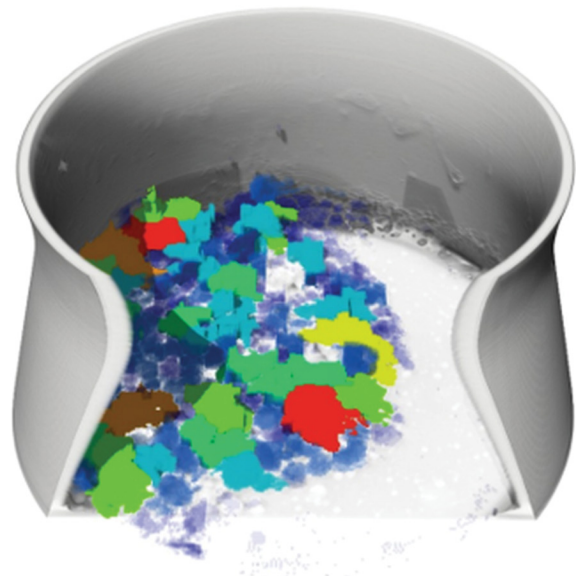
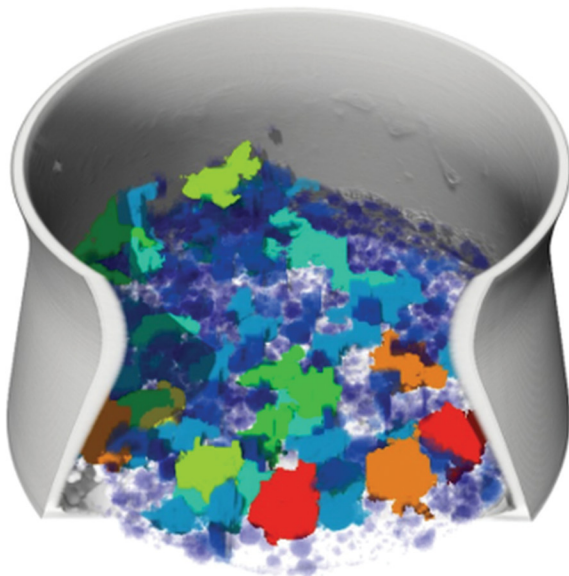
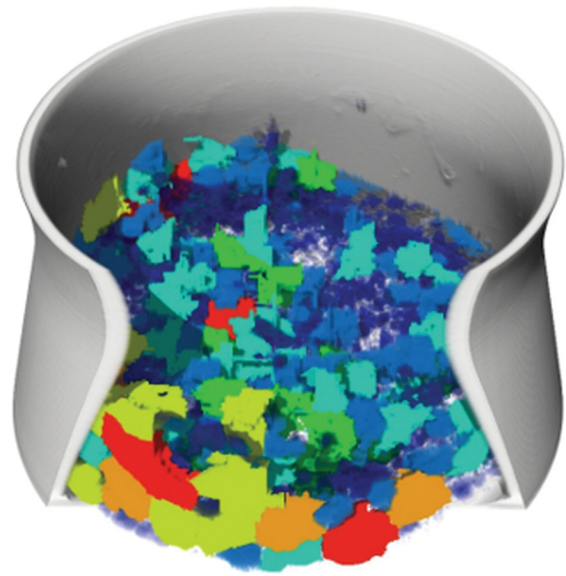
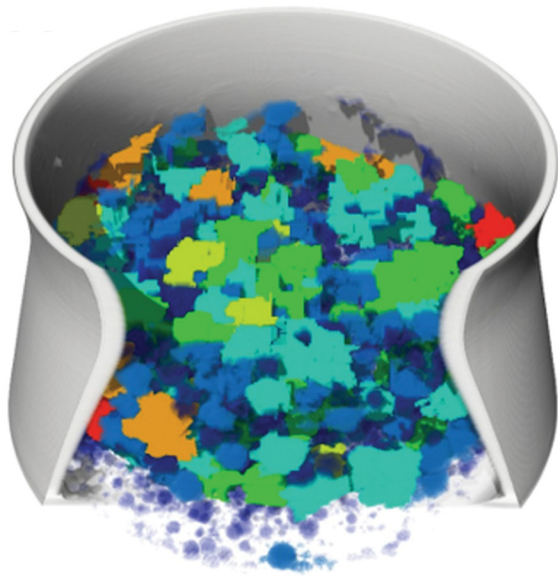


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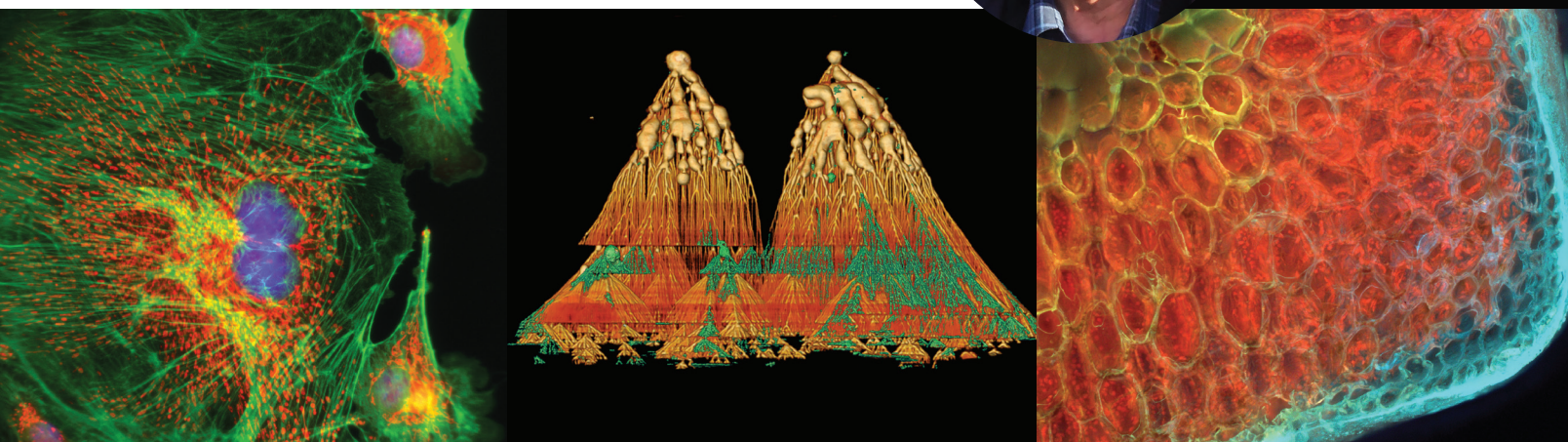
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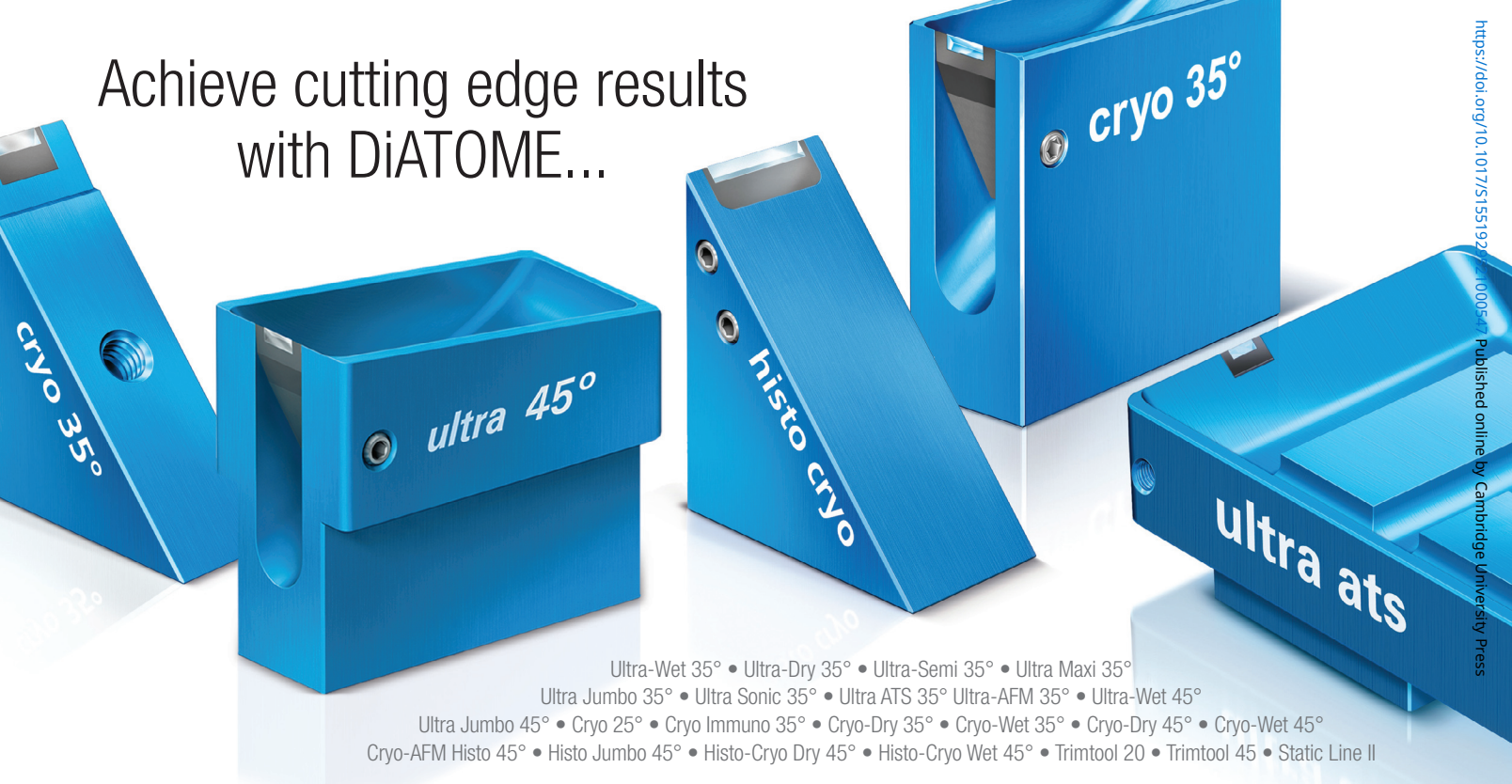
Micrographs, left to right:

Rat endothelial cells by Damon Strom, WITec GmbH, Ulm, Germany

Native vanadium dendrites by Sarah Gain, Centre for Microscopy, Characterisation and Analysis, University of Western Australia, Perth, Australia

Aloe vera leaf by Jose Martinez-Lopez, Química Tech Microscopy and Microanalysis, Juarez, Mexico

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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.

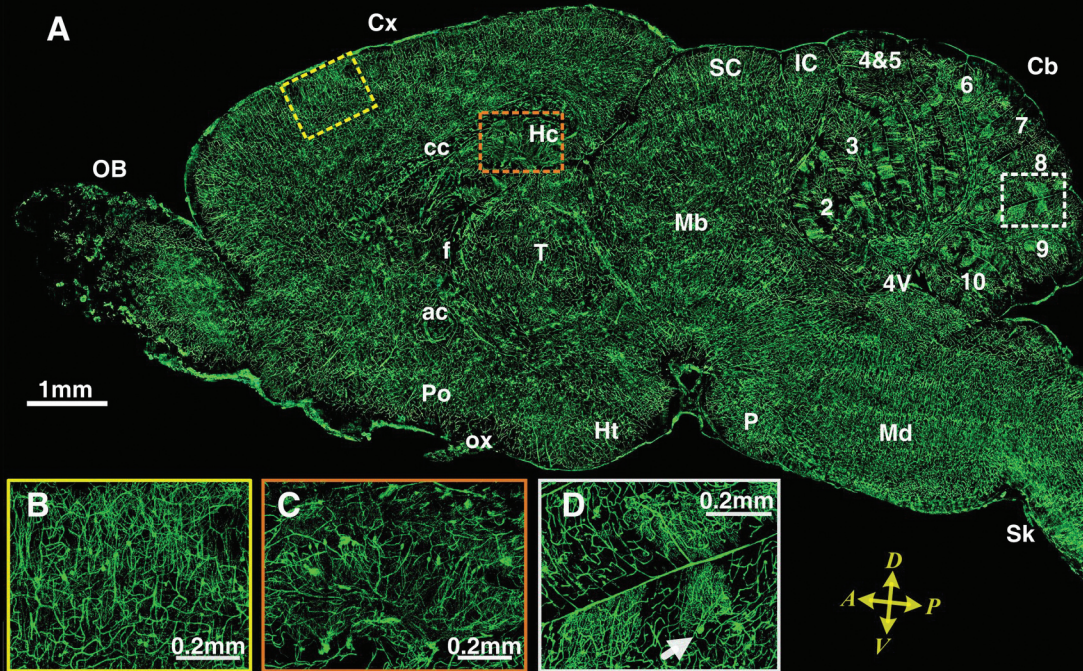
Slicing was performed by moving the specimen to generate ribbons, and each ribbon was simultaneously imaged. The illuminating beam passed through a beam splitter, mirror and objective to irradiate the ribbon. The imaging beam collected by the objective and passed through the mirror, beam splitter and 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, Shaqun Zeng, Qingming Luo

Britton Chance Center for Biomedical Photonics, Wuhan National Laboratory for Optoelectronics—Huazhong University of Science and Technology, Wuhan 430074, P. R. China.



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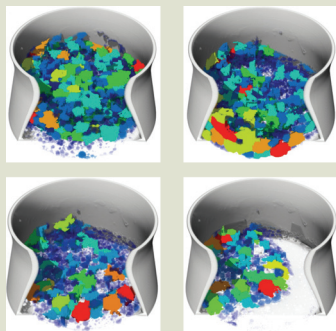
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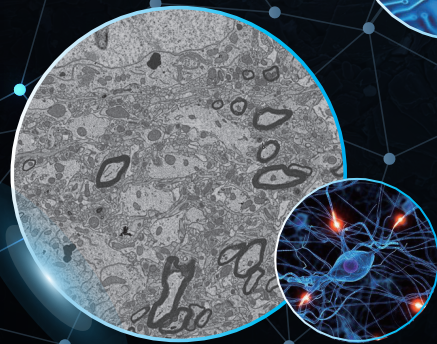
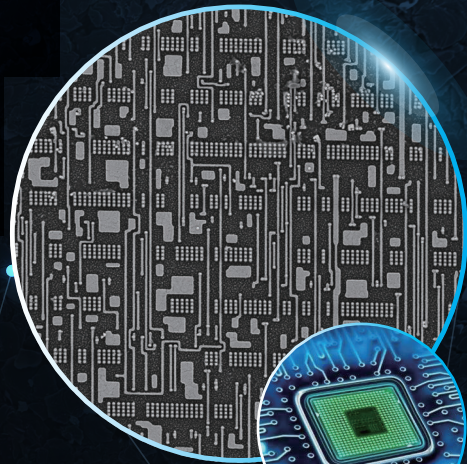
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