MESSAGE FROM THE DIRECTOR

Kevin H. Gardner, Ph.D.

Happy New Year for 2026 to everyone! Looking back on 2025, I'm tremendously proud of our many accomplishments for the past year. These came in many different forms, including promotions for Shana Elbaum-Garfinkle and Daniel Keedy (to Associate Professor with tenure) and myself (to Distinguished Professor), a tremendously successful second 5th year external review for the floor as a whole, and multiple Ph.D. defenses, papers, and grants showing the world the strength and breadth of our research.

2025 has also been a challenging year for many in science, both here and beyond as fundamental changes at NIH, NSF, and other federal agencies have affected long-established grant programs in a variety of ways. While there are clear opportunities for improvement in these large governmental organizations, such changes need to be done more thoughtfully, deliberately, and with more input from the scientific community than we've seen over the past year.

Which brings us to 2026. I am very bullish on our directions as a floor given all of the outstanding research we've got going, grant proposals that are in the mix, and new people who've joined us. I'm also keen on our ability to recruit a new lab onto the floor as part of the Spergel Initiative in AI, letting us bring new colleagues aboard to push us in new and exciting directions. I'm also hopeful that word is getting through to the funding agencies on the importance of clear and sustained funding for discovery, training, and national leadership.

I close by reminding everyone that we all have choices as to where we work, how we spend our time, and how what we prioritize for our energy and efforts. Many thanks to all of you for sharing these with us here in SBI and wishing you all the best for 2026.

Kevin

SPECIAL WELCOME

Mihyun Oh, DVM, Ph.D.

Mihyun Oh joined SBI on October 1st as a postdoctoral associate in Jeffrey Kieft's Lab. Mihyun earned her PhD at Drexel University, where she investigated the structure-function relationships of long non-coding RNAs in cancer. She developed expertise in RNA structure and interactome analysis using advanced techniques such as RNA chemical probing methods (DMS-MaP and SHAPE-MaP) alongside a variety of biochemical and cellular approaches, including pulldown experiments and gain- and loss-of-function studies.

Originally from South Korea, Mihyun is also a licensed veterinarian (DVM) with experience in diagnostic pathology of poultry infectious diseases. Her early interests in farm animal health and basic science continue to shape her broad curiosity about how structural biology can improve the well-being of living organisms across species.

During her graduate training in Philadelphia, Mihyun often visited NYSBC/NCCAT for cryo-EM training. The strong research environment and resources left a lasting impression, and she is now excited to begin her postdoctoral work there. In her upcoming research, she aims to investigate how viral RNA structures and their interactomes shape disease processes, integrating biochemical and biophysical methodologies. This work aligns with her broader interest in understanding how biomolecules drive health and disease across diverse species.

Outside the lab, Mihyun finds joy in almost every aspect of life. She loves reading, writing essays and postcards, and exploring the city's stationery shops, restaurants, and bakeries.

Lexi Schanzer

Lexi Schanzer earned a dual B.S. degrees in Biochemistry and Psychology, along with a certificate in Neuroscience, from the University of Massachusetts Amherst, before coming to ASRC to join Jeffrey Kieft's Lab as a Laboratory Technician on October 6th. Her diverse academic training shaped a cross-disciplinary approach to science that she hopes to bring to her future work.

Lexi worked in the Lacreuse Lab under Dr. Agnès Lacreuse as an undergraduate and studied the cognitive decline in non-human primates and sex differences in Alzheimer's disease. This experience first ignited her interest in neuroscience research and exposed her to a wide array of behavioral and molecular techniques.

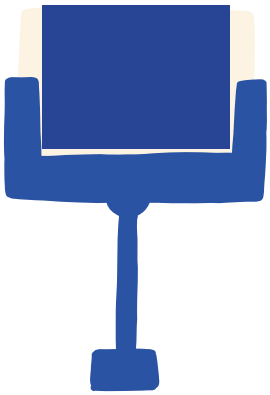
She further expanded her research experience through biochemistry coursework, investigating how point mutations in the cytosolic malate dehydrogenase of Trypanosoma brucei alter protein structure and activity. This project eventually helped guide her path toward structural biology and the Kieft Lab.

SPECIAL WELCOME (CONTINUED)

Lexi Schanzer

Lexi's excited to contribute to the Kieft Lab's efforts to understand and characterize viral RNA structures. She looks forward to deepening skills in RNA biochemistry and being trained in cryo-EM workflows, and is grateful to be part of ASRC's collaborative scientific community.

Lexi enjoys exploring new restaurants and bars around the city, spending time outdoors, and finding the best spots for weekend coffee when away from work duties.



new ARRIVALS

Aria Hossain (Vallese Lab) – Undergraduate in Biochemistry, CCNY

Cullen Roeder (Gardner Lab) – Ph.D. Student in Biochemistry

Dayangi Perera (Vallese Lab) – Ph.D. Student in Biochemistry

Eric Guan (Keedy Lab) – Undergraduate in Computer Science, Hunter College

Fatima Rizwan (Gardner Lab) – Ph.D. Student in Biochemistry

Greg Helms (Johnson Lab) – Research Scientist

James Otis (Elbaum-Garfinkle Lab) – Postdoctoral Researcher

Mansoore Esmaili (Vallese Lab) – Postdoctoral Researcher

Nihad Messous (Vallese Lab) – Undergraduate in Biotechnology, CCNY

Zarin Maisha (Vallese Lab) – Undergraduate in Biotechnology, CCNY

SPOTLIGHT ON

DR. SEBASTIANO NIGRIS
RESEARCH ASSOCIATE, VALLESE LAB

How long have you been with SBI?
I started working at SBI in January 2025, so I've been here for about a year now. Time is really flying!

What was your previous academic and research background?
My research background is in plant biology. I obtained my PhD in Evolutionary Plant Biology in 2015 at the University of Padova, Italy. During my scientific career, I have worked on projects investigating the genetic regulation of seed development in gymnosperms (Taxus, Ginkgo, Cycas, Wollemia), a group of non-flowering plants with a very long evolutionary history that dates back to the time of the dinosaurs. I also led projects focused on the molecular interactions (genes, hormones, molecules) between plants and beneficial soil microbes. In addition, I had the opportunity to establish a lab and work at the Botanical Garden of Padova, the oldest botanical garden in the world (founded in 1545), where I became fascinated by plant evolutionary developmental biology (evo-devo) and non-model species.

What are you working on now?
Now in the Vallese lab, I am leveraging my experience, skills and knowledge of the lab to investigate the structural characteristics of a plant protein complex that plays key roles in many processes during plant development and in modulating interactions between plants and microorganisms. It's a perfect match between SBI and my background in plant biology! As a research assistant, I also take care of the lab, ensuring that everything runs smoothly, functionally, and efficiently.

What is your favorite thing about NY?
I love living in the city because it is so culturally vibrant: you can always find something exciting to do - exhibitions, concerts, art events. I also love the mix of architectural styles in Manhattan, from Gothic and Liberty-style buildings to modern structures full of glass and metal.

PUBLICATIONS

Elbaum-Garfinkle Lab

Deshpande, P., Geissmann, A., Park, H., Liu, J., Casaccia, P., Elbaum-Garfinkle, S. Telomeric RNA and HP1α form interfacial clusters that stabilize HP1α-DNA condensates. Commun Biol 2025

Vidal Ceballos, A., Geissmann, A., Favaro, D.C., Deshpande, P., Elbaum-Garfinkle, A. RNA guanine content and G-quadruplex structure tune the phase behavior and material properties of biomolecular condensates. Sci Rep 2025

Gardner Lab

Vörösmarty, C.J., Trujillo, M., Casaccia, P., Cak, A., Gardner, K.H., Greenfield, D.I., Groffman, P.M., Reinmann, A., Solecki, W., Serreze, M., Waldman, J., Bhatnagar, J., Brumberg, H., Carnaval, A., Cullman, J., Egendorf, S.P., Hauber, M.E., Herlan, J., Kavouras, I., Mason, C.E., Marcotullio, P., McCracken, M., McKay, D.A., Miszlivetz, F., Muth, T., Nomura, Y., Penick, C.A., Rising, J., Toledo-Crow, R. and Zarnoch, C. A Climate BioStress Sentinel System (CBS3): Identifying climate impacts from the genome to urbanized biosphere. Cell Rep. Sust., 2025

Siclari, J.J., Favaro, D.C., Huang, R. and Gardner, K.H. (2025). A pipeline for screening small molecule-enhanced protein stability in a bacterial orphan receptor. Prot. Sci., 2025

Swingle, D., Epstein, L., Aymon, R., Isiorho, E.A., Abzalimov, R.R., Favaro, D.C. and Gardner, K.H. Variations in kinase and effector signaling logic in a two component signaling network. J. Biol. Chem., 2025

PUBLICATIONS

Keedy Lab

Perdikari A.*, Woods V.A.*, Ebrahim A.*, Lawler K., Bounds R., Shah D.S., Singh N.I., Mehlman (Skaist) T., Riley B.T., Sharma S., Morris J.W., Keogh J.M., Henning E., Smith M., Farooqi I.S.**, Keedy D.A.** (** co-corresponding authors). Structures of human protein tyrosine phosphatase variants reveal targetable allosteric sites. J Biol. Chem. 2025

Cavender C.E., Case D.A., Chen J.CH., Chong L.T., Keedy D.A., Lindorff-Larsen K., Mobley D.L., Ollila O.H.S., Oostenbrink C., Robustelli P., Voelz V.A., Wall M.E., Wych D.C., Gilson M.K. Structure-Based Experimental Datasets for Benchmarking Protein Simulation Force Fields. LiveCoMS. 2025

Woods V.A.*, Sharma S.*, Lemberikman A.M., Keedy D.A. Orchestrating function: concerted dynamics, allostery, and catalysis in protein tyrosine phosphatases. Current Opinion in Structural Biology. 2025

Guerrero L., Ebrahim A., Riley B.T., Kim S.H., Bishop A.C., Wu J., Han Y.N., Tautz L., Keedy D.A. Three STEPs Forward: A Trio of Unexpected Structures of PTPN5. Proteins: Struct. Funct. Bioinf. 2025

Raju A., Sharma S., Riley B.T., Djuraev S., Tan Y., Kim M., Mahmud T., Keedy D.A. Mapping allosteric rewiring in related protein structures from collections of crystallographic multiconformer models. bioRxiv. 2025

Wu J., Baranowski M.R., Aleshin A.E., Isiorho E.A., Lambert L.J., De Backer L.J.S., Han Y.N., Das R., Sheffler D.J., Bobkov A.A., Lemberikman A.M., Keedy D.A., Cosford N.D.P., Tautz L. Fragment Screening Identifies Novel Allosteric Binders and Binding Sites in the VHR (DUSP3) Phosphatase. ACS Omega. 2025

Chartier C.A., Woods V.A., Xu Y., van Vlimmeren A.E., Jovanovic M., McDermott A.E., Keedy D.A., Shah N.H. Allosteric regulation of the tyrosine phosphatase PTP1B by a protein-protein interaction. Prot. Sci. 2025

PUBLICATIONS

Soliman Lab

Gaba A., Bennett R., Florez K., Soliman G.A. Pandemic Recipes-Nutritional Values of Recipes in Legacy Media. Nutrients , 2025

Soliman G.A, Abzalimov R., Xu L., He Y. Effects of Intermittent Fasting on Global Metabolomics and Metabolic Pathways Using High-Resolution Mass Spectrometry and Predictive Models in Muscle Cell Lines (C2C12). Cur. Dev. Nutr., 2025

Schooling C.M., Yang G., Soliman G.A., Leung G.M. A Hypothesis That Glucagon-like Peptide-1 Receptor Agonists Exert Immediate and Multifaceted Effects by Activating Adenosine Monophosphate-Activate Protein Kinase (AMPK). Life. 2025

Vallese Lab

Vallese F., Li H., Clarke O.B. Stomatin encapsulates aquaporin-1 and urea transporter-B in the erythrocyte membrane. bioRxiv. 2025

Vallese F. New York City's structural biology mosaic. Nat Struct Mol Biol. 2025

ACHIEVEMENTS AT A GLANCE

On June 30th, the CUNY Board of Trustees confirmed the promotions of SBI Director, Kevin H. Gardner to Distinguished Professor, and SBI faculty members, Daniel Keedy and Shana Elbaum-Garfinkle to Associate Professors with tenure.

Joseph “Joey” Closson (Gardner Lab) received the Donald Sloan Graduate Scholarship on July 13th from the CCNY Department of Chemistry and Biochemistry. This merit recognizes students for excellence in research and their continued promise as a graduate researcher.

For a second year in a row, both Leah Epstein (Gardner Lab) and Vishal Persaud (Elbaum-Garfinkle Lab) were accepted into CCNY’s G-RISE Program headed by Prof. Ruth Stark in August. One main goal of this initiative is to strengthen research and professional skills among underrepresented Ph.D. students.

Malvin Forson (Gardner Lab) was presented with a Doctoral Student Research Grant (DSRG) in March, followed by a Protein Society travel award in April.

UPCOMING EVENTS:

ASRC AND CCNY BIOCHEM SEMINAR SERIES BEGINS WEDNESDAY, JANUARY 28. 2026

LOCATION: ASRC 1ST FLOOR CAFÉ AND AUDITORIUM

TIME: 11:30AM – 1:00PM

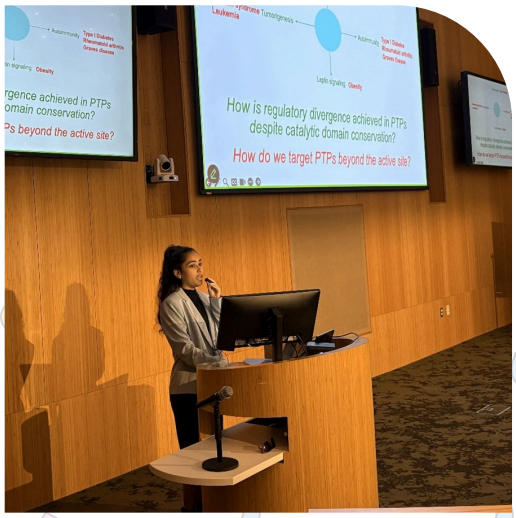
GUEST SPEAKER:
CHRISTINE MAYR

PROFESSOR, BIOCHEM. & MOLECULAR BIOLOGY,
AND COMPUTATIONAL BIOLOGY & MEDICINE
SLOAN KETTERING CANCER CENTER
WEILL CORNELL MEDICAL COLLEGE

CONGRATULATIONS TO OUR 2025 GRADUATES!

James “Jimmy” Siclari
Gardner Lab

Jimmy’s defense entitled, “Diverse Sensory Mechanisms in Bacterial PAS-Containing One-Component Systems” was held on December 5, 2025. Dr. Siclari will be starting a Postdoctoral Research position at Rutger’s University Center for Advanced Biotechnology and Medicine under the mentorship of Professor Ann Stock.



Shivani Sharma
Keedy Lab

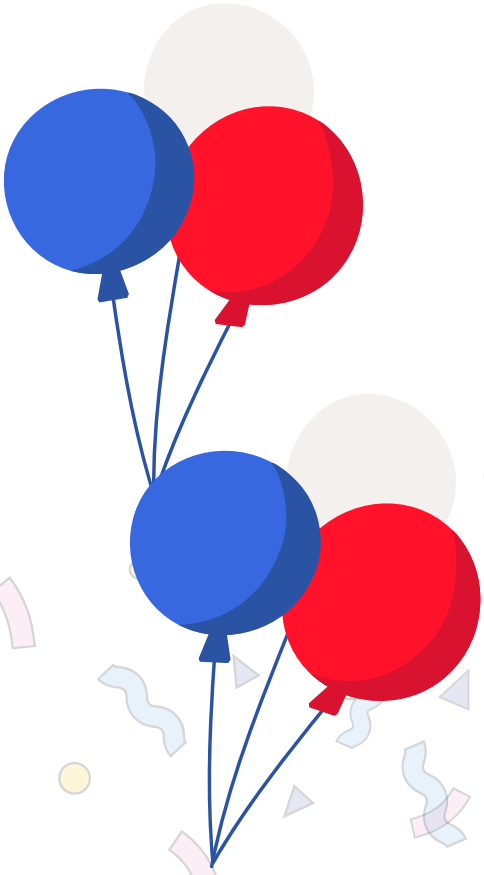
“From Sequence to Allostery: How Amino Acid Differences Rewire Coupled Conformational Heterogeneity in the PTP Enzyme Family” was the title of Shivani’s presentation on July 30, 2025. Dr. Sharma will be joining the National Cancer Institute as a Visiting Fellow with Dr. Diana Monteiro.

BEST WISHES FOR CONTINUED SUCCESS TO OUR RISING STARS!

CONGRATULATIONS TO OUR 2025 GRADUATES!

Virgil Woods
Keedy Lab

Virgil defended his thesis on September 29, 2025 and was entitled, "Protein allostery probed by ligands across sites."



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