Advanced Research in Addiction and the Brain Online Certificate

http://www.extension.washington.edu/ext/certificates/adb/adb_gen.asp

Example of a Lesson featuring a guest researcher

2007 WA Institute on Addiction Treatment
Mona Murr Kunselman and Trez Buckland

Lesson Ten: Guest Expert

Dr. Peter W. Kalivas

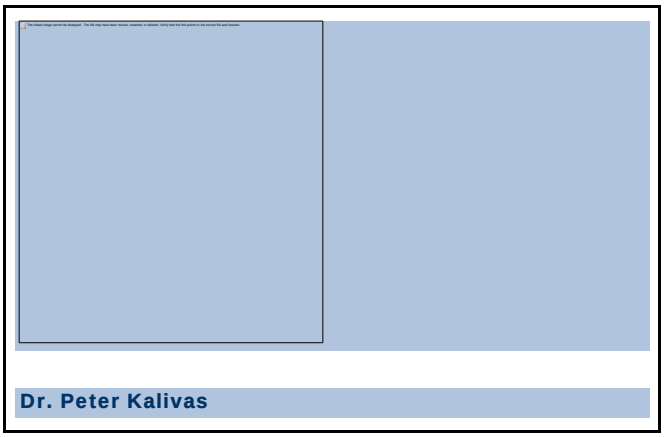
Expectations

Read the article Dr. Kalivas provides and review the suggested Web site. Formulate questions about these materials. Post these questions to Dr. Kalivas by the date noted on the course schedule.

Dr. Peter Kalivas is Professor and Chair of the Department of Neuroscience at the Medical University of South Carolina in Charleston.

In this lesson Dr. Kalivas will be the first of our guest online experts. He will help us explore the "cellular and circuitry" factors behind the persistence of drug-seeking in addiction, and consider pharmacotherapeutic interventions aimed at diminishing relapse.

About Our Guest Expert



Dr. Peter Kalivas

Dr. Kalivas is a neuroscientist best known for his work on the brain molecules and neurocircuitry underlying addiction. This work is highlighted in over 250 publications. He has also edited five books focusing on the cellular mechanisms and brain circuitry mediating psychiatric disorders.

Dr. Kalivas has received numerous national and international awards, including a Merit Award from the National Institute of Drug Abuse and the Efron Award from the American College of Neuropsychopharmacology. He is an Honorary Professor of Neuroscience at Nanjing Medical University, a member of the scientific council at

the National Institute of Drug Abuse, and serves on the editorial board of six major journals in the field of neuroscience.

He received his Ph.D. in Pharmacology from the University of Washington in Seattle in 1980, and became oriented toward the role brain circuitry plays in regulating behavior during a postdoctoral fellowship at the University of North Carolina in Chapel Hill. He studied the cellular and molecular underpinnings of the brain circuits mediating addiction in his first faculty position at Louisiana State University in New Orleans and during a more extensive tenure at Washington State University. This research perspective is the primary contribution he continues to make to the field of neuroscience.

Our Topic This Week

We will explore the brain circuitry that mediates the execution of behavior in response to natural rewarding events, and discuss the mechanisms by which drugs of abuse usurp this circuitry to create the pathology of addiction.

Our discussions will evolve from a systems description of circuitry. Once we identify the brain projections critical for addiction, we explore the molecular changes produced by drugs of abuse

that underlie the changes in brain circuitry. Finally, we explore how these changes at a molecular level point to new potential sites of pharmacological treatment for addiction.

Guiding Questions

1. Why do addicts continue to seek drugs in the face of negative consequences like incarceration or despite years of abstinence? What factors contribute to relapse?
2. What do neuroimaging studies of brain cellular structures tell us about the "cellular and circuitry" underpinnings of addiction?
3. What pharmacotherapeutic interventions might diminish relapses? How do they work?

Related Materials

Article

"The Neural Basis of Addiction: A Pathology of Motivation and Choice," by Peter W. Kalivas and Nora Volkow.

This research review is scheduled to be published in the *American Journal of Psychiatry*. Please read the "Abstract" and all 20 pages of the article

and scan the five figures on pages 36–40 of the .pdf document. Pages 22–35 contain citations for referenced research articles.

Web Sites

1. National Institute on Drug Abuse (NIDA) Common Drugs of Abuse: "Treatment Research"
   http://www.nida.nih.gov/DrugPages/Treatment.html
   Enter search terms such as "cellular structure" or "neuroimaging" into the "Search" box at the top right hand side of the page to find relevant materials.
2. For more information on Dr. Kalivas see his online vitae at:
   http://neurosciences.musc.edu/faculty/full_time/full_time.html

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