

LMA WEBINARS 2020

FIB-SEM AS A TOOL FOR THE STUDY OF THE BRAIN

FIB-SEM is an electron microscopy technique that allows the acquisition of serial sections in an automated manner. The Focused Ion Beam (FIB) is directed towards the specimen, removing material from its surface. Since the FIB can be positioned and controlled at a nanometer scale, the specimen surface can be milled so that a thin layer of a specified thickness is removed. Then, the Scanning Electron Microscope (SEM) column is used to acquire an image from the freshly milled surface. To obtain a series of images, the milling/imaging cycle is repeated automatically. This technique can be used to obtain stacks of serial images of the brain that can be reconstructed and studied in 3D, making possible to determine the number and distribution of synapses that are present in different brain regions. Tissue preparation, serial image acquisition, visualization and analysis in 3D will be briefly described.

SPEAKER

Dr. Ángel Merchán Pérez

Dr. Ángel Merchán Pérez, MD, PhD. After my doctorate, I made a postdoctoral fellowship (1992-1995) at the Eaton Peabody Laboratory (Harvard Medical School / Massachusetts Eye & Ear Infirmary, Boston, MA), where I completed my training as an electron microscopist. I later joined J. Defelipe's lab at the Cajal Institute (Madrid, Spain) as a visiting researcher and served as an associate professor in different universities. During this period, I began my studies on the structure of the cerebral cortex and I further specialized in electron microscopy. I have recently contributed to the development of several methods for the study of the cerebral cortex using combined focused ion beam milling and scanning electron microscopy (FIB-SEM). These techniques permit the three-dimensional reconstruction of the ultrastructure of brain tissue and have been applied for the study of the densities and distributions of synapses in the cerebral cortex of the rat, mouse and Human. At present, I am Associate Professor, I3 Program, at the Universidad Politécnica de Madrid. Publications can be found at <https://orcid.org/0000-0002-7228-5821>

We invite you to attend this webinar

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[ZOOM WEBINAR: BIT.LY/2MSMVQ2I](https://bit.ly/2MSMVQ2I)



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