(1st Year)



Charles J. Hunter, M.D.
House Officer III
(1st Year)



Jeffrey P. Pearson, M.D.
House Officer I
(1st Year)



David A. Start, M.D.
House Officer I
(1st Year)

VETERANS ADMINISTRATION MEDICAL CENTER
LABORATORY SERVICE

DEPARTMENT OF PATHOLOGY - UNIVERSITY OF MICHIGAN
ANNUAL DEPARTMENTAL REPORT
1 JULY 1989 - 30 JUNE 1990

INTRODUCTION:

The Veterans Administration Medical Center Laboratory Service continues to maintain a strong affiliation with the Department of Pathology at the University of Michigan Medical Center. Three resident slots are available and filled by pathology residents on monthly rotations in the areas of Surgical Pathology, Autopsy Pathology, and electives such as Electron Microscopy and special study areas in Surgical Pathology. There are frequent mutual consultation activities and numerous seminars within the department which are attended by staffs from both the University and the VA. There are four full-time VA pathologist slots but at this time there is a pathologist vacancy and recruitment efforts are underway cooperatively between the VA and the University. Research and educational activities at the VA are supported in many ways by the University.

ANATOMIC PATHOLOGY:

A. Surgical Pathology: 4,419 surgical cases have been completed and all have been examined grossly by the resident rotating in surgical pathology and then processed and reported under the close supervision and guidance of a staff pathologist. The surgical pathology resident serves as the coordinator of the section and is responsible for the timely and accurate reporting as well as for assuring liaison with the clinical services. There is intense one-on-one teaching on the part of the pathology staff and a weekly conference discusses interesting and important cases in the presence of all of the residents assigned and with the pathology staff. There is an extensive quality assurance program in surgical pathology with review of all frozen sections, amended diagnoses and cases in which there is either intramural of extramural consultation.

B. Autopsy Pathology: 60 autopsies have been completed during this time. Most of the autopsies were dissected by the resident under close supervision of the staff and then there is one-on-one microscopic examination and final report. A gross pathology conference is held following an autopsy. An autopsy quality assurance program is in operation and is documented by a survey form which is completed by both the clinical staff and the pathology staff and reviewed by the Quality Assurance Board.

C. Cytology: 2,332 cytology cases were reported during this time. Although a regular resident rotation is not available in Cytology, the material is frequently used for correlation in surgical, autopsy and electron microscopy resident training. Cytology cases are occasionally discussed at the Surgical pathology Conference. A thorough quality assurance program is in operation.

D. Electron Microscopy: 331 electron microscopy cases were reported during this time. An elective rotation for pathology residents is available in electron microscopy and is taught by Dr. Beals. Electron Microscopy is used frequently for clinical cases at this hospital and particularly for correlation with surgical, autopsy, and cytology material. In 1989, the Electron Microscopy section at this medical center was designated by the VA Central Office as a "Center of Excellence" within the VA System. Plans are underway to update the equipment within this area.

CLINICAL PATHOLOGY:

This division of Laboratory Service includes Chemistry, Microbiology, Hematology, and Immunohematology. Approximately 1,600,000 unweighted tests were done during the above period. Dr. Chensue is the overall director of clinical pathology. There has not been a formal resident rotation in the clinical areas but laboratories are available for the residents informal use in any particular area. The residents are welcome to attend the in-service teaching conferences and may participate occasionally in teaching as well. The clinical laboratories are available for particular procedures and data that may relate to residents rotations in other areas. Extensive quality control efforts are in operation in every section of the clinical laboratories and specific quality assurance programs have been developed in blood transfusion, critical values and therapeutic drug levels.

EDUCATION AND TEACHING:

Much of the staff pathologists' time is devoted to on-the-job teaching of residents in surgical and autopsy pathology in which there is a service component. The size of the VA Laboratory Service and the availability of staff permits significant informal contact with the residents.

Dr. Weatherbee and Dr. Beals present a gross pathology conference to the residents annually. the pathology staff combines in teaching a student pathology laboratory. Dr. Weatherbee gives two lectures to the second year medical students and two to the dental students in bone pathology. More formal teaching is done by all of the staff in the weekly surgical pathology conference as well as with the fourth year medical students who rotate within Laboratory Service at the VA. (Dr. Beals gives biweekly seminars in electron microscopy at the University).

RESEARCH:

Dr. Chensue continues as a member of the VA Research and Development Committee and continues to carry out a strong funded research effort here as well. All members of the staff participate as collaborators or consultants with other investigators within the VA and at the University of Michigan.

SUMMARY:

The goal of the VA Laboratory Service includes a strong commitment to the practice of high quality medicine and to a high level of research and education. It is to that end that there is continued effort to maintain and to improve the close relationship with the University of Michigan. The present recruitment effort is aimed at attaining a pathologist with a high level of experience and/or training for the practice of academic pathology. Every effort is made to assure and strengthen the easy professional interchange between the two institutions. The firm cooperative atmosphere as noted previously is based on the mutual benefit derived form increasing the quality of the relationship with the University. Major plans underway within the VA including the clinical addition, which will increase the laboratory space by some 10,000 square feet and will have a considerable effect on the affiliation particularly in the areas of student and resident education and research activities. The VA acts independently in many areas and is responsible for its own high quality laboratory practice and has been accredited by the College of American Pathologists since 1966 with the most recent inspection on June 19, 1990.

Lee Weatherbee, M.D.
Chief, Laboratory Service
Ann Arbor VA Medical Center