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# Microscopy AND Microanalysis



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### Micro-Optical Sectioning Tomography to Obtain a High-Resolution Atlas of the Mouse Brain

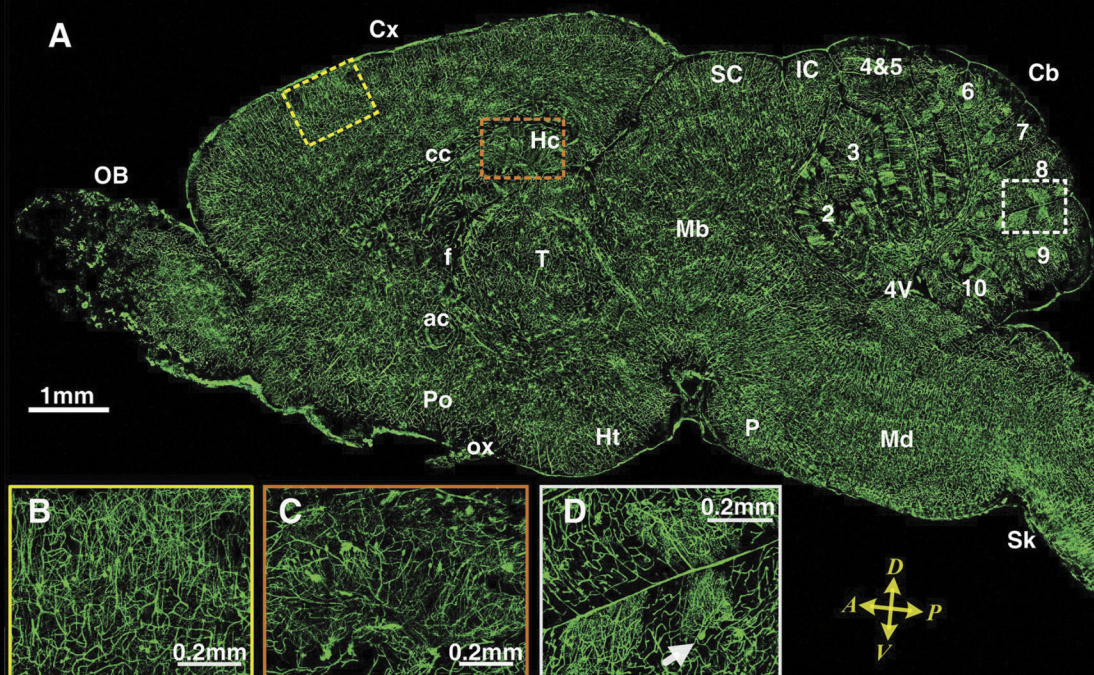
Existing imaging tools have limitations for brainwide mapping of neural circuits at a mesoscale level. In collaboration with DiATOME, researchers developed a Micro-Optical Sectioning Tomography (MOST) system utilizing a DiATOME Diamond Knife that can provide micron tomography of a centimeter-sized whole mouse brain.

Slicing was performed by moving the specimen to generate ribbons, and each ribbon was simultaneously imaged. The illuminating beam passed through a beam splitter, mirror and objective to irradiate the ribbon. The imaging beam collected by the objective and passed through the mirror, beam splitter and tube lens was then recorded by a line-scan CCD.

A 3D structural dataset of a Golgi-stained whole mouse brain at the neurite level was obtained. The morphology and spatial locations of neurons and traces of neurites were clearly distinguished. Researchers found that neighboring Purkinje cells were sticking to each other.

#### Acknowledgement

*Micro-Optical Sectioning Tomography to Obtain a High-Resolution Atlas of the Mouse Brain* Anan Li, Hui Gong, Bin Zhang, Qingdi Wang, Cheng Yan, Jingpeng Wu, Qian Liu, Shaoqun Zeng, Qingming Luo  
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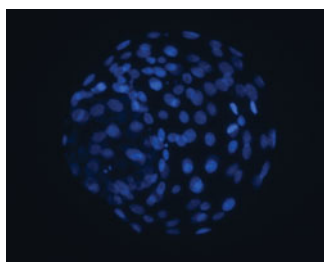


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**On the Cover:** The front cover image shows the total cell number of Buffalo (*Bubalus Bubalis*) somatic cell nuclear transfer blastocyst under a fluorescence microscope. For further details see the manuscript by Yun Feng et al. on page 414.

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