



Pioneering Imaging Scientist Jennifer Lippincott-Schwartz to receive ABRF Award for Outstanding Contributions to Biomolecular Technologies

July 13, 2021 (Lexington, KY) – The [Association of Biomolecular Resource Facilities \(ABRF\)](#) is pleased to announce the selection of **Jennifer Lippincott-Schwartz**, Senior



Group Leader at the HHMI Janelia Research Campus, as the next recipient of the ABRF Award, which recognizes Outstanding Contributions to Biomolecular Technologies.

Dr. Lippincott-Schwartz has spent most of her career as a cell biologist devising live cell imaging techniques for studying how cells are organized and dynamically function. Most recently, at the Howard Hughes Medical Institute's Janelia Research Campus, she's been studying how organelles communicate with each other through inter-organelle contacts and the role this plays in maintaining cell homeostasis. This professional focus has yielded many intriguing discoveries and countless beautiful images.

Following her undergraduate work at Swarthmore College, Dr. Lippincott-Schwartz, she took time out to teach science and math in Africa. There, she fell back in love with science.

When Lippincott-Schwartz returned to the United States, she pursued a master's degree in Philip Hanawalt's lab at Stanford University, studying DNA repair. As she dug into the roles of repair enzymes, she couldn't help but think, "I'm breaking cells apart to purify a single enzyme, but what about the entire system – how does the cell, as a whole, function?"

She earned her PhD at Johns Hopkins University, in Douglas Fambrough's lab. Her work focused on lysosomes - organelles responsible for the breakdown of unwanted proteins in cells. Using antibody targeting and fluorescence microscopy, Lippincott-Schwartz discovered the lysosomal-associated membrane protein, LGP120.

But it was during her postdoctoral work with Richard Klausner, at the National Institutes of Health (NIH), that things really took off. There, she coauthored 19 papers that included the identification of a surprising new protein degradation pathway in which the endoplasmic reticulum (ER) degrades entire proteins, and a retrograde pathway for protein trafficking from the Golgi back to the ER.

Lippincott-Schwartz stayed on at the NIH, as a primary investigator and chief of the Section on Organelle Biology in the Cell Biology and Metabolism Branch. Hoping to expand her research into live-cell imaging, she began searching for a way to tag proteins in live cells. Eventually her group created a photoactivatable form of green fluorescent protein (GFP), which allowed them to switch a tagged protein's green glow on and off using flashes of light.

Her discovery led to a fruitful collaboration with physicists Eric Betzig and Harald Hess (now group leaders at Janelia), who proposed a new function for the photoactivatable protein. The scientists used the protein to generate photoactivatable fluorophores, or dyes, which enabled them to illuminate different sets of molecules sequentially, creating a microscope image far more detailed than previously possible. The method, called super-resolution microscopy, garnered Betzig the 2014 Nobel Prize in Chemistry.

Using super-resolution microscopy and other fluorescence imaging techniques, Lippincott-Schwartz's NIH lab group probed subcellular processes, such as lipid droplet formation and organelle dynamics, for nearly three decades.

In 2016, Lippincott-Schwartz moved her lab to Janelia, where she continues to investigate cell biology, but in the context of the brain. Her group studies neurobiology on a cellular level, looking into processes such as organelle trafficking and metabolism, to better understand how nerve cells communicate and behave in normal and diseased brain function.

ABRF Past President, Rich Cole, with the New York State Department of Health's Wadsworth Center, described Lippincott-Schwartz's impact:

“It is scientists like Jennifer who have and continue to push boundaries of what we can see and how we image it. Many of these newly developed techniques are then incorporated in imaging cores around the world and have helped to advance our understanding of cellular and subcellular process.”

The ABRF Award, the association's highest scientific honor, has been presented to an extraordinary group of researchers and innovators since 1994, including several Nobel Prize recipients.

Dr. Lippincott-Schwartz will accept the Award at the ABRF 2022 Annual Meeting, March 27-30, 2022 in Palm Springs, California.

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