

FSU Biomed

Florida State University College of Medicine

www.med.fsu.edu/BioSci



Student News

Updates from the Meckes Lab

On May 18, BMS PhD alumna **Stephanie Hurwitz** graduated with her MD degree to become the COM's first MD/PhD graduate. During the commencement celebration, Stephanie received three awards including the Stephen M. Nobles Pathogenesis Award, the Student Research Award, the American Medical Women's Association Glasgow-Rubin Achievement Citation. She was also inducted into the Alpha Omega Alpha Honor Medical Society. During her 3rd and 4th year of medical school, Stephanie published four additional papers (12 total). Some of the experiments needed for these papers were completed during research electives in medical school. Stephanie has now moved to Philadelphia and is starting a Clinical Pathology physician-scientist residency program at the University of Pennsylvania. There, she will complete clinical training and conduct postdoctoral research on extracellular vesicles and cancer. Congratulations Stephanie!



Upcoming Events

July 3

Michelle Arbeitman Seminar

July 4-5

FSU Closed – Independence Day Holiday

July 10

Judy Delp Seminar

July 17

Sanjay Kumar Seminar

July 17

Grand Rounds Lecture Series with Dr. Stephan Taylor

July 22

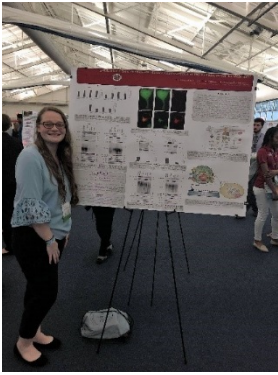
Biomed Faculty Meeting

July 24

Yi Zhou Seminar

July 31

Choogon Lee Seminar



Former undergraduate student, **Leanne Duke** was admitted into the BMS graduate program and obtained a highly competitive (only 15 students nationally) 2019 Repperger Research Internship through the Department of Defense. This is a 10 week paid internship where she will be working under an Air Force PI at Fort Sam Houston (San Antonio, TX) on an extracellular vesicle stem cell and tissue regeneration project. Leanne graduated with a BS in Biochemistry from FSU and completed an Honors in the Major thesis on the role of tetraspanin CD9 in EBV LMP1 trafficking.

Funding News

Dr. Diego Zorio has recently been awarded two grants; the CRC Planning Grant from June 2019 to May 2020 entitled "Isoform specific FMRP regulation in brain development", and the R01 Grant as Co-PI in collaboration with Dr. Sanchez at Northwestern University from July 2019 to May 2024 entitled "Neurotrophin Function in the Developing Auditory Brainstem".

Successful Night for FSU Biomedical Sciences at the 21st Annual Bryan W. Robinson Awards Dinner

The 21st Annual Bryan W. Robinson Awards Dinner was held earlier this month. This is an event to celebrate the applicants for the 2019 Endowment, as well as give the 2018 Research Award Recipients the opportunity to present their research. There were 17 applicants for this year's Endowment. Four applicants each receive a \$1500 award, and three are selected for Honorable Mention to receive \$500. Of the 17 applicants, 13 were FSU students, including 7 from Biomedical Sciences: Grace Hammel, Zachary Bleiker Jones, Jordan Logue, Samantha Pavlock, Kristin J. Schoepfer, Xiaoyan Yu, and Jiajing Zhang.

Samantha Pavlock was one of four selected for the \$1500 award. **Grace Hammel** and **Xiaoyan Yu** received \$500 honorable mention awards.

The 2018 Award recipients had the opportunity to present their research. Two of the eligible presenters were from FSU Biomed: **Caitlyn Blake-Hedges** from the Megraw Lab, who received a \$1500 award for her research on the role of Cdr2/Cd2L in the regulation of actin during development of the Purkinje neurons and their advantage to cancerous tumors; and **Alyssa J. Rolfe** from the Ren Lab, who received a \$500 award for her research on Macrophage Derived Extracellular Vesicles as Mediators of Inflammation in the Injured Spinal Cord. Dr. Rolfe was unable to attend the dinner and did not present.

Below is a list of FSU Biomed applicants for this year's endowment and their research:

Grace Hammel - The role of myelin debris in Blood-brain barrier disruption in spinal cord injury, Yi Ren, PhD

Zachary Bleiker Jones - Examining neuronal network activity in 14-3-3 functional knockout mice, a putative animal model of schizophrenia, Yi Zhou, PhD

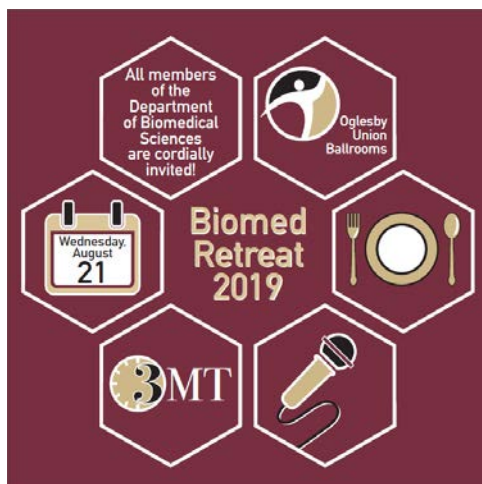
Jordan Logue - Ketamine's effects on hippocampal activity following social isolation rearing, Mohamed Kabbaj, PhD

Samantha Pavlock - The Effects of Cyclophosphamide, a Breast Cancer Chemotherapeutic Agent, on Behavior, Hippocampal Neurogenesis and Neuroinflammation, Pradeep Bhide, PhD

Kristin J. Schoepfer - Sex differences and effects of hormones on the neural representation of anxiety in rats, Mohamed Kabbaj, PhD

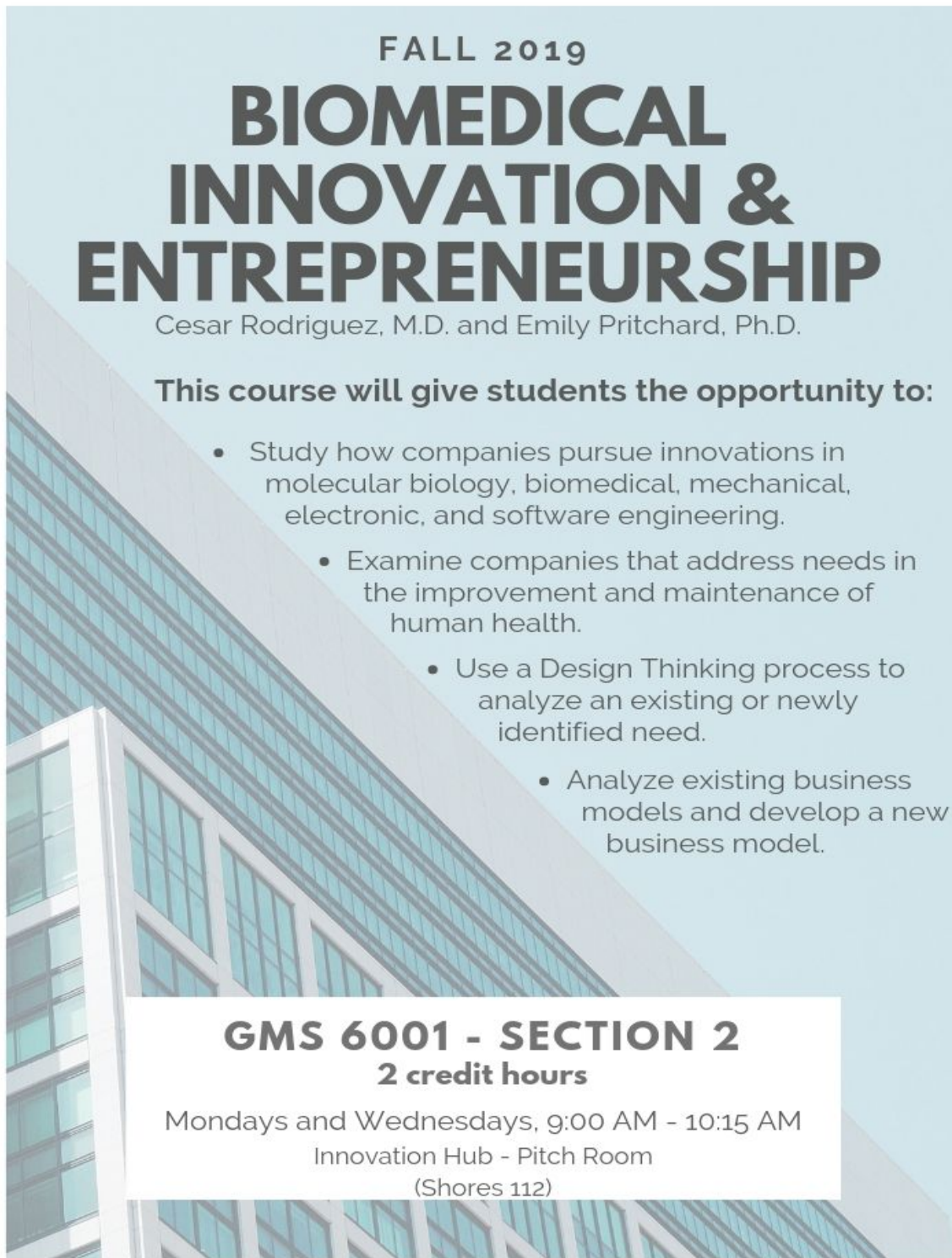
Xiaoyan Yu - The role of FMRP in shaping the critical period of auditory neurons in response to sensory deprivation, Yuan Wang, PhD

Jiajing Zhang - Investigating the role of hippocampus in psychomotor behaviors and its underlying neural circuits using a mouse model of schizophrenia, Yi Zhou, PhD



The Third Annual Biomed Retreat will be held on Wednesday, August 21st at the Oglesby Union Ballrooms. The day will feature a Three Minute Thesis competition, a surprise guest speaker, faculty poster session, and (of course) food and drinks! This will be a great time to see familiar faces and meet new ones!

New Graduate Course to be Offered this Fall!



FALL 2019

BIOMEDICAL INNOVATION & ENTREPRENEURSHIP

Cesar Rodriguez, M.D. and Emily Pritchard, Ph.D.

This course will give students the opportunity to:

- Study how companies pursue innovations in molecular biology, biomedical, mechanical, electronic, and software engineering.
- Examine companies that address needs in the improvement and maintenance of human health.
- Use a Design Thinking process to analyze an existing or newly identified need.
- Analyze existing business models and develop a new business model.

GMS 6001 - SECTION 2
2 credit hours

Mondays and Wednesdays, 9:00 AM - 10:15 AM
Innovation Hub - Pitch Room
(Shores 112)

Publications

A review article in *Problems in Cell Differentiation* entitled "Coordination of Embryogenesis by the Centrosome in *Drosophila melanogaster*" by **Caitlyn Blake-Hedges** and **Dr. Tim Megraw** is in press for August 2019.

Dr. Robert Tomko and **Randi Reed**, a graduate student in the Tomko Lab, recently published "Engineered disulfide crosslinking to measure conformational changes in the 26S proteasome" in the 619th Volume of the journal *Methods in Enzymology*. Their abstract is listed below:

The 26S proteasome is a multisubunit ATP-dependent peptidase complex mediating most regulated protein degradation in eukaryotes. The proteasome undergoes several coordinated conformational changes during catalysis that activate it for substrate processing and functionally couple distinct enzymatic activities during substrate degradation. Understanding the impact of substrate interactions and individual ATP binding events on these conformational changes is currently a major bottleneck in the study of proteasome function. Here, we describe a simple biochemical reporter based on engineered disulfide crosslinking for measuring the conformational distribution of the *Saccharomyces cerevisiae* 26S proteasome. We demonstrate its use to investigate the impact of ATP analogs and proteasome inhibitors on proteasome conformational equilibria. This reporter allows simultaneous and rapid comparison of multiple treatments or conditions on the steady-state conformational distribution of the proteasome and can be readily extended to the study of other multisubunit complexes for which multiple conformational states are known at near-atomic resolution.

Dr. Gregg D. Stanwood recently collaborated with colleagues at Columbia University and Vanderbilt University on a research paper titled "Enhanced Social Dominance and Altered Neuronal Excitability in the Prefrontal Cortex of Male KCC2b Mutant Mice", which appeared in the May 2019 issue of *Autism Research*. The lay summary is below:

A mouse model of altered chloride transporter expression was used to look for a role in behaviors and brain function relevant to autism. There was an imbalance in signaling in the prefrontal cortex, and increased social dominance behavior, although other autism-related behaviors were not changed. These findings indicate that altered chloride transporter function affects prefrontal cortex function and social dominance without a broader impact on autism-like behaviors.

Dr. Stanwood also worked with several FSU faculty from the College of Fine Arts looking at beneficial effects of art therapy on anxiety and stress hormones in FSU students. This paper, titled “Is There a Biofeedback Response to Art Therapy? A Technology-Assisted Approach for Reducing Anxiety and Stress in College Students”, was published in Volume 9: Issue 2 of *SAGE OPEN*. The abstract is below:

College students are exposed to daily stressors throughout their academic careers, which can have lasting consequences to their health and well-being. Mindfulness practices, art therapy, and the simple act of manipulating clay have independently demonstrated positive effects on stress and anxiety, but there is little research on the feasibility of incorporating these into an online resource for students to proactively address their mental health. In this pilot study, full-time university students (N = 15) were randomly assigned to a mindfulness-based art therapy (MBAT) program that used clay for all art directives or an unstructured, undirected neutral clay-manipulating task (NCT) for 10 weeks. Anxiety symptoms, salivary cortisol concentrations, and perceived levels of stress were assessed. Within-group analysis demonstrated significant decreases in anxiety symptoms and cortisol concentrations for MBAT participants, with no significant decrease in perceived stress. NCT participants experienced a significant decrease in cortisol concentrations on Week 1 but not on Week 10, with no other statistical significance in outcomes detected. Between-group analysis generated no significant interactions between variables. Based on these results, the structure of a therapist-directed online MBAT program using clay has the capacity to elicit anxiety-reducing benefits and may produce a trained biofeedback response for combating stress, offering a feasible strategy for addressing the mental health crisis on college campuses.

Special Events

Wednesday, July 17th, 4-6pm

Grand Rounds Lecture Series

Negative Affect and GABA in the Psychosis Spectrum - Dr. Stephan Taylor

Stephan F. Taylor, M.D. is Professor of Psychiatry and adjunct Professor of Psychology at the University of Michigan. He also serves as Associate Chair for Research and Research Regulatory Affairs in the Department of Psychiatry and directs the Program for Risk Evaluation and Prevention. His research uses brain imaging, brain stimulation, and behavioral techniques to study psychosis, particularly early psychosis, and to develop and improve treatments for psychiatric disorders.

Save the Date

Friday Aug. 16th, 8-5pm

Mental Health First Aid course

Mental Health First Aid is an 8-hour training course designed to give members of the public key skills to help someone who is developing a mental health problem or experiencing a mental health crisis. Just as CPR training helps a layperson without medical training assist an individual experiencing a heart attack, Mental Health First Aid training helps a layperson assist someone experiencing a mental health crisis.

This course is open to the public. Those interested in removing the stigma associated with mental illness and learning to give first aid are encouraged to register.

Contact Susan Salahshor for more information at: susan.salahshor@med.fsu.edu

Saturday Aug. 17th, 10-4pm

FSU Primary Health GRAND OPENING & COMMUNITY EVENT

On Saturday August 17th we will have a GRAND OPENING EVENT for the community with food, music, and entertainment. We want to get to know the community and we want them to get to know us. We are planning on having several of our student groups having tables for health information, and with the children with face-painting and other activities.

Friday, September 13th

3rd Florida Translational Cell Biology Symposium

Hosted on the campus of the University of Florida, the symposium will be a perfect environment for students, postdocs, and faculty from around the state to discuss the translational aspects of many topics within the broader field of cell biology. Researchers at all career stages will have the opportunity to present their work in either poster or lecture format, network with scientists from other institutes during a provided lunch and evening reception, and attend discussion groups on issues related to career development.

Participation from undergraduates, graduate students, and postdocs is highly encouraged. The submitters of the top abstracts in the graduate student and postdoc categories will be selected to give oral presentations. Abstracts not selected as talks will be given consideration for a poster instead.

Registration for the 2019 symposium opens on July 8. (See Caitlyn Blake-Hedges or Marisa Tillery for more info)

Do you have news you wish to share in the next Biomed Newsletter? If so, please send it to Ryan Teston at: joseph.teston@med.fsu.edu