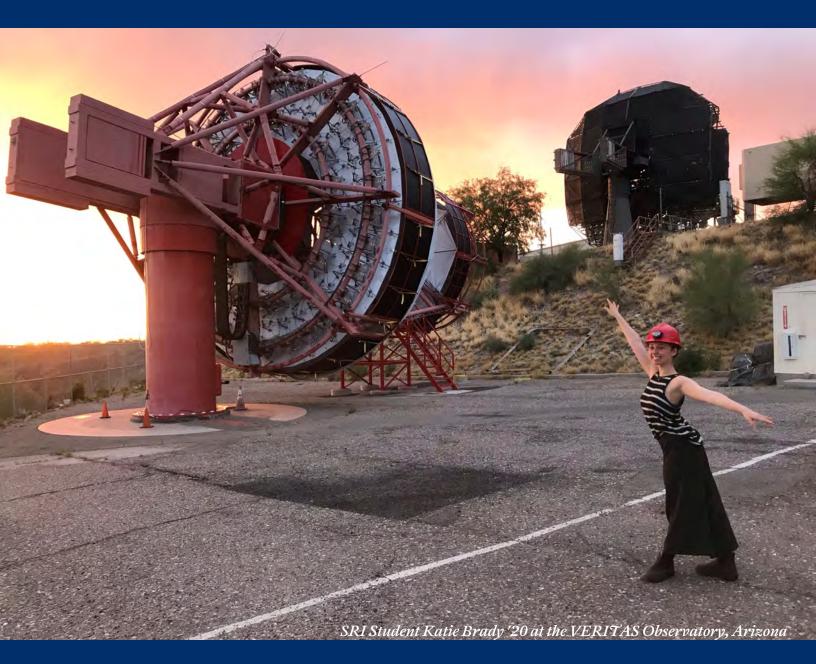


# LIDA ORZECK '68 SUMMER RESEARCH INSTITUTE POSTER SESSION



July 31, 2019
DIANA CENTER: EVENT OVAL & GLICKER MILSTEIN THEATRE

barnard.edu/summer-research-institute

# The Lida Orzeck '68 Summer Research Institute Poster Session



We offer our sincere gratitude to Lida Orzeck '68, whose commitment to students and scholarship at Barnard serves as a model for our community. In honor of her support of the College, this annual gathering of SRI participants is now named The Lida Orzeck '68 Summer Research Institute Poster Session.

## The Summer Research Institute gratefully acknowledges the invaluable support of the following foundations, corporations, institutions, and individuals:

American Chemical Society Petroleum Research Fund

**Amgen Foundation** 

Andrew W. Mellon Foundation

Barnard Teaches: Real Places + Digital Access Mellon Fund for Enhancing the Sciences at Barnard

Arnold and Mabel Beckman Foundation

Bernice G. Segal Summer Research Internships Fund

Class of '59 Science Internship Fund

Con Edison

The Donald and Nancy Ritchie Fund

**Environmental Science Student Research Fund** 

The Henry Luce Foundation

Kaplan Professorship

The Lamont-Doherty Earth Observatory Internship Program

The Lida Orzeck '68 Summer Research Institute Fund

Maura Shannon Barrett '83 Internship Fund

National Aeronautics and Space Administration (NASA) National Space Grant College & Fellowship Program

The National Institutes of Health (NIH)

The Eunice Kennedy Shriver National Institute of Child Health and Human Development

The National Institute of General Medical Sciences

The National Institute of Mental Health

The National Institute on Deafness and Other Communication Disorders

National Science Foundation (NSF)

Directorate for Biological Sciences

Directorate for Computer & Information Science & Engineering

Directorate for Mathematical & Physical Sciences

Directorate for Social, Behavioral & Economic Sciences

New York Stem Cell Institute

Project Apis m.

Sally Chapman Fund

Sherman Fairchild Foundation

Sibyl R. Golden and the Golden Family Foundation

Summer Undergraduate Research Fellowship (SURF)

Alicia Lawrence

Tri-Institutional Therapeutics Discovery Institute

United States Department of Agriculture (USDA) - National Institute of Food and Agriculture

We are grateful for the leadership of President Sian Leah Beilock and Provost Linda Bell, for their recognition of the importance of the Summer Research Institute to Barnard, and for their advocacy and support.

## Within the Barnard Community, staff in the following areas deserve recognition for their important contributions to the Summer Research Institute:

Office of the President Beyond Barnard The Barnard Library

Office of the Provost Empirical Reasoning Center Finance
Office of the Dean of Studies Barnard Dining Payroll

Residential Life & Housing Alumnae Relations & Development The Writing Fellows

#### Special thanks to the following individuals:

Dallas Abbott Fileen A-J Aronstein DiBenedetto Joanna Baker Nanette DiLauro Madeline Camacho Allie Fmmerich Michael Campbell Natalie Friedman Amanda Gates-Maggie Carino-Ganias Elston Leslie Cawley Jemima Gedeon Pam Cobrin John Glendinning Lois Coleman Mark Godwin Robert Goldberg Jeff Colford Catherine Cook Jane Holmes Heide Crespo Aaron Kinard **Andrew Crowther** Matt Kingston

Jennifer Lech
Terryanne MaenzaGmelch
Brian Mailloux
Jennifer Mansfield
Kate Martinez
Koleen McCrink
Reshmi Mukherjee
Marco Medina
Vani Natarajan
Sophie Nettesheim
Jill Pasewark
Hilary Purrington

Denis Riker

Jessica RoblesMorales
Alisa Rod
Christian Rojas
Briana Roman
Bruce Ross
Alex Shen
Jon Snow
Kari Steeves
Martin Stute
Elizabeth Tam
Carolina Tamara
Victoria Toro
Pamela Tuffley

Molree Williams-Lendor Dorothy Weaver David Weiman Hope Williams Eric Wong Nikki Youngblood-Giles

# SUMMER RESEARCH INSTITUTE

#### **SRI & STEM at Barnard**

35% of students major in a STEM field. SRI has become a central research experience for Barnard STEM students.



"The Summer Research Institute celebrates Barnard's singular scientific community. In 10 weeks, it distills the best of student and faculty work in STEM fields."

**Sian Leah Beilock** President, Barnard College

650+

students have participated in SRI since the inaugural cohort in 2014.





"The SRI epitomizes Barnard's deep commitment to advancing research excellence in STEM fields."

# **Linda Bell**Provost Dean of the Faculty

Claire Tow Professor of Economics

65K

**Hours** 

Time spent in the lab by students in the 2019 SRI cohort. 187

**Students** 

The 2019 SRI is the largest in the program's history. 50%

**Alumnae** 

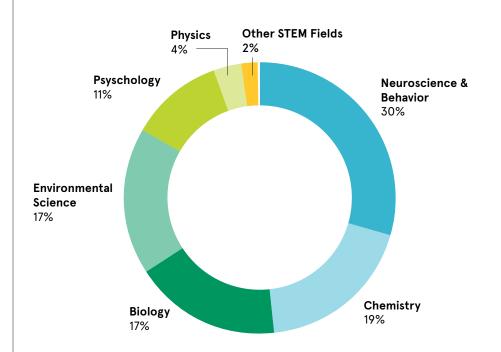
SRI Participants (2015-17) who proceeded to grad school. \$1M

**Funding** 

Per year in student research stipends.



**An Interdisciplinary Community:** Students across majors and subfields participate in the Summer Research Institute.



2019 by Class Year Rising Sophomores 40

Rising Juniors 66

Rising Seniors 81

Total Students 187

**33**Barnard Faculty
Mentors (2019)

**88**External Mentors (2019)

### Mentorship

One-on-one faculty mentorship gives students the opportunity participate directly in groundbreaking research. The distinctive relationship with a mentor at Barnard, and at institutions around New York City, is at the heart of the SRI experience.











2014

2015

2016

The Provost and faculty develop the Summer Research Institute. John Glendinning and Christian Rojas serve as inaugural Faculty Co-Directors. Thanks to the support of a major three-year grant, SRI grows to 140 participants in just its second summer.

20% of the 2016 cohort identifies as a first-generation student.
One-fifth of all SRI participants since 2014 have been first-generation.









2017

2018

2019

In part thanks to programs like the Science Pathways Scholars Program (SP)<sup>2</sup>, SRI has become a significant pipeline for underrepresented minority (URM) students into STEM fields. In 2017, 20% of SRI students are URM.

Workshops and supportive resources continue to be important to the interdisciplinary community of SRI. Seventy-five students and 11 alumnae attend the annual SRI Careers in STEM dinner.

In 2019, Lida Orzeck '68 endows the SRI Poster Session, representing a substantial demonstration of support for the continuation of SRI.

#### FROM THE PROVOST

Dear Students and SRI Faculty Colleagues,

I offer my warm congratulations on the occasion of the Lida Orzeck '68 Summer Research Poster Session. With 187 participants in SRI this year, we have once again surpassed our previous record for the size and breadth of this important program.

This year, I am especially grateful for the support of Lida Orzeck '68, who is a proud alumna, an avid supporter of students and research, and a dear friend of the College. It could not be more exciting to name this annual Poster Session in honor of Lida's multiple contributions and her generosity to Barnard. I offer my sincere thanks on behalf of the Summer Research Institute and the entire community.

To the students, I am continually impressed by your intelligence and drive, and your commitment to research and scholarship. Every day that you spend in the lab — every incremental step toward new knowledge — is important. It represents progress in your journey as a scientist, no matter where that journey ultimately takes you. As you reflect on your summer, I hope you are gratified with all that you have accomplished in the lab, but also with the ways you have grown as a thinker and as an individual.

The Summer Research Institute simply could not happen without the dedication of many faculty members. Across institutions and disciplines, the strong mentorship of Barnard students makes this program one of the College's most important research experiences. Thank you to all participating faculty for sharing your scholarship and for your tireless support of our students.

Given that 800 Barnard students major in STEM fields, perhaps it is unsurprising that the SRI continues to grow. The fact that it remains a tightly woven interdisciplinary community of undergraduate scholars stands as a testament to the faculty leadership of our co-directors, Martin Stute and Koleen McCrink. It also speaks to the work of faculty and staff across Barnard's campus, who advise students, plan supportive programs, facilitate housing, cater lunch workshops and alumnae dinners, cut checks on time, and much more. In this respect, today is a worthy celebration of a summer's worth of hard work, because it brings together so many of the individuals who make the SRI possible.

The SRI continues to encourage Barnard students to pursue meaningful scientific research, adding to their confidence and success in pursuing advanced degrees and science-related careers. We are excited to see what you will do next.

Congratulations to all on a terrific summer.

My very best,

Linda A. Bell

Provost and Dean of Faculty
Claire Tow Professor of Economics

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Barnard College

#### FROM THE CO-DIRECTORS OF THE SUMMER RESEARCH INSTITUTE

Dear Students, Faculty, Research Mentors, and Guests,

It has been a great pleasure to direct the Summer Research Institute this year. We would like to thank Barnard's Offices of the President and Provost for their support, and extend our gratitude to the many foundations, institutions, and individuals that allowed us to expand the program to an unprecedented level. We echo Provost Bell in recognizing Lida Orzeck '68, for whose exceptional generosity to SRI and the College we express our deepest thanks.

This year, we were able to support every student in the sciences who applied to the SRI, and had identified a research mentor and project. This program would not have been possible without the indefatigable commitment of research mentors from Barnard, Columbia University, and beyond. We both have SRI students working in our lab, so we know what it takes to pull off a successful summer research project; science is inherently unpredictable, and almost nothing works exactly as planned. So-thank you for shepherding our promising students through this journey.

We would like to acknowledge the hard work of our wonderful team of departmental SRI representatives (Elizabeth Bauer, Andrew Crowther, Brian Mailloux, Reshmi Mukherjee and Jon Snow), the Library, and the **Empirical Reasoning Center.** 

We also want to thank the extraordinary staff of Beyond Barnard (especially A-J Aronstein, Briana Roman, and Jennifer Lech) who did so much of the day-to-day work to ensure the program ran as smoothly as possible. Many thanks to Jane Holmes, Leslie Cawley, and Dorothy Weaver for their essential contributions to the SRI Committee. They are part of an even wider community of staff across Barnard who collaborate to make this program possible.

Last, but not least, we would like to thank the outstanding Barnard students for their enthusiasm and resourcefulness. We hope that, for each of you, Barnard's Summer Research Institute has provided you with an opportunity to deepen and expand your scientific horizons and future work in the field.

Sincerely,

Koleen McCrink

Co-Director, Summer Research Institute

Associate Professor of Psychology

Martin Stute

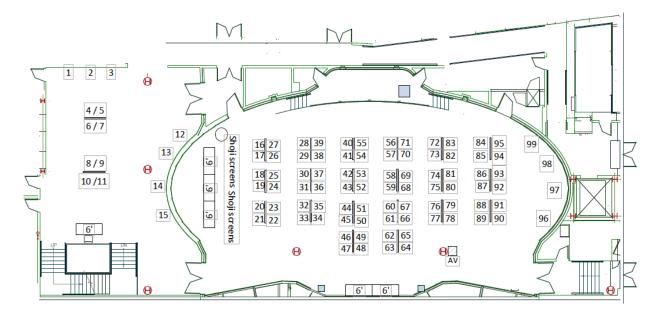
Co-Director, Summer Research Institute Professor of Environmental Science

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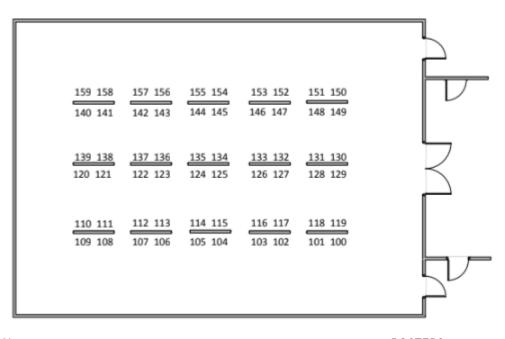
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**Department:** Physics & Astronomy

**Poster Title:** "SpeX Spectroscopy of Unresolved Variable Brown Dwarf Candidates"

Mentor: Daniella Bardalez Gagliuffi, Kalbfleisch Postdoctoral Research Fellow, Dept. of Astrophysics, American Museum of Natural

History

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Author(s): Katie Brady
Department: Physics & Astronomy

Poster Title: "An Application for the Next Generation of Gamma-Ray Telescopes"

Mentor: Reshmi Mukherjee, Helen Goodhart Altschul Professor, Dept. of Physics & Astronomy, Barnard College

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Author(s): Margo Collins

Department: Physics & Astronomy

Poster Title: "Locating Black Hole-Black Hole Collisions"

Mentor: Frederik Paerels, Professor & Director of Undergraduate Studies, Dept. of Astronomy, Columbia University

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Author(s): Alexis Demirjian
Department: Physics & Astronomy

Poster Title: "Globular Cluster Stellar Streams in the Andromeda Galaxy"

Mentor: Sarah Pearson, Flatiron Research Fellow, Center for Computational Astrophysics, Flatiron Institute

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Author(s): Hayes Devaney
Department: Physics & Astronomy

Poster Title: "Planet Habitability and Binary Star Systems: An Orbital Study"

Mentor: Caleb Scharf, Research Scientist & Associate Professor, Director of Astrobiology, Dept. of Astronomy, Columbia University

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Author(s): Ilana Doran

Department: Physics & Astronomy

Poster Title: "Analyzing Element Abundances in Solar Twin Stars"

Mentor: Megan Bedell, Flatiron Research Fellow, Center for Computational Astrophysics, Flatiron Institute

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Author(s): Rand Hidayah, Winnie Chan, Mohit Relhan, and Sunil Agrawal

**Department:** Physics & Astronomy

Poster Title: "Comparison of Compliant and Rigid Orthotic Designs in a Cable-driven Active Leg Exoskeleton"

Mentor: Sunil Agrawal, Professor of Mechanical Engineering & Professor of Rehabilitation & Regenerative Medicine, Dept. of

Mechanical Engineering, Fu Foundation School of Engineering & Applied Sciences, Columbia University

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Author(s): Gwendolyn LaPlante
Department: Physics & Astronomy

Poster Title: "Spectral Extrapolation and Distance Distribution of High-Energy Blazars"

Mentor: Reshmi Mukherjee, Helen Goodhart Altschul Professor, Dept. of Physics & Astronomy, Barnard College

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Author(s): Iris Liu

**Department:** Physics & Astronomy

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Mentor: Suzana Camargo, Research Professor, Ocean & Climate Physics, Lamont-Doherty Earth Observatory, Columbia University
Mentor 2: Adam Sobel, Professor, Dept. of Applied Physics & Applied Mathematics and Dept. of Earth & Environmental Sciences, Fu

Foundation School of Engineering, Columbia University and Ocean & Climate Physics, Lamont-Doherty Earth Observatory,

Columbia University

Author(s): Lindsay Long
Department: Physics & Astronomy

Poster Title: "A Look Into Lithium Rich Stars"

Mentor: Melissa Ness, Assistant Professor, Dept. of Astronomy, Columbia University

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Author(s): Camilla Lyczko, Cecilia Vega Orozco

**Department:** Physics & Astronomy

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Author(s): Pazit Rabinowitz

Department: Physics & Astronomy

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Author(s): Marni Rosenthal, David Schiminovich

**Department:** Physics & Astronomy

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Mentor: David Schiminovich, Professor, Dept. of Astronomy, Columbia University

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Author(s): Julie Seager, Emily Cai
Department: Physics & Astronomy

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Mentor: Rajiv Sethi, Professor & Chair, Dept. of Economics, Barnard College

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Author(s): Teresa Tseng
Department: Physics & Astronomy

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Mentor: Steven Bellovin, Percy K. & Vida L.W. Hudson Professor, Dept. of Computer Science, Fu Foundation School of Engineering

& Applied Sciences, Columbia University

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Author(s): Simone P. Advaney

Department: Biology

Poster Title: "Auriculotherapy for Pain Management during First Trimester Abortions"

Mentor: Johana D. Oviedo, Fellow, Division of Family Planning and Preventive Services, Dept. of Obstetrics & Gynecology, Columbia

University Irving Medical Center

Mentor 2: Carolyn L. Westhoff, Chief, Division of Family Planning and Preventive Services, Dept. of Obstetrics & Gynecology,

Columbia University Irving Medical Center

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Department: Biology

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**Department:** Biology

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Author(s): Stephanie Calluori, Rebecca Stark, Joshua Barber, and Brandon L. Pearson

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Mentor: Pranay Dogra, Postdoctoral Fellow, Dept. of Microbiology & Immunology, Columbia Center for Translational Immunology,

Columbia University Irving Medical Center

Mentor 2: Donna Farber, Professor, Dept. of Microbiology & Immunology, Columbia Center for Translational Immunology, Columbia

University Irving Medical Center

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Author(s): Rachel Cho
Department: Biology

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Author(s): A. Čupić, T. Kehrer, F. di Domenico, A. García-Sastre, L. Miorin

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Author(s): Tasneem Ebrahim, Justin T. Gunesch, Emily M. Mace

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Emily M. Mace, Assistant Professor, Dept. of Pediatrics, Columbia University Vagelos College of Physicians and Surgeons Mentor:

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Author(s): Talia Feingold

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Lance Kam, Professor, Dept. of Biomedical Engineering, Fu Foundation School of Engineering & Applied Sciences, Mentor:

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Author(s). Tova Finkelstein, Abigail Ryckman, Miriam Holzman, Jennifer Mansfield

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Mentor: Jennifer Mansfield, Associate Professor, Dept. of Biology, Barnard College

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Author(s): Shaila Fye, Ruben Calderon, Kismet Sheldon Collins, Maria Trifas, Kelley Yan

Department:

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Mentor: Kelley Yan, Dorothy L. & Daniel H. Silberberg Assistant Professor of Medicine, Columbia Center for Human Development,

Dept. of Medicine, Division of Digestive & Liver Diseases, Dept. of Genetics & Development, Columbia University Irving

**Medical Center** 

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Author(s). **Abigail Gutierrez** Department: Biology

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Author(s): Khadija Hanif, Manu Ben-Johny, Johanna Diaz

Department: Biology

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Manu Ben-Johny, Principal Investigator, Dept. of Physiology & Cellular Biophysics, Columbia University Irving Medical

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Author(s): **Emily Huntsman** 

Department: **Biology** 

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Author(s): Maite Ibáñez de Garayo

Department:

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Author(s): Khakima Khalizova, Dr. Juhee Pae, Dr. Gabriel Victora

Department: Biology

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Mentor: Gabriel Victora, Assistant Professor, Dept. of Immunology, Rockefeller University

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Author(s): lasha Khan, David Owens

**Department:** Biology

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Mentor: David Owens, Associate Professor, Dept. of Dermatology, Columbia University Irving Medical Center

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Author(s): Tian-Yi Li
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Mentor: Pagant Silvere, Postdoctoral Resarch Scientist, Dept. of Biological Sciences, Columbia University

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Author(s): Meiqi Lin
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Author(s): Swati Madankumar, Dan Filipescu, Emily Bernstein

**Department:** Biology

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Author(s): Livia Martinez, Samantha Frangos, Dr. Dennis Wm. Stevenson

Department: Biology

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Mentor: Dennis Wm. Stevenson, Vice President, Cullman Senior Curator, Plant Research Laboratory, New York Botanical Garden

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Author(s): Ana-Maria Rodriguez Cuadrado, Alison Pischedda

**Department:** Biology

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Cardiology, Columbia University Irving Medical Center

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Author(s): Aisha Saleem
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Author(s): Alice Sardarian, Sophia Liu

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Author(s): Kyra Schindler, Andrea Pérez González, Jacqueline Hebner, Ilya Kruglikov, Hector Martínez, Laura Andrés Martín

**Department:** Biology

Poster Title: "Optimizing Conditions to Generate iPSC-Derived Cardiomyocytes with High Efficiency"

Mentor: Laura Andrés-Martín, Senior Principal Scientist, Dept. of Oncology (Women's Reproductive Cancers), New York Stem Cell

Foundation Research Institute

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Author(s): Abigail Schreier, Gregory Youdan Jr., Alissa Pacheco, Oren Levy, Lori Quinn

Department: Biology

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Mentor: Lori Quinn, Associate Professor, Dept. of Biobehavioral Sciences, Teachers College, Columbia University

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Author(s): Eva Schwartz, Leticia V.R. Franco, Alexander Tzagoloff

**Department:** Biology

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Mentor: Leticia V.R. Franco, Postdoc, Dept. of Biological Sciences, Columbia University

Mentor 2: Chen-Hsien Su, Lab Manager, Dept. of Biological Sciences, Columbia University

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Author(s): Samantha Shih

**Department:** Biology

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Author(s): Chelsea Sinclair

Department: Neuroscience & Behavior

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Author(s): Nina Tang
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Author(s): Isabella Villa Real Seabra

Department: Biology

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Author(s): Kayla Warner, Samantha Frangos, Dennis Wm. Stevenson

**Department:** Biology

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Mentor: Dennis Wm. Stevenson, Vice President, Cullman Senior Curator, Plant Research Laboratory, New York Botanical Garden

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Author(s): Vivian Zhao
Department: Biology

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Mentor: Apporva Sastry, Lab Technician, Dept. of Biomedical Engineering, Fu Foundation School of Engineering & Applied Sciences,

Columbia University

Mentor 2: Siddarth Arumugam, Doctoral Candidate, Dept. of Biomedical Engineering, Fu Foundation School of Engineering & Applied

Sciences, Columbia University

#### Department of Chemistry

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Author(s): Erika Amemiya, Daniel Shlian, Gerard Parkin

Department: Chemistry

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Mentor: Gerard Parkin, Professor, Dept. of Chemistry, Columbia University

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Author(s): Ana Beatriz Bonfim

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Mentor: Michael G. Campbell, Assistant Professor, Dept. of Chemistry, Barnard College

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Author(s): Pia Chakravarty, Kamila Kydykova

Department: Chemistry

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Mentor: Rachel Narehood Austin, Diana T. & P. Roy Vagelos Professor & Chair, Dept. of Chemistry, Barnard College

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Author(s): Vanessa Marie Chirino

**Department:** Chemistry

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Mentor: Scott Banta, Professor, Dept. of Chemical Engineering, Columbia University

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Author(s): Tasneem Elkoush

**Department:** Chemistry

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Author(s): Isabelle Eshraghi, Elisa Zuccarello, Jole Fiorito, Shi-Xian Deng, Donald Landry, and Ottavio Arancio

Department: Chemistry

Poster Title: "Design and Synthesis of New HAT Activators Optimized for Alzheimer's Disease"

Mentor: Elisa Zuccarello, Postdoctoral Research Scientist, Dept. of Chemistry, Taub Institute for Research on Alzheimer's Disease

and the Aging Brain, Columbia University Irving Medical Center

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Author(s): Sapir Flank
Department: Chemistry

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Mentor: Subhasish Chatterjee, Assistant Professor, Dept. of Chemistry, Barnard College

P 61

Author(s): Allison Forsberg, Meg Robinson

**Department:** Chemistry

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Mentor: Rachel Narehood Austin, Diana T. & P. Roy Vagelos Professor & Chair, Dept. of Chemistry, Barnard College

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Author(s): Taryn Gates, Adriana Rizzo, Peter Bower

**Department:** Biology

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Mentor: Adriana Rizzo, Research Scientist, Dept. Conservation & Scientific Research, Metropolitan Museum of Art

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Author(s): Katharine Kayla Glaser, Julia Korobenko

**Department:** Chemistry

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Mentor: Richard Hite, Assistant Professor, Structural Biology Program, Memorial Sloan Kettering Cancer Center

Author(s): Alaina Hartnett, Avalon Dismukes

**Department:** Chemistry

**Poster Title:** "Post Synthetic Modification of 2D Monolayer Materials"

Mentor: Xavier Roy, Associate Professor, Dept. of Chemistry, Columbia University and Barnard College

Mentor 2: Andrew Crowther, Assistant Professor, Dept. of Chemistry, Columbia University and Barnard College

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Author(s): Isabel Hernandez, Shreya Doshi, Clair Bennett, Brian Fallon

Department: Chemistry

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Mentor: Brian A. Fallon, Professor, Director of the Center for Neuroinflammatory Disorders & Biobehavioral Medicine, and Director

of the Lyme & Tick-Borne Diseases Research Center, Dept. of Psychiatry, Columbia University Irving Medical Center

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Author(s): Maya Jodidio Department: Chemistry

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Mentor: Rachel Narehood Austin, Diana T. & P. Roy Vagelos Professor & Chair, Dept. of Chemistry, Barnard College

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Author(s): Christina Juste, Liz Irvin

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Experiments

Mentor: Rachel Narehood Austin, Diana T. & P. Roy Vagelos Professor & Chair, Dept. of Chemistry, Barnard College

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Author(s): Amanda Klestzick, Maya Landis

**Department:** Chemistry

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Mentor: Christina Vizcarra, Assistant Professor, Dept. of Chemistry, Barnard College

Mentor 2: Christian Rojas, Professor, Dept. of Chemistry, Barnard College

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Author(s): Emily Latif, Anoosha Banerjee

**Department:** Chemistry

**Poster Title:** "Synthesis of a Diverse Array of 3D-Specific Nitrogen-Containing Sugars"

Mentor: Christian Rojas, Professor, Dept. of Chemistry, Barnard College

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Author(s): Dominique Macaluso

**Department:** Chemistry

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Mentor: Susan Pannullo, Director of Neuro-oncology and Director of Neurosurgical Radiosurgery, Dept. of Neurological Surgery and

Dept. of Biomedical Engineering, Weill Cornell Medical Center

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Author(s): Alison Milano, Mehrose Ahmad

**Department:** Chemistry

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Mentor: Rachel Narehood Austin, Diana T. & P. Roy Vagelos Professor & Chair, Dept. of Chemistry, Barnard College

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Author(s): Jenifer Marie Moralez, Yeliz Jina Sezgin

**Department:** Chemistry

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Mentor: Rachel Narehood Austin, Diana T. & P. Roy Vagelos Professor & Chair, Dept. of Chemistry, Barnard College

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Author(s): Aisha Oza, Wendy Xie, Natalie Saenz, Brandon McMurtry, Jonathan Owen, and Andrew Crowther

Department: Chemistry

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Mentor: Andrew Crowther, Assistant Professor, Dept. of Chemistry, Barnard College

Author(s): Sanjana K. Rana, Emily Orman

Department: Chemistry

Poster Title: "Rotational Energy Barrier Calculations of Diphenylketoalkenes"

Mentor: Dina C. Merrer, Professor, Dept. of Chemistry, Barnard College

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Author(s): Natasha Reich
Department: Chemistry

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Mentor: Michael G. Campbell, Assistant Professor, Dept. of Chemistry, Barnard College

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Author(s): Dana Ross, Hannah Christianson, Angela Montero

Department: Chemistry

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Mentor: Christina Vizcarra, Assistant Professor, Dept. of Chemistry, Barnard College

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Author(s): Janine Sempel, Nicole Townsend, Lauren Babb, Akbar Mahdavi Shakib

**Department:** Chemistry

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Author(s): Sam Simpson, Olivia Gong, Chenxi Lin

Department: Chemistry

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Mentor: Dina C. Merrer, Professor, Dept. of Chemistry, Barnard College

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Author(s): Tuesday Smith, Adriana Rizzo

Department: Chemistry

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Mentor: Peter Bower, Senior Lecturer, Dept. of Environmental Science, Barnard College

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Author(s): Nicole Townsend, Janine Sempel, Lauren Babb, Akbar Mahdavi Shakib, Rachel Narehood Austin

**Department:** Chemistry

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Oxidations"

Mentor: Akbar Mahdavi Shakib, Postdoctoral Researcher, Dept. of Chemistry, Barnard College

Mentor 2: Rachel Narehood Austin, Diana T. & P. Roy Vagelos Professor & Chair, Dept. of Chemistry, Barnard College

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Author(s): Nobuyo Watanabe, Natalie Williams, Stephanie McCartney, Ngai Yin Yip

**Department:** Chemistry

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Mentor: Ngai Yin Yip, Assistant Professor, Dept. of Earth & Environmental Engineering, Fu Foundation School of Engineering &

Applied Sciences, Columbia University

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Author(s): Shoshana C. Williams

**Department:** Chemistry

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Mentor: Rachel Narehood Austin, Diana T. & P. Roy Vagelos Professor & Chair, Dept. of Chemistry, Barnard College

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Author(s): Wendy Xie, Aisha Oza, Brandon McMurtry, Jonathan Owen, Andrew Crowther

Department: Chemistry

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Mentor: Andrew Crowther, Assistant Professor, Dept. of Chemistry, Barnard College

#### Department of Environmental Science

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Author(s) Devon Bernsley
Department: Environmental Science

Mentor: Matthew Palmer, Senior Lecturer, Dept. of Ecology, Evolution, and Environmental Biology, Columbia University

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Author(s): Margaret Calcio

Department: Environmental Science

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Mentor: Jonathan Nichols, Lamont Associate Research Professor, Division of Biology & Paleo Environment, Lamont-Doherty Earth

Observatory, Columbia University

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Author(s): Casey Davis, Tony Feric, Guanhe Rim

**Department:** Environmental Science

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Mentor: Ah-Hyung Alissa Park, Lenfest Junior Professor in Applied Climate Science, Dept. of Chemical Engineering and Dept. of

Environmental Engineering, Fu Foundation School of Engineering & Applied Sciences, Columbia University

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Author(s): Clara Fernandez Odell
Department: Environmental Science

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Mentor: Peter Bower, Senior Lecturer, Dept. of Environmental Science, Barnard College

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Author(s): Vivian Klotz

**Department:** Environmental Science

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Mentor: Ajit Subramaniam, Lamont Research Professor, Division of Biology & Paleo Environment, Lamont-Doherty Earth

Observatory, Columbia University

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Author(s): Ella Komita-Mousa, Madeline Miley

Department: Environmental Science
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Mentor: Brian Mailloux, Professor, Dept. of Environmental Science, Barnard College

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Author(s): Alana Masciana
Department: Environmental Science

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Mentor: Martin Stute, Alena Weis Hirschorn '58 & Martin Hirschorn Professor in Environmental & Applied Sciences and Co-Chair,

Dept. of Environmental Science, Barnard College

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Author(s): Emma Palmer

Department: Environmental Science

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Mentor: Peter Bower, Senior Lecturer, Dept. of Environmental Science, Barnard College

Mentor 2: Bill Schuster, Executive Director, Black Rock Forest Consortium

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Author(s): Grace Palmer

Department: Environmental Science

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Mentor: Peter Bower, Senior Lecturer, Dept. of Environmental Science

Mentor 2: Bill Schuster, Executive Director, Black Rock Forest Consortium

Author(s): **Batoul Saad** Department: **Environmental Science** 

Poster Title: "Understanding Climate Conditions In The Western Indonesian Sea Over The Past 25 Years"

Mentor: Nathalie Goodkin, Assistant Curator, Dept. of Earth & Planetary Sciences, American Museum of Natural History

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Author(s): **Molly Shapiro** Department: **Environmental Science** 

Poster Title: "Argon and Nitrogen as proxy measurements of decreasing rates of Deep-Ocean Circulation"

Mentor: Martin Stute, Alena Weis Hirschorn '58 & Martin Hirschorn Professor in Environmental & Applied Sciences and Co-Chair,

Dept. of Environmental Science, Barnard College

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Author(s): Cyarra Tate

Department: **Environmental Science** 

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Mentor: Jerry McManus, Professor, Division of Geochemistry, Lamont-Doherty Earth Observatory, Columbia University

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Sophie Billinge Author(s): Department: **Environmental Science** 

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Dept. of Environmental Science, Barnard College

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Author(s): Kelcey Logan

Department: **Environmental Science** 

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Mike Kaplan, Lamont Associate Research Professor, Division of Geochemistry, Lamont-Doherty Earth Observatory,

Columbia University

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Author(s): Katharine Scanlan, Sarah Blau Department: **Environmental Science** 

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Mentor: Brian Mailloux, Professor, Dept. of Environmental Science, Barnard College

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Author(s): **Emily Symonds** Department: **Environmental Science** 

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Mentor: Steven Chillrud, Lamont Research Professor, Division of Geochemistry, Lamont-Doherty Earth Observatory, Columbia

University

#### Program in Neuroscience & Behavior

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Author(s): Caroline Alexander

Department: Neuroscience & Behavior

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Mentor: Suzette M. Evans, Professor of Clinical Neuroscience, Dept. of Psychiatry, Columbia University Irving Medical Center

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Author(s): Sophia Howard, Rachel Nordlicht, Elizabeth Bier, Louise Urien, Elizabeth P. Bauer

**Department:** Neuroscience & Behavior

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Mentor: Elizabeth P. Bauer, Associate Professor, Dept. of Biology, Barnard College

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Author(s): Elizabeth Bier, Sophia Howard, Rachel Nordlicht, Louise Urien, Elizabeth P. Bauer

**Department:** Neuroscience & Behavior

Poster Title: "Fear expression modulates activity in the ventral subiculum-BNST pathway"

Mentor: Elizabeth P. Bauer, Associate Professor, Dept. of Biology, Barnard College

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Author(s): Diana Bok

**Department:** Neuroscience & Behavior

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Mentor: Nigel W. Bunnett, Professor, Dept. of Surgery, Columbia University Irving Medical Center

Mentor 2: Dane Jensen, Assistant Professor, Dept. of Surgery, Columbia University Irving Medical Center

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Author(s): Saani Borge, Natalia Queenan
Department: Neuroscience & Behavior

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Mentor: Vincent Ferrera, Professor of Neuroscience (in Psychiatry), Dept. of Neuroscience, Zuckerman Institute, Columbia

University

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Author(s):

Yvette Carbajal

**Department:** Neuroscience & Behavior

Poster Title: "Regional specializations of vasopressin neurons in the SCN"

Mentor: Rae Silver, Helene L. & Mark N. Kaplan Professor of Natural & Physical Sciences, Dept. of Psychology, Program in

Neuroscience & Behavior, Barnard College

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Author(s): Samantha Chong
Department: Neuroscience & Behavior

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Mentor: Sandra D. Comer, Professor of Neurobiology, Dept. of Psychiatry, New York State Psychiatric Institute, Columbia University

Irving Medical Center

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Author(s): Nahian Chowdhury

Department: Neuroscience & Behavior

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Mentor: Gaurav Patel, Assistant Professor, Dept. of Psychiatry, New York State Psychiatric Institute, Columbia University Irving

Medical Center

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Author(s): Michelle Dandeneau, Kelly Martyniuk

**Department:** Neuroscience & Behavior

Poster Title: "Co-regulation of neurotransmitter pathways during reward and reinforcement learning in mice"

Mentor: Kelly Martyniuk, Doctoral Candidate, Dept. of Neuroscience, Columbia University

Author(s): Paris Fisher

**Department:** Neuroscience & Behavior

Poster Title: "Increased neurogenesis rescues contextual fear learning in aged mice"

Mentor: Victor Luna, Assistant Professor of Clinical Neurobiology, Dept. of Psychiatry, Division of Systems Neuroscience, New York

State Psychiatric Institute, Columbia University Irving Medical Center

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Author(s): Nadia Garcia, Anabel Richey
Department: Neuroscience & Behavior

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Mentor: Russell Romeo, Assistant Professor, Dept. of Psychology, Program in Neuroscience & Behavior, Barnard College

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Author(s): Shana Gershbaum

Department: Neuroscience & Behavior

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Mentor: Ze Zheng, Associate Research Scientist, Dept. of Medicine, Columbia University Irving Medical Center

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Author(s): Sarah Irfan

**Department:** Neuroscience & Behavior

Poster Title: "Role of hippocampal subregion CA2 in social memory and behavior"

Mentor: Lara M. Boyle, MD/PhD Candidate, Dept. of Neuroscience, Zuckerman Institute, Columbia University

Mentor 2: Steven A. Siegelbaum, Gerald D. Fischbach, MD Professor of Neuroscience and Professor of Pharmacology; Chair, Dept. of

Neuroscience, Zuckerman Institute, Columbia University

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Author(s): Jessica Ivanov, Nicole Heyward, and Kayla Kaplan

**Department:** Neuroscience & Behavior

Poster Title: "Can mice learn to release insulin in response to starchy taste?"

Mentor: John Glendinning, Ann Whitney Olin Professor, Dept. of Biology, Barnard College

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Author(s): Jana Jaran

**Department:** Neuroscience & Behavior **Poster Title:** "Mobile Health Apps for Migraine"

Mentor: Mia Tova Minen, Assistant Professor & Director of Headache Services, Dept. of Neurology and Dept. of Population Health,

NYU Langone Health

P 115

Author(s): Eliana Kalman, Dan Kato, Randy Bruno

**Department:** Neuroscience & Behavior

Poster Title: "Effects of Learning on Multi-Sensory Processing in Primary Sensory Cortical Areas"

Mentor: Randy Bruno, Principal Investigator, Associate Professor of Neuroscience, Dept. of Neuroscience, Zuckerman Institute,

Columbia University

Mentor 2: Dan Kato, Doctoral Student, Neurology & Behavior, Dept. of Neuroscience, Columbia University

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Author(s): Andrea F. Kubas-Meyer, Carter W. Daniels, Peter D. Balsam

**Department:** Neuroscience & Behavior

Poster Title: "Exploring the Effects of Lisuride on Temporal Cognition in Mice"

Mentor: Peter D. Balsam, Professor & Samuel R. Milbank Chair, Dept. of Psychology, Program in Neuroscience & Behavior, Barnard

College, Columbia University, New York State Psychiatric Institute

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Author(s): Avisya Kumar

**Department:** Neuroscience & Behavior

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Mentor: Rae Silver, Helene L. & Mark N. Kaplan Professor of Natural & Physical Sciences, Dept. of Psychology, Barnard College

Mentor 2: Rachel Narehood Austin, Diana T. & P. Roy Vagelos Professor and Chair, Dept. of Chemistry, Barnard College

Author(s): Magdalen Kwarteng Department: Neuroscience & Behavior

**Poster Title:** "Neurobiology of Aggression in Betta Fish"

Mentor: Claire Everett, Doctoral Student, Neurobiology & Behavior, E3B, Zuckerman Institute, Columbia University Mentor 2: Andrés Bendesky, Assistant Professor, Neurobiology & Behavior, E3B, Zuckerman Institute, Columbia University

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Author(s): **Emily Lei** 

Department: Neuroscience & Behavior

Poster Title: "Divergent adrenal morphology and anxiety-related behaviors between species of deer mice"

Mentor: Andrés Bendesky, Assistant Professor, Ecology, Evolution & Environmental Biology, Zuckerman Institute, Columbia

Natalie Niepoth, Graduate Student, Ecology, Evolution & Environmental Biology, Zuckerman Institute, Columbia University Mentor 2:

P 120

Author(s): Priscilla Maccario Department: Neuroscience & Behavior

**Poster Title:** "Assessment of the functional role of adult-born granule cells"

Mentor: Fraser Sparks, Postdoctoral Fellow, Dept. of Neuroscience, Zuckerman Institute, Columbia University

Mentor 2: Attila Losonczy, Professor, Dept. of Neuroscience, Zuckerman Institute, Columbia University

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Author(s): Amsal Madhani, Anna Rekow, Arun Asok, Cameron Parro, Michelle Fitzpatrick, Eric R. Kandel

Department: Neuroscience & Behavior

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Mentor: Eric Kandel, University Professor & Fred Kavli Professor, Dept. of Neuroscience, Zuckerman Institute, Columbia University

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Author(s): Megan Mettler

Department: Neuroscience & Behavior

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Rae Silver, Helene L. & Mark N. Kaplan Professor of Natural & Physical Sciences, Dept. of Psychology, Program in

Neuroscience & Behavior, Barnard College

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Author(s): **Emily Mitchell** 

Department: Neuroscience & Behavior

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Author(s): Sarah Mohammad, Isaac Somekh, Christopher de Solis, Eric Kandel

Department: Neuroscience & Behavior

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Author(s): Gabriella Ortiz, Harini Srinivasan Department: Neuroscience & Behavior

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Author(s): Jesal Parmar, Alice Styczen, Gorazd B. Rosoklija, Fatemeh G. Haghighi, Tatiana P. Schnieder, Andrew J. Dwork,

Department: Neuroscience & Behavior

Poster Title: "Stereological Evaluation of Fibrinogen Extravasation in Prefrontal White Matter as Blood Brain Barrier Integrity in Suicide" Tatiana P. Schnieder, Assistant Professor of Clinical Neurobiology (in Psychiatry), Dept. of Psychiatry, Division of Molecular Mentor: Imaging & Neuropathology, New York State Psychiatric Institute, Columbia University Irving Medical Center, Hunter College

P 127

Author(s): Ausra Pranevicius, Grace Tang, Orie Shafer, Maria de la Paz Fernandez

Department: Neuroscience & Behavior

**Poster Title:** "The Behavioral Consequences of Silencing Transformer Gene in Female Drosophila Melanogaster"

Mentor: Maria de la Paz Fernandez, Assistant Professor, Dept. of Psychology, Program in Neuroscience & Behavior, Barnard College

and Advanced Science Research Center at the Graduate Center of City University of New York

Author(s): Kania Rimu

**Department:** Neuroscience & Behavior

**Poster Title:** "Organization of Blood Vessels in the SCN"

Mentor: Rae Silver, Helene L. & Mark N. Kaplan Professor of Natural & Physical Sciences, Dept. of Psychology, Program in

Neuroscience & Behavior, Barnard College

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Author(s): Vyoma Sahani, Philip Kamilar-Britt, Scott Moeller, Mercedes Perez-Rodriguez, Vilma Gabbay, Yasmin Hurd, Keren Bachi

**Department:** Neuroscience & Behavior

Poster Title: "Mentalizing deficits in cocaine addiction: associations with cognitive and social functioning"

Mentor: Keren Bachi, Assistant Professor, Dept. of Psychiatry, Icahn School of Medicine at Mount Sinai

P 130

Author(s): Gabriella M. Sahyoun, Georgia M. Pierce, Amanda K.Kinnischtzke, Esther Greeman, David Y. Park, Heather C. Macomber,

Randy M. Bruno

**Department:** Neuroscience & Behavior

Poster Title: "Ensuring Whisker Dependence in a Behavioral Task Designed to Study Touch"

Mentor: Georgia M. Pierce, Graduate Student, Neurobiology & Behavior, Zuckerman Institute, Columbia University

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Author(s): Atara Schulhof

**Department:** Neuroscience & Behavior

Poster Title: "Information and Prediction: Temporal and Event Uncertainty as shown through Pavlovian Conditioning"

Mentor: Peter D. Balsam, Professor & Samuel R. Milbank Chair, Dept. of Psychology, Program in Neuroscience & Behavior, Barnard

College, Columbia University, New York State Psychiatric Institute

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Author(s): Meghan Shah

Department: Neuroscience & Behavior
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Mentor: Noam Schneck, Assistant Professor, Dept. of Psychiatry, New York State Psychiatric Institute, Columbia University Irving

**Medical Center** 

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Author(s): Agie Neneh Sissoho, Leda Kennedy, Lawrence S. Kegeles

**Department:** Neuroscience & Behavior

Poster Title: "The relationship between dopamine levels determined by the dopamine depletion 2-scan method and baseline binding

potentia

Mentor: Lawrence Kegeles, Associate Professor of Clinical Psychiatry (in Radiology), Dept. of Psychiatry, Division of Translational

Imaging, NY State Psychiatric Institute, Columbia University Irving Medical Center

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Author(s): MaryElena Sumerau

Department: Neuroscience & Behavior

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Mentor: Pedro Olivetti, Postdoctoral Fellow, Dept. of Psychiatry, Columbia University Irving Medical Center

P 135

Author(s): Samantha N. Syme, Yael K. Rayport, Lauren C. Shuffrey, J. David Nugent, William P. Fifer

**Department:** Neuroscience & Behavior

Poster Title: "Prenatal Exposure to Alcohol and Tobacco Alters Newborn Brain Activity"

Mentor: Lauren C. Shuffrey, Postdoctoral Fellow, Dept. of Psychiatry, Columbia University Irving Medical Center

P 136

Author(s): Tamanna Yeasmin

Department: Neuroscience & Behavior

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Mentor: Ashlea Morgan, Doctoral Student, Neurobiology & Behavior, Dept. of Neuroscience, Columbia University

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Author(s): Hannah Yueh

**Department:** Neuroscience & Behavior

Poster Title: "Hippocampal CA2 represents social behavioral state"

Mentor: Macayla Donegan, Doctoral Student, Neurobiology & Behavior, Dept. of Neuroscience, Columbia University

Author(s): Margaret B. Zhong, Basak Akdogan, Eleanor H. Simpson, and Peter D Balsam

Department: Neuroscience & Behavior

Poster Title:

"Effects of Chemogenetic Inactivation of Inhibitory Medium Spiny Neurons on Timing Behavior"
Peter D. Balsam, Professor & Samuel R. Milbank Chair, Dept. of Psychology, Program in Neuroscience & Behavior, Barnard College, Columbia University, New York State Psychiatric Institute Mentor:

#### Department of Psychology

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Author(s): Kayla Ablin, Victoria Brock, Stephanie Garcia Sosa, Julia Frederica Reichel

**Department:** Psychology

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Mentor: Koleen McCrink, Associate Professor of Psychology, Dept. of Psychology, Barnard College

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Author(s): Nathalia Benitez

Department: Psychology

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Mentor: Kimberly G. Noble, Associate Professor of Neuroscience & Education, Dept. of Biobehavioral Sciences, Teachers College

Mentor 2: Dina Kapengut, Doctoral Candidate in Developmental Psychology, Dept. of Biobehavioral Sciences, Teachers College

Mentor 3: Sonya Troller-Renfree, Postdoctoral Research Assistant, Dept. of Biobehavioral Sciences, Teachers College

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Author(s): Helen Branyan, Michael Rizzo

**Department:** Psychology

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Mentor: Marjorie Rhodes, Associate Professor, Dept. of Psychology, New York University

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Author(s): Naomi Xingwu Dwork

**Department:** Psychology

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Mentor: Lana Karasik, Assistant Professor, Child Development Lab, College of Staten Island CUNY,

Mentor 2: Karen E. Adolph, Professor of Psychology & Neural Science, Dept. of Psychology, New York University

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Author(s): Elisheva Fridman
Department: Psychology

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Mentor: Laura Phillips, Clinical Neuropsychologist, Learning & Development Center, Child Mind Institute

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Author(s): Gehad Hassan
Department: Psychology

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Mentor: Steven A. Siegelbaum, Professor & Chair, Dept. of Neuroscience, Zuckerman Institute, Columbia University

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Author(s): Isabelle Knapp
Department: Psychology

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Mentor: Halle R. Dimsdale-Zucker, Graduate Student, Dept. of Psychology, Columbia University

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Author(s): Isabel J. Kovacs, Sonya V. Troller-Renfree, Pooja M. Desai, Kimberly G. Noble

**Department:** Psychology

Poster Title: "Socioeconomic Status, Parent Stress and Home Language Environment: Indicators of Infant Language Development"

Mentor: Kimberly G. Noble, Associate Professor of Neuroscience & Education, Dept. of Biobehavioral Sciences, Teachers College

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Author(s): Michelle Lin
Department: Psychology

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Mentor: Jiyoung Ahn, Associate Professor, Dept. of Population Health and Dept. of Environmental Medicine, NYU Langone Health

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Author(s): Gabrielle Messner, Chelsea Harmon, Michael Wheaton, and Nim Tottenham

**Department:** Psychology

Poster Title: "Awe Enhances Creativity as Indexed by Comprehension of Garden Path Sentences: A Pilot Study"

Mentor: Michael Wheaton, Assistant Professor, Dept. of Psychology, Barnard College

Author(s): Summer N. Motton, Sonya V. Troller-Renfree, Pooja M. Desai, Kimberly G. Noble

**Department:** Psychology

Poster Title: "Associations Between Socioeconomic Status, Parent Mental Health, and Child Language Development"

Mentor: Kimberly G. Noble, Associate Professor of Neuroscience & Education, Dept. of Biobehavioral Sciences, Teachers College

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Author(s): Lila Olson-Duffy
Department: Psychology

Poster Title: "Transgenerational Developmental Origins of Mental Illness"

Mentor: Elizabeth Werner, Assistant Professor of Behavioral Medicine and Senior Director of Research Operations, Perinatal

Pathways Laboratory, Dept. of Psychiatry, Columbia University Irving Medical Center

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Author(s): Sidney Rojas
Department: Psychology

**Poster Title:** "Screening for Social Determinants of Health in a Pediatric Outpatient Setting"

Mentor: Leora Mogilner, Associate Professor, Dept. of Pediatrics, Icahn School of Medicine at Mount Sinai

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Author(s): Nadia Schwingle, Eliana York

**Department:** Psychology

Poster Title: "Using Gaming and Virtual Technology to Study Pedestrian Smartphone Distraction"

Mentor: Joshua New, Assistant Professor, Dept. of Psychology, Barnard College

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Author(s): Haley Ward, James Dunlea, Larisa Heiphetz

**Department:** Psychology

Poster Title:"Investigating the Role of Moral Essentialism in Resource Allocation Decisions"Mentor:Larisa Heiphetz, Assistant Professor, Dept. of Psychology, Columbia UniversityMentor 2:James Dunlea, Graduate Student, Dept. of Psychology, Columbia University























