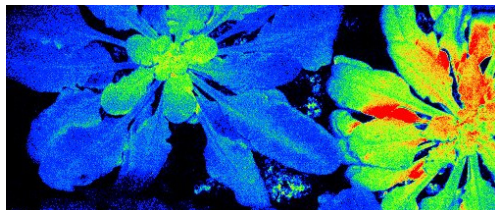


### Our Vision

Attain a mechanistic understanding of biological processes in order to influence biological functions and solve national challenges in energy, environment, health, and biomanufacturing.



Alizée Malnoë/Berkeley Lab

### Bioenergetics

Scientists focus on mechanistic studies of biological systems, especially photosynthetic and bio-inspired synthetic systems, that play a role in energy transfer and conversion.

Researchers accomplish this through the development and application of spectroscopy, diffraction, and imaging techniques to visualize atomic, molecular, and electronic structure-level phenomena.

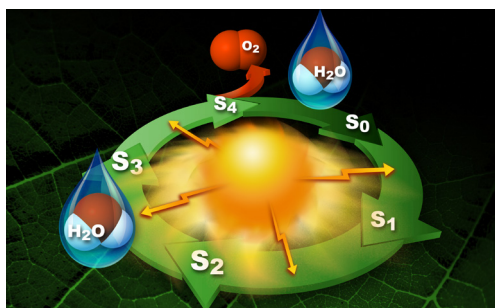
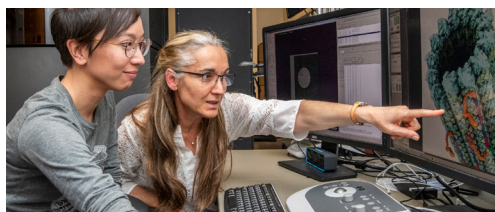


Image courtesy of SLAC National Accelerator Laboratory

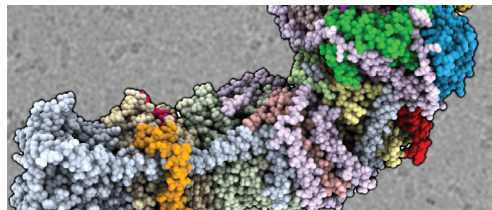


Marilyn Sargent/Berkeley Lab

### Cryo-EM

MBIB is leading a Berkeley Lab-wide initiative to create a cryo-electron microscope resource with advanced imaging equipment capable of resolving structures of large macromolecular complexes and cellular organelles.

Proteins and nucleic acids are the protagonists of life, controlling many processes in the cell, including transport, signaling, and gene expression. MBIB researchers are dedicated to imaging and functional analysis of these molecules and the complexes they form, as well as cells and tissues.

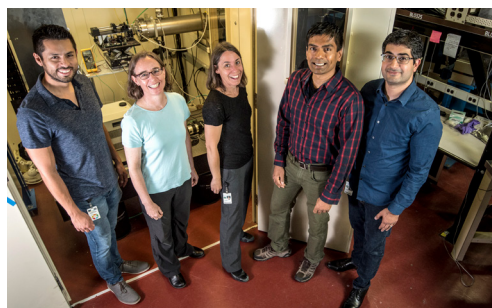


Thomas Laughlin/UC Berkeley and Berkeley Lab

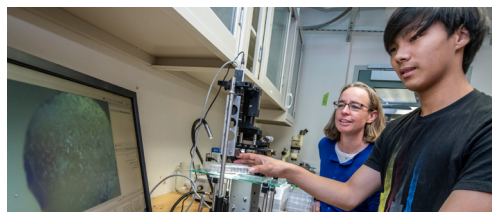
### Structural Biology

Scientists study the molecular structure and dynamics of biological macromolecules, and investigate how changes in molecular structures affect function.

A variety of X-ray-based, electron cryomicroscopy (cryo-EM), and tomographic techniques are used to determine the structure of macromolecules and gain information about their dynamics.



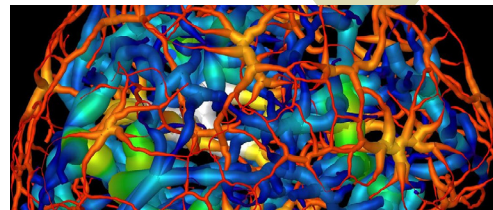
Paul Mueller/Berkeley Lab



Marilyn Sargent/Berkeley Lab

### Outreach

The MBIB Division participates in many outreach activities, including the DOE Visiting Faculty Program and internships for students from high school through college. Contact us for more information or visit [education.lbl.gov](http://education.lbl.gov).



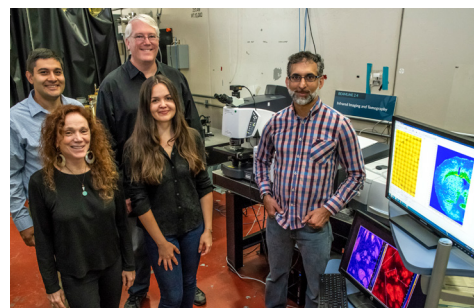
Berkeley Lab; UCSF

### Cellular & Tissue Imaging

Bioimaging at multiple scales and levels of spatiotemporal resolution is key to a comprehensive mechanistic understanding of biological processes.

Researchers seek to integrate information obtained by different imaging modalities to span the entire length scale and resolution spectrum.

Scientists develop and apply a wide range of state-of-the-art imaging techniques to study challenges in biology.



Marilyn Sargent/Berkeley Lab

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