

## APPROVED SPONSORS LIST FOR BIOL W3500 – Independent Study 2021

### 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. Dana Pe'er:](#)

The function and organization of molecular networks

[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. Ed Laufer:](#)

The role of stem cells and Shh in the adrenal cortex

[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. Shan Zha:](#)

DNA break repair

[Dr. Bin Zheng:](#)

Cancer cell metabolism

### **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<sup>+</sup>-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

[Dr. Holly Moore:](#)

Learned fear and the neuropathology of schizophrenia