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<tr>
<th>USCSOMG Biomedical Sciences</th>
<th>Focus Areas</th>
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| Sergio Arce, M.D., Ph.D. – BMS | 1. Discovering novel roles for B and T lymphocytes in the pathogenesis of sarcoidosis  
2. Biochemical mechanisms of steroid resistance in chronic persistent sarcoidosis  
3. Modeling the bone marrow plasma cell microenvironment and granulomatous inflammation in 3D culture systems  
4. Immunology and pathogenesis of multiple myeloma |
| Asa C. Black, Jr., M.D. – BMS | 1. Pluripotent Adult Stem Cells (with Dr. Henry E. Yount)  
2. Multiple sclerosis (with Dr. Mary Hughes) |
| Anna V. Blenda, Ph.D. – BMS | 1. Investigation of the antimicrobial properties of the human galectin proteins  
2. Screening for antimicrobial properties via dose-response bacteria killing assays, galectin-bacteria binding assays using flow cytometry, and glycan array data analysis  
3. Investigation of the genetics of the birth defects of split hand foot malformation (SFHM) |
| Renee J. Chosed, Ph.D. – BMS | 1. Investigation of the role that posttranslational modifications play in disease progression.  
2. Characterization of the human Mixed-Lineage Leukemia (MLL1) complex using yeast as a model system.  
3. Understanding the molecular mechanisms mediating human embryo development during the pre-implantation-competent embryo |
| Steven E. Fiester, Ph.D. – BMS | 1. Elucidating factors contributing to the virulence of multidrug-resistant ESKAPE pathogens with special attention given to Acinetobacter baumannii.  
2. Understanding the pathobiology of A. baumannii in order to uncover targets for therapeutics.  
3. Investigating the mechanism by which A. baumannii is cytotoxic to eukaryotic cells, acquires iron under chelated conditions, translocates virulence-associated proteins to the outer membrane, secretes virulence factors and responds to environmental stressors. |
| Lauren A. Gonzales, Ph.D. – BMS | 1. Phenotypic adaptations of inner ear morphology  
2. Sensory ecology and evolution of the primate brain  
3. Vertebrate paleontology  
4. North and South American paleobiogeography  
5. New applications of Computed Tomography (CT) data for research and education |
| Richard L. Goodwin, Ph.D. – BMS | 1. Investigation of the mechanisms of cardiovascular development.  
2. Investigation of cardiovascular malformations at birth in order to provide opportunities for new therapies |
3. Investigation of new cell-based therapies, which likely use the same developmental mechanisms to regenerate malformed and diseased structures, to treat adult disorders.
4. Understanding the role of the mechanical environment on genomic regulation of the differentiation and morphogenesis of cardiovascular tissues.
5. Generating 3D reconstructions of normal and defective hearts throughout development using an inducible model of a cardiac defect known as Tetralogy of Fallot.

**Richard L. Hodinka, Ph.D., F (AAM) - BMS**
1. Clinical microbiology, infectious diseases
2. Development, validation and implementation of rapid and accurate methods for the detection and monitoring of microbial pathogens causing infectious diseases
3. Primary focus on laboratory- and point-of-care-based molecular technologies for the diagnosis of viral illnesses

**Ann Blair Kennedy, LMT, BCTMB, DrPH – BMS**
1. Patient and stakeholder engagement in research
2. Stress and wellness particularly in families with children with special needs
3. Behavioral change interventions
4. Implementation monitoring and process evaluation
5. Integrative medicine
6. Investigations of the massage therapy profession

**Mohammed K. Khalil, DVM, M.S.Ed., Ph.D. – BMS**
1. Investigation of learning and instructional technology
2. Advancement of medical education with innovative learning strategies
3. Applied research on technology integration in medical education with the intention of developing effective pedagogy that promotes student-centered and life-long learning

**Thomas I. Nathaniel, Ph.D. – BMS**
1. Evaluation of existing data to find improved treatment outcome of RTP (“Clot Buster”) in Ischemic stroke patients
2. Development of “telestroke technology” to improve treatment efficiency and eliminate disparity between urban and rural area stroke patients.
3. Use of metabolomics to identify biomarkers for stroke diagnoses

**William E. Roudebush, Ph.D. – BMS**
1. Investigation of the significance of signaling phospholipids (i.e. platelet activating factor)
2. Investigation of Transforming Growth Factor-Beta hormones (e.g. AMH and inhibin B) in reproduction and preimplantation embryo morphometrics

**Rebecca Russ-Sellers, Ph.D. – BMS**
1. Investigation of clinically driven health services research
2. Achieving effective health service research partnerships
3. Emergency medical technician training in medical school
| Jennifer Trilk, Ph.D. – BMS | 1. The power of exercise training in medical education  
2. Improving Patient Health through Exercise is Medicine™ Greenville: A community initiative to integrate physician-prescribed physical activity in Greenville, South Carolina  
3. Massage Therapy for Improvement of Quality of Life and Sport Performance in Paracycling Athletes |
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<td>Matthew Tucker, Ph.D. - BMS</td>
<td>1. Research focuses on the role of sleep in memory processing in medically relevant contexts</td>
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| Shanna Williams, Ph.D. – BMS | 1. Craniofacial growth, maturation, and change based on age and ancestry  
2. Predictive Value of Basic Science Content and NBME® Comprehensive Basic Science Exams in a New Medical School |
| William Wright, Ph.D. - BMS | 1. Determination of the mechanisms of dysfunction that occur early in the diabetic retina which lead to the development of diabetic retinopathy  
2. Investigation of inflammatory mediators that modify vascular endothelial cell function and result in altered blood flow to the retina.  
3. Assessment practices  
4. Curricular design in medical education |