

**RUTGERS**  
School of Arts and Sciences

Happy  
Holidays!

Winter 2022

#### IN THIS ISSUE:



**Faculty Spotlight: Bonnie Firestein**  
named an American Institute for  
Medical and Biological Engineering  
(AIMBE) Fellow

## A Message from the Chair

Welcome to the Winter issue of the Department of Cell  
Biology and Neuroscience Newsletter!

This has been an exciting semester for all of us with the return to fully in person classes and research on campus. Students returning to a more complete college experience has been wonderful. We are excited to have the opportunity to share current progress in the department towards our research and teaching missions with you through this newsletter. In this issue of the CBN newsletter, we feature several of our faculty members and include a News Bites section highlighting a few of the outstanding success of our students and faculty. A featured faculty, Dr. Bonnie Firestein is a neuroscientist using cutting edge biomedical and bioengineering research approaches to address recovery of neural circuits following neural injury. We also focus on notable achievements of Dr. Ping Xie as the Grossman Innovation Prize winner and Dr. Peng Jiang's exciting studies on Alzheimer's Disease.

Best wishes for a happy and healthy  
holiday season and a hopeful 2023!

With warm regards,

Mike Kiledjian



**Annual CBN Retreat taking  
place Wednesday January 11th  
2023**

# Faculty Feature

## Dr. Bonnie Firestein, Professor, named American Institute for Medical and Biological Engineering (AIMBE) Fellow.

Dr. Firestein's research centers on the role of guanine metabolism in neuronal development and in recovery after injury. Her research team identified the postsynaptic density protein-95 (PSD-95) interactor cypin (cytosolic PSD-95 interactor; aka guanine deaminase or GDA), a purine metabolic enzyme, as a core regulator of neuronal development that directly interacts with the cytoskeleton and alters its dynamics. Dr. Firestein was nominated, reviewed, and elected by peers and members of the AIMBE College of Fellows for outstanding contributions to the understanding and practice of rebuilding neural circuitry after injury using interdisciplinary biomedical and bioengineering research.

The College of Fellows is comprised of the top two percent of medical and biological engineers in the country. The most accomplished and distinguished engineering and medical school chairs, research directors, professors, innovators, and successful entrepreneurs comprise the College of Fellows. AIMBE Fellows are regularly recognized for their contributions in teaching, research, and innovation. AIMBE Fellows have been awarded the Nobel Prize, the Presidential Medal of Science and the Presidential Medal of Technology and Innovation, and many also are members of the National Academy of Engineering, National Academy of Medicine, and the National Academy of Sciences. AIMBE's mission is to recognize excellence in, and advocate for, the fields of medical and biological engineering to advance society. Since 1991, AIMBE's College of Fellows has led the way for technological growth and advancement in the fields of medical and biological engineering. AIMBE Fellows have helped revolutionize medicine and related fields to enhance and extend the lives of people all over the world. They have successfully advocated for public policies that have enabled researchers and business-makers to further the interests of engineers, teachers, scientists, clinical practitioners, and ultimately, patients. AIMBE Fellows are committed to giving back to the fields of medical and biological engineering through advocacy efforts and public policy initiatives that benefit the scientific community, as well as society at large.

About AIMBE Fellows (Source: <https://aimbe.org/>):

Article by: Sherrie Negrea



**Dr. Ping Xie, has received the 2022 Grossman Innovation Prize for her research aimed at detecting B cell malignancies associated with lymphoma and other blood cancers.**

The prize, awarded by the School of Arts and Sciences and made possible through a gift from Rutgers alumnus Alan Grossman, provides up to \$50,000 over a one-year period to faculty members developing innovative ideas with commercial potential. The support allows SAS researchers to advance their work to the proof-of-concept stage when they would be eligible for venture capital funding and/or spin-off as an independent business. The prize also allows for undergraduate participation in the research.

The Grossman Innovation Prize received eight proposals this year, ranging from an innovative multimedia language learning platform to a novel transgenic insect approach to inhibit malaria in mosquitoes.

Xie and her team are developing new ways to detect malignant B cells that are found in 50% of blood cancers and about 90% of all lymphomas. She noted that existing methods are dependent on the presence of adequate numbers of malignant cells in blood and biopsy samples.

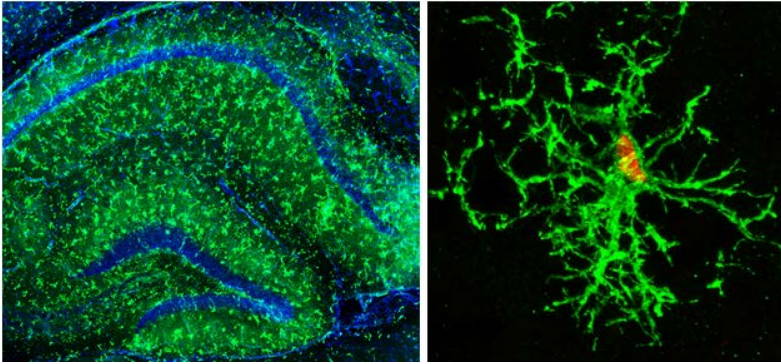
"This may delay the detection and could potentially miss the critical timing needed for effective therapy in patients," she said.

Her approach uses Western blot and ELISA methods—lab techniques used to detect a specific antigen or antibody in a blood or tissue sample, often used for HIV testing. The Xie lab will use those methods to detect bacteria-specific antibodies in blood samples. "Our methods do not require the presence of any malignant B cells in the blood," she said. "Hence, they are more sensitive than the existing approaches and will allow early detection of B cell malignancies as well as potential relapse in patients in remission."

Xie, who earned her Ph.D. from the Hong Kong University of Science and Technology, joined the Rutgers faculty in 2008. Her lab focuses on understanding molecular mechanisms of immune regulation and cancer pathogenesis.

Written by John Chadwick

## A novel study involving human brain cells grown in mice provides insight that could lead to potential therapy



Dr. Peng Jiang worked with his team and collaborators to publish a novel study involving how human brain cells grown in mice provides insight that could lead to potential therapy in Alzheimer's.

### Image Descriptions:

The image on the left shows that in the chimeric mouse brain, the hippocampus, a brain region highly associated with learning and memory functions, is nearly completely populated by implanted human stem cell-derived microglia. The image on the right gives a closer look at the human stem cell-derived microglia grown in mouse brain.

By Kaitta MacPherson. Full article, [here](#)

## CBN News Bites

- The W. M. Keck Center for Collaborative Neuroscience continues its unique and outstanding reputation for providing undergraduate students with hands-on research experience. Setting another record, the Center's ten faculty members are working directly with 62 undergraduate students. This is in addition to teaching responsibilities. Because of this dedication, the Keck Center has an excellent record of students being admitted to medical and graduateschool.
- Rafiq Huda received the NARSAD Young Investiagtor Award
- Graduate student Diego Prado de Maio, working in the Covey Lab, received the Victor Stollar Award, to understand how manipulating the stability of the RNA coding for CD40L can affect the development of an autoimmune response.
- Post-doc Mark Gradwell in Dr. Victoria Abraira's lab received a New Jersey Spinal Cord Fellowship
- Grad student Nydia Chang in Dr. Brian Daniels lab received an NIH Fellowship to study the roles for astrocytic RIPK3 signaling in Parkinson's disease pathogenesis
- Grad student Jennifer Jiang in the Dai lab received the Microscopy and Microanalysis Raleigh and Clara Miller Memorial Scholarship as well as the Rutgers Institute for Quantitative Biomedicine Inclusive Leadership Award
- Grad Student Keith Lange in the Firestein lab received the Rutgers NIH Training Prog. Biotechnology grant fellowship

COVER PAGE: PHOTO CREDIT MARGOLIS LAB BRANDEN SANABRIA; SPINY PROJECTION NEURON IN STRIATUM WITH SENSORY AND MOTOR INPUTS SYNAPSING INTO GREEN AND RED

## Support the CBN Awards Fund

With the holidays approaching and the season of gift giving upon us, we hope you will consider a gift to the **CBN Awards Fund**. Celebrate the holiday season by investing in our students, who are the future leaders of tomorrow! Your gift will help to recognize our outstanding students, support them in their research and educational endeavors, and fund leading biomedical research accomplishments. Every gift goes a long way. Click on the link below to give now.

*Best wishes for a happy and healthy holiday from the Department of Cell Biology and Neuroscience!*



| [Click here to give to CBN](#)





## **Our Annual Departmental CBN Retreat will take place Wednesday January 11th 2023 at the Busch Student Center MPR**

- The CBN Department will be hosting it's first annual retreat since the pandemic.
- We will hear talks from our own faculty, our newly hired faculty member, Dr. Santiago Cuesta, and Qi Yang a professor in the CHINJ Department of Pediatrics
- We will hear speed talks from post-docs, graduate students, and undergraduate students within the department.
- Any alumni wishing to attend please contact [ferretti@dls.rutgers.edu](mailto:ferretti@dls.rutgers.edu)



# RUTGERS

School of Arts and Sciences

Department of Cell Biology and Neuroscience  
Rutgers, The State University of New Jersey  
(p) 848-445-9532  
(f) 732-445-1794  
[cbn.rutgers.edu](http://cbn.rutgers.edu)

