BioSpectrum
the business of Bio & Health Sciences
ASIA EDITION

Japanese scientists develop high resolution imaging technique

July 11, 2017 | News

This new technique offers a way to compare multiple brains at the level of individual cells and their subcellular structures.



A team of scientists at Osaka University in Japan have developed block-face serial microscopy tomography (FAST), an imaging system that can image a whole mouse brain at high spatial resolution in less than two-and-a-half hours.

FAST consists of a spinning disk confocal microscope with built in microslicer and a method for processing image data. With the 3D reconstruction technique, whole brains can be visualized at a resolution high enough to resolve individual cells and their subcellular structures.

By combining their FAST technique with specific staining procedures, the team of scientists were able to visualize subcellular nuclei, vascular structures, mature oligodendrocytes, myelin sheaths, interneurons, and projecting neurons throughout the whole brain.

These imaging tools provide a systemic approach to investigating the pathophysiological mechanisms of different brain diseases.

This new technique offers a way to compare multiple brains at the level of individual cells and their subcellular structures.

With this approach, new insights will be gained into the pathological mechanisms of different brain diseases. Furthermore, the applicability of this offers a translational approach to researching non-human animal models and human diseases.