

GREGORY R. DRESSLER, Ph.D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1999 - 30 JUNE 2000

I. CLINICAL ACTIVITIES:

None.

II. TEACHING ACTIVITIES:

- A. Rotation Students Supervised - Brian MacDonald, CMB; Jingmei Lin, Dept. of Pathology
- B. Post-doctoral Trainees Supervised - Eun Ah Cho, Ph.D.; Yi Cai, M.D., Ph.D.; Patrick Brophy, M.D.; Sanj Patel, M.D.
- C. Ph. D. Thesis Committee Member - Igor Nasonkin, Dept. of Genetics; Kris Coulter, Dept. of Genetics; Hoonkyo Soo, Dept. of Genetics; Pei-Jiun Chen, Dept. of Biology
- D. Course Lectures - Path 581, 4.5 hours; CDB 530, 3 hours; CDB 580, 3 hours

MEDICAL SCHOOL/HOSPITALS:

- A. Second Year Medical Students - Renal Section, one full lecture

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. Principal Investigator, "PAX-2 in Normal and Cystic Epithelium Development", NIH/NIDDK R01 DK51043-02, (20%), September 30, 1995-August 31, 2000. Direct costs approximately \$90,000 requested annually.
- B. Principal Investigator, "Cell Migration, Chemoattraction and the RET/GDNF Pathway", NIH/NIDDK 1 R01 DK54723-01 (30% effort), 1/1/99 - 12/31/03, Annual Direct Costs \$158,840.
- C. Principal Investigator, "PAX2 Interacting Proteins in Development and Disease", NIH/NIDDK 1 R01 DK54740-01 (30% effort), 1/1/99 - 12/31/02, Annual Direct Costs \$158,840.
- D. Principal Investigator, Project #3 (20% effort), "Functional Analysis of RET Signaling in Renal Epithelial Cells", NIH/NIDDK, 2 P50 DK39255-11A1, O' Brien Renal Center Grant, "Mechanisms of Glomerular and Tubular Injury", Dr. Roger C. Wiggins, PI. 9/1/98 - 8/31/03, \$76,066 Initial Budget Period.

PROJECTS UNDER STUDY:

- A. The identification of co-factors required for Pax protein mediated transcription activation.
- B. The development of novel methods for identifying genes regulated by Pax proteins.
- C. The role of Pax-2 in the initiation and progression of polycystic kidney disease.
- D. The GDNF/RET signaling pathway in the developing kidney.
- E. Wnt and Frizzled signaling in the developing kidney

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Dept. of Pathology - Preliminary Exam Committee, Curriculum Committee
- B. Center for Organogenesis - Interim Co-Director, Steering Committee, Training Grant Review Committee, Advisory Committee, Seminar Committee (Chair)
- C. Program in Biomedical Sciences (PIBS) - Admissions Committee

REGIONAL AND NATIONAL:

- A. NIH Study Section, General Medicine B, Permanent Member
- B. NIDDK, Renal Program Project Grants, Ad-Hoc Reviewer
- C. American Journal of Physiology, Editorial Reviews Board
- D. Reviewer for: Mechanisms of Development, Development, Proceedings of the National Academy of Sciences, Developmental Dynamics, Journal of Biological Chemistry, Nature, American J. of Physiology, Journal of Clinical Investigation, Molecular and Cellular Biology, Genes & Development, Kidney International, Journal of Cell Biology, Cell, Am. J. Pathology, Cancer Research

V. OTHER RELEVANT ACTIVITIES:

- A. Membership in the American Society of Nephrology
- B. Membership in Society for Developmental Biology
- C. Membership in University of Michigan Comprehensive Cancer Center
- D. Membership in the Center for Organogenesis, University of Michigan

INVITED LECTURES/SEMINARS:

1. Dept. of Biochemistry, LSU Medical Center, New Orleans, LA.
2. Dept. of Anatomy, University of Kansas Medical School, Kansas City, KS.
3. Dept. of Biochemistry, Medical College of South Carolina, Charleston, SC.
4. Division of Developmental Biology, Children's Hospital, Univ. of Cincinnati, OH.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Yang, Y., Jeanpierre, C., Dressler, G.R., Lacoste, M., Niaudet, P. and Gubler, M.-C. (1999) WT1 and Pax-2 podocyte expression in Denys-Drash syndrome and isolated diffuse mesangial sclerosis. *Am J. Pathol* 154, 181-192.
2. Dressler, G.R. (1999) Kidney development branches out. *Dev. Genetics* 24, 189-193.
3. Schwarz, M., Alvarez-Bolado, G., Dressler, G., Urbanek, P., Busslinger, M., and Gruss, P. (1999) Pax2/5 and Pax6 subdivide the early neural tube into three domains. *Mech. Dev.* 82, 29-39
4. Dressler, G. R. and Woolf, A. S. (1999) Pax2 in development and renal disease. *Int. J. Dev. Biol.* 43, 463-468.
5. Ostrom, L., Tang, M.-J., Gruss, P., and Dressler, G.R. (2000) Reduced *Pax2* gene dosage increases apoptosis and slows the progression of renal cystic disease. *Dev. Biol.* 219, 250–258
6. Mah, S.P., Saueressig, H., Goulding, M., Kintner, C., and Dressler, G.R. (2000) Kidney Development in Cadherin-6 Mutants: Delayed Mesenchyme-to-Epithelial Conversion and Loss of Nephrons. *Dev. Biol.* 223, 38-53.
7. Lechner, M.S. and Dressler, G.R. (2000) PTIP, a novel BRCT-domain protein interacts with the Pax2 and is associated with active chromatin. *Nuc. Acids Res.* 28, 2741-2751.

ARTICLES SUBMITTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Tang, M.J., Tsai, S.J., Wang, Y.K., Worby, C.A., Cai, Y. and Dressler, G.R. (2000) Chemotaxis of renal epithelial cells in response to RET activation is mediated by phosphatidylinositol 3-kinase. submitted

BOOK CHAPTERS:

1. Dressler, G.R. (2000) The development of the excretory system, in *Mouse Development* (J. Rossant and P. Tam, eds.) Academic Press

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