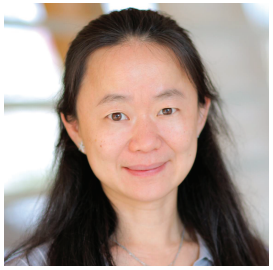
2022 Research Retreat
Department of Pharmacological Sciences
Icahn School of Medicine at Mount Sinai

The Metropolitan Museum of Art, NY - September 16, 2022

PROGRAM

9:00 am	**Welcome Remarks -** Ming-Ming Zhou, PhD
9:05 am	**The DPS-SPA Report** - Janice Yang
9:15 am	**Trainee Outcomes** - Eric Sobie, PhD & Avner Schlessinger, PhD
9:25 am	**Data Blitz** (23) - Martin Walsh, PhD
9:55 am	**Pilot Projects** - Roman Osman, PhD
9:55 am	Carole Morel, PhD
10:05 am	Maria Sosa, PhD
10:15 am	Daniel Wacker, PhD
10:25 am	**Break**
10:35 am	**Lab Presentations** - Lakshmi Devi, PhD
10:35 am	Almudena Bosch, PhD [Walsh]
10:42 am	Liu He, PhD [Dar]
10:49 am	Jens Hansen, MD [Iyengar]
10:56 am	Jithesh Kottur, PhD [Aggarwal]
11:03 am	Michael Lazarus, PhD
11:10 am	Kwang-Su Park, PhD [Jin]
11:17 am	Daria Lizneva, PhD [Yuen]
11:24 am	Rajal Sharma, MD, PhD [Zhou]
11:31 am	Roman Osman, PhD
11:38 am	Sherry Xie [Ma'ayan]
11:45 am	Avner Schlessinger, PhD
12:05 pm	**Lunch Break**
12:55 pm	**SPA Communications Panel** - Sari Miyashita, PhD
	Ilse S. Daehn, PhD
	D. Barrett Shamir, PhD
1:55 pm	**Poster Viewing**
2:50 pm	**New Lab Presentations** - Aneel Aggarwal, PhD
2:50 pm	Yi Shi, PhD
3:00 pm	Jinye Dai, PhD
3:10 pm	Peng Yuan, PhD
3:20 pm	**Keynote** - Avner Schlessinger, PhD
	Jue Chen, PhD
4:25 pm	**Closing Ceremony** - Ming-Ming Zhou, PhD

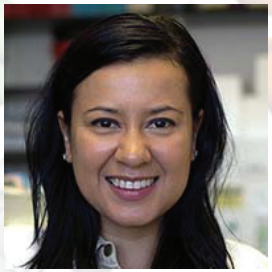


" Molecular Mechanisms Underlying CFTR Gating and Pharmacology"

Jue Chen, PhD
William E. Ford Professor,
Laboratory of Membrane Biology and Biophysics
The Rockefeller University
Investigator, Howard Hughes Medical Institute

Jue Chen received her B.S. degree in chemistry from Ohio University (1993), and Ph.D. degree in biochemistry from Harvard University under Dr. Don C. Wiley (1998). She performed postdoctoral study with Dr. Florante A. Quiocho at Baylor College of Medicine, and joined Purdue University in 2002 as assistant professor and was promoted to professor in 2011. She was named a Pew Scholar in 2003 and an investigator in the Howard Hughes Medical Institute in 2008. In 2014, she joined the faculty of Rockefeller University, where she is now the William E. Ford Professor and head of laboratory of membrane biology and biophysics. Chen's research is centered on the structure and mechanism of membrane-associated transporters, including cystic fibrosis conductance regulator (CFTR). She is an elected member of the National Academy of Sciences (2019).

"Ideas, Communication, and Innovation."



Ilse S. Daehn, PhD
Associate Professor, Medicine
Nephrology
Icahn School of Medicine at Mount Sinai

D. Barrett Shamir, PhD
Assistant Professor, Population Health
Science and Policy
Icahn School of Medicine at Mount Sinai

SPA Communications Panel
Hosted by the DPS Student and Postdoc Association

Background Image / Winner of "The 2021 Best Poster", Nicole Zatorski, Graduate Student / The Schlessinger Lab

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.

Ravi Iyengar, PhD
Professor

Systems biology and systems pharmacology, cell signaling networks with emphasis on G protein-coupled receptor pathways.

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.

Michael Lazarus, PhD
Assistant Professor

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

Avi Ma'ayan, PhD
Professor

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

Roman Osman, PhD
Professor

Molecular mechanisms of rational drug design in autoimmune diseases and cancer; intramembrane proteolysis, GPCR function.

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.

Tony Yuen, PhD
Associate Professor

Translational research on nontraditional targets for pituitary hormones; drug discovery and development; repurposing of drugs for new therapeutic use.

NEW LAB PRESENTIONS

Jinye Dai, PhD
Assistant Professor

Investigating genetic and environmental factors in neuropsychiatric disease etiology and corresponding synaptopathies.

Yi Shi, PhD
Associate Professor

Mass spectrometry-based proteomics, protein design, antibody therapeutics and translational sciences.

Peng Yuan, PhD
Professor

Structure and function of membrane transport proteins; molecular mechanisms and drug discovery.

PILOT PROJECTS

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.

Carole Morel, PhD
Assistant Professor

Neurophysiological mechanisms of depression and alcohol addiction in rodent models.

We have created a Structural Approach to Gene Expression Signatures (SAGES), a method that translates a GES into a signature containing information about the underlying features of the proteins encoded by the genes. SAGES describes GES in terms of the classification scheme put forward by SCOPe and InterProScan in addition to numerical data from IUPRED, TMHMM, and PredictProtein. Here we show that using this novel signature improves robustness of GTEX7 tissue type prediction, which is a well accepted dataset for comparison of computational methods applied to signatures, and investigate the features most important for tissue type prediction. Background Image / A Winner of "The 2021 Best Poster", Nicole Zatorski, Graduate Student / The Schlessinger Lab. View the poster here https://bit.ly/NLPoster2021

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.

Icahn School of Medicine at Mount Sinai

The Metropolitan Museum of Art, 1000 5th Avenue New York, NY 10028, 212.535.7710

Retreat Organizers: Arvin Dar, Avner Schlessinger, Carmen Davidson, Kevin Lau & Yoori Kim

Department of Pharmacological Sciences, ISMM, 1425 Madison Avenue, New York, NY 10029, 212.659.8647 || dps@mssm.edu

For more information, please visit our website: https://bit.ly/2022DPSRETREAT