The Role of Acute Mu Opioid Receptor Desensitization in the Development of Tolerance to Morphine

Wednesday, September 21, 2011
12:00 PM - 1:00 PM
Creighton University Medical Center • Morrison Seminar Room

QUESTIONS: CALL HEALTH SCIENCES CONTINUING EDUCATION 402-280-1830

Speaker:
John T. Williams, PhD
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After earning his Ph.D. in Pharmacology from Loyola University in 1979, John Williams worked as a research scientist at the Max-Planck Institute in Munich and at Loyola University School of Medicine. He then spent five years as a research scientist in Biological Sciences at the Massachusetts Institute of Technology. In 1987, he became an assistant staff scientist at the Vollum Institute and rose to the position of senior scientist in 1996. He holds a concurrent appointment in the Department of Physiology and Pharmacology in the School of Medicine. Dr. Williams earned his B.S. from St. Lawrence University and his M.S. from the State University of New York at Potsdam.

Dr. Williams and colleagues investigate the early events that lead to the development of tolerance to opioids. Opioids such as morphine are important therapeutic compounds used for the management of pain. One ongoing project is the study of opioid actions on neurons in the locus coeruleus. Recent work has shown that even a brief treatment with a potent opioid agonist results in a transient decrease in the ability to activate the receptor (desensitization). This desensitization is thought to be one of the earliest steps leading to the long-term decrease in receptor sensitivity found with long-term morphine treatment. A current project focuses on the mechanisms that underlie this desensitization and its reversal.

Disclosure: Dr. Williams has a financial relationship or affiliation with the following organization that include Grant/Research Support: NIH DA08163. However no conflict of interest exists for this presentation.

OBJECTIVES
At the conclusion of this presentation, the participants should be able to:

- Explain mechanisms of acute desensitization of G-protein coupled receptors
- Describe acute desensitization and receptor trafficking of mu opioid receptors and what changes following the development of tolerance to morphine
- Discuss how acute desensitization and receptor trafficking contributes to tolerance

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