

2021 Research Retreat

Department of Pharmacological Sciences

Icahn School of Medicine at Mount Sinai

October 29, 2021

PROGRAM

9:00 am **Welcome Remarks** - Ming-Ming Zhou, PhD
9:10 am **CoDES Report** - Maria Sosa, PhD
9:15 am **The DPS-SPA Report** - MD Kabir
9:20 am **Trainee Outcomes** - Eric Sobie, PhD & Avner Schlessinger, PhD
9:25 am **Game:** "How Well Do You Know The DPS Faculty?"
9:30 am **Data Blitz** (13) - Arvin Dar, PhD
9:50 am **Pilot Projects** - Martin Walsh, PhD
9:51 am Daniel Wacker, PhD
10:01 am Maria Sosa, PhD
10:11 am Michael Lazarus, PhD
10:20 am **Break**
10:30 am **Lab Presentations** - Center Directors
10:30 am "RNA Biology & Medicine" - Martin Walsh, PhD
10:31 am Yifei Sun, PhD [Walsh]
10:37 am Ka Lung Cheung, PhD [Zhou]
10:43 am "Translational Medicine & Pharmacology" - Mone Zaidi, MD, PhD
10:44 am Sakshi Gera, PhD [Zaidi]
10:50 am **Break**
11:02 am "Bioinformatics" - Avi Ma'ayan, PhD

11:03 am Sherry Xie [Ma'ayan]
11:09 am Eryk Kropiwnicki, Grad Student [Ma'ayan]
11:15 am "Structural Biology & Biophysics" - Aneel Aggarwal, PhD
11:16 am Davide Provati, PhD [Filizola]
11:22 am Radhika Malik, PhD [Aggarwal]
11:28 am Avner Schlessinger, PhD
11:34 am "Therapeutics Discovery" - Jian Jin, PhD
11:35 am Husnu Kaniskan, PhD [Jin]
11:41 am Raj Veluswamy, MD [Reddy]
11:47 am Mary Duffy, PhD Student [Dar]
12:00 am **Break/Lunch**
12:45 pm **SPA Communications Panel** - William Marsiglia, PhD
Florian Krammer, PhD
Denise Cai, PhD
1:35 pm **Keynote** - Arvin Dar, PhD
Dirk Trauner, PhD
2:35 pm **Closing Ceremony**
2:45 pm **Poster Viewing**



"Controlling Protein Degradation and Cytoskeletal Dynamics with Light"

Dirk Trauner, PhD
Janice Cutler Professor of Chemistry
New York University

Dr. Trauner received his PhD degree in chemistry from the University of Vienna under the direction of Prof. Johann Mulzer, and performed a 2-year postdoctoral study with Prof.

Samuel J. Danishefsky at the Memorial Sloan-Kettering Cancer Center. Dr. Trauner joined the Department of Chemistry at the University of California, Berkeley, where he became an Associate Professor of Chemistry and a member of the Lawrence Berkeley National Laboratory in 2008 before he moved to the University of Munich as a Professor of Chemical Biology and Chemical Genetics. In 2017, he was appointed as the Janice Cutler Chair of Chemistry at New York University. He is a member of the Leopoldina Academy of Sciences and the Austrian Academia of Sciences, and a recipient of the Otto Bayer Award, the Emil Fischer Medal, an ACS Cope Scholar Award, and a Sloan Fellowship. Prof. Trauner's research interest is to illuminate the power of chemical synthesis and its applications in precision control of biological pathways.



Florian Krammer, PhD
Professor, Microbiology
Professor, Pathology, Molecular
and Cell Based Medicine
Icahn School of Medicine at Mount Sinai



Denise Cai, PhD
Assistant Professor, Neuroscience
Icahn School of Medicine at Mount Sinai

SPA Communications Panel

Hosted by the DPS Student and Postdoc Association

PRESENTING RESEARCH LABS



Ming-Ming Zhou, PhD

Professor & Chair

Structural and chemical biology of epigenetic regulation of gene transcription in biology and diseases; structural mechanism-based drug discovery



Aneel Aggarwal, PhD

Professor & Vice Chair

Protein-nucleic acid interactions in DNA and RNA metabolism; structure guided drug discovery



Arvin Dar, PhD

Professor

Exploring links between the regulation of drug targets and the system level properties of biological networks within cells and animals



Marta Filizola, PhD

Professor

Computer-aided structural biology and drug discovery



Jian Jin, PhD

Professor

Medicinal chemistry and drug discovery: creating selective inhibitors of histone methyltransferases, biased ligands of GPCRs, and novel degraders targeting oncogenic proteins



Avi Ma'ayan, PhD

Professor

Computational systems biology, bioinformatics, data mining, data science, data integration, and software development for biomedical and biological research



E. Premkumar Reddy, PhD

Professor

The role of cell cycle and apoptotic genes in cancer progression and as targets for the development of novel anticancer drugs



Avner Schlessinger, PhD

Associate Professor

Rational drug design with computational chemistry, machine learning, and structural bioinformatics methods



Martin Walsh, PhD

Professor

Mechanisms that regulate chromatin structure through processes that recognize and establish epigenetic information necessary to modulate gene transcription



Mone Zaidi, MD, PhD

Professor

Mechanisms of musculoskeletal homeostasis and pituitary hormone circuitry; Development of novel drugs to treat obesity, osteoporosis and neuropsychological disorders

PILOT PROJECTS



Michael Lazarus, PhD

Assistant Professor

Chemical biology and structural biology to study enzymes involved in protein homeostasis and metabolism in human diseases



Maria Sosa, PhD

Assistant Professor

Cancer metastasis: understanding dormancy biology in disseminated cancer cells

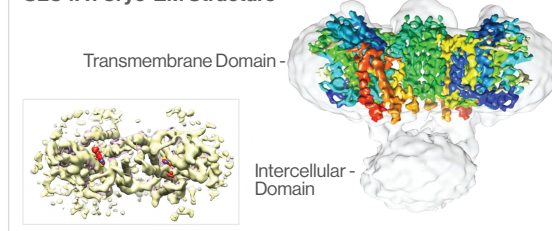


Daniel Wacker, PhD

Assistant Professor

Structural studies and drug discovery for serotonin receptors and transporters

SLC4A1 Cryo-EM Structure



A preliminary structure of full-length SLC4A1 was solved at a resolution of ~4.5 Å using cryo-electron microscopy. This is the first structure of a full-length transporter to be solved. Shifan Yan, PhD, Postdoc & Alex Stone, Student / The Wacker Lab

The Department of Pharmacological Sciences at Icahn School of Medicine at Mount Sinai focuses on research discovery of the biological mechanisms underlying complex physiology and pathophysiology and translating biological knowledge into new therapeutics. We study biological processes at the molecular, cellular, tissue, and organismal levels in order to understand how these processes function and how we can modulate them for therapeutic purposes. Studies involve analysis of interactions of exogenous and endogenous substances with biological systems and the development of new therapeutics based on our understanding of cellular and molecular interactions. Structural biology, molecular and systems pharmacology, and therapeutics with integrated experimental and computational

approaches represent a continuum of thought and research in understanding the origins and mechanisms underlying complex diseases and how we can treat them.

The mission of the Department is to provide a nurturing environment for discovery and innovation in basic and translational biomedical research of human health and disease, and for advanced academic training for the next-generation of physicians and scientists; and to function as a scientific hub for interdisciplinary collaborations with researchers of different disciplines to solve the most challenging problems in biomedical sciences.



For more information, please visit our websites:

<https://icahn.mssm.edu/about/departments/pharmacological-sciences>

<https://dpsismms.org/pharmacological-science-2021-retreat/>

Retreat Organizers:

Arvin Dar, Avi Ma'ayan, Emmanuel Antigua, Raven Barrett, Carmen Davidson & Yoori Kim

Department of Pharmacological Sciences

Icahn School of Medicine at Mount Sinai

New York, NY 10029

212.659.8647

dps@mssm.edu