

FSU Biomed

Florida State University College of Medicine

www.med.fsu.edu/BioSci



Student News



On March 7th, **Sara Jones** of the **Bhide Lab** represented The FSU Graduate School at the Conference of Southern Graduate Schools 3 Minute Thesis Competition. A total of 52 graduate students from various universities and disciplines throughout the region competed, and Sara was a finalist among the 8 “elite-of-the-elite” students!



Upcoming Events

April 21

Seminar Series: Caroline Strong

April 24

Last Day of Spring Classes

April 29

Seminar Series: Sara Jones

May 1

End of Spring Semester

NOTICE:

During the current operational conditions, **please note that mail and packages will be handled on Mon., Wed., and Fri.** by the facilities and operational staff, and **sorted sporadically within the Biomed Office.**

Carry your FSUID Card with you if needing to carry out essential needs within the Biomed facilities, and **DO NOT prop doors open.** By propping the doors open not only do you disrupt airflow, you additionally can jeopardize the functionality of the safety locking mechanisms designed to protect your lab and office space.



Dingani Nkosi, Sara York, and Monica Abou-Harb of the **Meckes Lab** recently attended the Exosomes in Human Infectious Diseases Conference in Nassau, Bahamas. All three gave oral presentations, and **Monica** was awarded \$250 for the top oral presentation award among graduate students and postdocs.

Additionally, **Dingani Nkosi** who has a M.D. and will be defending his Ph.D. dissertation this summer has matched for a Pathology Residency at the University of Rochester where he will be on a physician scientist track for his training.



Garrett Morton, first year Biomed student involved in an unfortunate hit-and-run incident this past December is recovering, and out of the hospital. While he will still undergo numerous surgeries as he continues to recover from the event, donations such as those provided through a recent College of Medicine bake sale as well as donations made through GoFundMe have been extremely helpful through this process. If you wish to donate towards his recovery or stay regularly updated, please visit the below link.
<https://www.gofundme.com/f/garret-morton-hit-and-run-recovery-fund>

BMS In the Community



On February 27th, members of the **Biomed SGSA** attended the FSU Women's Basketball Paint It Pink game vs. Clemson, where **Marisa Tillery**, **Delaney Sherwin**, **Grace Hammel**, and **Dr. Ewa Bienkiewicz** had the opportunity to interact with guests attending the game, collecting donations and offering pink-themed prizes. In total, \$427 was collected in donation to the TMH Foundation which strives to reduce the financial burden upon local cancer patients and families.



Although there has been some confusion surrounding the donation of NIH grant funded supplies, this has been cleared up and been proven to be within compliance. Thanks are due to **Dr. Mohamed Kabbaj**, and all from the department who have been able to donate items or assist in their transport towards the efforts to get much needed supplies to local hospitals due to the Covid-19 pandemic.

Funding News



It was recently announced that The Florida Department of Health will be awarding **Dr. Akash Gunjan** a competitive grant totaling \$219,138.00 from the Live Like Bella Initiative with his grant titled "*Targeting wild-type Isocitrate Dehydrogenase (IDH) enzymes for treating lethal pediatric Diffuse Intrinsic Pontine Gliomas (DIPG) driven by histone H3.3 K27M mutations*".



The Florida Department of Health announced on Friday, March 20th 2020 an award in the amount of \$626,708 from the James and Esther King Biomedical Research Program to research led by **Dr. Pradeep Bhide**. The title of the research project is "*Nicotine, germ cells and neurodevelopmental disorders*". **Deirdre McCarthy, Cynthia Vied** (Translational Science Laboratory, College of Medicine) and **Lin Zhang** are co-investigators on the award.

The research project will examine the effects of prenatal exposure to traditional cigarettes and e-cigarettes on transgenerational transmission of cellular and molecular changes in the brain; behavior and epigenome of germ cells in a mouse model.

Notice to the Research Community

NIH will be transitioning to new application forms (Forms F) effective May 25. Any proposals submitted after May 25 must use these new forms. You can read about specific changes here: <https://grants.nih.gov/grants/electronicreceipt/files/high-level-form-change-summary-FORMS-F.pdf>

Considering the learning curve with Forms F, and that grants staff are currently working remotely, it's critical that you allow enough time in your grant preparation process to accommodate these changes. Please notify the Med-RA team as soon as you decide to prepare a proposal so that we can offer you updated guidance and deadline management assistance. You can email them at: research@med.fsu.edu.

FSU is transitioning to an electronic system to process contracts and grants. The Research Administration Management Portal (RAMP) Grants module will go live July 1, 2020. This new system will incorporate proposal development, approvals and submission.

To assist in the transition, FSU Sponsored Research will be presenting town hall meetings over the next few months. These meetings will be held to brief the FSU research community on the functionality offered within the RAMP Grants module and allow a connection with researchers and administrators to address any questions or concerns.

Questions regarding RAMP and the upcoming Town Hall meeting can be directed to FSU Sponsored Research contacts Kerry Peluso kpeluso@fsu.edu, Angie Rowe arrowe@fsu.edu, or Pam Ray pray2@fsu.edu.

For more info: <https://www.research.fsu.edu/research-offices/>

Publications

A manuscript entitled "*Ab initio Folding of a Trefoil-fold Motif Reveals Structural similarity with a β -propeller Blade Motif*" and authored by **Connie Tenorio** of the **Blaber Lab** has been accepted in *Protein Science*. Other authors on the report include **Drs. Liam Longo** and **Jihun Lee** formerly of the **Blaber Lab**, and **Joseph Parker**, an undergraduate researcher in the lab as well. Protein structures can be comprised of simple repeating motifs representing primordial structural "building blocks"; however, very little is known regarding their folding properties. This report describes an analysis of the motif for the β -trefoil (a common protein architecture) and a potential commonality between this motif and the "blade" motif of β -propeller proteins. The results shed light on the evolution of diverse protein structures from related simple polypeptide motifs. The abstract is below.

Abstract: Many protein architectures exhibit evidence of internal rotational symmetry postulated to be the result of gene duplication/fusion events involving a primordial polypeptide motif. A common feature of such structures is a domain-swapped arrangement at the interface of the N- and C-termini motifs and postulated to provide cooperative interactions that promote folding and stability. De novo designed symmetric protein architectures have demonstrated an ability to accommodate circular permutation of the N- and C-termini in the overall architecture; however, the folding requirement of the primordial motif is poorly understood, and tolerance to circular permutation is essentially unknown. The β -trefoil protein fold is a threefold-symmetric architecture where the repeating ~42-mer "trefoil-fold" motif assembles via a domain-swapped arrangement. The trefoil-fold structure in isolation exposes considerable hydrophobic area that is otherwise buried in the intact β -trefoil trimeric assembly. The trefoil-fold sequence is not predicted to adopt the trefoil-fold architecture in *ab initio* folding studies; rather, the predicted fold is closely related to a compact "blade" motif from the β -propeller architecture. Expression of a trefoil-fold sequence and circular permutants shows that only the wild-type N-terminal motif definition yields an intact β -trefoil trimeric assembly, while permutants yield monomers. The results elucidate the folding requirements of the primordial trefoil-fold motif, and also suggest that this motif may sample a compact conformation that limits hydrophobic residue exposure, contains key trefoil-fold structural features, but is more structurally homologous to a β -propeller blade motif.

Dr. James Olcese recently had a paper published in *Frontiers in Endocrinology* titled "*Melatonin and Female Reproduction: An Expanding Universe*". The link and abstract are below.

<https://www.frontiersin.org/articles/10.3389/fendo.2020.00085/full#h1>

Abstract: For more than a half century the hormone melatonin has been associated with vertebrate reproduction, particularly in the context of seasonal breeding. This association is due in large measure to the fact that melatonin secretion from the pineal gland into the peripheral circulation is a nocturnal event whose duration is reflective of night length, which of course becomes progressively longer during winter months and correspondingly shorter during the summer months. The nocturnal plasma melatonin signal is conserved in essentially all vertebrates and is accessed not just for reproductive rhythms, but for seasonal cycles of metabolic activities, immune functions, and behavioral expression. A vast literature on melatonin and vertebrate biology has accrued over the past 60 years since melatonin's discovery, including the broad topic of animal reproduction, which is far beyond the scope of this human-focused review. Although modern humans in the industrialized world appear in general to have little remaining reproductive seasonality, the relationships between melatonin and human reproduction continue to attract widespread scientific attention. The purpose of this chapter is to draw attention to some newer developments in the field, especially those with relevance to human fertility and reproductive medicine. As the vast majority of studies have focused on the female reproductive system, a discussion of the potential impact of melatonin on human male fertility will be left for others.

Drs. Devon L. Graham and **Gregg D. Stanwood**, along with Heather H. Durai, Taylor S. Trammell, Brenda L. Noble, Douglas P. Mortlock, and Aurelio Galli recently had a paper published in the Journal of Comparative Neurology titled "A novel mouse model of glucagon-like peptide-1 receptor expression: A look at the brain". Link and abstract are below.

<https://www.ncbi.nlm.nih.gov/pubmed/32170734>

Abstract: Glucagon-like peptide-1 (GLP-1) is an incretin hormone with a number of functions to maintain energy homeostasis and contribute to motivated behavior, both peripherally and within the central nervous system (CNS). These functions, which include insulin secretion, gastric emptying, satiety, and the hedonic aspects of food and drug intake, are primarily mediated through stimulation of the GLP-1 receptor. While this receptor plays an important role in a variety of physiological outcomes, data regarding its CNS expression has been primarily limited to regional receptor binding and single-label transcript expression studies. We thus developed a bacterial artificial chromosome transgenic mouse, in which expression of a red fluorescent protein (mApple) is driven by the GLP-1R promoter. Using this reporter mouse, we characterized the regional and cellular expression patterns of GLP-1R expressing cells in the CNS, using double-label immunohistochemistry and in situ hybridization. GLP-1R-expressing cells were enriched in several key brain regions and circuits, including the lateral septum, hypothalamus, amygdala, bed nucleus of the stria terminalis, hippocampus, ventral midbrain, periaqueductal gray and cerebral cortex. In most regions, GLP-1R primarily colocalized with GABAergic neurons, except within some regions such as the hippocampus, where it was co-expressed in glutamatergic neurons. GLP-1R-mApple cells were highly co-expressed with 5-HT3 receptor-containing neurons within the cortex and striatum, as well as with dopamine receptor- and calbindin-expressing cells within the lateral septum, the brain region in which GLP-1R is most highly expressed. In this manuscript, we provide detailed images of GLP-1R-mApple expression and distribution within the brain and characterization of these neurons.

For all of you out there missing the "normal" activities we enjoy this time of year, just remember:



**From a remote location,
-Ryan Teston**

Do you have news you wish to share in the May Biomed Newsletter? If so, please contact Ryan Teston at: ryan.teston@med.fsu.edu

The deadline for submissions: **Monday, April 27th at 12pm**