Previous Sandin Lecturers

S. Winstein (1962)  D. J. Cram  (1990)
G. Büchi (1964)  P. G. Schultz  (1992)
J. D. Roberts (1965)  B. M. Trost  (1993)
R. Breslow (1973)  K. B. Sharpless  (2001)
D. Seebach (1989)  

The Reuben Benjamin Sandin  
LECTURE SERIES  

2017 LECTURER  
Professor Barbara Imperiali  
Department of Biology  
and Department of Chemistry  
Massachusetts Institute of Technology  

28-29 March 2017  
Department of Chemistry, University of Alberta
The Reuben Benjamin Sandin Lectures will be presented this year by Professor Barbara Imperiali, Department of Biology and Department of Chemistry, Massachusetts Institute of Technology, Cambridge, MA.

Barbara Imperiali completed her undergraduate studies at University College London, receiving a BSc (First Class with Honours) in Medicinal Chemistry in 1979. In 1983, she was awarded a PhD from MIT for research on the development of stereoselective aldol reactions and their application in the synthesis of the ansa bridge of Rifamycin S.

Research in the Imperiali group centers on the application of biochemical, biophysical and synthetic organic chemistry approaches to challenges in protein science with an emphasis on protein modification reactions. Current activities in the group focus on the design, synthesis and application of chemical tools for the study of complex biological systems. Her group has developed sensitive and selective approaches for modulating and measuring dynamic cellular activities. In particular, innovative methods for directly and selectively sensing protein kinase activities with a fluorescent readout using chelation-enhanced fluorescence provided by quinoline-based amino acids have been developed, patented and commercialized and now form the basis of the PhosphoSens® kinase assay platform. The Imperiali group has also established synthetic methodology for the preparation of caged phosphoamino acids, which can be integrated into peptides and proteins and exploited to provide incisive information on the specific cellular functions of individual protein phosphorylation events. Chemical tools developed by the Imperiali group have been applied to studies on cell migration, cell cycle control and the regulation of synaptic plasticity.

Throughout her career, Imperiali has also investigated the complex processes of enzyme-catalyzed protein glycosylation. Most recently, the unexpected discovery of N- and O-linked protein glycosylation systems in prokaryotic pathogens has inspired research that focuses on understanding the roles of cell surface carbohydrates in infection and pathogenicity as well as new biochemical and biophysical approaches for understanding the molecular logic of N-linked glycosylation pathways and processes. In a career spanning 28 years, she has authored over 200 research publications and has been the research advisor of more than 40 graduate students and 60 postdoctoral associates.

Dr. Imperiali's scientific awards include the ACS Cope Scholar Award (1996), the ACS Breslow Award for Achievement in Biomimetic Chemistry (2006), the Emil Kaiser Award of the Protein Society (2006), and the du Vigneaud Award of the American Peptide Society (2006). In addition to these honors, Dr. Imperiali has been richly recognized for contribution to teaching both at Caltech and MIT. In particular, she received the Caltech Feynman Prize for Excellence in Teaching in 1998; and at MIT she was named a Margaret MacVicar Fellow in 2003 in recognition of her contributions to education at the Institute.

Dr. Imperiali was elected to the American Academy of Arts and Sciences in 2001 and the US National Academy of Sciences in 2010 and she is a Fellow of the Royal Society of Chemistry.

You are cordially invited to attend the Reuben Benjamin Sandin Lecture Series sponsored by the Department of Chemistry of the University of Alberta.

**Lecture 1**
"Fluorescent Tools for Chemical Biology"
Tuesday, 28 March, 11:00 a.m.
Locale: CCIS 1-160

**Lecture 2**
"Protein Glycosylation: Pathways and Processes Across Domains of Life"
Tuesday, 28 March, 4:00 p.m.
Locale: CCIS 1-160

**Lecture 3**
"Protein Glycosylation in Bacterial Pathogens: Structures and Functions of Potential Virulence Targets"
Wednesday, 29 March, 11:00 a.m.
Locale: CCIS 1-160