

## Symposium for Young Neuroscientists and Professors of the SouthEast

March 25, 2017

Presbyterian College

Clinton, South Carolina

SYNAPSE 2017

## Saturday March 25, 2017Presbyterian College, Clinton, SC

### **Location: Registration and Lectures: Edmund Hall**

### **Posters and Workshops: Harrington-Peachtree Academic Center**

7:30-8:25am Poster Set-up (**Odd** numbers only)

*Location:* ***Harrington-Peachtree Academic Center***

7:30-8:25am Registration, Coffee & Light Breakfast

*Location:* ***Edmund Hall***

### 8:30-9:45am Welcome & Opening Keynote Address

*Location:* ***Edmund Hall***

**Medicinal Cannabis: Science, Politics and Medicine**

## Mark Wallace, MD

Pain Management Specialist, Chair, Division of Pain Medicine, Department of Anesthesiology, University of California, San Diego, CA

### Webpage:

<https://healthsciences.ucsd.edu/som/anesthesia/research/faculty-research/Pages/wallace.aspx>

### 9:45-10:30am Student Platform Presentations – Session I

*Location:* ***Edmund Hall***

### 9:45-10:00am Effects of the CB1 neutral antagonist AM4113 on palatable food motivation

***Awardee Speaker:* Rose Ying**

*Department of Biology, Wake Forest University*

10:00-10:15am Effects of epigenetic modifications in X-linked adrenoleukodystrophy

***Awardee Speaker:* Sarah Steadman**
*Department of Biology, Program of Neuroscience, College of Charleston; Department of Pediatrics, Medical University of South Carolina*

10:15-10:30am The role of rostromedial tegmental nucleus afferents in suppression of reward seeking under punishment

***Awardee Speaker:* Samantha Black**
*Department of Biology, Program of Neuroscience, College of Charleston; Department of Neuroscience, Medical University of South Carolina*

10:30-10:45am Coffee Break

*Location:* ***Harrington-Peachtree Academic Center***

10:45-12:00pm Poster Session I (**Odd** numbers present)

*Location:* ***Harrington-Peachtree Academic Center***

12:00-12:30pm Lunch pickup

*Location:* ***Harrington-Peachtree Academic Center***

12:00-12:30pm Poster Session II Set-up (**Even** numbers only)
*Location:* ***Harrington-Peachtree Academic Center***

### 12:30-1:00pm **Lunchtime Workshop Session I**

### *Location:* ***Harrington-Peachtree Academic Center***

**Preparing for Graduate Study in Neuroscience**

*Keynote speakers: Dr. Mark Wallace and Dr. Axel Nimmerjahn*

*Location:* ***Bennett A. Brown Conference Suite - Amphitheater***

**SYNAPSE Steering Committee Meeting***Location:* ***Conference Room 204***

### 1:00-1:30pm **Lunchtime Workshop Session II** *Location:* ***Harrington-Peachtree Academic Center***

**Careers in Neuroscience**

*Dr. Adam Franssen, Associate Professor of Biology, Longwood University
Location:* ***Bennett A. Brown Conference Suite - Amphitheater***

### 1:30-2:45pm Poster Session II (**Even** numbers present)

*Location:* ***Harrington-Peachtree Academic Center***

2:45-3:00pm Coffee Break

*Location:* ***Harrington-Peachtree Academic Center***

### 3:15-3:45pm Student Platform Presentations – Session II

*Location:* ***Edmund Hall***

3:15-3:30pm Regulation of behavioral flexibility by ventral hippocampus
***Awardee Speaker:* Kathleen Bryant**

*Department of Biology, Program in Neuroscience, College of Charleston; Department of Neuroscience, Medical University of South Carolina*

3:30-3:45pm Mechanisms Underlying Cognitive Deficits Following Repeated Methamphetamine Use

***Awardee Speaker:* Jordan Costello**

*Department of Biology, Program of Neuroscience, College of Charleston; Department of Neurosciences, Medical University of South Carolina*

3:45-4:45pm Closing Keynote Address

 *Location:* ***Edmund Hall***

 **How do glial cells control CNS function?**

 **Axel Nimmerjahn, PhD**

Assistant Professor

Waitt Advanced Biophotonics Center

Salk Institute for Biological Studies

La Jolla, San Diego, CA

Webpage:

[https://www.salk.edu/scientist/axel-nimmerjahn](https://www.salk.edu/scientist/axel-nimmerjahn/)





**Medicinal Cannabis: Science, Politics and Medicine**

**Mark S. Wallace, M.D.**

Pain Management Specialist

Chair of Division of Pain Medicine

Department of Anesthesiology

University of California

San Diego, CA

Mark Wallace, MD, is a board-certified anesthesiologist who specializes in multi-modal pain management. He has been the program director of UC San Diego Health’s Center for Pain Medicine since 1996. Under his leadership, the Center for Pain Medicine was named a Clinical Center of Excellence in Pain Management in 2010 and 2014 by the American Pain Society. Dr. Wallace is also chair of the Division of Pain Medicine within UC San Diego School of Medicine’s Department of Anesthesiology and has co-authored 119 peer-reviewed articles and five books on pain medicine. He is active in clinical trials of investigational drug and techniques for managing chronic pain. He received the Leonard Tow Humanism in Medicine Award in 2012 and is consistently elected as one of San Diego’s Top Doctors in *San Diego Magazine*'s "Physicians of Exceptional Excellence" annual survey. Dr. Wallace is currently a member of the Board of Directors of the American Pain Society and serves on scientific planning meetings for both national and international meetings, including the World Congress of Pain, World Institute of Pain, American Academy of Pain Medicine and American Society of Regional Anesthesia and Pain Medicine.





**How do glial cells control CNS function?**

**Axel Nimmerjahn, Ph. D.**

Assistant Professor

Watt Advanced Biophotonics Center. Salk Institute for Biological Studies

La Jolla, San Diego, CA

Axel Nimmerjahn, Ph.D., is an Assistant Professor with Waitt Advanced Biophotonics Center at Salk Institute. Dr. Nimmerjahn’s research focuses on elucidating the role of microglia - resident immune cells - and astroglia - key regulatory cells - in the healthy and diseased central nervous system through development of novel imaging tools and approaches. He has spearheaded the development of new microscopy techniques to visualize the dynamics of glial cells and their functional cellular interactions in the living CNS. He has also created new innovations for cell type-specific staining and genetic manipulation and for analysis of large-scale imaging data. This has improved the understanding of CNS function and how to treat neuroinflammatory and neurological disorders. He has been the recipient of many awards and honors including the NIH EUREKA Award, NIH Director’s New Innovator Award, Whitehall Foundation Award, Rita Allen Scholar Award, Human Frontiers Science Program (HFSP) Postdoctoral Fellowship, Du Bois-Reymond Award and Otto Hahn Medal and Award.



Poster Session Abstract Titles

(Listed Alphabetically by Author)

1. AFFUL DK, SIEBELS AA, CHILDS AM, SCHMIDT JX,

ZEHER AM, CLELAND CL

Sensory Mechanisms Underlying the Escape Response to Looming Stimuli in Crickets

*James Madison University*

1. ARJUNE K, BOLTON P, BRASINGTON A, BUNGE T,

PADULA S, PHILLIPS T, STEINMETZ KM

Examining Effect of Motivation, Arousal, and Valence on the N1: An event-related potential (ERP) study

*Department of Psychology, Wofford College*

1. BLACK SL, LI H, JHOU TC, VENTO PJ

 **(Travel Award Winner)**

The role of rostromedial tegmental nucleus afferents in suppression of reward seeking under punishment

*Department of Biology, Program of Neuroscience, College of Charleston; Department of Neuroscience, Medical University of South Carolina*

1. BLUMENTHAL SA, PRATT WE

The Effects of Serotonergic Agonists on Mu-opioid Induced Feeding

*Department of Psychology, Wake Forest University*

1. BRYANT KG, BARKER JM, CHANDLER LJ

 **(Travel Award Winner)**

Regulation of behavioral flexibility by ventral hippocampus

*Department of Biology, Program in Neuroscience, College of Charleston; Department of Neuroscience, Medical University of South Carolina*

1. COSTELLO JT, LAVIN A, PENA-BRAVO J

 **(Travel Award Winner)**

Mechanisms Underlying Cognitive Deficits Following Repeated Methamphetamine Use

*Department of Biology, Program of Neuroscience, College of Charleston; Department of Neurosciences, Medical University of South Carolina*

1. COWEN MH, LIZARRAGA SB

Understanding the Role of Rab3Gap1 in Neuronal Development

*University of South Carolina*

1. DANIEL MA, QUINTERO G, GERHARDT G

Ganging Enzyme-Coated Microelectrode Sites Produces Greater Sensitivity to an Analyte in a Biosensor

*University of Kentucky*

1. DEMARCO JD, JONE T, CONNER WE

Triggering jamming signals during the search and approach phase results in similar rates of capture in Eptesicus fuscus

*Department of Biology, Wake Forest University*

1. DIXON K, ROTE A, FOO P

The Effect Of Soccer Related Concussions On The Emotional Health Of Student Athletes

*Department of Health and Wellness and Department of Neuroscience, University of North Carolina at Asheville*

1. FRITH ME, LEUNG K, RAMIREZ JJ

Spatial Working Memory Performance on a Radial Arm Maze After Bilateral Fimbria-Fornix Transection in Rats

*Department of Psychology, Davidson College*

1. GEIGER RE

Cognition Enhancement Using Transcranial Direct Stimulation (tDCS)

*Tennessee State University*

1. HARILL SA, HARTMANN DA, NOONAN T, SHIH AY

Can Pericytes Regulate Blood Flow?

*Department of Neuroscience, Medical University of South Carolina and Department of Biology, College of Charleston*

1. HOK E, GESLAIN R

Evaluating the neurotoxicity of unused transfer ribonucleic acids

*Department of Biology, Neuroscience Program, College of Charleston*

1. ISHINO Y, SOSSI S, CUSTER S

Development of Molecular Tools to Study the Subcellular Synapse, Specificity of Cortical Interneuron Subtypes

*Max Planck Florida Institute for Neuroscience*

1. JACKSON J, TURCHAN M, VAN WOUWE N

Action Control in Essential Tremor

*Tennessee State University*

1. KREIBICH E, ASEMANI D, ROBERTS D

WinSCAT scores as a Reflection of Functional and Neurocognitive Changes Following Long-term Spaceflight

*Department of Psychology and Program in Neuroscience, College of Charleston; Department of Radiology, Medical University of South Carolina*

1. LAHIRI S, BAKER CA, BOLTON MM

Dendritic Morphology in Mice with Defective Cleavage of the Autism Spectrum Disorder-Linked Protein Neuroligin-1

*Disorders of a Neural Circuit Lab, Max Planck Florida Institute*

1. LEE DC, SHARKO AC, KAIGLER KF, FADEL JR, WILSON MA

Activation of Hypothalamic Orexin Neurons during Extinction of Fear Memories

*Department of Physiology, Pharmacology, and Neuroscience, University of South Carolina - Columbia*

1. LEE DM, HYUN JH, JUNG K, HANNAN P, KWON HB

Calcium- and Light-gated switch of neuronal activity for gene expression

*Department of Cellular Basis of Neural Circuit Plasticity*

1. LEROY V

Validation of siRNA against LPA receptor 4 to analyze retinal ganglion cell guidance

*Winthrop University*

1. LONG ME, JONES GC, WARREN JW, MOTT DD

Cortical and Subcortical Projections to the Amygdala

*School of Medicine, University of South Carolina*

1. MARINELLI NA, GAMZIS DE, DOUGLAS A, MCGUIRE A, COWEN MH, MORROW EM, LIZARRAGA SB

A human neuronal transcriptome study on and ASD environmental risk factor

*Department of Biological Sciences, University of South Carolina*

1. MCDOUGLE MJ, GLOVER EJ, CHANDLER LJ

Effect of adolescent intermittent ethanol exposure on choline acetyltransferase expression

*Department of Biology and Program in Neuroscience,*

*College of Charleston; Department of Neuroscience, Medical University of South Carolina*

1. MEDINA NIETO T, TRAWINSKI A, FAHRBACH SE

The effect of queen pheromone exposure on the growth of the worker honey bee brain

*Department of Biology, Wake Forest University*

1. MURPHY AJ, SATTERFIELD R, YOUNG JR. SM

Development of a Helper-Dependent Adenoviral vector for the expression of Munc13 proteins

*Research Group of Molecular Mechanisms of Synaptic Function, Max Planck Florida Institute for Neuroscience*

1. MURPHY JE, KIRKLAND A, YANES JA, KIRBY LAJ,

JANTZEN B, REID MA, ROBINSON JL

Left, right, or bilateral amygdala activation? How the effects of smoothing and motion correction on ultra-high field, high-resolution functional magnetic resonance imaging (fMRI) data alter inferences

*Department of Psychology, Auburn University*

1. NOONAN TE, HARTMANN DA, HARRILL SA, SHIH AY

Optogentically Stimulated Pericytes have Transient Effects on Blood Flow

*Department of Neuroscience, MUSC and College of Charleston*

1. PATEL NV, HUGHES M

Neuroplasticity and behavioral consistency related to trauma and recovery in snapping shrimp

*Department of Biology, Program in Neuroscience, College of Charleston*

1. PATINO EM, ROWAN MJ, CHRISTIE JM

Activity-Dependent Labeling of Cerebellar Interneurons during Motor Learning

*Max Planck Florida Institute for Neuroscience; Department of Biology, Florida Atlantic University*

1. PEGELOW ME, MAVI S, GRIGORYAN DA, CLELAND CL

What is the Nociceptive Withdrawal Response of Unrestrained Rats when Noxious Stimulation is Delivered to the Tail or Feet?

*James Madison University*

1. PEL AV, LOM BM

Ethanol Compromises Xenopus laevis Development

*Department of Biology, Davidson College*

1. PINEDA G, GHATE P, LIZARRAGA SB

Modeling gene-environment interaction in autism spectrum disorders with stem cell technology

*Department of Biological Sciences, University of South Carolina*

1. RATLIFF KE, FRANSSEN CL, EAGLE AK, ZIMMERMAN CA

Working in Nature: Behavioral Neuroendocrinological Measures of Stress and Well-Being in Yellowstone National Park

*Longwood University*

1. REED E, SILVER WL

The Search for Chemoreceptors in the Earthworm (Eisenia hortensis)

*Department of Biology, Wake Forest University*

1. ROBBINS I, ANDERSON RI, BECKER HC, LOPEZ MF

Habitual Responding for Alcohol in C57BL/6 Mice

*Department of Biology and Program in Neuroscience, College of Charleston; Addiction Sciences Division, Department of Psychiatry, Medical University of South Carolina*

1. ROSALES RIVAS J, MANNS P, ENRIQUEZ C, LOM B

BPA and BPS do not affect tyrosine hydroxylase or swimming activity in Xenopus laevis tadpoles

*Davidson College*

1. RYAN C, HIDALGO-LOPEZ M, SCHUMMERS J

Astrocyte morphology shaped by placement within functional maps in ferret visual cortex

*Florida Atlantic University, Max Planck Florida Institute for Neuroscience*

1. SAMMONS KM, DEAK LC, CLELAND CL

Selective Stimulation of A-delta Nociceptors in Rat Hind Limb and the Resulting the Nociceptive Withdrawal Response

*James Madison University*

1. SHANKS MK, OPRISAN SA

Functional near-infrared spectroscopy (fNIRS) while performing temporal discrimination tasks

*Department of Biology, Department of Physics and Astronomy, Program in Neuroscience, College of Charleston*

1. SLEDGE RA, MOORE EJ, JOHNSON HL, KAPLAN ZS,

SNOUSE SJ, PAVELKA MN, EVERETT SK, FENNELL CT, ZRULL MC

The IMPULSE journal: a practical teaching tool for a neuroscience minor

*The Honors College and Department of Psychology, Appalachian State University*

1. STEADMAN S, BAARINE M, SINGH I

 **(Travel Award Winner)**

Effects of epigenetic modifications in X- linked adrenoleukodystrophy

*Department of Biology, Program of Neuroscience, College of Charleston; Department of Pediatrics, Medical University of South Carolina*

1. UNROE KA, FRUCHTERMAN TC, RIPLEY AO, FRANSSEN RA

Estrogen Receptor Levels Higher in "Bad" Maternal Rats than in "Good" Maternal Rats

*Department of Biological and Environmental Sciences, Longwood University*

1. VALIULIS GJ, WEBER RA, ADKINS DL

Pharmacological Enhancement of Rehabilitation After Ischemic Stroke in Rats

*Department of Biology and Program in Neuroscience, College of Charleston; Department of Neurosciences and Health Science Research, Medical University of South Carolina*

1. WANLISS JA, LIU D, BROWN D, WASHINGTON B

Human Psychomotor Skills Acquisition

*Presbyterian College*

1. YING R, PRATT WE

 **(Travel Award Winner)**

Effect of the CB1 neutral antagonist AM4113 on palatable food motivation

*Department of Biology, Wake Forest University*