

## Dr. John Higgins

Senior Principal Scientist

### Merck Research Labs

John received a BS in biochemistry from Albright College and his Ph.D. in synthetic organic chemistry from Brown University. After completing a Postdoctoral Fellowship at the Sloan-Kettering Cancer Institute in NYC in the departments of Positron Emission Tomography and Neurology, he joined the Medicinal Chemistry Discovery group at Johnson Matthey Biomedical. There he worked on Pt-based antitumor drugs and diagnostic radio-imaging agents. He later moved on to drug development, in positions of increasing responsibility at Johnson & Johnson and Sanofi Aventis. For the past 15 years he and his teams have specialized in the areas of drug delivery and solid state chemistry, focused at the interface of drug discovery and development.



**DATE:**  
March 2, 2016  
**TIME:**  
2:00 p.m.  
**LOCATION:**  
366 Colburn Lab

His specific expertise in drug delivery focuses in the area of enhancing the solubility of insoluble compounds, where he has successfully introduced a wide range of methods into drug discovery space. More recently, he has been active in the design of prodrugs for improving physicochemical properties or targeting for specific disease states.

He currently is a Senior Principal Scientist and Global Technology Lead in the Discovery Pharmaceutical Sciences department at Merck Research Labs. Spanning his 25 year career, he is co-inventor on 13 US Patents and author of numerous publications and book chapters in the fields of organic, solid state & medicinal chemistry and drug delivery.

## “An Overview of Historic and Modern Drug Discovery and Development...In an Hour©”

This lecture provides a broad overview of various scientific elements of the drug discovery and development process. Starting with a brief history of medicines in society and the birth of the modern pharmaceutical industry, the subject matter ranges from how new pharmacologic mechanisms of disease are uncovered, through the molecular design of safe and effective potential new drugs to the manufacture of the final drug dosage form. The topic is described from the perspective of a career drug discovery scientist, with contributions from many disciplines including chemistry, biochemistry, biology, materials science and pharmaceuticals. With potential career paths in mind, the course shows examples of how seemingly obscure scientific topics taught in university classes are applied to real-life drug discovery and development challenges. A description of the clinical trial and regulatory processes required for new drug approval is also included. By the course's end, both students and faculty will gain additional appreciation of the diverse professional opportunities available in the pharmaceutical industry.