

2022 Indiana CTSI Retreat, hosted by
the University of Notre Dame

"MODERN APPROACHES TO DRUG DISCOVERY"

Wednesday, March 30, 2022
9:00 a.m. – 3:45 p.m. EDT

Learn more at:
hwi.nd.edu/CTSIRetreat22

TODAY'S AGENDA

9:00-9:10 a.m.

Opening Remarks

Robert J. Bernhard, PhD, Vice President for Research, Professor of Aerospace & Mechanical Engineering, University of Notre Dame

9:10-9:20 a.m.

Overview of the Indiana CTSI

Sarah Wiehe and Sharon Moe, co-directors of the Indiana CTSI

9:20-10:00 a.m.

Idea2Data: Expediting Drug Discovery through Automation and Computation

Christos A. Nicolaou, Senior Research Advisor, Discovery Chemistry and Research Technologies, Eli Lilly and Company

10:00-10:50 a.m.

Strategies for Small-Molecule Inhibition of Transcription Factors in Cancer

Samy Meroueh, professor of biochemistry & molecular biology, Indiana University School of Medicine

10:50-11:00 a.m.

Break

11:00-11:50 a.m.

Novel Chemotypes of Kinase Inhibitors for the Potential Treatment of Recurrent Cancers

Herman Sintin, Drug Discovery Professor of Chemistry, Purdue University

11:50 a.m.-12:00 p.m.

Grab your Lunch

12:00-12:50 p.m.

Research Blitz Sessions

12:50-1:40 p.m.

Modulators of Proteostasis Pathways and Protein Folding

Juan Del Valle, William K. Warren Family Associate Professor, department of chemistry and biochemistry, University of Notre Dame

1:40-2:15 a.m.

Support Structures for Translational Drug Discovery

Andrew Dahlem, chief of clinical pharmacology and senior research professor of medicine, IU School of Medicine

Richard Taylor, director of the Molecular Therapeutics Program for the Indiana CTSI and professor of chemistry and biochemistry, University of Notre Dame

2:15-2:25 p.m.

Break

2:25-3:25 p.m.

My Journey in Academia Drug Discovery Research: From Targeting Protein-Protein Interactions to Induced Protein Degradation

Shaomeng Wang, the Warner-Lambert/Parke-Davis Professor in Medicine and Professor of Medicine, Pharmacology and Medicinal Chemistry, University of Michigan Medical School

3:25-3:40 p.m.

Closing Remarks

Brian Blagg, Charles Huiscking Professor of Chemistry and Biochemistry and Director of the Warren Family Research Center for Drug Discovery and Development, University of Notre Dame

Melanie DeFord, Assistant Vice President for Research, University of Notre Dame

TODAY'S SPEAKERS



Robert J. Bernhard

Vice President for Research, Professor of Aerospace and Mechanical Engineering, University of Notre Dame

Bob Bernhard was appointed Vice President for Research in 2007. In this role, he leads the University's research infrastructure and support programs for all disciplines of research and scholarship. He is also responsible for the University's programs and stewardship of its strategic research initiatives.



Sharon Moe

Co-Director, Indiana CTSI

Sharon is the Associate Dean for Clinical and Translational Medicine and the Co-Director for the Indiana Clinical Translational Sciences Institute. She is also Director of the Division of Nephrology and Stuart A. Kleit Professor of Medicine for the Indiana University School of Medicine. She has been a faculty member at Indiana University since 1992 and in 2019 was named Distinguished Professor at IU.



Christos A. Nicolaou

Senior Research Advisor, Discovery Chemistry and Research Technologies, Eli Lilly and Company

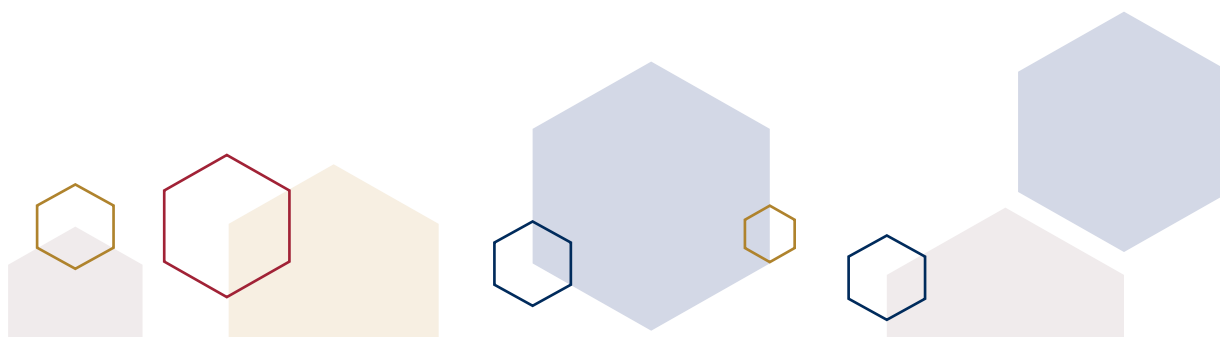
Christos is heading the Lilly Cheminformatics team in advancing R&D for in-house discovery applications and in supporting select drug discovery projects. Christos has led the effort to develop methods to map and effectively exploit virtual chemistry spaces and to mine, organize and distribute chemical reactions from electronic lab notebooks. Currently he is involved in the implementation of Idea2Data initiative aiming to bridge machine learning, cheminformatics and automation to expedite discovery efforts.



Samy Meroueh

Professor of Biochemistry & Molecular Biology, Indiana University School of Medicine

Samy Meroueh is a professor in the Department of Biochemistry and Molecular Biology at the Indiana University School of Medicine. His expertise is in medicinal chemistry and chemical biology. His laboratory specializes in the development of small-molecule inhibitors and degraders of difficult targets such as RAS/Rho GTPases, transcription factors, and high-affinity protein-protein interactions.



TODAY'S SPEAKERS (cont'd)



Herman Sintin

Drug Discovery Professor of Chemistry, Purdue University

Herman O. Sintim holds the Drug Discovery Professorship at Purdue University. Sintim began his independent career at the University of Maryland, College Park before moving to Purdue University in Jan 2016. At Purdue, the Sintim group develops new compounds for the potential treatment of cancer or bacterial infections.



Juan Del Valle

William K. Warren Family Associate Professor, Department of Chemistry and Biochemistry, University of Notre Dame

Juan Del Valle earned his B.A. in Chemistry from Carleton College and obtained his Ph.D. in 2004 from UC San Diego working on the synthesis biologically active peptides and peptidomimetics. After a postdoctoral fellowship in natural product synthesis at the University of Montreal, Juan began his independent career at New Mexico State University. In 2009, his laboratory moved to the Moffitt Cancer Center at the University of South, and in 2019 Juan accepted a position as the William K. Warren Family Professor of Chemistry & Biochemistry at the University of Notre Dame.



Andrew Dahlem

Chief of Clinical Pharmacology and Senior Research Professor of Medicine, IU School of Medicine

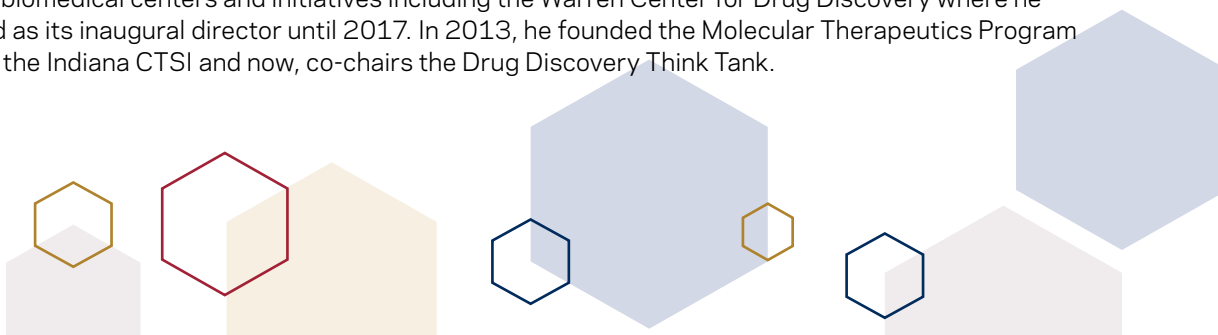
Andrew M. Dahlem, Ph.D., serves as Chief, Division of Clinical Pharmacology and Senior Research Professor of Medicine at the Indiana University School of Medicine, in Indianapolis, Indiana. During his tenure with Lilly, Dr. Dahlem worked on improving the ADME properties of molecules to treat Alzheimer's Disease and HIV/AIDS, served in various leadership roles in drug disposition and toxicology, and was promoted to Vice President in 2001 and COO of Lilly Research Laboratories in 2007. In addition to his scientific interests, Dr. Dahlem is passionate about driving gender parity in the workforce and served as executive sponsor for the Women in Lilly Discovery and Development talent development group for more than a decade.



Richard Taylor

Director of the Molecular Therapeutics Program for the Indiana CTSI and Professor of Chemistry and Biochemistry, University of Notre Dame

Rich Taylor is Professor of Chemistry & Biochemistry at the University of Notre Dame where he has served as associate dean for research in the College of Science, Associate Vice President for Research, and Director of Notre Dame California. His administrative efforts led to the creation of several Notre Dame biomedical centers and initiatives including the Warren Center for Drug Discovery where he served as its inaugural director until 2017. In 2013, he founded the Molecular Therapeutics Program within the Indiana CTSI and now, co-chairs the Drug Discovery Think Tank.



TODAY'S SPEAKERS (cont'd)



Shaomeng Wang

Warner-Lambert/Parke-Davis Professor in Medicine and Professor of Medicine, Pharmacology and Medicinal Chemistry, University of Michigan Medical School

Shaomeng Wang received his B.S. degree in Chemistry from Peking University, Beijing, China in 1986 and his Ph.D. in Chemistry from Case Western Reserve University, USA in 1993. He joined the University of Michigan in 2001 as a tenured associate professor in the Department of Internal Medicine of the Medical School and was promoted to full professor with tenure in 2006. He is the current Warner-Lambert/Parke-Davis Professor in Medicine and Professor of Internal Medicine and Pharmacology of the Medical School and Professor Medicinal Chemistry of College of Pharmacy, and Director, Michigan Center for Therapeutic Innovation.



Brian Blagg

Charles Huisiking Professor of Chemistry and Biochemistry and Director of the Warren Family Research Center for Drug Discovery and Development, University of Notre Dame

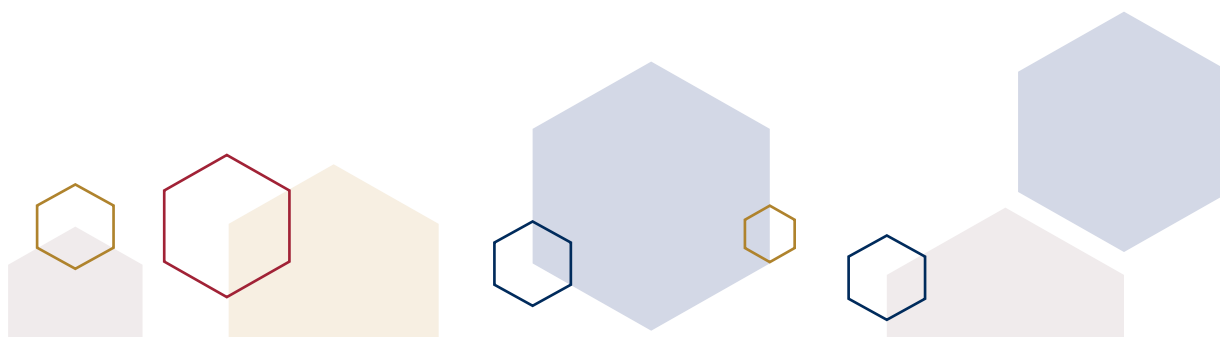
Brian Blagg is the Charles Huisiking Professor of Chemistry and Biochemistry and Director of the Warren Family Research Center for Drug Discovery and Development at Notre Dame. Blagg started his independent career in medicinal chemistry at the University of Kansas in 2002. In 2017, he moved to the University of Notre Dame wherein his lab continues to focus on chaperone proteins and protein folding in relation to cancer and neurodegeneration.



Melanie DeFord

Assistant Vice President for Research and Deputy Director of the Indiana CTSI, University of Notre Dame

Melanie leads operational efforts for the centers, institutes, strategic research initiatives, and core facilities under the purview of Notre Dame Research. She implements and reviews management control systems, provides structure, and drives work processes for these entities.



RESEARCH BLITZ: CHRONIC DISORDERS AND INJURIES



Tyler Nguyen

“Real-time assessments of caspase-1 mediated inflammation after repetitive traumatic brain injury and its role in long-term pain”

Tyler Nguyen is a post-doctoral fellow and preclinical & clinical traumatic brain injury researcher in the department of Anesthesia in the Stark Neurosciences Research Institute at the Indiana University School of Medicine. preclinical & clinical traumatic brain injury researcher.



Nicole Weaver

“The role of gldc in the embryonic kidney”

Nicole Weaver is a second-year PhD student in Rebecca Wingert’s lab at the University of Notre Dame. She is specifically studying gldc, a gene that is a vital component to the glycine cleavage system and contributor to the rare disease, NKH. We are utilizing the zebrafish to analyze gldc in the context of kidney development.



Kaylee Cloghessy

“Assessing Genetic Mechanisms Underlying the Regenerative Response to Traumatic Brain Injury in the Adult Zebrafish Telencephalon using scRNA-Seq”

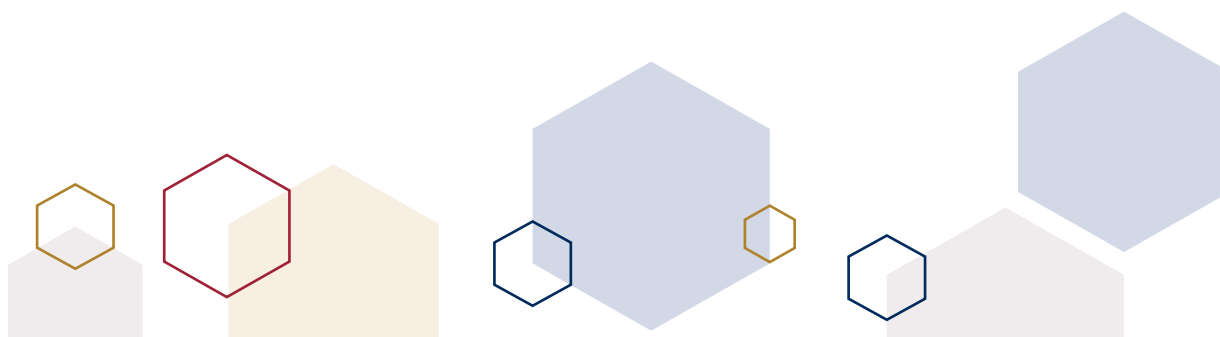
Kaylee Cloghessy is a fourth-year PhD candidate in the lab of Dr. David Hyde at the University of Notre Dame. My research focuses on the underlying genetic pathways which regulate neuronal regeneration in response to traumatic brain injury in the zebrafish.



Gowthami Mahendran

“Unraveling the pathways affected in Miller-Dieker Syndrome through gene expression analysis”

Gowthami Mahendran is pursuing her doctoral degree in Biochemistry at University of Notre Dame. She is working on Miller-Dieker Syndrome under the guidance of Jessica Brown.



RESEARCH BLITZ: PARASITIC AND BACTERIAL INFECTIONS/CANCER



Joshua Shrout

“Appreciating InterSpecies Bacterial Interactions in Prosthetic Joint Infection”

Joshua Shrout is Professor of Civil & Environmental Engineering and Earth Sciences with a concurrent appointment in Biological Sciences at the University of Notre Dame. His lab researches community behaviors of bacteria.



Michelle Huang

“Integrating DNA Diagnostics and Population Genomics to Benefit Human Health: A Test Case Using the Causative Agent of Chagas Disease (*Trypanosoma cruzi*) and its Insect Vector (*Triatominae*)”

Michelle Huang is a second-year graduate student in the McDowell and Feder labs. Her background in public health has informed her research interests, and she now works on vectors of infectious diseases.



Alicia Wei

“Smart Breast Clip: A Wireless Implant for Continuous Molecular Sensing of Breast Masses”

Alicia Wei received her BA in Mathematics and BS in Neuroscience from the University of Rochester in 2018, with honors in research. She is now pursuing her doctorate under the guidance of Thomas O’Sullivan.



Sunghoon Rho

“Optically-enhanced wireless breast lesion localization device for use during lumpectomy”

Sunghoon Rho is a graduate student working in electrical and biomedical engineering. He is currently working on the development of an implantable sensor for breast tumors.



Xin Lu

“Targeting Basal-Like Prostate Cancer with Cadherin 3 Antibody-Drug Conjugate (ADC) as single agent and in combination with immunotherapy”

Xin Lu was trained as a PhD in molecular biology by Dr. Yibin Kang at Princeton University and as a postdoctoral fellow by Dr. Ronald DePinho at MD Anderson Cancer Center. Dr. Lu’s lab at Notre Dame is focused on identifying cancer cell intrinsic and extrinsic mechanisms of tumor escape of immune surveillance and developing novel ideas and agents of cancer immunotherapy.



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