



The Third Annual

August M. Watanabe
Symposium in
Biotechnology

Indiana University
Bloomington
Saturday, September 29, 2012
Chemistry 122



August M. Watanabe

Dr. August M. Watanabe was a renowned physician, researcher, professor, entrepreneur and venture capitalist. He was the founding Chairman of BioCrossroads and developed the initial strategic plan that established the organization. Dr. Watanabe was Executive Vice President of Science and Technology and a member of the Board of Directors at Eli Lilly and Company from 1996 to 2003. He joined Lilly in 1990 and became President of Lilly Research Laboratories in 1994. Under his leadership Lilly launched 11 important new pharmaceutical products. Prior to joining Lilly, Dr. Watanabe was a full-time faculty member of the Department of Medicine at the Indiana University School of Medicine from 1971 to 1990. In 1978, he became the youngest Professor of Medicine at the university, and from 1983 to 1990, he was the Chairman of the Department of Medicine. Dr. Watanabe served as co-founder of Marcadia Biotech, partner in Twilight Venture Partners, and a director of Ambrx, Endocyte, QuatRx and Kalypsys. He was also a senior advisor to Frazier Healthcare Ventures. He also remained active in the community, serving as a director of the Indiana University Foundation, the Regenstrief Foundation, Christel House International and the Indianapolis Symphony Orchestra. During his academic and research career, Watanabe co-authored more than 100 scientific publications and book chapters and served on the editorial boards of scholarly journals and as an officer in several national academic organizations, including the American College of Cardiology and the American Heart Association. Dr. Watanabe received his B.S. from Wheaton College and his M.D. from the Indiana University School of Medicine.

The Third Annual Watanabe Symposium in Biotechnology

7:30 – 8:30 am Coffee & Breakfast Drinks

8:30 – 8:40 am Welcome: Professor David Giedroc

Introduction: Professor Jeff Zaleski

8:45– 9:30 am **Professor JoAnne Stubbe**

“Clofarabine Nucleotides: Potent Inhibitors of Human Ribonucleotide Reductase Via an Unexpected Mechanism”

Introduction: Professor Martha Oakley

9:30 – 10:15 am **Professor Peter Schultz**

“Synthesis at the Interface of Chemistry and Biology: From Stem Cells to the Genetic Code”

Introduction: Professor David Clemmer

10:15 – 11 am **Professor Scott McLuckey**

“Bioconjugation in the Gas-Phase: An Exploration of New Directions in Tandem Mass Spectrometry”

11:00 – 1:00pm Poster Session & Lunch

Introduction: Professor Charles Dann

1:00 – 1:40 pm **Professor Tom Kodadek**

“Chemical Tools to Monitor and Manipulate the Immune System”

Introduction: Professor Ted Widlanski

1:40 – 2:20 pm **Professor Stephen Jacobsen**

“Micro- and Nanofluidic Devices for Cancer Screening and Virus Sensing”

Introduction: Professor Erin Carlson

2:20 – 3:00 pm **Professor Kate Carroll**

“Painting the Cysteine Chapel: New Tools to Probe Oxidation Biology”

3:00 pm Closing: Professor Richard DiMarchi



JoAnne Stubbe

Novartis Professor of Chemistry & Biology
Massachusetts Institute of Technology

Professor JoAnne Stubbe is an internationally recognized leader in mechanistic enzymology and bioinorganic chemistry. Professor Stubbe has made seminal contributions to a number of different areas of biochemistry. Work from her laboratory has been central to the elucidation of the catalytic mechanism of ribonucleotide reductases. Her laboratory's ground-breaking mechanistic experiments on the anticancer drug bleomycin have provided essential insights into how this drug causes DNA damage. The Stubbe group has carried out pioneering mechanistic investigations on polyhydroxybutyrate synthase and related enzymes that participate in the biosynthesis of industrially useful bioplastics. In 2009, Professor Stubbe won the National Medal of Science.

Peter Schultz

Scripps Family Chair Professor
Department of Chemistry
The Scripps Research Institute, California



Professor Peter Schultz has made a number of major contributions to science including: (1) the discovery of catalytic antibodies, and their use to study fundamental mechanisms of biological catalysis and the evolution of binding and catalytic function; (2) the development of technology that for the first time enables the systematic expansion of the genetic codes of living organisms to include unnatural amino acids beyond the common twenty; and (3) the development and application of combinatorial methods in chemistry and biology including the first generation of combinatorial materials libraries and the isolation of molecules that control stem cell proliferation and fate. Schultz has received numerous awards including the Alan T. Waterman Award, NSF, the ACS Award in Pure Chemistry, the U.C. Berkeley College of Chemistry Teaching Award, the Wolf Prize in Chemistry, the Paul Ehrlich and Ludwig Darmstaedter Award, and the ACS Arthur C. Cope Award.



Scott McLuckey

John A. Leighty Distinguished Professor
Department of Chemistry
Purdue University

Professor Scott McLuckey's research concerns the formation of ionized versions of large biomolecules, mass spectrometry of these ions, and ion-ion reactions. In 1997, the American Society for Mass Spectrometry gave him the first Biemann Medal for his contributions to mass spectrometry. He was named scientist of the year at Oak Ridge in 1999. In 2000, he received the Curt Brunnée Award of the International Mass Spectrometry Society. He received the 2007 Award in Chemical Instrumentation of the American Chemical Society Division of Analytical Chemistry, and the Anachem Award in 2008 from the National Federation of Analytical Chemistry and Spectroscopy. Professor McLuckey completed his undergraduate studies at Westminster College and his Ph.D. at Purdue University. After a year of postdoctoral studies in Amsterdam, McLuckey joined the research staff of Oak Ridge National Laboratory, where he remained until 2000 when he moved to Purdue.

Tom Kodadek

Professor, Department of Chemistry
Professor, Department of Cancer Biology
The Scripps Research Institute, Florida



The Kodadek Laboratory focuses on understanding and manipulating biological pathways important in various disease states. The approach relies heavily on chemical methods and a major goal in each of the biological areas of interest is to develop compounds that serve as leads for drug development or can be employed as tools for mechanistic studies. The three areas of biology currently under investigation are: 1) autoimmune diseases and lymphomas, 2) the involvement of the proteasome in transcription and 3) the function of the hormone orexin in narcolepsy, diabetes and other diseases. Professor Kodadek completed his B.S. in Chemistry from University of Miami and his Ph.D. in Organic Chemistry from Stanford University.



Stephen C. Jacobson

Professor

Department of Chemistry

Indiana University, Bloomington

Professor Jacobson's research efforts are directed toward miniaturization of analytical instrumentation with an emphasis on micro- and nanofluidic devices. He and his research group are currently working in the areas of microfluidic separations, nanofluidic transport, cancer screening, virus sensing, and bacterial adhesion. Professor Jacobson received a B.S. in mathematics from Georgetown University in 1988 and a Ph.D. in chemistry from the University of Tennessee in 1992. After graduate school, he was awarded an Alexander Hollaender Distinguished Postdoctoral Fellowship at Oak Ridge National Laboratory (ORNL), and in 1995, he became a research staff member at ORNL. In 2003, Stephen joined the faculty at Indiana University.

Kate Carroll

Associate Professor

Department of Chemistry

The Scripps Research Institute, Florida



The goal of Professor Carroll's research is to understand molecular mechanisms that underlie redox-regulation of protein function and how redox systems modulate complex physiological processes in normal and disease states. To achieve these goals, her lab develops and applies new technologies that cut across the traditional boundaries of chemical and biological sciences. Professor Carroll completed her undergraduate degree in Biochemistry from Mills College and her Ph.D. in Biochemistry from Stanford.

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