

Lifeline

UMKC SCHOOL OF BIOLOGICAL SCIENCES

UNIVERSITY OF MISSOURI-KANSAS CITY • SUMMER 2008

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Message from the Dean

THE BEST TEACHER I EVER HAD

As university educators we are involved not only in teaching but also research, service to the School and the University, and activities associated with various professional organizations. Given the breadth of our professional experience, we may, at times, lose touch with the fundamental activity that defines our profession. That is the education of our students. We may even assume that this takes second place to “more important” activities, such as our research. It is an undeniable truth that without a healthy and robust research profile, we as a School will never attain the level of excellence that we aspire to, and teaching and research cannot be separated. But another “truth” is that our degree of excellence will be judged, and rightfully so, by our students and the heights to which they rise.

One of my most beloved mentors and outstanding teachers was professor David Paretsky. Dave once told me that his contributions to science “would be judged by the successes of his students.” Dave was a tough-minded, uncompromising individual who expected nothing but the best of everyone around him. Dave was also one of the kindest, most honest, caring and witty individuals that I have ever known. Dave was the very best teacher I ever had. For nearly four decades at the University of Kansas Department of Microbiology, Dave inspired countless students, including myself, to become scientists and science educators. Dave took pride in teaching and never saw it any less important than his tireless hours at the lab bench. Until his retirement in 1989, Dave continued to teach and work in the lab. Dave defined the Microbiology department that he chaired for many years. He set a tone for excellence in research and teaching that could serve as a model for success.



Dr. Lawrence A. Dreyfus

Dave passed away in January of 2000 and although now gone, he will be remembered fondly and forever by many.

I see a number of parallels between the School of Biological Sciences and the philosophy that Dave brought to his department. Foremost in comparisons is a desire to excel at research while tirelessly working to educate our students. Our students and the success that they attain will define our strength, quality and excellence as an academic unit. Our students are our legacy – an investment in the future generation of scientists.

One of my hopes for the School of Biological Sciences is that as students leave UMKC to begin their professional careers in sciences or continue their education in medicine, dentistry, pharmacy or graduate school, or to become the next generation of laboratory life scientists, countless numbers will consider our faculty members as the “best teachers they ever had.” The ones that inspired them, encouraged them and educated them on their journeys in science.

– Lawrence A. Dreyfus
Dean

New Faculty



Erika R. Geisbrecht, Ph.D.

Geisbrecht's current research is focused on identifying new genes that function in *Drosophila* myoblast fusion by taking advantage of both genetic and biochemical approaches. The primary focus is to identify and integrate new genes and proteins into ordered molecular pathways for a further understanding of the fusion process. Additional interests include applying this knowledge to other developmental pathways in *Drosophila* where these molecules may have diverse roles, as well as investigating the relevance to vertebrate myogenesis in hopes of better understanding basic muscle biology and disease.

Erika R. Geisbrecht, Ph.D., joined the Division of Cell Biology and Biophysics as an assistant professor in January 2008. She completed her Ph.D. training in 2003 under the guidance of Denise J. Montell, Ph.D. at The Johns Hopkins University School of Medicine. Her graduate training focused on the identification of genes required for cell migration in *Drosophila melanogaster*. Geisbrecht continued using the fruit fly as a model organism during her post-doctoral studies in the laboratory of Susan Abmayr, Ph.D., at the Stowers Institute for Medical Research. This research, supported by a Ruth L. Kirschstein post-doctoral fellowship, focused on the characterization of genes required for embryonic muscle development.

Awards

FACULTY

Dr. G. Sullivan Read received a UMKC Trustees' Faculty Fellows Award for 2008.

Dr. Michael O'Connor received a UMKC Trustees' Faculty Scholars Award for 2008.

STUDENTS

Jason Finley received \$1,250 in January from the SEARCH Undergraduate Grant Committee, UMKC. The grant was approved to fund a one-semester project, "Sanalysis of A-Minor Interaction in the 16sRNA of the Bacterial Ribosome," under the faculty mentorship of Dr. Michael O'Connor.

Bridget Biersmith received \$750 in March from the SEARCH Undergraduate Grant Committee, UMKC. The grant was approved to fund a one-semester project, "Regulation of the Bunched Gene in the *Drosophila* Ovary," under the faculty mentorship of Dr. Leonard Dobens.

Tiffany Fowlkes received \$1,500 in March from the SEARCH Undergraduate Grant Committee, UMKC. The grant was approved to fund a one-semester project, "Effect of the G59S Mutation on the Function of the Dynein-Dynactin Complex," under the faculty mentorship of Dr. Stephen King.

MAJOR CONFERENCE PRESENTATIONS

“Light Sensing in the Fungi,” 34th Meeting of the American Society for Photobiology, Burlingame, Calif., June 2008, **Dr. Alexander Idnurm**.

“Sight and Sex in the Fungal Kingdom,” Kaw Valley Mycological Society, Lawrence, Kan., February 2008, **Dr. Alexander Idnurm**.

“Resources at the Fungal Genetics Stock Center,” Fifth International Aspergillus Meeting, Edinburgh, Scotland, April 2008, **Dr. Kevin McCluskey**.

“Investigation of HMG-CoA Lyase Function Suggests the Molecular Basis for Human Hydroxymethylglutaric Aciduria,” Association of Medical and Graduate Department of Biochemistry Chairs, January 2008, **Dr. Henry M. Miziorko**.

“Maintaining Accuracy on the Bacterial Ribosome,” Department of Biology, University of Copenhagen, Denmark; and Department of Biochemistry University of Missouri, Columbia, April 2008, **Dr. Michael O'Connor**.

“Double Time: A Protein Kinase which Sets the Pace of the Circadian Clock in Flies and Humans,” University of Pennsylvania, Philadelphia, January 2008, **Dr. Jeffrey L. Price**.

“Evolutionarily Conserved Features of Vertebrate cki delta and Drosophila dbt in the Circadian Mechanism,” Society for Research on Biological Rhythms meeting, Destin, Fla., May 2008, **Dr. Jeffrey L. Price**.

“Seasonal Changes and Canalization in the Sensitivity of Small Mammal Populations to Changes in Survival and Reproduction,” Annual meeting of the American Society of Mammalogists, University of South Dakota, Brookings, June 2008, **Dr. Aaron Reed** and N.A. Slade.

“Environmental correlates to survival and reproduction in old-field rodents,” Annual Meeting of the American Society of Mammalogists, University of South Dakota, Brookings, June 2008, **Dr. Aaron Reed** and N.A. Slade.

Publications

- Benevides, James. "Mechanisms of specific and nonspecific binding of architectural proteins in prokaryotic gene regulation," *Biochemistry*, Vol. 47, pp. 3855-3862, 2008.
- Benevides, J. M., Danahy, J., Kawakami, J. and Thomas Jr., G. J., "Mechanisms of Specific and Nonspecific Binding of Architectural Proteins in Prokaryotic Gene Regulation," *Biochemistry*, Vol. 47:3855-3862, 2008.
- Belostotsky, D.A. "State of decay: An update on plant mRNA turnover," *Current Topics in Microbiology and Immunology*, Vol. 326, pp. 179-200, 2008.
- Huang G.N., Huso D.L., Bouyain S., Tu J. and McCorkell K.A., May M.J., Zhu Y., Lutz M., Collins S., Dehoff M., Kang S., Whartenby K., Powell J., Leahy D., Worley P.F. "NFAT Binding and Regulation of T Cell Activation by the Cytoplasmic Scaffolding Homer Proteins," *Science*, Vol. 319, pp. 476-481, 2008.
- Xiaodong, W., Yamada-Mabuchi, M. Morris, E.J., Tanwar, P.S., Dobens, L. and Gluderer, S., Khan, S., Cao, J., Stocker, H., Hafen, E., Dyson, N.J., Raftery, L.A. "The Drosophila homolog of mammalian tumor suppressor TSC-22 promotes cellular growth, proliferation and survival," *Proc. Natl. Acad. Sci. (USA)*, Vol. 105(14), pp. 5414-5419, 2008.
- Chekanova J.A., Abruzzi K.C., Rosbash M., Belostotsky D.A. "Sus1, Sac3 and Thp1 mediate posttranscriptional tethering of active genes to the nuclear rim, as well as to non-nascent mRNP," *RNA*, Vol. 14, pp. 66-77, 2008.
- Garris, D.R., Burkemper, K. M., and Garris, B. L. "Influences of Diabetes (db/db), Obese (ob/ob) and Dystrophic (dy/dy) Genotype Mutations on Hind Limb Bone Maturation: A Morphometric, Radiological and Cytochemical Indices Analysis," *Diabetes, Obesity and Metabolism*, Vol. 9, pp. 311-322, 2007.
- Lambris, J. D., Ricklin, D. and Geisbrecht, B. V. "Complement Evasion By Human Pathogens," *Nature Reviews Microbiology*, Vol. 6, pp. 132-142, 2008.
- Chen, H., Schuster, M. C., Sfyroera, G., Geisbrecht, B. V. and Lambris, J. D. "Solution Insights into the Structure of the Efb/C3 Complement Inhibitory Complex as Revealed by Lysine Acetylation and Mass Spectrometry," *Journal of the American Society of Mass Spectrometry*, Vol. 19, pp. 55-65, 2008.
- Geisbrecht, E.R., Haralalka, S., Swanson, S.K., Florens, L., Washburn, M.P., Abmayr, S.M. "Drosophila ELMO/CED-12 interacts with Myoblast city to direct myoblast fusion and ommatidial organization," *Dev. Biol.*, Vol. 314, pp. 137-149, 2008.
- Huang, C. "Implications on cerebellar function from information coding," *The Cerebellum*, April 12, 2008, online.
- Idnurm, A., Walton, F. J., Floyd, A. and Heitman, J. "Identification of the Sex Genes in an Early Diverged Fungus," *Nature*, Vol. 451, pp. 193-196, 2008.
- McCluskey, K. "Aspergillus at the Fungal Genetics Stock Center. In *The Aspergilli: Genomics, Medical Applications*," *Biotechnology and Research Methods*, pp. 527-536 2008. CRC Press, Boca Raton, Ed. Osmani, Steve and Goldman, Gustavo. ISBN: 9780849390807.
- McCluskey, K. and Plamann, M. "Perspectives on Genetic Resources at the Fungal Genetics Stock Center," *Fungal Genetics Reports*, Vol. 55, pp. 15-17, 2008.
- Fu, Z., Voynova, N.E., Herdendorf, T.J., Mizioro, H.M., Kim, J.J.P. "The Biochemical and Structural Basis for Feedback Inhibition of Mevalonate Kinase and Isoprenoid Metabolism," *Biochemistry*, Vol. 47, pp. 3715-3724, 2008.
- Reed, A. W. and N. A. Slade. "Density-dependent recruitment in grassland small mammals," *Journal of Animal Ecology*, Vol. 77, pp. 57-65, 2008.
- Resch, G.E. and Simpson, C.W. "Cyclo-Glycyl-Glutamine Inhibits Ethanol Intake in P and Sprague Dawley Rats," *Peptides*, Vol. 29(3), pp. 430-439, 2008.
- Resch, G. E. and Simpson, C.W. "Glycyl-Glutamine Reduces Ethanol Intake at Three Reward Sites in P Rats," *Alcohol*, Vol. 42(2), pp. 99-106, 2008.
- Crumbliss, A.L., Flaherty, M.M., Rish, K.R., Smith A. "An Investigation of Hemopexin Redox Properties by Spectroelectrochemistry: Biological Relevance for Heme Uptake," *Biomaterials*, Vol. 21 (Issue 3), pp. p.259-271, 2008.
- Waterborg, Jakob H. "Evolution of Histone H3 Variants in Eukaryotes," *FASEB J.*, Vol. 22, pp. 1004.1, 2008.
- Wyckoff, Gerald J., Malcom, Christine M. "Encyclopedia of Life Sciences "Mammalian Sex Chromosome Evolution," Wiley, New York, N.Y.

Abdel-Rahman, S.M., Talib, N., Solidar, A., Nopper, A.J., Wyckoff, G.J. "Examining Trichophyton tonsurans genotype and biochemical phenotype as determinants of disease severity in tinea capitis," *Med Mycol*, Vol. 46, pp. 217-223, May, 2008.

Nadeau, O.W., Wyckoff, G.J., Paschall, J.E. and Artigues, A., Sage, J., Villar, M.T., Carlson, G.M. "CrossSearch, a user-friendly search engine for detecting chemically cross-linked peptides in conjugated proteins," *Mol. Cell Proteomics*, Vol. 7, pp. 739-749, 2008.

Ling, E., Ao, J., and Yu, X-Q. "Nuclear Translocation of Immulectin-3 Stimulates Hemocyte Proliferation," *Molecular Immunology*, Vol. 45:2598-2606, 2008.

Wang, Z-L., Xu, X-P., He, B-L., Weng, S-P., Xiao, J., Wang, L., Lin, T., Liu, X., Wang, Q., Yu, X-Q., and He, J-G. "ISKNV ORF48R Functions as a New Viral Vascular Endothelial Growth Factor," *Journal of Virology*, Vol. 82:4371-4393, 2008.

Ao, J., Ling, E., Rao, X-J., and Yu, X-Q. "A Novel ML Protein from Manduca Sexta May Function as a Key Accessory Protein for Lipopolysaccharide Signaling," *Molecular Immunology*, Vol. 45:2772-2781, 2008.

Hu, J., Yu, X-Q., Fu, W-J., and Zhang, W-Q. "Embryos of the Polyembryonic Wasp Macrocentrus Cingulum Evade Encapsulation by its Host Ostrinia Furnaalis Through the Use of a Helix Pomatia Lectin Binding Protein on the Extraembryonic Membrane," *Developmental and Comparative Immunology*, Vol. 32:356-364, 2008.

Sun, Y-N., Wand, J., Lao, H-H., Yin, Z-X., He, W., Weng, S-P., Yu, X-Q., Chan, S-M., and He, J-G. "Molecular Cloning and Expression Analysis of the ASC Gene from Mandarin Fish (Siniperca Chuatsi) and its Regulation of NF-kB Activation," *Developmental and Comparative Immunology*, Vol. 32:391-399, 2008.

Ao, J., Ling, E., and Yu, X-Q. "A Toll Receptor from Manduca Sexta is in Response to Escherichia Coli Infection," *Molecular Immunology*, Vol. 45:543-552, 2008.

Sun, Y-D., Du, X-J., Fu, L-D., Jia, Y-P., Zhao, X-F., Yu, X-Q., and Wang, J-X. "A Hepatopancreas Specific C-type Lectin from the Chinese Shrimp Fenneropenaeus Chinensis Exhibits Antimicrobial Activity," *Molecular Immunology*, Vol. 45:348-361, 2008.

New Personnel

Kenneth Bauman
Research Assistant

Scott Clark
Support System Administrator Specialist

Taron Davis
Research Assistant

Erika Geisbrecht
Assistant Professor

Jill Hontz
Research Associate

Benjamin Iwai
Research Assistant

Denise Magditch
Research Assistant

Kasra Ramyar
Research Associate

Rebecca Thill
Research Instructor

Anju Verma
Research Associate

Christy Wiens
Lecturer



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New Research Funding

NATIONAL INSTITUTES OF HEALTH

Belostotsky, D., "Role of the S. Cerevisiae Pab1p in mRNA Biogenesis," \$253,188, March 2008.

Geisbrecht, B., "Structure Function Analysis of Staphylococcal Complement Inhibitors," \$318,750, February 2008.

King, S., "Dynactin/\Microtubule Interactions in Dynein Motility," \$255,959, April 2008.

Laity, J., "Mechanisms of Eukaryotic Zinc Homeostasis," \$301,505, March 2008.

Persechini, A., "Switching Kinetics in Calmodulin-IQ Domain Complexes," \$218,409, May 2008.

Read, S., "Control of mRNA Stability in HSV Infected Cell," \$237,537, March 2008.

Wyckoff, G., "Role of ZIC and GLI Protein-Protein Interactions in Human Brain Disorders," \$220,050, April 2008.

NATIONAL SCIENCE FOUNDATION

Belostotsky, D., "Arabidopsis 2010: Affinity Handle on Macromolecular Complexes," \$300,00, January 2010.

Dobens, L., "Role of the Drosophila Bunched Gene Isoforms in Regulating Notch Signaling at Cell Fate Boundaries," \$11,440, February 2008.

O'Connor, M., "tRNA Selection on the Bacterial Ribosome," \$449,941, March 2008.

MISSOURI LIFE SCIENCE RESEARCH BOARD

Chekanova, J., "Ultrahigh-throughput Sequence Profiling of Small RNA in Brachypodium Distichyon, an Emerging Model for Cereal and Biofuel Crops," \$558,020, January 2008.

Geisbrecht, B., "Evaluation of Candidate Diagnostic and Drug Targets for Johne's Disease in Livestock," \$675,000, January 2008.

Gogol, E., "Functional Conformations of the Proteasome Core Particle," \$26,372, June 2008.

Waterborg, J., "Ustilago H3 Histones," \$318,624, January 2008.

UNIVERSITY OF MISSOURI RESEARCH BOARD

Dobens, L., "Microarray Screen for Ecdysone Regulated Genes in the Drosophila Ovary," \$31,572, June 2008.

FACULTY RESEARCH GRANT

Idnurm, A., "Phycomyces Blakesleeanus Through Genetic Mapping," \$7,000, March 2008.

UNIVERSITY OF CALIFORNIA IRVINE

King, S., "Single Molecule Characterization of Cytoplasmic Dynein," \$22,350, March 2008.