



FAU
**JUPITER LIFE SCIENCE
INITIATIVE**
Florida Atlantic University

Charles E. Schmidt Colleges of Science and Medicine • Harriet L. Wilkes Honors College

Summer 2017

The **Jupiter Life Science Initiative** unites scientists in research and training programs from FAU's Charles E. Schmidt Colleges of Science and Medicine, Harriet L. Wilkes Honors College, FAU Brain Institute, The Max Planck Florida Institute for Neuroscience (MPFI) and The Scripps Research Institute (TSRI). This update features FAU Jupiter faculty and their contributions locally and nationally.

New Faculty with Labs in Jupiter

- Dr. Erik Duboue has been recruited as an Assistant Professor in the Wilkes Honors College with the support of JLSI. Duboue's research focuses on the effects of early stress on brain circuitry and function and the etiology of Post-Traumatic Stress Disorder; he has developed a whole-brain imaging assay in larval zebra fish that uses a multi-photon microscope to collect simultaneous activity of large numbers of neurons during normal behavior. His lab will be adjacent to the Keene lab in Jupiter fostering collaboration using the zebra fish as a model genetic organism.
- Dr. Lucia Carvelli joined FAU this spring as an Associate Professor in the Wilkes Honors College and Department of Biomedical Sciences in partnership with The Brain Institute. Carvelli comes from the Department of Biomedical Sciences, University of North Dakota School of Medicine and Health Sciences with an NIH R01 grant. Carvelli's research explores novel ion channels as targets for amphetamines and the ability of psychostimulants to exert multi-generational effects.
- Dr. Ilyas Yildirim joined the Department of Chemistry and Biochemistry as an Assistant Professor in late 2016. Yildirim was previously at the Department of Chemistry, University of Cambridge and he studies the theoretical and computational biophysical chemistry of nucleic acids.

New Grants

- Dr. Kailiang Jia NIH R21 AG049447 The role of spin genes in autophagy and lifespan of *C. elegans* (2017-2019) co-PI with Dr. Matthew Gill, TSRI.
- Dr. Ken Dawson-Scully NIH R15 GM110651-02 Synthesis of a bridged bicyclic natural product using allenylesters (2017-2020) co-PI with Dr. Salvatore Lepore, FAU.

Education

- Dr. Alex Keene is an instructor and course organizer for the "Drosophila Neurobiology: Genes, Circuits & Behavior" course in Cold Spring Harbor.
- Molly Tu and Tim Holford were accepted into the International Max Planck Research School (IMPRS), a joint Ph.D. program between FAU, MPFI, University of Bonn and the associated Max Planck Institute in Bonn, Germany. Tu will begin IBNS (Integrative Biology and Neuroscience Ph.D. Program) and IMPRS in the Yasuda lab (MPFI) and Holford (already an IBNS student) in the Bolton lab (MPFI) this fall.
- Serena Sossi and Sarah Kruessel will start this fall as IBNS students in the Taniguchi and Kwon labs at MPFI, respectively.
- The seven Nambu Research Experience for Undergraduate Scholarships for 2017 recipients are (PI in parentheses): Samantha Berner (Dawson-Scully), Micael Idani (Godenschwege), Stephanie Lazo (Macleod), Heather Nick (Jia), Rodeania Peart (Blakely), Jonathan Rivera (Stackman) and Joshua Torres (Keene).

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Scientific Review Panels

One measure of the influence the Jupiter operation is having on the national scene is the number of our faculty serving on NIH grant review panels. Eight of our FAU Jupiter faculty presently serve on NIH panels.

- Dr. Randy Blakely is on the National Advisory Mental Health Council, NIH.
- Dr. Predrag Cudic is on the Cancer Drug Development and Therapeutics SBIR/STTR study section, NIH.
- Dr. Gregg Fields is a member of the Peer Review Committee on Institutional Research Grants, American Cancer Society, National Institute of Child Health and Human Development Special Emphasis Panel on Structural Birth Defects and Oncological Sciences Fellowship Special Emphasis Panel, NIH.
- Dr. Tanja Godenschwege is serving on both the Synapses, Cytoskeleton and Trafficking Panel and the Special Emphasis, AREA: Applications in Cell and Developmental Biology Panel, NIH.
- Dr. Alex Keene was appointed to the Molecular Neurogenetics Study Section, NIH.
- Dr. Greg Macleod is on the Biophysics of Neural Systems Panel, the Molecular Neuroscience: Mechanisms and Pathways, Special Emphasis Panel and the Molecular Neurogenetics: Neurodevelopment, Synaptic Plasticity and Neurodegeneration, Fellowship Panel (F03A), NIH.
- Dr. Bob Stackman serves on both the Pathophysiology of Mental Disorders and Addictions Panel and the Behavioral Neuroscience Fellowship Panel (F02A), NIH.
- Dr. Herb Weissbach served on an NIH review panel to evaluate the research of intramural scientists in the National Heart, Lung and Blood Institute.

Instrumentation

- Dr. Jana Boerner will be teaching a new instrumentation short course/workshop in the fall to orient students to the expanding Imaging Facility which she directs.
- JLSI recently purchased a Nikon A1R multi-photon microscope for FAU's Nikon Center of Excellence Core Facility in Jupiter which will be installed and running by mid summer. This microscope is particularly useful for live-imaging experiments in a diverse range of model systems. This is the only multi-photon microscope at FAU and a terrific resource for the neuroscience community in Jupiter.
- An automated digital microscope purchased by The Brain Institute will arrive this summer and provide additional imaging opportunities for the Imaging Core. The instrument provides sensitive, multicolor image capture and quantitation as well as automated 2D image stitching. This instrument should also facilitate introduction of less experienced users (e.g. undergraduates) to advanced microscopy approaches due to the ease of use of the software.

Ten Research Papers Have Been Published by FAU & TSRI Collaborations Since 2016

One reason for establishing JLSI on the MacArthur campus was to enhance collaborations with TSRI. The success of this effort is proven by a number of publications in the past year. There have been at least ten joint publications between FAU and TSRI with at least one scientist from each institute on each of these publications (*FAU, #TSRI). These articles share the theme of exploring the development and function of the nervous system using genetic and molecular methods.

- Bhowmick M, Tokmina-Roszyk D*, Onwuha-Ekpete L*, Harmon K, Robichaud T, Fuerst R#, Stawikowska R*, Steffensen B, Roush W#, Wong HR, Fields GB*#. 2017. J Med Chem. **60**(9):3814-3827.
- Borgen M*#, Rowland K*, Boerner J*, Lloyd B*, Khan A*, Murphey R*. 2017. Genetics. **205**(3):1229-1245 and cover.
- Opperman KJ#, Mulcahy B, Giles AC#, Risley MG*, Birnbaum RL*#, Tulgren ED, Dawson-Scully K*, Zhen M, Grill B#. 2017. Cell Rep. **19**(4):822-835.
- Rizzo V#, Touzani K#, Raveendra BL#, Swarnkar S#, Lora J*, Kadakkuzha BM#, Liu XA#, Zhang C, Betel D, Stackman RW*, Puthanveetil SV#. 2017. Biol Psychiatry Cogn Neurosci Neuroimaging. **2**(2):158-169.
- Grill B#, Murphey RK*, Borgen MA#. 2016. Neural Dev. **11**:8.
- King LB#, Koch M#, Murphy KR*#, Velazquez Y#, Ja WW#, Tomchik SM#. 2016. G3. **6**(4):1083-93.
- Madoux F#, Dreymuller D, Pettiloud JP*, Santos R, Becker-Pauly C, Ludwig A, Fields GB*, Bannister T#, Spicer TP#, Cudic M*, Scampavia LD#, Minond D. 2016. Sci Rep. **6**(1):11.
- Murakami K*, Yurgel ME*, Stahl BA*, Masek P, Mehta A, Heidker R, Bollinger W*, Gingras RM, Kim YJ, Ja WW#, Suter B, DiAngelo JR, Keene AC*. 2016. Curr Biol. **26**(7):972-980.
- Murphy KR*#, Deshpande SA#, Yurgel ME*, Quinn JP#, Weissbach JL#, Keene AC*, Dawson-Scully K*, Huber R, Tomchik SM#, Ja WW#. 2016. Elife. **5**:e19334.
- Risley MG*, Kelly SP*, Jia K*, Grill B#, Dawson-Scully K*. 2016. PLoS One. **11**(9):e0163786.