

Highlights 2014 *Department of Basic Medical Sciences*

Mission:

Through discovery, education and service, the BMS faculty strive to be leaders in their areas of scholarship. Using interdisciplinary approaches, BMS faculty perform hypothesis-driven investigations to reveal mechanisms that underlie biological processes and human disease and collaborate with clinical researchers to facilitate the development of novel diagnostics, therapies and preventive measures. BMS faculty are also engaged in medical and graduate education by developing, delivering and assessing curricula, and conduct educational scholarship.



Paul E. Boehmer, PhD
Chair and Professor
Basic Medical Sciences



Publications:

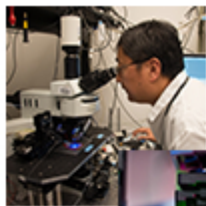
In calendar year 2014, the core faculty of the Department of Basic Medical Sciences produced more than 50 publications, including 47 original peer-reviewed research articles indexed in NCBI-PubMed, illustrated by the following:

- Sharma S, Wongpalee SP, Vashisht A, Wohlschlegel JA, Black DL. Stem-loop 4 of U1 snRNA is essential for splicing and interacts with the U2 snRNP-specific SF3A1 protein during spliceosome assembly. *Genes Dev.* 2014 Nov 15;28(22):2518-31.
- Doerflinger SY, Throop AL, Herbst-Kralovetz MM. Bacteria in the vaginal microbiome alter the innate immune response and barrier properties of the human vaginal epithelia in a species-specific manner. *J Infect Dis.* 2014 Jun 15;209(12):1989-99.
- Hill CA, Radovčić J, Frayer DW. Investigation of the semicircular canal variation in the Krapina Neandertals. *Am J Phys Anthropol.* 2014 Jun;154(2):302-6.
- Hsieh JC, Kuta R, Armour CR, Boehmer PE. Identification of two novel functional p53 responsive elements in the herpes simplex virus-1 genome. *Virology.* 2014 Jul;460-461:45-54.
- Hutchins ED, Markov GJ, Eckalbar WL, George RM, King JM, Tokuyama MA, Geiger LA, Emmert N, Ammar MJ, Allen AN, Siniard AL, Corneveaux JJ, Fisher RE, Wade J, DeNardo DF, Rawls JA, Huentelman MJ, Wilson-Rawls J, Kusumi K. Transcriptomic analysis of tail regeneration in the lizard *Anolis carolinensis* reveals activation of conserved vertebrate developmental and repair mechanisms. *PLoS One.* 2014 Aug 20;9(8):e105004.

Book Chapters:

- K. Hastings, MD, PhD, and M. Rausch, PhD, Innate and Adaptive Immune Responses to Cancer. In *Fundamentals of Cancer Prevention*. Editors: Alberts, D., Hess, L.M., 3rd edition, Springer
- A. Sertil, PhD, Hypoxia and Tumor Dormancy: Can the Two Tango? In *Tumor Dormancy, Quiescence, and Senescence, Vol. 3, Aging, Cancer, and Noncancer Pathologies*. Editors: Hayat, M.A., Springer





College of Medicine Phoenix



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Grants:

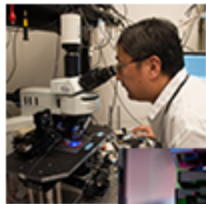
In calendar year 2014, the core faculty in the Department of Basic Medical Sciences submitted more than 45 unique proposals requesting ~\$20 million in research funding, resulting in 15 grant awards worth ~\$4.4 million, including the following:

- Trent Anderson, PhD, "Mechanism of neurosteroid regulation of migraine" R01 grant from the National Institute of Neurological Disorders and Stroke.
- Deveroux Ferguson, PhD, "Novel role for sirtuin signaling mechanisms and downstream targets in depression" Roo grant from the Institute of Mental Health.
- Kurt Gustin, PhD, "Role of nuclear pore protein in host transcription response to viral infection" R03 grant from the National Institute of Allergy and Infectious Diseases.
- Melissa Herbst-Kralovetz, PhD, a grant to investigate "The Functional Role of the Vaginal Microbiome in Promotion of Infection-Associated Cancer in High Risk Populations" from the Flinn Foundation.
- Robert Handa, PhD, and Trent Anderson, PhD, a continuing grant from the Division of Integrative Organismal Systems of the National Science Foundation to investigate "Estrogen Receptor Beta in the Developing Prefrontal Cortex."
- Brittney McCormick was awarded a short-term research education program grant to support a summer undergraduate research experience mentored by Taben Hale, PhD, funded by the American Physiology Society and a R25 grant from the National Heart, Lung and Blood Institute, to increase diversity in health-related research.

Patents:

- Application number: 20140113834 "Hybridoma clones and monoclonal antibodies to ING4" issued to David O. Azorsa and Suwon Kim.





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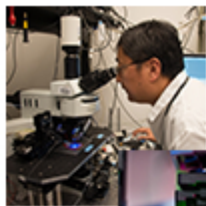
National and International Committees:

- Rayna Gonzales, PhD, served as Communications Officer on the Executive Committee of The American Society for Pharmacology and Experimental Therapeutics - Division for Cardiovascular Pharmacology.
- Robert Handa, PhD, served as member of the Annual Meeting Steering Committee of The Endocrine Society.
- Ron Hammer, PhD, member of the National Institute of Mental Health Special Emphasis Panel ZMH1 ERB - L (01) Silvio O. Conte Centers for Basic or Translational Mental Health Research (P50).
- Salvatore Oddo, PhD, member of the Scientific Review Board of the Alzheimer's Drug Discovery Foundation.
- Rayna Gonzales, PhD, temporary member the NIH-Center for Scientific Review Brain Injury and Neurovascular Pathologies Study Section.
- Paul Boehmer, PhD, temporary member of the NIH-Center for Scientific Review Virology-A Study Section.

Honors and Awards:

- Rebecca Fisher, PhD, named as Educator of the Year by the Class of 2017.
- G. Kerr Whitfield, PhD, named as Educator of the Year by the Class of 2016.
- Melissa Herbst-Kralovetz, PhD, recipient of the Excellence in Teaching by a Block or Course (Hematology/Oncology) award by the Class of 2016.
- Taben Hale, PhD, named as a Fellow of the American Heart Association - Council for High Blood Pressure Research.





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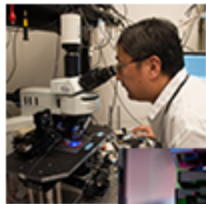
Editorial Boards:

- Mark Haussler, PhD, Editorial Board Member of *Journal of Cellular Biochemistry*, publishing descriptions of original research in which complex cellular, pathogenic, clinical, or animal model systems are studied by biochemical, molecular, genetic, epigenetic or quantitative ultrastructural approaches.
- Trent Anderson, PhD, Editorial Board Member of *CNS Neuroscience and Therapeutics*, publishing original clinical, experimental, and translational research papers, timely reviews and reports of novel findings of therapeutic relevance, as well as papers related to clinical pharmacology, drug development and novel methodologies for drug evaluation, focusing on neurological and psychiatric diseases such as stroke, Parkinson's disease, Alzheimer's disease, depression, schizophrenia, epilepsy, and drug abuse.
- Aparna Sertil, PhD, Review Editor for *Frontiers in Cancer Genetics*, a specialty section of *Frontiers in Genetics* and *Frontiers in Oncology* publishing research reports, reviews and commentaries pertaining to the somatic and germline genetics and genomics of cancer, ranging from whole genome to focused studies of individual genes and molecular pathways in oncology.
- Robert Handa, PhD, Editorial Board Member of *Stress: The International Journal on the Biology of Stress*, publishing findings on the physiology, neurobiology, molecular biology, genetics research, immunology, and behavioural studies as they impact on the understanding of stress and its adverse consequences and their amelioration.

Faculty Appointments:

- Deveroux Ferguson, PhD, Assistant Professor (tenure-eligible).
- Travis Dunckley, PhD, Research Assistant Professor.
- Matthew Huentelman, PhD, Research Associate Professor.





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Outreach and Service:

- The Department launched a Summer Internship Research Program for local high school students, coordinated by a committee chaired by Shalini Sharma, PhD, and supported by Taben Hale, PhD, Amelia Gallitano, MD, PhD, Aparna Sertil, PhD, and Rayna Gonzales, PhD.
- Taben Hale, PhD, served as Secretary-Treasurer of the Arizona Chapter of the American Physiological Society.
- G. Kerr Whitfield, PhD, participated in the International Student Health Organization of Phoenix medical mission to villages of Haitian immigrants in the Dominican Republic.
- Amelia Gallitano, MD, PhD, served as member of the Executive Committee of the ASU Interdisciplinary Graduate Program in Neuroscience.
- Numerous BMS faculty participated in College of Medicine – Phoenix outreach programs such as MedStart.
- Hastings, MD, PhD, and Herbst-Kralovetz, PhD, served as external reviewers for doctoral dissertation committees at Yale University and LSU-Health Sciences Center New Orleans, respectively.
- Suwon Kim, PhD, was invited as thought leader to the Ventana 10th Annual Tucson Symposium, drawing scientists, academics, oncologists and pathologists from the world's leading hospitals and research institutions to drive advancements in pathology and oncology and improve patient care and treatment outcomes.
- Robert Handa, PhD, spoke at the 53rd Annual meeting of the American College of Neuropsychopharmacology.
- The Department hosted twenty-one scientific presentations as part of the annual Basic Medical Sciences Seminar Series.

