

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 level 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 the following website:
<http://icahn.mssm.edu/about/departments/pharmacological-sciences>

On the Cover, Winner of the 2015 Best Poster

Jamel Meslamani, *PhD, Postdoc Fellow / Zhou Lab*
 Protein-ligand interaction fingerprints are simplified cheminformatics representation of the enthalpic effect between small molecules and proteins. The use of frequency of protein-ligand interactions as descriptors in QSAR models was introduced in order to predict ligand-binding affinity.



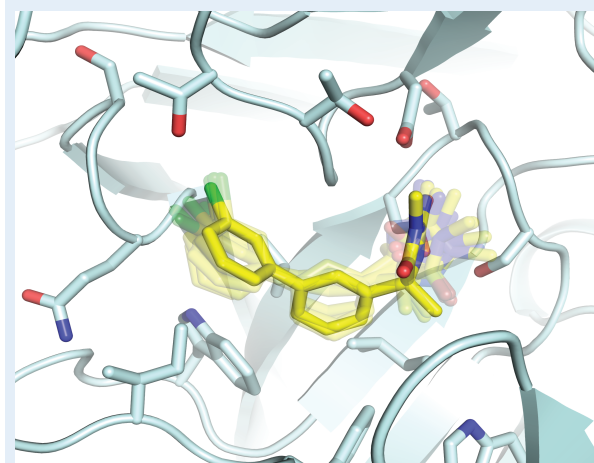
**Icahn
School of
Medicine at
Mount
Sinai**

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Retreat Organizers:
 Marc Birtwistle, Jian Jin & Yoori Kim

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2016 Research Retreat **Department of Pharmacological Sciences** Icahn School of Medicine at Mount Sinai



October 13th & 14th, 2016

Edith Macy Conference Center
 550 Chappaqua Road
 Briarcliff Manor, NY 10510
www.edithmacy.com

PROGRAM

Thursday, October 13th

8:00 am	Departure
9:30 am	Breakfast
10:25 am	Welcome Remarks

Structural Biology & Biophysics

10:30 am	Aneel Aggarwal Terry Krulwich Iban Ubarretxena
12:00 pm	Lunch

Mechanistic Epigenomics

1:00 pm	Martin Walsh Maria Sosa Christoph Schaniel Francesco Ramirez Ming-Ming Zhou
2:45 pm	Afternoon Break

Computational Systems Biology & Systems Pharmacology

3:15 pm	Marc Birtwistle Evren Azeloglu Avner Schlessinger Eric Sobie
4:30 pm	Poster Session
6:30 pm	Dinner & Open Bar

Friday, October 14th

8:00 am	Breakfast
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Chemical Biology & Drug Discovery

10:00 am	Jian Jin Michael Lazarus Arvin Dar Marta Filizola Robert DeVita Premkumar Reddy
11:45 am	Group Picture
12:00 pm	BBQ & Hiking
1:00 pm	DPS Faculty Meeting
2:00 pm	DPS-SPA meeting with Faculty
2:30 pm	Jr. Faculty Meeting

Neuropharmacology

3:00 pm	Ming-Hu Han Susana Neves Lakshmi Devi
4:00 pm	Afternoon Break
4:30 pm	Poster Awards
5:00 pm	Departure

2016 Presenting Groups



Ming-Ming Zhou, PhD, Professor & Chair
Structural and molecular mechanisms of chromatin-based gene transcription or silencing in human biology and diseases.



Aneel Aggarwal, PhD, Professor
Protein-nucleic acid interactions in gene transcription and translation, and DNA repair with X-ray crystallography and other biophysical methods.



Evren Azeloglu, PhD, Assistant Professor
Investigation of biomechanical signal processing in cardiomyocytes with systems bioengineering, stem cell biology and tissue engineering methods.



Marc Birtwistle, PhD, Assistant Professor
Quantitative modeling of physicochemical processes in biology and disease using integrative systems biology methods.



Arvin Dar, PhD, Assistant Professor
Exploring links between the regulation of drug targets and the system level properties of biological networks within cells and animals.



Lakshmi Devi, PhD, Professor
Molecular mechanism and pharmacology of opiate and cannabinoid receptor activation and morphine-induced changes in synapse.



Robert DeVita, PhD, Professor
Small molecule drug discovery, chemical biology, target validation, organic synthesis and heterocyclic chemistry.



Marta Filizola, PhD, Professor
Structure-function correlation in molecular recognition and signal-transduction through the development and application of computational methods.



Ming-Hu Han, PhD, Associate Professor
Neurophysiological mechanisms of depression and alcohol addiction in rodent models.



Jian Jin, PhD, Professor
Creating chemical probes of histone methyltransferases and functionally selective ligands of G protein-coupled receptors.



Terry Krulwich, PhD, Professor
Bioenergetics in alkaliphilic bacteria, and structure-function of cation/proton antiporters.

2016 Presenting Groups



Michael Lazarus, PhD, Assistant Professor
Cellular mechanisms of nutrient signaling in intracellular glycosylation and autophagy with chemistry, crystallography and mass spectrometry methods.



Susana Neves, PhD, Assistant Professor
Mechanisms of neuronal transmission, and neurotransmitter receptor-induced activation of intracellular pathways with FRET-based, real-time imaging techniques.



Francesco Ramirez, PhD, Professor
Investigation of the role of the extracellular matrix in embryonic development, postnatal growth and adult homeostasis, and therapeutic intervention in Marfan syndrome and scleroderma.



E. Premkumar Reddy, PhD, Professor
The role of cell cycle and apoptotic genes in cancer progression and as target for the development of novel anticancer drugs.



Christoph Schaniel, PhD, Assistant Professor
Disease modeling and therapeutics with induced pluripotent stem cells.



Avner Schlessinger, PhD, Assistant Professor
Structural bioinformatics and structure-based drug design for membrane transporters.



Eric Sobie, PhD, Associate Professor
Mathematical modeling and quantitative investigation of cardiac physiology, and mechanisms of initiation of arrhythmias and heart failure.



Maria Sosa, PhD, Assistant Professor
Mechanisms of the origins and epigenetic programs of disseminated tumor cell biology.



Iban Ubarretxena, PhD, Associate Professor
Structural and molecular mechanism of regulated intramembrane proteolysis in biology and disease. We combine biochemical methods and cryo-EM.



Martin Walsh, PhD, Associate Professor
Mechanisms that regulate chromatin structure through processes that recognize and establish epigenetic information necessary to modulate gene transcription.