Tuesday, February 3rd

CU-Boulder – Interdepartmental Neuroscience Seminar Series

Muenzinger Psychology, Room E214, 4 pm

Dr. John Neumaier, Professor of Psychiatry and Pharmacology, University of Washington

DREADDing Addiction

Dr. Neumaier’s laboratory is studying stress and addiction using rodent models and cell culture. This lecture will discuss how our investigation of 5-HT6 receptors in striatum affect reward motivated learning leading to our use of engineered “DREADD” receptors to dissect functional neural circuits involved in cocaine seeking.

(For additional information, please contact Linda Watkins at: linda.watkins@colorado.edu)

Tuesday, February 17th

CU-Boulder – Interdepartmental Neuroscience Seminar Series
A body of evidence suggest that up to one-third of ultra high-risk youth (adolescents who exhibit recent subtle positive symptoms as well as declines in social, emotional, motor and cognitive functioning) will go on develop a psychotic disorder such as schizophrenia within a two-year period. While the ultra high-risk or prodromal period represents an promising opportunity to improve etiological understanding and intervene prior to onset (when third variable confounds can cloud research and treatment), to date, we are unclear about what differentiates those who do go on to develop a psychotic disorder, from the phenotypically similar adolescents who do not. Furthermore, preliminary evidence suggests that while early interventions may be effective in reducing transition rates, the available treatments are associated with significant costs and side-effects, and factors unique to this population significantly limit efficacy. Taken together, this suggests a critical need for effective biomarkers and targeted interventions. As psychosis onset typically occurs at the end of the adolescent period, promising empirically driven conceptualizations point to the significant role that adolescent neurodevelopment may play. To this end, understanding aberrant processes during
adolescent neuroreorganization may help to significantly improve etiological understanding, bolster early identification, and inform interventions. In this presentation, I discuss characteristics and research priorities in the psychosis prodrome and then review my ongoing biomarker and treatment development studies. Specifically, I focus on the relationship between adolescent motor and brain development, presenting longitudinal behavioral and imaging research that suggests that abnormalities in movement reflect a pattern of aberrant neurodevelopment that can eventually lead to the onset of psychosis. In addition I discuss basic psychopathology research from my laboratory that was used to inform the development of an ongoing exercise-based targeted cognitive remediation trial. Finally, I will discuss plans for future projects and emphasize the significant utility of cross-disciplinary collaboration in this area.

(For additional information, please contact Linda Watkins at: linda.watkins@colorado.edu)

Tuesday, March 3rd

CU-Boulder – Interdepartmental Neuroscience Seminar Series

Gold Auditorium (MCDB), Room A2B70, 4 pm

Irving Kirsch, Lecturer on Medicine, Harvard Medical School and Beth Israel Deaconess Medical Center, Associate Director of the Program in Placebo Studies
**The Emperor’s New Drugs: Antidepressants and the Placebo Effect**

Antidepressants are supposed to work by fixing a chemical imbalance, specifically, a lack of serotonin in the brain. But analyses of the published and the unpublished data that were hidden by the drug companies reveals that most (if not all) of the benefits are due to the placebo effect. Some antidepressants increase serotonin levels, some decrease serotonin, and some have no effect at all on serotonin. Nevertheless, they all show the same therapeutic benefit. Instead of curing depression, popular antidepressants may induce a biological vulnerability making people more likely to become depressed in the future. Other treatments (e.g., psychotherapy and physical exercise) produce the same short term benefits as antidepressants, show better long term effectiveness, and do so without the side effects and health risks of the drugs.

(For additional information, please contact Linda Watkins at: linda.watkins@colorado.edu)

**Tuesday, March 17th**

CU-Boulder – Interdepartmental Neuroscience Seminar Series

Muenzinger Psychology, Room E214, 4 pm

**Kenneth P. Wright, Jr.,** Associate Professor, Department of Integrative Physiology, University of Colorado Boulder; Member of the Center for Neuroscience; Director of the
Sleep and Chronobiology Laboratory; Adjunct Associate Professor of Medicine in the Division of Endocrinology, Metabolism and Diabetes at the University of Colorado Anschutz Medical Campus

**Time Cues for Human Circadian Clocks**

The circadian time keeping system drives near-24-hour rhythms in physiology and behavior so that biological processes (e.g., metabolism and sleep) occur at optimal times of day. The period of the “master” circadian clock, located in the suprachiasmatic nucleus of the hypothalamus, in humans is on average slightly longer than 24h. Thus, to remain in synch with the 24h Earth day, endogenous circadian clocks require environmental input. This talk will describe key concepts of human circadian timekeeping, cell-autonomous clock mechanisms, entrainment of endogenous clocks, ways of measuring circadian timing in humans in vivo and in human cells, and will discuss recent findings on the influence of light and caffeine on human circadian timing.

(For additional information, please contact Linda Watkins at: linda.watkins@colorado.edu)

**Tuesday, April 7th**

CU-Boulder – Interdepartmental Neuroscience Seminar Series

Muenzinger Psychology, Room E214, 4 pm

**Randy Ross**, M.D., L. McCarty Fairchild Professor of Child Psychiatry, University of Colorado School of Medicine
What Our Mothers Ate Really Matters: The Relationship Between Fetal Genes, Maternal Diet, and Risk for Schizophrenia

Schizophrenia is a neurodevelopmental disorder: the adolescent or young adult onset of symptoms is the result of gene by environmental interactions that begin prenatally. This presentation will discuss the perinatal development of one brain function related to risk for schizophrenia, examining both genetic and environmental contributions. Translational implications, including a prenatal maternal nutritional prevention intervention, are discussed.

(For additional information, please contact Linda Watkins at: linda.watkins@colorado.edu)

Tuesday, April 21st

CU-Boulder – Interdepartmental Neuroscience Seminar Series

Muenzinger Psychology, Room E214, 4 pm

Garret Stuber, Assistant Professor, Departments of Psychiatry & Cell Biology and Physiology, Neuroscience Center and Bowles Center for Alcohol Studies, University of North Carolina at Chapel Hill

Dissecting the Neural Circuits that Mediate Motivated Behavior
In order to survive and effectively navigate an ever-changing and unpredictable environment, organisms must readily adapt their behavior to seek out needed resources, while simultaneously avoiding life-threatening situations. These opposing processes are controlled by neural circuitry that is readily engaged by both environmental and physiological factors to promote behavioral output. The work of my lab studies the precise neural circuits that control both reward and aversive-related behavioral responses. By utilizing optogenetic and other circuit mapping tools, we aim to delineate the precise functional synaptic connections between molecularly distinct neuronal populations that are critical for the generation of these critical behavioral states. A holistic understanding of the interconnected neural circuit elements that mediate diverse motivational behaviors will likely provide important insight into a variety of complex neurological and neuropsychiatric illnesses such as drug and alcohol addiction, anxiety, depression, and eating disorders.

(For additional information, please contact Linda Watkins at: linda.watkins@colorado.edu)