



FALL 2023 NEWSLETTER

MESSAGE FROM THE DIRECTOR

Kevin Gardner, Ph.D.



I particularly love the changes associated with Fall, ranging from the harvest season to the arrival of the beautiful tree colors to the return of football games. And the change of weather, of course – the season's crispness make outdoor hikes and runs tremendously better in many ways. Within academia, Fall also has major changes as well, with classes restarting and new undergrads & Ph.D. students joining.

This Fall brings big changes to SBI as well. Foremost among these is the departure of Prof. Amedee des Georges, whose lab will be moving in November. It's been a privilege to have him as one of the earliest additions to the floor in 2015, watching his lab start from scratch, grow, and discover new aspects of integral membrane proteins, translation complexes, and other systems using cryo-electron microscopy. We'll properly celebrate these accomplishments later in the month and wish Amedee and his group the best in their next steps.

At the same time, we've also been fortunate to have a number of arrivals – including the lab of Prof. Jeff Kieft, in his new role as NYSBC's Executive Director, as well as a sabbatical visit from Prof. Melanie Cocco from UC Irvine. Learn more about both of them with the profiles that follow. And we're searching for a new faculty member to join us next fall, giving us the exciting chance to add a new research group into our community soon.

Learn more about us on the pages below, and wishing everyone the best in their professional and personal lives at this time of annual change –

Kevin

FEATURED ARTICLES

SPECIAL WELCOME

NEW ARRIVALS

SPOTLIGHT

PUBLICATIONS

ACHIEVEMENTS AT A GLANCE

CONGRATULATIONS 2023 GRADS!

UPCOMING EVENTS



Gardner Lab

SPECIAL WELCOME



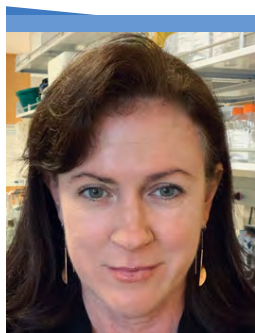
Jeffrey Kieft, Ph.D.

SBI gladly welcomes Jeffrey Kieft, who in his new role as Executive Director of the New York Structural Biology Center will also pursue collaborative research at ASRC on the 3rd Floor. And supporting Dr. Kieft's scientific endeavors are lab members Brian Wimberly, Madeline Sherlock, Samantha Zangari, Katherine Segar and Anaïs Trinephi.

His research focuses on understanding how RNA structure, RNA conformational changes, and complex intermolecular interactions combine to enable diverse RNA functions. Kieft earned a B.S. in Chemistry at West Point and served as an Army officer in Germany.

He then obtained his PhD in Chemistry at the University of California, Berkeley and conducted post-doctoral research at Yale University. After one year as the AAAS Roger Revelle Fellow in Global Stewardship in the White House Office of Science and Technology Policy, he joined the faculty of the University of Colorado School of Medicine. In 2009, he was selected as an HHMI Early Career Scientist Awardee. He has served as the Vice Chair of his department, Director of his campus' Structural Biology and Biophysics Core Facilities, and is currently a Director of the RNA Society and Chair of an NIH study section.

Melanie Cocco, Ph.D.



Melanie will join the ASRC community for a three-month sabbatical from the University of California, Irvine. She has a BS in Chemistry from Virginia Tech and a PhD in Chemistry from Penn State with Juliette Lecomte (now at Johns Hopkins University). She also was a Howard Hughes and NIH postdoctoral fellow at Yale University in Biophysics.

The Cocco lab uses NMR and Biophysics to study membrane protein structures and the dynamics of DNA-binding proteins. Recently the lab has started a new project to understand the mechanism of action drugs used to treat sickle cell disease by looking at their effect on hemoglobin dynamics (funded by Global Blood Therapeutics, Pfizer).

The University of California is established by the California constitution as a separate (fourth) branch of state government. The UC curriculum is determined solely by the Faculty Senate. Dr. Cocco is the Chair of the UC Senate Committee on Education Policy for the entire ten-campus UC System. She also serves as an Editor for the journals Biophysical Reports and Structural Biology, Frontiers Molecular Biosciences. Melanie has two adult daughters (one lives in LA, one in Manhattan) and two rescue dogs with unrelenting affection.

New Arrivals

Ramisha Aymon (Gardner Lab), CCNY Undergrad in Biochemistry

Mitali Bhate (des Georges Lab), Ph.D. student in Biochemistry

Dr. Soumendu Boral (Gardner Lab), postdoc

Anastasiia Fisiuk (Gardner Lab), CCNY Undergrad in Biochemistry

Malvin Forson (Gardner Lab) Ph.D. student in Biochemistry

Anna Geissmann (Elbaum-Garfinkle Lab), Ph.D. student in Chemistry

Alexis Lemberikman (Keedy Lab), postbacc

Dr. Carolina Matos (Gardner Lab), visiting postdoc

SPOTLIGHT ON

DR. SOUMENDU BORAL POSTDOCTORAL RESEARCH ASSOCIATE GARDNER LAB

How long have you been with SBI?

I've been here almost five months with Prof. Gardner's lab.

What was your previous academic and research background?

I completed my B.Sc. (Hons.) in Microbiology at St. Xavier's College, Kolkata (2012 - 2015) and M.Sc. in Biotechnology at the Indian Institute of Technology (IIT) Roorkee (2015 - 2017).



My dissertation focused on the biophysical investigation on binding interactions of Interleukin-8 monomer with baicalin. Then I earned my PhD from the Indian Institute of Technology (IIT) Kharagpur (Jan, 2018 - May, 2023 with research focused on investigating the structural and dynamic basis of protein splicing mechanism mediated by Spl DnaX intein enzyme using solution NMR spectroscopy, in-cell splicing activity assays and molecular dynamics (MD) simulations.

What are you working on now?

I hope to ascertain the structural and dynamic basis of Hypoxia-inducible factor (HIF)-2/small molecule interactions and allostery, using NMR and cryo-electron microscopy (cryo-EM). We look forward to obtaining high-resolution structures of these complexes, the dynamics of ligand binding to determine which features are most important to target with small molecule inhibitors and thereafter allosteric inhibition of HIF-2_PAS domains.

What is your favorite thing about NY?

Well, there are many things! To choose one is difficult but, I love the NYC skylines, especially the view from the Brooklyn Bridge Park. It's like taking a bite out of the Big Apple!

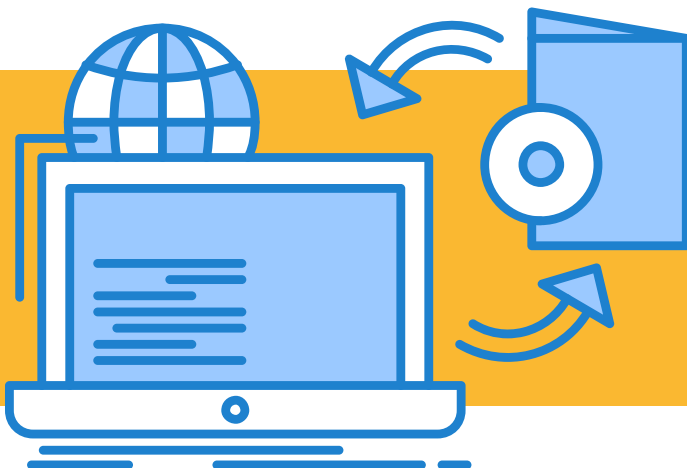
PUBLICATIONS

Dikiy I.*, Swingle D.*, Toy K., Edupuganti U. R., Rivera-Cancel G., Gardner K. H., Diversity of function and higher-order structure within HWE sensor histidine kinases, *Journal of Biological Chemistry* 2023 p299: 104934.

Hoang Trinh, T. K., Cabezas, A. J., Joshi, S., Catalano, C., Bakkar Siddique, A., Qiu, W., Deshmukh, S., Georges, A. des, Guo, Y. PH-Tunable Membrane-Active Polymers, NCMNP2a- x, and Their Potential Membrane Protein Applications. *Chemical Science* 2023, 14 (26), 7310–7326. <https://doi.org/10.1039/D3SC01890C>.

Marcink TC, Zipursky G, Cheng W, Stearns K, Stenglein S, Golub K, Cohen F, Bovier F, Pfalmer D, Greninger AL, Porotto M, des Georges A, Moscona A. Subnanometer structure of an enveloped virus fusion complex on viral surface reveals new entry mechanisms. *Sci Adv.* 2023 Feb 10;9(6):eade2727. doi: 10.1126/sciadv.ade2727.

Mehlman T. S., Biel J. T., Azeem S. M., Nelson E. R., Hossain S., Dunnett L., Paterson N. G., Douangamath A., Talon R., Axford D., Orins H., von Delft F., Keedy D. A. Room-temperature crystallography reveals altered binding of small-molecule fragments to PTP1B. *eLife* 2023 12:e84632



ACHIEVEMENTS AT A GLANCE



Dr. Kevin H. Gardner was named the recipient of the 2023 BPS Award for the Biophysics of Health and Disease. He was honored in February at the Society's 67th Annual Meeting in San Diego, California.

Dr. Gardner was also presented with the 2023 Stein & Moore Award in recognition of "Sustained, High-impact Research Contributions to the field of Protein Biochemistry" at the Protein Society's 37th Annual Symposium, held in July at the Westin Boston Seaport, Boston, MA.

Akshay Raju (Keedy Lab) received the Outstanding Biology Presentation Award from the CCNY Biology Research Symposium, and was selected to present at the 1st Annual CUNY Undergraduate Research Day on May 31 held at BMCC.

Alfredo Vidal Ceballos and Priyasha Deshpande (both Elbaum-Garfinkle Lab) won ASBMB Travel awards to attend the DiscoverBMB Annual Meeting in Seattle from March 25 -28.

Danielle Swingle (Gardner Lab) received a 2023 Protein Science Young Investigator Travel Award from the Protein Society to attend their July symposium in Boston, MA.

Kevin Shionarain (Keedy Lab) won the Fred Gornick Family Fund Award and the George A. & James E. Petersson Fellowship Fund Award from the CCNY Department of Chemistry & Biochemistry.

Malvin Forson (Gardner Lab) was presented by CCNY with an E. Olshansky Graduate Merit Award (\$4,000) on August 17.

Nathanael Singh (Keedy Lab) won the Dr. Leon Greenstein Fund Award from the CCNY Department of Chemistry & Biochemistry.

Priyasha Deshpande (Elbaum-Garfinkle) won the Best Presentation Award (\$200) at the NanoBioNYC Launch held at ASRC on April 18.

ACHIEVEMENTS AT A GLANCE

Roksana Azad (Gardner Lab) received a Biophysical Society Annual Meeting 2023 Travel Award for Graduate Students. She was also given Protein Society's 2023 Finn Wold Travel Award, and the 2023 Graduate Center - CUNY Conference Presentation Support Award.

Virgil Woods (Keedy Lab) received two awards, a Protein Science Young Investigator Travel Award from The Protein Society, and a Best Poster Award at the FASEB Protein Phosphatases Conference in June at Steamboat Springs, Colorado.

GRANTS:

Priyasha Deshpande (Elbaum-Garfinkle Lab) received a Doctoral Student Research Grant from the CUNY Graduate Center for attending the Biophysical Society Annual Meeting which will be held in February 2024.

Roksana Azad (Gardner Lab) claimed the following grants:

The Graduate Center Provost's University Fellowship (2022 - 2023)

The NIH - NRSA F31 Pre-Doctoral Fellowship (Year 3 renewal, 2023)

The NIH - IRACDA Postdoctoral Fellowship from the University of California, San Francisco (2023 - 2026).

HIGHLIGHTS:

Liliana Margent (Keedy Lab) was accepted into the CCNY G-RISE Program and was featured in this video:

<https://www.youtube.com/watch?v=D6qGgDp7POw>

PROMOTIONS:

Dr. Ghada Soliman, who has maintained a lab with SBI and been a collaborator for many years, was promoted by CUNY SPH to full professor. Her wet laboratory research integrates diet, nutrient sensing and metabolism, and their influence on chronic diseases and public health.



CONGRATULATIONS TO OUR AMAZING 2023 GRADUATES!



Alfredo Vidal Ceballos
Elbaum-Garfinkle Lab



Roksana Azad
Gardner Lab



Tamar Skaist
Keedy Lab



Xingjian (Jim) Xu
Gardner Lab



UPCOMING EVENTS:

OCTOBER 13

NEW YORK CITY INTEGRATIVE
STRUCTURAL BIOLOGY
SYMPOSIUM

ORGANIZED AND HOSTED BY
ASRC AND NYSBC

FROM: 8:30AM – 5:45PM

LOCATION: ASRC 1ST FLOOR
AUDITORIUM AND CAFÉ

NOTE: REGISTRATION CLOSED
DUE TO LIMIT OF 100

ATTENDEES (ALL SEATS
ALREADY RESERVED)

ASRC & CCNY B3 SEMINARS

RUN MOST WEDNESDAYS TILL
12/6

LOCATION: ASRC 1ST FLOOR
AUDITORIUM

NOTE: DETAIL INFO AND ZOOM
LINKS PROVIDED CLOSER TO
EVENT DATES VIA ASRC EVENTS
WEB PAGE



**BEST WISHES WITH YOUR
FUTURE ENDEAVORS!**