

The Fifth Annual Research  
Retreat  
of the  
**Department of Structural  
and Chemical Biology**  
Mount Sinai School of Medicine

October 11 & 12, 2012

Edith Macy Conference Center  
550 Chappaqua Road  
Briarcliff Manor, NY 10510  
[www.edithmacy.com](http://www.edithmacy.com)



*Organizers: Drs. Shiraz Mujtaba and Mibaly Mezei*

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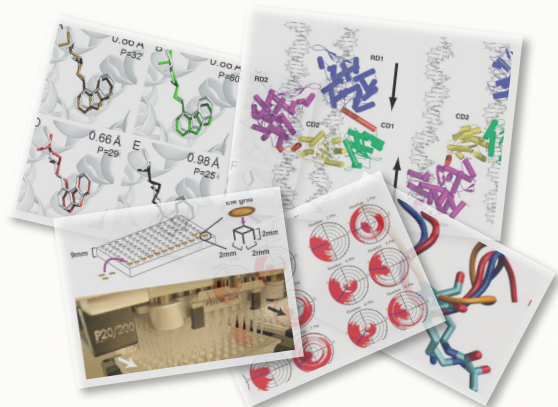
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2012 Research Retreat  
Department of Structural  
and Chemical Biology



MOUNT SINAI  
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MEDICINE

# PROGRAM

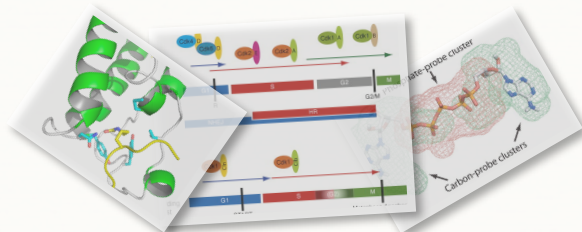


The Department of Structural and Chemical Biology applies state-of-the-art tools of experimental and computational structural biology, biophysics, and chemical biology to study fundamental problems in biomedical research with emphasis on the molecular and structural basis of human biology and disease. Major approaches include biochemistry and biophysics of proteins/nucleic acids/membranes, chemical biology of small molecules, electrophysiology, molecular biology, electron cryomicroscopy, NMR spectroscopy, X-ray crystallography, computational modeling and simulation. Topics of investigation include structure and function of membrane enzymes and receptors in cell signaling and development; and molecular mechanisms of gene transcription and translation, epigenetic regulation and DNA damage repair in stem cell biology, immunology and virology with ultimate goal to understand the molecular basis of human diseases such as cancer, Parkinson's, Alzheimer's disease and genetic disorders.

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

For more information about the exciting biomedical research and education programs being conducted in the Department of Structural and Chemical Biology, we invite you to visit the following website:

<http://www.mssm.edu/departments-and-institutes/structural-and-chemical-biology>



## THURSDAY, OCT 11

8:15 AM Departure from Mount Sinai

9:30 AM Breakfast

### Morning Session (Chair: Robert Fisher)

10:15 - 10:30 Welcome & Setup

10:30 - 11:20 Group 1 - Marta Filizola

11:20 - 11:50 Group 2 - Roman Osman

11:50 - 12:10 Coffee Break

12:10 - 1:00 Group 3 - Ming-Ming Zhou

1:00 - 1:50 Group 4 - Martin Walsh

2:00 - 3:00 Lunch

3:00 - 3:45 Poster Session

3:45 - 4:15 Nature Break

### Afternoon Session (Chair: Iban Ubarretxena)

4:15 - 5:05 Group 5 - Aneel Aggarwal

5:05 - 5:35 Group 6 - Mihaly Mezei

5:35 - 5:55 Coffee Break

5:55 - 6:45 Group 7 - Robert Fisher

6:45 - 7:15 Group 8 - Roberto Sanchez

### Evening

7:30 - 8:00 Aneel Aggarwal - Informal Talk

8:00 - 11:30 Dinner & Evening Program

## FRIDAY, Oct 12

8:00 AM Breakfast

### Morning Session (Chair: Martin Walsh)

9:10 - 10:00 Group 9 - Prem Reddy

10:00 - 10:50 Group 10 - Michael Ohlmeyer

10:50 - 11:10 Coffee Break

11:10 - 12:00 Group 11 - Iban Ubarretxena

12:00 - 12:50 Group 12 - Shiraz Mujtaba

12:50PM Closing Remarks

1:00PM Lunch

2:00PM Departure

## 2012 PRESENTING GROUPS



### Ming-Ming Zhou, Professor & Chair

Structural and molecular mechanisms of chromatin-based gene transcription or silencing in human biology and diseases.



### Aneel Aggarwal, Professor

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



### Marta Filizola, Associate Professor

Structure-function correlation in molecular recognition and signal-transduction through the development and application of computational methods.



### Robert Fisher, Associate Professor

Molecular mechanisms that control cell division and regulate gene expression in yeast and mammalian cells. Focusing on the role of protein phosphorylation in both processes.



### Mihaly Mezei, Associate Professor

Developing computational techniques for structural analysis of macromolecular and for small molecule design.



### Shiraz Mujtaba, Assistant Professor

Molecular interplay between chromatin and co-factor (s) for orchestrating transcriptional programming by transcription factors.



### Michael Ohlmeyer, Associate Professor

Small-molecule drug discovery. Hit to lead and lead optimization chemistry.



### Roman Osman, Professor

Molecular mechanisms of enzymatic DNA repair, receptor/ligand interactions, gene transcription and translation, as well as structure-based small-molecule design using free energy simulations and quantum mechanical/molecular mechanical methods.



### E. Premkumar Reddy, Professor

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



### Roberto Sanchez, Associate Professor

Development of structural bioinformatics tools for protein structure-function relationship with emphasis on ligand recognition and disease related mutations.



### Iban Ubarretxena, Associate Professor

Structural and molecular mechanism of regulated intramembrane proteolysis in human biology and disease. We combine biochemical methods and cryo-EM.



### Martin Walsh, Associate Professor

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