Columbia University - Morningside Heights Biological Sciences

Dr. Peter Andolfatto:
Evolutionary processes shaping genome evolution and adaptations

Dr. Erin Barnhart:
Cell biology of the neuron

Dr. Chloe Bulinski:
Function of the cytoskeleton during the cell cycle and differentiation

Dr. Martin Chalfie:
Developmental genetics of identified nerve cells in *C. elegans*

Dr. Larry Chasin:
Pre-mRNA splicing; molecular and computational approaches

Dr. Lars Dietrich:
Bacterial models for biological shape and pattern formation

Dr. Laura Duvall:
Regulation of innate behavior in blood-feeding arthropods

Dr. Stuart Firestein:
Cellular mechanisms and signal transduction of olfaction

Dr. Jellert Gaublomme:
Create and apply multi-omic technologies to study biomolecular and cellular interactions

Dr. Iva Greenwald:
Vulva development in *C. elegans*

Dr. Tulle Hazelrigg:
Epigenetic regulation of gene expression in *Drosophila*

Dr. Oliver Hobert:
Genetic programs that control neural development in *C. elegans*

Dr. John Hunt:
Structural biology of transmembrane transport

Dr. Songtao Jia:
Epigenetic regulation of the genome

Dr. Marko Jovanovic:
Regulation of Protein Production Dynamics: RNA Binding Proteins and the Ribosome Code

Dr. Daniel Kalderon:
Hedgehog signaling in *Drosophila* development

Dr. Darcy Kelley:
Neurobiology of vocal communication and sexual differentiation

Dr. James Manley:
mRNA transcription, splicing, and processing

Dr. Ron Prywes:
Growth factor regulation of gene expression

Dr. Ozgur Sahin:
Molecular Biophysical analysis of single molecule interactions

Dr. Brent Stockwell:
Diagramming disease networks with chemical and biological tools
Dr. Simon Tavare:
Statistics: stochastic computation, approximate Bayesian computation, data science, computational biology, statistical bioinformatics

Dr. Saeed Tavazoie:
Principles of cellular adaptation

Dr. Raju Tomer:
Molecular, optical and data analytic methods for multi-scale understanding of complex biological systems

Dr. Liang Tong:
Protein structure of enzymes involved in fatty acid metabolism

Dr. Maria Tosches:
Evolution of cell types and circuits in the vertebrate brain

Dr. Jian Yang:
Structure, function and regulation of ion channels

Dr. Rafael Yuste:
Function of the cortical microcircuit

Chemistry
Dr. Virginia Cornish:
Ribosome biochemistry

Dr. Ruben Gonzalez:
Ribosomal protein synthesis

Dr. Laura Kaufman:
Cancer cell invasion in novel biopolymer gels

Dr. Ann McDermott:
NMR studies of enzyme mechanism and membrane protein structure

Dr. Wei Min:
Imaging of lipid storage and metabolism in C. elegans

Computer Science
Dr. Itsik Pe'er:
Computational methods in human genetics

Psychology
Dr. Don Hood:
Physiological bases of visual processes

Dr. Rae Silver:
Neurobiological basis of circadian rhythms

Dr. Sarah Woolley:
Neural basis and behavior of social communication

Barnard College - Morningside Campus
Biological Sciences
Dr. Jennifer Mansfield:
Genetic programs of axial tissue development

Dr. Jonathan Snow:
How honey bees fight off microbes?
Columbia University – Health Sciences Campus
Biochemistry and Molecular Biophysics

Dr. Joachim Frank:
Cryo-electron microscopy and 3D reconstruction of protein biosynthesis

Dr. Stephen Goff:
Retrovirus replication; tyrosine kinases & signal transduction

Dr. Maxwell Gottesman:
Transcription termination in E. coli and bacteriophage

Dr. Eric Greene:
DNA recombination and repair

Dr. Laura Landweber:
RNA-mediated epigenetics and genome reorganization during development

Dr. Richard Mann:
Homeotic gene function and their downstream targets in Drosophila

Genetics & Development

Dr. Tim Bestor:
The effect of "DNA methylation in sex cells"

Dr. Frank Costantini:
Genetics of mouse kidney development

Dr. Laura Johnston:
Cell cycle control and growth during development

Dr. Rodney Rothstein:
Yeast genetics and cellular responses to DNA damage in cancer

Dr. Mimi Shirasu-Hiza:
The circadian clock’s regulation of immune function in Drosophila

Dr. Gary Struhl:
Drosophila developmental genetics

Medicine

Dr. Donald Landry:
Pathogenesis of vasodilatory shock
**Microbiology and Immunology**

Dr. David Fidock:
*Plasmodium falciparum* malaria parasite biology

Dr. Sankar Ghosh:
Inflammation and immune response

Dr. Christian Schindler:
Cytokine signal transduction and its role in the immune response

**Neuroscience**

Dr. Richard Axel:
Olfaction

Dr. Randy Bruno:
Neuronal networks in the rodent whisker-barrel system

Dr. Christine Denny:
Molecular mechanisms underlying learning and memory

Dr. James Goldman:
Neuron and glial cell fate determination

Dr. Kenneth Miller:
Modeling of brain circuitry, and development

Dr. Serge Przedborski:
Mechanisms in neurodegeneration

Dr. David Sulzer:
Calcium signal in response to NMDA receptor activation in a dopamine neuron axonal growth cone.

**Otolaryngology**

Dr. Gloria Su:
Head & neck carcinoma and pancreatic ductal adenocarcinoma

**Pathology & Cell Biology**

Dr. Asa Abeliovich:
Neurodegeneration and the life cycle of dopamine neurons

Dr. Julie Canman:
Molecular regulation and mechanics of cell division

Dr. Peter Canoll:
Glioma cell migration and proliferation

Dr. Tae-Wan Kim:
Molecular mechanisms in Alzheimer's disease

Dr. Yinghui Mao:
Cell cycle, division and chromosome movement

Dr. Carol Mason:
Axon guidance and synaptogenesis

Dr. Cathy Mendelsohn:
Molecular control of the development of the urogenital system
Dr. Kenneth Olive:
Preclinical therapeutics in genetically engineered mouse models of pancreatic cancer

Dr. Liza Pon:
Role of the actin cytoskeleton

Dr. Alex Rai:
Biomarker discovery and gene expression profiling

Dr. Michael Shelanski:
Role of cytoskeleton, cell cycle machinery, and proteases in neuronal degeneration

Dr. Steven Spitalnik:
Glycoproteins and glycolipids

Dr. Carol Troy:
Molecular mechanisms of neuronal death

Dr. Stephen Tsang:
Retinal degeneration

Dr. Hynek Wichterle:
Human Nervous system development

Dr. Xin Zhang:
Mechanism of cell signaling during eye development

Dr. Shan Zha:
DNA break repair

Pharmacology
Dr. Alice Prince:
Bacterial induction of cytokine signaling in epithelial cells

Dr. Richard Robinson:
Cardiac ion channel function and autonomic signaling cascades

Dr. Steven Siegelbaum:
Ion channel structure and function

Physiology and Cell Biophysics
Dr. Wes Grueber:
Mechanisms of dendritic morphogenesis and patterning

Dr. Ning Qian:
Computational modeling of neural systems and visual psychophysics

Psychiatry
Dr. René Hen:
Neurobiology of learning and memory

Dr. Vincent Ferrera:
Neural basis of selective attention and visually guided behavior

Dr. Matthias Quick:
Molecular events underlying Na+-coupled transport
New York State Psychiatric Institute

Dr. Alex Dranovsky:
Neuro-circuitry of psychiatric disease

Dr. Jay Gingrich:
Genetic dissection of complex signaling pathways in schizophrenia