Contributions of Endorphins, Stress Responsivity, and Gene Variants to Specific Addictive Diseases

Mary Jeanne Kreek, M.D.
Senior Attending Physician
Patrick E. and Beatrice M. Haggerty Professor
Laboratory of the Biology of Addictive Diseases
The Rockefeller University

Research Abstract

Dr. Kreek's research focuses on the endogenous opioid system, which manages stress and pain, and the roles that specific opioid peptides and their receptors play in normal and abnormal circumstances. Heroin and morphine, which mimic endogenous peptides, as well as cocaine and alcohol activate these opiate receptors, directly or indirectly. Dr. Kreek and her colleagues examine receptor and peptide function in animals that are given or are allowed to self-administer a drug of abuse in chronic or acute doses to study how this exposure impacts the brain’s neurochemistry, molecular neurobiology and circuitry and how these effects compare to potential treatments. The lab also studies genetic, epigenetic, physiological and behavioral effects of drug administration on the endogenous opioid system and related signaling networks. The scientists use microdialysis in rats and mice to conduct dynamic studies of neurotransmitter release and peptide processing in the brain.

References