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Structure, Dynamics and Interactions in the Regulation of Macromolecular Function Studied by Cryo-EM

Eva received her bachelor's degree in physics from the Universidad Autónoma de Madrid (Spain) and her doctorate in biophysics from the University of Keele (UK). During her postdoctoral work at LBNL with Ken Downing she determined the structure of tubulin by electron crystallography. She joined UC Berkeley in 1998 and HHMI in 2000. She is also a Senior Faculty Scientist at LBNL. Eva's research is dedicated to gaining mechanistic insight into the dynamics of the microtubule cytoskeleton and the regulation of gene expression at the transcriptional level using cryo-EM as a major tool. Eva has been the recipient of the Dorothy Crowfoot Hodgkin Award from the Protein Society, the Mildred Cohn Award from ASBMB, the Keith R Porter Lecture Award from ASCB and the LBNL Director's Award for Exceptional Science Achievement. She is a fellow of ASCB and of the Biophysical Society, an elected member of the National Academy of Sciences and the American Academy of Arts & Sciences, and an elected associate member of EMBO. In 2020 she serves as president of ASCB.

Abstract: Cryo-electron microscopy (cryo-EM) has emerged as a powerful structural biology technique that overcomes some of the bottlenecks of other methods used for structure determination. In particular, the structural analysis of large and flexible macromolecular assemblies that cannot be obtained in large amounts is now possible by cryo-EM. Among such samples are large protein complexes that are required for the regulation of gene expression at the transcriptional level. In my presentation I will cover some of the progress my lab has made concerning such human molecular machinery.

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