High Point University SYNAPSE 18

Saturday, April 14, 2018

High Point University

Congdon School of Health Sciences

Sponsored by:

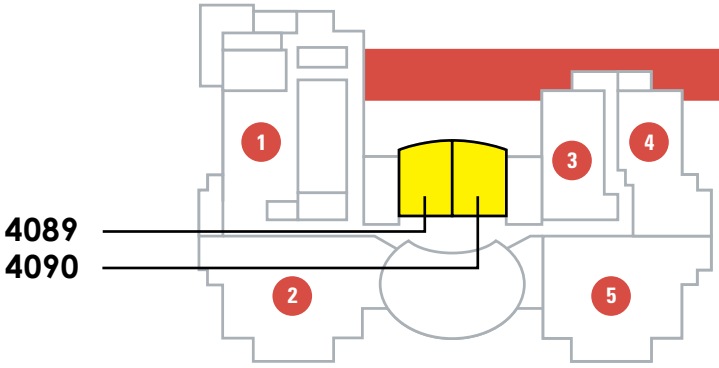
North Carolina Biotechnology Center

synapse.cofc.edu

Schedule

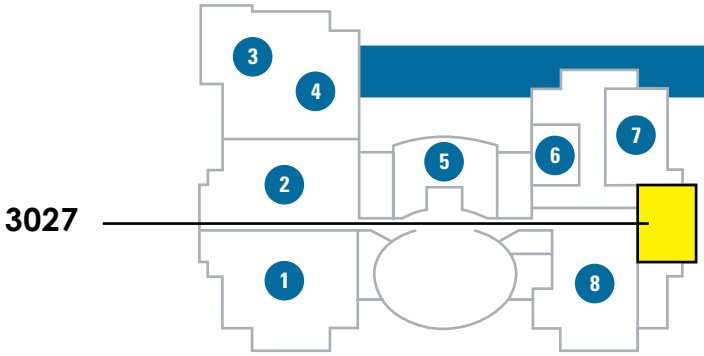
Time	Event	Room
8:00	Registration Breakfast Poster-Set-up	Lobby
8:30	Opening Welcome	Auditorium
8:45 - 9:45	Travel Awardees Oral Presentations	Auditorium
10:00 - 11:00	Concurrent Session I	
	Molecular Neurobiology and Drugs of Addiction	Room 4090
	Back-Yard-Brains	Room 3027
11:00 - Noon	Poster Session I	Lobby
Noon - 1:00	Buffet Lunch	2nd Floor Ballroom
1:00 - 2:00	Concurrent Session II	
	Cognition/Behavior & Injury/Repair	Room 4089
	Back-Yard-Brains	Room 3027
2:15 - 3:15	Poster Session II	Lobby
3:15 - 3:45	Flex Time	
	Campus Tour	
	Steering Committee	Room 2047
	Poster Judging	Room 2062
3:45 - 4:45	Keynote Address	Auditorium
5:00 - 5:15	Closing and Awards	Auditorium

Congdon Hall of Health Sciences



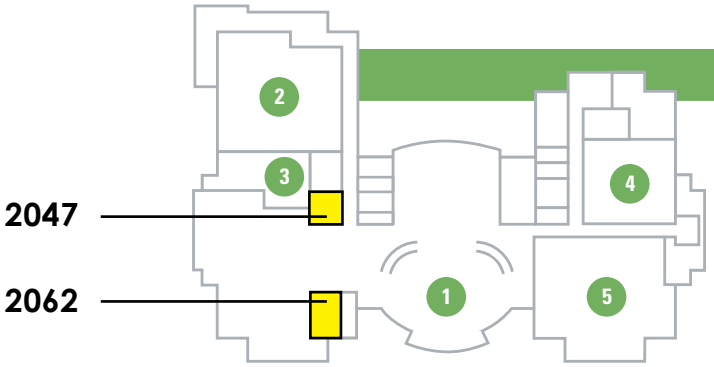
FOURTH FLOOR

1. ANATOMY LAB
2. DEPT. OF PHYSICAL THERAPY ADMINISTRATION
3. MEDICINAL AND PHARMACEUTICAL CHEMISTRY RESEARCH LAB
4. PHARMACOLOGY RESEARCH LAB
5. FRED WILSON SCHOOL OF PHARMACY FACULTY OFFICES



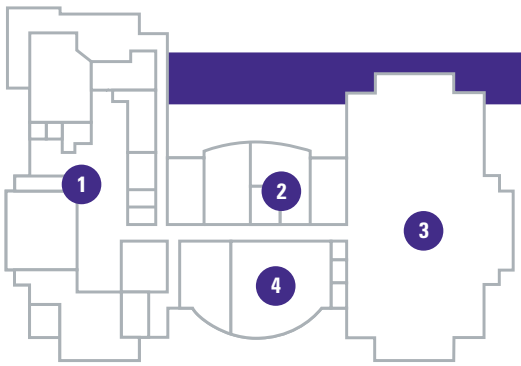
THIRD FLOOR

1. DEPT. OF PHYSICIAN ASSISTANT STUDIES ADMINISTRATION
2. SIMULATION LABS
3. CLINICAL SKILLS LAB
4. HISTORY AND PHYSICAL EXAM LAB
5. BALLROOM
6. STANDARDIZED CLIENT SUITE
7. INFECTIOUS DISEASE LAB
8. FRED WILSON SCHOOL OF PHARMACY ADMINISTRATION



SECOND FLOOR

1. LOBBY
2. PHYSICAL THERAPY NEUROSCIENCE LAB
3. VIRTUAL REALITY AND GAIT ANALYSIS LAB
4. PHARMACY SKILLS LABORATORY SUITE
5. CALLICUTT AUDITORIUM

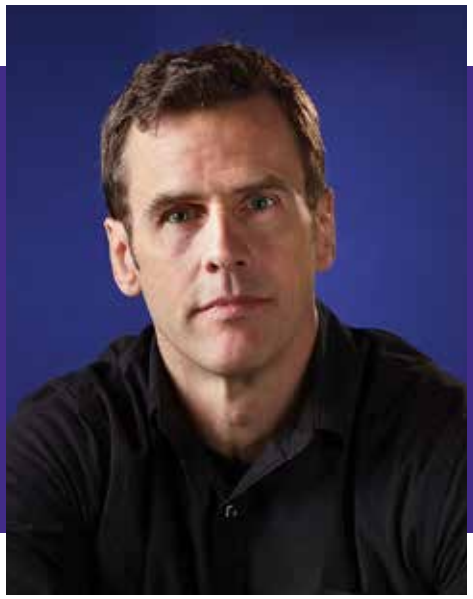


FIRST FLOOR

1. HUMAN BIOMECHANICS AND PHYSIOLOGY LAB
2. WILLED BODY PROGRAM
3. PHARMACY COLLABORATION SPACES AND CLASSROOMS
4. MUSCULOSKELETAL LAB

Notes

Keynote Speakers



Dr. Read Montague holds professorships in Physics at Virginia Tech, and in Psychiatry and Behavioral Medicine at Virginia Tech School of Medicine. He is the Director of both the Human Neuroimaging Laboratory and the Computational Psychiatry Unit at Virginia Tech Carilion Research Institute where his team uses computational and experimental approaches to study decision-making, addiction, social exchanges, and the role of specific neurotransmitters and brain regions in cognition within normal and diseased patients. Dr. Montague is well regarded for his national and international speaking engagements, and his work has been featured on PBS's "The Brain with David Eagleman," in a Global TED talk, and in numerous scientific and popular articles.

Tim Marzullo, co-founder of Back-Yard-Brains, specializes in Neuro-Engineering with doctorate of Neuroscience from the University of Michigan. Before synthesizing and developing Back Yard Brains, Tim was a Lecturer at the University of Michigan and a research Engineer for NeurNexus Technologies, thus his "path to success" will be familiar, yet inspiring to students. His company is federally funded (National Institutes of Mental Health SBIR grant: -#2R44MH093334-03: Backyard Brains: Bringing Neurophysiology into secondary schools) and focused on outreach and neuroscience education.

1. Waugh, C. Escobedo, C. Kalantar, A. Ford, B. Kraemer, B. Department of Biological Sciences, Eastern Kentucky University

Activation of the p75 Neurotrophin Receptor in Degenerating Dopaminergic Neurons Subjected to Oxidative Stress

The p75 neurotrophin receptor is a transmembrane protein that promotes the death of neurons affected by various injuries or pathological conditions. Tissue damage can lead to upregulation of pro-neurotrophins, ligands that bind and activate p75NTR. Upon activation, p75NTR is cleaved by TNF-α Converting Enzyme (TACE) and the gamma-secretase complex, thereby releasing the intracellular domain of the receptor to activate downstream pro-apoptotic mediators. From previous analyses of sympathetic neurons, we discovered that cleavage of p75NTR is induced by oxidative stress, a cellular condition associated with numerous types of pathological conditions. Surprisingly, however, this mechanism of receptor activation did not require neurotrophins. Thus, ligand-independent activation of p75NTR in neurons subjected to oxidative stress may underlie the ability of the receptor to promote degeneration of cells affected by a wide variety of pathological conditions. Whether oxidative stress-induced p75NTR activation contributes to neurodegeneration in the central nervous system has not been explored. In the present study, we evaluate the contribution of p75NTR to oxidative stress-induced degeneration of midbrain dopaminergic neurons, a population of cells particularly susceptible to Parkinson's disease. To overcome limitations of primary cultured dopaminergic neurons for protein analysis, these investigations were conducted using LUHMES cells, a population of conditionally-immortalized human mesencephalic cells that can be differentiated to post-mitotic, electrically active cells with morphological features and protein expression profiles resembling mature dopaminergic neurons. We have discovered that these dopaminergic cells abundantly express p75NTR and are susceptible to oxidative stress-associated death induced by 6-hydroxdopamine (6-OHDA), a compound commonly used to mimic the effects of Parkinson's disease. Exposure of differentiated LUHMES cells to 6-OHDA resulted in proteolysis of p75NTR. Our preliminary analyses also indicate that oxidative stress-induced cleavage of p75NTR in dopaminergic cells does not require neurotrophins. Thus, ligand-independent stimulation of p75NTR proteolysis may contribute to oxidative stress-associated degeneration of dopaminergic neurons. Future studies will further elucidate the mechanisms through which p75NTR is activated by oxidative stress, as well as evaluate the contributions of the receptor to dopaminergic neurodegeneration.

2. Eppley KJ, Faust-Casey BK, Goodman JI, Gosine AE, Bruce AA, Wilhelm JC. Department of Biology, Department of Psychology, Program of Neuroscience, College of Charleston, Charleston, SC

Effects of Estrogen on Sensory Neuron Participation in Axon Regeneration Following Peripheral Nerve Injury.

Peripheral nerve injuries affect hundreds of thousands of people each year in the United States alone. Despite the fact that peripheral nerves have the ability to regenerate, functional recovery is often very poor due to insufficient axon regeneration. Previous studies have shown that treatment with estrogen can significantly enhance the regeneration of motoneurons following peripheral nerve injury; however, this has not yet been studied in sensory neurons. Both sensory and motoneuron regeneration are necessary in order to obtain full functional recovery; therefore, the present study examined the role of estradiol signaling in sensory neuron participation and hypothesized that systemic estrogen treatment will increase the rate of axon regeneration in sensory neurons following peripheral nerve injury. Male and female mice were anesthetized and the common fibular branch of the right sciatic nerve was cut and repaired using fibrin glue. Immediately after transection surgery, mice were treated for two weeks with either estradiol-filled or unfilled (blank) capsules inserted in the nape of their neck. Upon completion of estradiol or control treatments, animals underwent a second surgery during which a retrograde tracer was applied 1.5mm distal to the original repair site in order to label the sensory neurons whose axons had regenerated at least that distance. Three days following retrograde labelling, all animals were sacrificed, and regeneration was quantified by counting the number of neurons containing fluorescent tracer dye. Systemic estradiol treatment significantly increased the number of labelled axons, and therefore indicates an increase in sensory neuron participation in axon regeneration. These findings demonstrate the ability of sensory axons to regenerate in a similar manner as motoneurons, and show that estrogen treatment can be used to increase the likelihood of full functional recovery following peripheral nerve injury.

3. Carter JS, Kearns AM, Weber RA, Reichel CM. Department of Biology, College of Charleston

Long term impact of acute stress on cognition, anxiety, and reinstated heroin seeking in male and female rats.

It has been suggested that withdrawal symptoms following substance use disorders (SUD) and post-traumatic stress disorder (PTSD) reciprocally exacerbate one another. Withdrawal symp-

toms, induced by cessation of substance abuse behavior, culminate as stressors and lead to persistent and compulsive relapse behavior. In addition, PTSD can be triggered by, and contribute to, withdrawal-induced stress responses further increasing relapse potential. Previous work has shown that rats potentiate substance-seeking behavior when exposed to scents associated with restraint stress, a model used to mimic PTSD in rodents. We examined the effects of restraint stress on heroin seeking and anxiety related behaviors during withdrawal in male and female rats. Rats in the stress group were restrained in a plastic tube that did not allow for mobility with exposure to a scent (Group: Stress). Unstressed rats were exposed to the odor in a neutral cage with no restraint (Group: NoStress). All animals underwent heroin self-administration (SA) and extinction followed by non-cued reinstatement testing with exposure to each scent. During SA, active lever presses and intake (mg/kg) did not differ between stress groups, but females had higher intake than males. On day 1 of extinction, females pressed the active lever more than males, without regard to stress group. For testing, the paired odor (or a novel odor) was placed into the operant chamber and lever responding was recorded. NoStress male rats responded above extinction values in response to paired and unpaired scents indicating a lack of discrimination between odors. Stress males differentiated between the odors by exhibiting the greatest reinstatement responding to the paired odor. There were no differences in responding to odors for females. A subset of rats went through an abstinence period before extinction, during which they experienced a battery of behavioral tests. Object recognition tests demonstrated that stressed males had a higher recognition index relative to all other groups. On an elevated plus maze, stressed rats spent more time on the open arms than their unstressed counterparts. Defensive burying trials showed that stressed rats had a shorter latency to bury and spent more time burying a paired odor-contaminated dish than unstressed rats, with males burying for more time than females. Future studies are necessary to examine the effects of heroin self-administration on behavior compared to rats taking saline.

4. Tomberlin JS, Pullmann D, Jhou TC, Vento PJ. Department of Psychology and Program of Neuroscience, College of Charleston; Department of Neurosciences, Medical University of South Carolina, Charleston, SC

Investigating the Function of the Rostromedial Tegmental Nucleus (RMTg) through Optogenetic and Chemogenetic Methodology.

Learning is mediated through the dopaminergic mesolimbic pathway, which connects the ventral tegmental area (VTA) to cortical areas in the forebrain. This circuit, also known as the reward pathway, incentivizes certain behaviors and discourages others by varying dopamine levels. Recently, a novel area known as the rostromedial tegmental nucleus (RMTg) was found to send a inhibitory GABAergic projection to the reward pathway. Therefore, the RMTg has been indicated as a potential "brake" mechanism for this well-researched circuit. Past research shows that inactivation of the RMTg through Designer Receptors Exclusively Activated by Designer Drugs (DREADDs) increases self-administration in rats in the presence of negative stimuli, indicating that the RMTg is necessary to process aversion. However, the DREADD mediating drug clozapine-n-oxide (CNO), when administered peripherally in non-DREADD animals, had a similar effect, likely due to the production of its metabolite, clozapine. Also, data from our lab indicates that Sox2 gene expression is highly concentrated within the RMTg, potentially providing a new, more specific target for our research. Therefore, we hypothesized that the deactivation of the RMTg through DREADDs and localized intracranial CNO injections will cause an increase in self-administration without the clozapine effects. We also predicted that activating the RMTg optogenetically (using a Cre-driven Sox2 promotoer) would result in conditioned place avoidance (CPA) in a mice model. Sprague-Dawley rats were placed into a cocaine self-administration paradigm combined with a progressive shock to determine if inactivation of the RMTg caused an increase in self-administration. Male Cre-Sox2 mice were administered a channelrhodopsin viral vector into the RMTg and optical fibers were placed into the VTA. A CPA paradigm was then used to determine if RMTg activation causes avoidance of a aversive environment. Our results indicate that DREADD inactivation does cause an increase in shock tolerance in the cocaine self-administration paradigm. We also saw significant CPA in animals presumed to have correct injection sites and optical fiber placements. These results indicate that the RMTg plays a role in the inhibition of the dopaminergic circuit and could be used as a novel treatment target for human drug addicts. It also implicates Sox2 as a novel target for stimulation of the RMTg that can be used to increase specificity of future experiments.

Concurrent Session I:

You have the option to attend:

Oral Presentations for Molecular Neurobiology combined with Drugs of Addiction.
Room 4090

Workshop with demonstrations for Back-Yard-Brains.
Room 3027

Poster Session I: Abstracts
Molecular Neurobiology and Drugs of Addiction

1. Adonay Teklezghi, Karl T. Schmidt, Zoe McElligott. UNC-Chapel Hill.
Ethanol Withdrawal Affects Activity of Noradrenergic Neurons.

3. Barboreck R, Combs K, Knick M, Halsell S. James Madison University.
Identifying the Molecular Components of Cold Nociception in Drosophila melanogaster.

5. Barman N, Siecinski SK, Morgenlander WR, Zhao C, Corcoran D, Kwee LC, Arvai S, Gregory S. Duke University.
The role of miR-149-5p in the T-cell mediated immune response of multiple sclerosis.

7. Barnes CB, Wallace C, Jacobowitz BS, and Fordahl SC. The University of North Carolina at Greensboro.
The effect of dietary saturated vs. unsaturated fat on dopamine neurotransmission.

9. Beck K., McDonnell M. Wake Forest University.
The effect of BaCl2 on the resting membrane potential of the superior flexor muscle of crayfish, Procambarus clarkia.

11. Bland KM, Casey ZO, Handwerk CJ, Holley ZL, Vidal GS. James Madison University.
Exploring a role for integrin beta 3 in dendritic spine pruning in cerebral cortex.

13. Bolton PG, Arjune K, Phillips T, Zarubin V, Mickley Steinmetz KR. Wofford College.
Examining the N1, an event-related potential (ERP) waveform, and cortisol responses to motivational stimuli: A pilot study.

15. Burgos Aguilar C, Ferris MJ, Sexton LL, Childers SR, Xiao R, Howlett AC. Wake Forest University.
mGluR2/3 Agonist LY379268 on G protein activation and CREB phosphorylation.

17. Carpenter M, Awalt K, Mans K, Mans R. Georgia Southern University.
Behavior and Biochemical Aspects of Learning and Memory in Danio rerio.

19. Carter JS, Kearns AM, Weber RA, Reichel CM. College of Charleston.
Long term impact of acute stress on cognition, anxiety, and reinstated heroin seeking in male and female rats.

21. Cunnane KA, Ferreira DW, Vazquez AA, Romero-Sandoval, EA. Wake Forest University School of Medicine.
Genetic induction of CD163 in macrophages decreases pain and inflammation and promotes wound healing.

23. Elder NH, El Bejjani R. Davidson College.
Engineering a Luminopsin Tool to Study the Caenorhabditis elegans Nervous System.

25. Fisher C, Nazemi A, Kaur A. UNC Asheville.
Inducing Gene Expression of Major Urinary Proteins (MUPs) in female mouse liver cell line Hepa1-6.

27. Gonzalez EN, Amat S, Christie JM. Max Planck Florida Institute.
Using Viral Vectors to Target Cell Types in the Cerebellum.

29. Greengrove EL, Dorn LE, McIntosh SE, Marshall SA. High Point University.
Increase in hippocampal microglia after non-dependent ethanol binge.

31. Guerrero R, Brown Q, El Bejjani R. Davidson College.
A novel role for Notch in mechanosensory neuron connectivity in C. elegans.

33. Imam ER, Wu S, Flinchum KA, Page GE, Buckthought A. Roanoke College.
Combination of cues in 3D vision: Interaction between binocular rivalry and motion parallax.

35. Isabella R Grifasi, Scot E McIntosh, S. Alex Marshall. High Point University.
Alterations in glial activation following binge-like ethanol consumption.

37. Jackson TB, Chao YS, Eid M, Pullman D, Jhou TC. College of Charleston; Medical University of South Carolina.
Examining the role of serotonin agonism at the rostromedial tegmental nucleus towards behaviors of cocaine-averse rats.

39. Jones T, Lom B. Davidson College.
Early Developmental, Low-Dose BPA Exposure does not Significantly Impact Zebrafish Locomotor Activity.

41. Kasiah J, Suess GJ, Williams BF, Chassiang B, Frantz KJ. Georgia State University.
Influence of Antibiotic Cocktail on Gut Microbiota in Adolescent and Adult Male Rats.

43. Lakhani A, Lom B. Davidson College.
Slitrk1 Knockdown Reduces Rohon-Beard Neurons in the Developing Zebrafish Spinal Cord.

45. Lawlor M, Nowling D, Cowen M, Ghate P, and Lizarraga SB. University of South Carolina.
Cellular mechanisms associated with RAB3GAP1 dysregulation and relevance to Warburg Microsyndrome pathology.

47. Mans RA, Payne CH and Hinton KD.
Georgia Southern University - Armstrong Campus.
Ex vivo activation of cholinergic receptors inhibits GSK-3β in the telencephalon of adult zebrafish (Danio rerio).

49. Mcfaddin JA, Siemsen BM, McGinty JF.
College of Charleston; Medical University of South Carolina.
The effect of chemogenetic activation of prelimbic cortical neurons projecting to the nucleus accumbens core on relapse to cocaine-seeking.

51. Megan Andres, Savannah Moore, Cory Duckworth, Natalie Macy, Vy Tran, Ryan A. Shanks Ph.D., Steven A. Lloyd Ph.D. University of North Georgia.
Effects of adolescent prescription stimulants and stress on adult addiction susceptibility.

53. Moore NS, Mans KB.
Georgia Southern University - Armstrong Campus
"**Light" Sleeping: The Effects of Chronic Sleep Deprivation on Zebrafish Brain Biochemistry**

55. Owens HG, Driscoll GJ, Collazo A, Birgbauer E.
Winthrop University.
Examining the role of Lysophosphatidic Acid as a Potential Axon Guidance Molecule in the Chicken Visual System.

57. Sammons KM, Okafor ZC, Cleland CL.
James Madison University.
Contributions of Aδ Nociceptors to the Nociceptive Withdrawal Response in Intact Unanesthetized Rats.

59. Savage JT, Baldwin KT, Eroglu C.
Duke University Medical Center.
What is the role of PTPRZ1 in astrocyte development?

61. Schein H, Mans KA. Armstrong Campus.
The effects of vibration stress on zebrafish brain biochemistry.

63. Shook EN, Kuchera M. Davidson College.
Exploring brain-like representations in recurrent neural networks trained on a spatial navigation task.

65. Smith KA, Saunders CJ, Silver WL. Wake Forest University.
How to Irritate an Earthworm: A molecular Investigation into the presence of TRP channels in E. hortensis.

67. Tomberlin JS, Pullmann D, Jhou TC, Vento PJ. College of Charleston; Medical University of South Carolina.
Investigating the Function of the Rostromedial Tegmental Nucleus (RMTg) through Optogenetic and Chemogenetic Methodology.

69. Wallace CW, Barnes CN, Jacobowitz BS, Fordahl SC.
University of North Carolina at Greensboro.
Enduring effects of saturated fat on dopamine neurotransmission are not reversed by replacement with omega-3-rich flaxseed oil.

71. Woodlief K, Odom JH, Coller M, Newman AH, Nader MA. Wake Forest School of Medicine.
The effects of dopamine D3R partial agonists and antagonists on drug seeking, cognition, and analgesia in female cynomolgus monkeys self-administering oxycodone.

73. Colbert, S and Ackerman KM. High Point University.
Effects of Nicotine on Zebrafish Retinal Development.

75. Zhang J, Rife TK. James Madison University.
Using Dual Luminescense-Based Reporter Gene Assay: Luciferase and beta-Galactosidase to explore the functions of tau and alpha-synuclein.

Concurrent Session II:

You have the option to attend:

Oral Presentations for Cognition/Behavior combined with Injury/Repair.
Room 4089

Workshop with demonstrations for Back-Yard-Brains.
Room 3027

Poster Session II: Abstracts
Cognition/Behavior and Injury/Repair

2. Abiodun S, Addicott M. Duke University.
The Effects of Transcranial Magnetic Stimulation on Insula-Based Functional Connectivity.

4. Adams CV, Triblehorn J, Gudz T, Novgorodov S. College of Charleston; Medical University of South Carolina.
Molecular mechanisms of mitochondrial dysfunction in regulated necrotic cell death: Implications for stroke and traumatic brain injury.

6. Allison Usry. Ferrum College.
Factors influencing age of first sexual encounter.

8. Bagnell AM, Cheon S, Lizarraga SB. University of South Carolina-Columbia.
Characterizing the Impact of the Gene ASH1L in the Regulation of Neuronal Gene Expression.

10. Barhorst KA, Belanger KH, Doyle H, Ghosh A, Ramirez JJ. Davidson College.
The effects of cholinergic degeneration on septal facilitation of long-term potentiation in the perforant path in rats.

12. Beck ME, Borckart JJ, Carpenter LA, Gwynette MF, Joseph JE, Lester S, Lohnes L. College of Charleston; The Medical University of South Carolina.
Learning Enhancement through Neurostimulation (LENS): The Effect of Transcranial Direct Current Stimulation (tDCS) and Social Training in Autistic Spectrum Disorder.

14. Benz I and Grider MH. High Point University.
ISRIB as a Potential Therapeutic Drug for Neuronal Injury.

16. Bodner KA, Riley MP, Hochschuler JL, Gendle MH. Elon University.
Potential cognitive-enhancing effects of oral phosphatidylserine in middle-age adults.

18. Brown, TA. Ferrum College.
Coping Skills in Freshmen Versus Seniors.

20. Crisp A, Thompson SG, Godwin K. Presbyterian College.
Hemispheric Lateralization in Pun Processing.

22. Doddapaneni D, Asede D, Bolton MM. Max Planck Florida Institute for Neuroscience.
Properties of neurons in the anterior intercalated cell cluster.

24. Dorn AY, Underly RG, Moharty S, Bhat NR, Shih AY. College of Charleston; Medical University of South Carolina.
The Developmental Impact of DDAH1 in Mural Cells.

26. Duryee ML, Zens, MM, Sparrock L, Franssen RA, Franssen, CL. Longwood University.
The Trials and Triumphs of a New Interdisciplinary Neuroscience Studies Minor.

28. Eagle AK, Lever LC, Franssen CL. Longwood University.
Spit Happens! Salivary Cortisol Responses of Wilderness Therapy Clients as an Efficacy Measure.

30. Eceiza A, Lahue C, Kaur A. UNC Asheville.
Cloning Vomeronasal Type-2 Receptors for Expression and Analysis in a Cell Culture Model System.

32. Eppley KJ, Faust-Casey BK, Goodman JI, Gosine AE, Bruce AA, Wilhelm JC. College of Charleston.
Effects of Estrogen on Sensory Neuron Participation in Axon Regeneration Following Peripheral Nerve Injury.

34. Fruchterman TC, Elliot CN, Sparrock LS, Franssen RA. Longwood University.
Individual variation in maternal response tied to differential expression of oxytocin and estrogen in several brain regions.

36. Gaudin VA, Cleland CL. James Madison University.
Escape responses from looming stimuli in Phidippus audax.

38. Hathaway S., Cely C., Mulloy S., Tibbetts E., Fahrbach S. Wake Forest University.
Impact of social experience on synaptic density in the mushroom bodies of the paper wasp Polistes fuscatus.

40. Hudson, J.B., Schmidt, K.T., McElligott, Z.A. UNC-Chapel Hill.
An inexpensive and customizable system for measuring consummatory behaviors in mice.

42. Jesse Meagher, He Zheng. Max Planck Florida Institute.
Cellular Activity in the Primary Somatosensory Cortex Underlying Animal's Perception and Decision-Making.

44. Leung K, Peterson S, Benowitz L. Davidson College.
The Role of Complement in Retinal Ganglion Cell Survival and Regeneration after Optic Nerve Crush.

46. Mavi S, Pegelow M, Wentzel M, Cleland C.
James Madison University.
The effect of noxious stimulation on the nociceptive tail and foot withdrawal response in unrestrained rats.

48. McElwain VJ, Borckardt J, Carpenter L, Gwynette F, Lester S, Lohnes L, Joseph J. College of Charleston; Medical University of South Carolina.
The Effect of Combination Therapies on Task switching in Autistic Adolescents.

50. Meghan Pavelka, Samantha Everett, Zoe Kaplan, Sarah Snouse, Charles Fennell, Leslie Sargent Jones, and Mark C. Zrull. Appalachian State University.
The IMPULSE neuroscience journal: an educational tool for undergraduates of all disciplines.

52. Miranda Dougherty. Ferrum College.
Stress In Season and Out of Season.

54. Moseley SM, Powell PG, Howell SM, Zial EA.
James Madison University.
Male Physiological Response to Female Voices During High and Low Fertility.

56. O'Connor SA, Ross TP. College of Charleston.
The Role of Executive Functions in Verbal Fluency: An Examination of the Controlled Oral Word Association Test.

58. Patrick DeZego, Eileen Reed, Sam Kim, Abby Anderson, Glen McKinney, Christina Benedict, Emily Adams, Sophie Gonzalez, John Lewis, Tommy Noonan, Cecil Saunders, Wayne Silver. Wake Forest University.
The sixth sense and the earthworm, Eisenia Hortensis.

60. Roig JR, Torregrossa LJ, Park S. Vanderbilt University.
Bodily self disturbances as a specific predictor for schizophrenia.

62. Sprouse A and Grider MH. High Point University.
Relative contributions of apoptosis and necrosis in PC12 stroke model.

64. Stefanowska-Cieslak M, Driscoll G, Birgbauer E.
Winthrop University.
Investigating Semaphorin 3A as a Possible Repulsive Axon Guidance Molecule in the Chick Visual System.

66. Thomas MD, Gaudin VA, Cleland CL.
James Madison University.
Escape Behavior of the Grammostola rosea Tarantula and Phidippus regius Jumping Spider in Response to Heat Stimuli.

68. Wagner SW. Georgia Southern University.
Developing Sensory Behavioral Assays for Zebrafish Autism Model.

70. Waugh, C. Escobedo, C. Kalantar, A. Ford, B. Kraemer, B.
Eastern Kentucky University.
Activation of the p75 neurotrophin receptor in degenerating dopaminergic neurons subjected to oxidative stress.

72. Webb, LC, Grider M. High Point University.
Neuroprotection Following Injury: The Role of Integrated Stress Response Inhibitor (ISRIB).

74. Muhr J, Gentry M. and Ackerman KM.
High Point University.
Establishing a Damage Paradigm to Examine Retinal Neuron Regeneration at a PUI.

76. Zeher AM, Cleland CL. James Madison University.
Antennae pointing and the escape response in the cricket Acheta domesticus.

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