Video Article

Correlated electron microscopy of 2 photon imaged in vivo dendrites

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Abstract

This protocol describes how dendrites expressing GFP, that are imaged with 2 photon microscopy in the brain of a live animal, can be subsequently prepared, and analysed with the transmission electron microscope. After imaging the dendrite of interest at low magnification with the laser scanning microscopy an overview of the surface of the brain is also recorded. The animal is then fixed, and the brain vibratome sliced, cutting in the same orientiation as the plane of imaging. Pre-embedding immunocytochemistry is then able to reveal the GFP expressing dendrites and axons. Those required for ultrastructural analysis are found using the blood vessel pattern on the surface of the brain as fudicial markers. The neurites of interest can then be serial thin sectioned and imaged in the transmission electron microscope.

Disclosures

No conflicts of interest declared.