Annual Meeting
of the
Rocky Mountain Regional Neuroscience Group

May 11, 2017

Anschutz Medical Campus
University of Colorado Denver
RMRNG Chapter of the Society for Neuroscience Annual Meeting  
May 11, 2017  
Anschutz Medical Campus  
Aurora, Colorado

8:30 am  Registration & Coffee: Research Complex 2, 2nd Floor Trivisible Room

9:00 am  Welcome and Introductions: Hensel Phelps Auditorium  
*Dr. John Thompson, President, RMRNG Chapter of SFN*

9:10 am  Alex Huk, PhD, University of Texas at Austin  
“New perspectives on sensory, motor, and decision mechanisms in the primate cortex”

9:55 am  Josh Dudman, PhD, Howard Hughes Medical Institute, Janelia Research Campus  
“Basal ganglia circuits for the vigorous pursuit of reward”

10:40 am  Kevin Briggman, PhD, National Institute of Neurological Disorders and Stroke  
“Comparative connectomics and behavioral choice in the vertebrate visual system”

11:25 am  Coffee Break

11:35 am  Panel Round Table

12:35-2:30 pm  Posters and Commercial Exhibits: RC2 Trivisible Room  
12:35 -1:30  Poster presentation (Odd Numbered Abstracts)  
1:35 – 2:30  Posters presentation (Even Numbered Abstracts)  
BOXED LUNCH will be available from 12:35-1:05pm

2:35 PM  Student Presentations: Hensel Phelps Auditorium

*Jayne Aiken, University of Colorado, Anschutz Medical Campus*  
“Molecular Pathogenesis of Tubulin Disorders During Neural Development”

*Andrew Rau, Colorado State University*  
“The relevance of AgRP-neuron-derived GABA inputs to POMC neurons differs for spontaneous and evoked release”

*Isabella Fallon, University of Colorado-Boulder*  
“Evaluating Stressor Controllability Effects in Female Rats”

*Ethan Guthman, University of Colorado Anschutza Medical Campus*  
“Quasi-fast spiking somatostatin interneurons mediate feedforward inhibition in the basolateral amygdala”

4:05 pm  Refreshments, Business Meeting & Poster Awards: RC2 Trivisible Room

We would like to acknowledge and thank the 2017 RMRNG Planning Committee for their time and energy to bring about this exciting day of presentations. We also thank the Center for NeuroScience, the Neuroscience Graduate Program and the Departments of Neurology and Neurosurgery for their generous support of this meeting.

John Thompson, PhD  
President, RMRNG

Abigail Person, PhD  
Vice-President, RMRNG

Gidon Felsen, PhD  
Treasurer, RMRNG
Speaker Bios

Alex Huk, PhD
Dr. Huk received his BA from Swarthmore, his PhD from Stanford, and was a postdoc in the Department of Physiology & Biophysics at the University of Washington in Seattle. He is a Professor in the Departments of Neuroscience and Psychology at UT-Austin, where he has been a faculty member since 2004. His research uses a range of neurophysiological and computational techniques to study the relations between visual processing, decision-making, and motor actions across multiple primate species. He received a CAREER award from the National Science Foundation and the Elsevier / Vision Sciences Society Young Investigator Award.

Josh Dudman, PhD
Dr. Dudman was an undergraduate at Amherst College, receiving a BA in Neuroscience with distinction. While at Amherst College, Dr. Dudman worked with Steven George making in vivo intracellular recordings from Purkinje cells of the grass frog. In addition, Dr. Dudman did research in the Movement Disorders Clinic at the University of Rochester and at Lab for the Study of Retinal Degeneration at the University of Sydney in Australia. After college, Dr. Dudman went to work with Dr. Christine Konradi at Harvard Medical School. There he studied the molecular signaling underlying dopamine-induced changes in gene transcription in medium spiny neurons of the rat striatum. In September 2001, Dr. Dudman began his graduate studies at Columbia University. As a National Science Foundation graduate fellow, Dr. Dudman studied the role of the hyperpolarization activated cationic channel (HCN) in the physiology of hippocampal neurons and spatial learning with Steven Siegelbaum in collaboration with Eric Kandel's lab. Subsequent studies during his thesis work reported the discovery of a novel form of synaptic plasticity in hippocampal pyramidal neurons. For his dissertation Dr. Dudman received distinction from Columbia University as well as the Dean's Award for Excellence in Research. The Dudman Lab began in 2008 when Dr. Dudman was appointed a Group Leader at the Janelia Research Campus of the Howard Hughes Medical Institute.

Kevin Briggman, PhD
Dr. Briggman received his B.S. in Electrical Engineering from Case Western Reserve University in 2000 and his Ph.D. in Computational Neurobiology from the University of California, San Diego in 2005, where he studied behavioral choice using voltage-sensitive dye population imaging in the leech nervous system with Bill Kristan. During a postdoctoral fellowship with Winfried Denk at the Max Planck Institute for Medical Research, he worked on the development of serial block-face scanning electron microscopy and used it in combination with two-photon population calcium imaging to investigate the circuit mechanisms underlying direction-selectivity in the mammalian retina. From 2011-2017, he was an investigator at the National Institute of Neurological Disorders and Stroke (NINDS) where his laboratory developed large scale optical and electron microscopy-based methods to functionally and structurally map neuronal circuits in the central nervous systems of mice and fish. Since 2017, Dr. Briggman was appointed as a scientific member of the Max Planck Society and director of the Center of Advanced European Studies and Research (caesar) in Bonn, Germany.
Brighter lives.

As the global leader in vitamins, carotenoids and nutritional ingredients, DSM's innovative solutions help to enhance products, improve people's lives and create a healthier future.

To learn more, contact us at 1-800-526-0189 or go to www.dsm.com/human-nutrition
1. Differential targeting of sodium channels in axons with intermittent myelination
   **Clara M. Bacmeister**, Simon R. Levinson, Ethan G. Hughes
   University of Colorado Anschutz Medical Campus

2. Development of Single Fluorescent Protein based Zn2+ sensors for the examination of Zn2+ dynamics in Hippocampal Neurons
   **Ray Black**, Lea Son, Dylan Fudge, Yan Qin
   Department of Biological Sciences, University of Denver

3. Bidirectional control of synaptic cargo trafficking through spine recycling endosomes by local synaptic activity
   **Ashley M. Bourke** and Matthew J. Kennedy
   Department of Pharmacology, University of Colorado Anschutz Medical Campus

4. Novel alpha tubulin mutation disrupts neural development and leads to age-related behavioral phenotypes
   **Georgia C Buscaglia**, Jayne J Aiken, Jeff Moore, Emily Bates
   University of Colorado Anschutz Medical Campus

5. The Animal Behavior Core
   **Nicolas Busquet**, Michael H Mesches
   1 University of Colorado Anschutz Medical Campus, Center for Neuroscience
   2 University of Colorado Anschutz Medical Campus, Department of Neurology
   3 University of Colorado Anschutz Medical Campus, Department of Pediatrics

6. The Effects of Differential Housing during Adolescence on Conditioned Fear with a Social Cue
   **Lamya’a Dawud**, Esteban Loetz, Elizabeth Hoeffkin, Brian Lloyd, Rachel Beam, Benjamin Greenwood, Sondra T. Bland
   1 University of Colorado Denver, Department of Integrative Biology
   2 University of Colorado Denver, Department of Psychology

7. Taste Reward Prediction Error Signaling in Adolescent Anorexia Nervosa
   **Marisa DeGuzman**, Megan Shott, Guido K.W. Frank
   1 University of Colorado Anschutz Medical Campus Neuroscience Program
   2 University of Colorado Anschutz Medical Campus Department of Psychiatry

8. Differential desensitization observed at multiple effectors of somatic mu opioid receptors underlies sustained agonist-mediated inhibition of proopiomelanocortin neuron activity
   **Philip D. Fox**, Shane T. Hentges
   Department of Biomedical Sciences, Colorado State University

9. The Effect of Stress, Time of Day & Adrenal Hormones on the Expression of Per2, Bmal1 & c-Fos in Rat Hippocampus and Amygdala
   **Jeanelle, K, France**, Lauren, E, Chun, Robert, L, Spencer
   University of Colorado, Boulder, Department of Psychology & Neuroscience
10. Correlated expression analysis of genes implicated in schizophrenia: Identification of putative disease-related pathways
Erin I. Liedtke, Sirey Zhang, John A. Thompson, Stefan Sillau, Judith Gault
University of Colorado Denver, Anschutz Medical Campus, Department of Neurosurgery

11. Mild Myelin Disruption Elicits Early Alteration in Behavior and Proliferation in the Subventricular Zone
Elizabeth A. Gould, Nicolas Busquet, Doug Shepherd, Anan Li, Diego Restrepo, Wendy B. Macklin
1Department of Cell and Developmental Biology, University of Colorado Anschutz Medical Campus, 2Rocky Mountain Taste and Smell Center, University of Colorado Anschutz Medical Campus, 3Neuroscience Program, University of Colorado Anschutz Medical Campus

12. The effect of 3,4-methylenedioxymethamphetamine (MDMA, ecstasy) on extinction and reconsolidation of fear memory
Holly S. Hake, Esteban C. Loetz, Mykola Ostrovskyy, Caroline A. Farmer, Brian A. Lloyd, Anais Sanchez, Benjamin N. Greenwood
1Department of Psychology, University of Colorado Denver, 2Department of Biology, University of Colorado Denver

13. Implementing chronic VNS in mice to dissect mechanisms of VNS induced cortical plasticity
Jordan L Hickman, Benjamin A Temple, Xiao Yu Peng, Cristin G Welle
University of Colorado, Anschutz Medical Campus

14. Kir 2.1 is required for craniofacial development
Megan Josey, Matthew Belus, Steven Rose, Adam Almeida, Emily Bates
University of Colorado Denver Anschutz Medical Campus

15. FMRP mediated translation repression via the miRNA pathway
Navneeta Kaul, Sarala Pradhan, Scott Barbee
Department of Biology, University of Denver

16. Regulator of Calcineurin 1 (RCAN1) mediates anxiety-related behaviors through CREB activity
Bailey N. Keller, Helen Wong, Josien Levenga, Charles A. Hoeffer
Institute for Behavioral Genetics, University of Colorado Boulder

17. The role of mitochondrial transfer and mesenchymal stem cell transplantation in neuronal preservation after ischemia
Scott Lambie, Nancy Tseng, D Ryan Ormond
Department of Neurosurgery, University of Colorado Anschutz Medical Campus

18. Dopaminergic D1 receptor effects on optogenetically activated commissural inputs on subcortical projecting layer V medial prefrontal pyramidal neurons.
Jonna M. Leyrer-Jackson, Mark P. Thomas
University of Northern Colorado
19. The MAGL inhibitor MJN110 decreases aggressive behavior after post-weaning social isolation in male and female adolescent rats, but does not affect p-MTOR expression in the medial prefrontal cortex.
Tassawwar Khan\textsuperscript{1}, Lamya’a M. Dawud\textsuperscript{1}, *Esteban Loetz\textsuperscript{2}, Jazmin Fontenot\textsuperscript{1}, Devin Tauber\textsuperscript{1}, Ian Brallier\textsuperscript{1}, Sondra T. Bland\textsuperscript{2}
\textsuperscript{1} University of Colorado Denver, Department of Integrative Biology
\textsuperscript{2} University of Colorado Denver, Department of Psychology

20. Recovering Nucleus Accumbens Shell Encoding by Optically Stimulating the VTA
\textit{Keith S. McConomy}, Kara Agster, Michael P. Saddoris
University of Colorado, Boulder

21. A novel mouse model of cerebellar stroke with motor and non-motor deficit
\textit{Moreno-Garcia M}, Mehos C, Schmidt R, Kubesh M, Quillinan N
Graduate School, University of Colorado Anschutz Medical Campus

22. Unpredictable Maternal Sensory Signals Predicts Low Effortful Control in Childhood
Alyssa A. Morgan, Leah A. Grande, Stephanie S. Stout, Brian G. Vegetabile, Hal S. Stern, Laura M. Glynn, Curt A. Sandman, & Elysia P. Davis
University of Denver, University of California, Irvine

23. Cognitive Deficits in a Mouse Model for Schizophrenia
\textit{Amber G Olson}, Shane Rolen, Diego Restrepo
University of Colorado Denver, University of Colorado Anschutz Medical Campus

24. The mechanisms of timing: An integrative theoretical approach
\textit{Lara N. Pantlin M.S.}, Mark A. Prince PhD., Deana B. Davalos PhD.
Colorado State University

25. A single intrathecal delivery of the adenosine 2A receptor (A2AR) agonist, ATL313, produces sustained antinociception by promoting A2BR and PPAR-\(\gamma\)-mediated anti-inflammatory processes in the spinal cord of rats
University of Colorado Boulder, Department of Psychology and Neuroscience

26. In vivo electrochemical and optogenetic assessment of the nucleus accumbens in operant avoidance behavior
\textit{Katherine Pultorak} \textsuperscript{1}, Scott Schelp \textsuperscript{1,2}, Gregory Krzystyniak \textsuperscript{2}, Brandon Busch \textsuperscript{1,2}, Erik Oleson \textsuperscript{2}
\textsuperscript{1} University of Colorado Denver, Biology Department
\textsuperscript{2} University of Colorado Denver, Psychology Department

27. Requirement of AKAP79/150 palmitoylation in synaptic plasticity
\textit{Alicia M. Purkey}, Kevin M. Woolfrey, Kevin C. Crosby, Mark L. Dell'Acqua
University of Colorado Anschutz Medical Campus
28. The role of IL-17RA in the expression of MIA-induced behavioral abnormalities
   Stephanie Quintana, Helen Wong, Charles Hoeffer
   Institute for Behavioral Genetics, University of Colorado Boulder

29. Does Weekend Recovery Sleep Restore Cognitive Performance to Optimal Levels Following a
    Workweek of Sleep Restriction?
   Hannah, K, Ritchie, Christopher, M, Depner, Kenneth, P, Wright Jr.
   Sleep and Chronobiology Laboratory, Department of Integrative Physiology, University of Colorado
   Boulder, Boulder, CO, USA

30. Activation of nigrostriatal dopamine neurons during fear extinction prevents the renewal of fear
   Adam J. Rosberg, Courtney A. Bouchet, Megan Miner, Esteban C. Loetz, Holly S. Hake, Caroline E.
   Farmer, Mykola Ostrovskyy, Nathan Gray, Benjamin N. Greenwood
   University of Colorado, Denver

31. Mating-receptivity in female dipterans is mediated by daily fluctuations of dopamine levels
   Erin J Sanders1, Andrew N. Bubak2, Kenneth J. Renner3, John G. Swallow1
   1 Department of Integrative Biology, University of Colorado Denver
   2 Department of Neurology, UC Denver - Anschutz Medical Campus
   3 Department of Biology, University of South Dakota

32. Optogenetic and Neural Engineering Core
   Andrew Scallon
   Abby Person, Gidon Felson, Directors
   University of Colorado Anschutz Medical Campus

33. Effects of the Golgi Associated Retrograde Protein Scattered on neurodevelopment in Drosophila
    Melanogaster
   Prajal Patel Ph.D, Emily Starke, Navneeta Kaul, Grant Norton, Todd Blankenship Ph.D, Scott Barbee
   Ph.D
   University of Denver

34. Effects of physical activity on behavior in house crickets
   Margaret K Tanner1, Erin J Sanders2, Megan Miner1, Andrew Bubak2, Simon Lailvaux3, John G
   Swallow2, Benjamin N Greenwood1
   1 Department of Psychology, University of Colorado Denver
   2 Department of Integrative Biology, University of Colorado Denver
   3 Department of Biological Sciences, University of New Orleans

35. Shifts in subthalamic nucleus local field potential activity during the sleep-wake cycle
   Anand Tekriwal1,2,3 John A. Thompson1, Gidon Felsen2, Aviva Abosch1
   1 Department of Neurosurgery, University of Colorado School of Medicine
   2 Department of Physiology and Biophysics, University of Colorado School of Medicine
   3 University of Colorado Medical Scientist Training Program

36. Rodent In Vivo Neurophysiology Core
   Robert Valdez
   University of Colorado Anschutz Medical Campus
37. Use of quantitative measures of brain MRI to predict cognitive outcomes after Subthalamic Nucleus Deep Brain Stimulation for Parkinson’s disease
Laura J Weinkle BA 1,2 Olga Klepitskaya MD 2 Stefan Sillau PhD 2 Jody Tanabe MD 3 Justin Honce MD 3 John A. Thompson PhD 4 Brian Hoyt PhD 4
1 Modern Human Anatomy Program, University of Colorado Anschutz School of Medicine
2 Department of Neurology, University of Colorado Anschutz School of Medicine
3 Department of Neuroradiology, University of Colorado Anschutz School of Medicine
4 Department of Neurosurgery, University of Colorado Anschutz School of Medicine

38. The taste of blue light
Courtney, E, Wilson, Sue, C, Kinnamon
University of Colorado School of Medicine Neuroscience Graduate Program
University of Colorado School of Medicine Department of Otolaryngology
University of Colorado Rocky Mountain Taste and Smell Center

39. Investigating non-canonical protein synthesis in neurons
Helen Wong, Josien Levenga, Charles Hoeffer
Institute for Behavioral Genetics, University of Colorado, Boulder

40. Structural changes associated with duration of subthalamic nucleus deep brain stimulation in patients with Parkinson’s disease with a focus on olfactory processing
Hermella W. Yilma1,2, John A. Thompson1,3
1 Master’s Program in Modern Human Anatomy, University of Colorado School of Medicine
2 Department of Cell and Developmental Biology, University of Colorado School of Medicine
3 Department of Neurosurgery, University of Colorado School of Medicine