



The Yale PET Center presents  
**PET Talks**  
*Seminars By and For PET Users*



# Imaging Brain Chemistry in Diseases of Addiction

**Joanna S. Fowler, PhD**

*PET Program*

*Brookhaven National Laboratory*

**Monday June 17, 2013**

12 noon. (Please arrive early for lunch)

**Brady B131 Auditorium, 310 Cedar St.**

**Abstract:** Molecular imaging utilizing positron emission tomography (PET) and labeled compounds continues to provide new knowledge of brain circuits which are altered in disease and by drugs. This can provide unique new knowledge of biological pathways directly in the living human brain. The advancement of PET for medical applications requires innovation in radiotracer chemistry, particularly in the development of rapid synthetic methods for introducing the short-lived isotopes, carbon-11 ( $t_{1/2}$ : 20.4 min) and fluorine-18 ( $t_{1/2}$ : 110 min) into chemical compounds and which are targeted to different cellular elements. In this presentation, we highlight some examples of development and applications selective radiotracers and labeled drugs for imaging the brain dopamine system and for measuring the pharmacokinetics and pharmacodynamics of drugs of abuse in the human brain. We will also highlight recent advances on the development of new radiotracers and imaging instrumentation which will serve as scientific tools to advance our knowledge of the human brain.



[http://tauruspet.med.yale.edu/wiki/index.php/PET\\_Talks!](http://tauruspet.med.yale.edu/wiki/index.php/PET_Talks!)

Supported by the U. S. Department of Energy, Office of Biological and Environmental Research (for infrastructure support) and the National Institutes of Health.