



2022

**The Eleventh Annual
August M. Watanabe Symposium
in Chemical Biology**

Saturday, September 17, 2022
Harry G. Day Lecture Hall
Chemistry C122
Indiana University Bloomington

Hosted by





Dr. August M. Watanabe was a renowned physician, researcher, professor, entrepreneur and venture capitalist. He was the founding Chairperson 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 Chair 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.

Dr. Watanabe 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, Dr. Watanabe co-authored more than 100 scientific publications and book chapters. He 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 Eleventh Annual Watanabe Symposium in Chemical Biology

8:15 – 8:50 am	Coffee & Breakfast Refreshments
8:50 – 9:00 am	<i>Welcome:</i> David Giedroc
9:00 – 9:45 am	<i>Introduction:</i> Kevin Brown M.G. Finn , Georgia Institute of Technology <i>Enhancing Immune responses to Carbohydrate, Peptide, and other Small Molecule Antigens</i>
9:45 – 10:30 am	<i>Introduction:</i> David Giedroc Elizabeth Nolan , Massachusetts Institute of Technology <i>Exploring Siderophore Scaffolds for Antibacterial Strategies</i>
10:30-11:15 am	<i>Introduction:</i> Nicola Pohl Jared Lewis , Indiana University <i>Identifying and Engineering Halogenases for Selective Catalysis</i>
11:15 – 11:30 am	Break, walk to the IMU Solarium Room
11:30 – 1:00 pm	Poster Session, IMU Solarium Room
1:00 – 1:45 pm	LUNCH
1:45 – 2:00 pm	Walk back to Chemistry Building C122
2:00 – 2:45 pm	<i>Introduction:</i> Joshua Ziarek Ann McDermott , Columbia University <i>Regulation of Cell Signaling through Allostery and Conformation: Studies by NMR</i>

- 2:45 – 3:30 pm *Introduction:* **Charles Dann**
Jonathan Schlebach, Indiana University
Pharmacological Profiling of Misfolded Variants by Deep Mutational Scanning
- 3:30 – 4:00 pm Coffee break, Chemistry Atrium
- 4:00 – 4:45 pm *Introduction:* **John Mayer**
Michael Stowell, University of Colorado Boulder
Structural Complexities of Insulin Receptor Signaling
- 4:45 – 5:00 pm *Closing Remarks:* **Richard DiMarchi**



M.G. Finn, Ph.D.

Professor and Chair

James A. Carlos Family
Chair for Pediatric
Technology

Georgia Institute of
Technology

M.G. Finn received a B.Sc. degree in Chemistry from Caltech in 1980, and a Ph.D. degree in 1986 from MIT working with Prof. K. B. Sharpless, followed by an NIH postdoctoral fellowship with Prof. J. P. Collman at Stanford University. He joined the faculty of the University of Virginia in 1988, moved to the Department of Chemistry at Scripps Research in 1998, and then to the School of Chemistry & Biochemistry at the Georgia Institute of Technology in 2013. He assumed the chairmanship of that department in 2014.

Prof. Finn's interests include the use of virus particles in vaccine and functional materials development, click reactions for organic and materials synthesis, advanced linker technologies in drug delivery, and the use of evolution for the discovery of molecular function. He is currently the Chief Scientific Officer of the Children's Healthcare of Atlanta Pediatric Technology Center, a joint effort to bring new science and engineering to the aid of pediatric medicine. He holds the James A. Carlos Family Chair for Pediatric Technology.



Elizabeth Nolan, Ph.D.

Ivan R. Cottrell Professor of
Immunology
Department of Chemistry

Massachusetts Institute of
Technology

Liz Nolan graduated from Smith College with a BA in chemistry and conducted her graduate studies in chemistry at the Massachusetts Institute of Technology in the laboratory of Professor Stephen J. Lippard. She pursued post-doctoral research with Professor Christopher T. Walsh at Harvard Medical School. She became an Assistant Professor in the Department of Chemistry at MIT in 2009 and is currently the Ivan R. Cottrell Professor of Immunology. She received awards that include a 2010 NIH New Innovator Award and the 2016 Eli Lilly Award in Biological Chemistry, and was named a Searle Scholar, an Alfred P. Sloan Foundation Fellow, and a Camille Dreyfus Teacher-Scholar. Liz was awarded the 2016 MIT School of Science Teaching Prize for Graduate Education and she currently serves as the Associate Department Head overseeing the Department of Chemistry's educational mission. Her current research focuses on the bioinorganic chemistry of immunity and microbial pathogenesis.



Jared Lewis, Ph.D.

Associate Professor

Indiana University

Professor Lewis grew up in Effingham, IL, and he obtained his B.S. in chemistry in 2002 at the University of Illinois, where he completed thesis research with Professor Eric Oldfield. He then moved to the University of California, Berkeley where he earned his Ph.D. in 2007 under the guidance of Professors Jonathan Ellman and Robert Bergman. His research involved developing carbon-carbon bond forming reactions proceeding via catalytic carbon-hydrogen bond activation. Following his doctoral studies, he was awarded an NIH F32 postdoctoral fellowship to study protein engineering at Caltech with Professor Frances Arnold, and he received an NIH K99 fellowship to start his independent work in the Arnold group. Jared started his independent career in the Department of Chemistry at the University of Chicago in 2011, and he moved to Indiana University as an Associate Professor in 2018.

Research in the Lewis group focuses on developing and understanding new organometallic, enzymatic, and hybrid catalyst platforms for challenging chemical reactions. This work has been recognized by a Packard Foundation Fellowship in Science and Engineering, a Searle Scholar Award, an NSF CAREER Award, and a Dreyfus Teacher-Scholar Award.

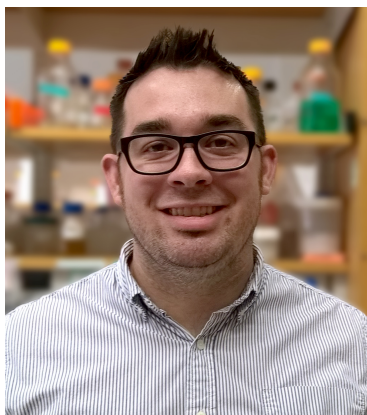


Ann McDermott, Ph.D.

Esther and Ronald Breslow
Professor of Biological
Chemistry

Columbia University

Ann McDermott, Ronald and Esther Breslow Professor of Biological Chemistry at Columbia University, develops and applies magnetic resonance methods to probe the structure, flexibility and function of proteins. Her group investigates allosteric regulation and timing of potassium ion channels, which play crucial roles in diverse contexts, from bacteria to the human nervous system. Her research group has determined the structures and characterized the dynamics of amyloids whose formation is a critical step in cellular signaling in humans. She also discovered and characterized a novel polarization mechanism associated with the photochemical reactions in the photosynthetic reaction center. She holds a B. Sc. from Harvey Mudd College, and a Ph. D. from the College of Chemistry at U. C. Berkeley, where she worked with Kenneth Sauer and Melvin Klein, and postgraduate training at MIT and the Francis Bitter National Magnet Laboratory with Robert Griffin. She has served as Associate Dean for Scientific Initiatives, Chair of Chemistry for Columbia University, on the Board of Trustees for Harvey Mudd College, the Board of Directors for the New York Structural Biology Center, and the Scientific Advisory Board for Brookhaven National Laboratories. She is the recipient of the Pure Award in Chemistry, the Eastern Analytic Symposium Award for Achievement in Magnetic Resonance, the Gunther Laukien award in NMR, and she is an elected member of both the American Academy of Arts and Sciences, and the National Academy of Sciences.



Jonathan Schlebach, Ph.D.

Assistant Professor

Indiana University

Jonathan received a BS in Biochemistry from the University of Illinois at Urbana-Champaign in 2007 after which he began his graduate studies at Purdue University in the laboratory of Chiwook Park. In 2012 he received a PhD for his studies on the kinetics and thermodynamics of integral membrane protein folding. Jonathan went on to pursue postdoctoral training in the laboratory of Charles R. Sanders at the Vanderbilt University School of Medicine, where he was awarded a Ruth L. Kirschstein National Research Service Award from the NIH for his studies of integral membrane protein misfolding and disease.

His current studies involve the physiochemical coupling between the folding and trafficking of integral membrane proteins in the cell. His laboratory utilizes an interdisciplinary array of biophysical, analytical, and cellular techniques to gain mechanistic insights into the key reactions that modulate the cellular proteostasis of integral membrane proteins and ultimately give rise to the molecular basis of disease. His group is also interested in adapting these tools and perspectives to address emerging issues in precision medicine.



Michael Stowell, Ph.D.

Professor

University of Colorado
Boulder

Dr. Michael Stowell received his Ph.D. in Chemistry and Biophysics from the California Institute of Technology, and then was concurrently a Postdoctoral Scientist at the MRC – Laboratory of Molecular Biology, Cambridge England and the Biophysics Department of Kyoto University, Japan. Michael has authored publications in the fields of synthetic organic chemistry, mechanical engineering, structural biology, neurobiology, and biophysics and received various grants and awards including an NIH EUREKA award, an HHMI Collaborative Innovation Award, a DARPA RTA award, and a Beckman Young Investigator Award. Michael's current research is focused on the structure and function of biological complexes using a variety of biophysical methods including cryoEM and cryoET. Michael is currently a professor in the department of MCD Biology at CU Boulder, the Faculty Director of the CU Boulder EM Services Core, the Faculty Director of the T. Curtius Peptide Facility, and a co-director of the NIH Common Fund CU Boulder Center for Cryo-ET (CCET).

Ten Years of Watanabe

2019

David Clemmer • R. Graham Cooks • Richard DiMarchi •
Jirong Lu • Tom Muir • Jackie Papkoff • Michael Sofia

2018

Paul Ahlquist • Stephen Harrison • Tuli Mukhopadhyay •
Priscilla Yang • Z. Hong Zhou • Adam Zlotnick

2017

Stephen D. Bell • Anglea M. Gronenborn • Taekjip Ha •
Jody Puglisi • Robert T. Sauer • Michael VanNieuwenhze

2016

George Barany • M. Kevin Brown • Scott E. Denmark •
Margaret M. Faul • Steve Hitchcock • Tom Snaddon •
Paul A. Wender

2015

Marvin H. Caruthers • Trevor Douglas • Samuel H. Gell-
man • Chad M. Rienstra • Megan Thielges • James R.
Williamson • Zhong-Yin Zhang

2014

Catherine Drennan • Daniel Kearns • Philip Low •
Michael Weiss • Yan Yu • Xiaowei Zhuang

2013

Jane Aldrich • Lane Baker • William DeGrado •
David Giedroc • Thomas Meade • Shahriar Mobashery

2012

Kate Carroll • Stephen Jacobson • Tom Kodadek •
Scott McLuckey • Peter Schultz • JoAnne Stubbe

2011

Jon Clardy • Andrea Cochran • Nicola Pohl •
Douglas C. Rees

2010

Jeffery W. Kelly • Laura L. Kiessling •
Thomas V. O'Halloran • Ronald T. Raines

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Thank you for joining us
the Eleventh Annual Watanabe Symposium!

We appreciate your participation in helping to
commemorate this special event.