Docket #: S13-155

Robotic Microscopy System for Simultaneously Imaging Multiple Areas of a Sample

Researchers in Prof. Mark Schnitzer's laboratory have developed a robotic optical microscopy system which enables users to simultaneously view and record separate areas of a single three-dimensional sample. This system uses miniature objectives mounted on robotic arms to maneuver around a sample with five degrees of freedom. This allows cellular-level imaging in multiple places to visualize long-range interactions of cells distributed around the sample. This technology was designed for functional studies of neuron populations throughout the brain and could be used for other basic biomedical research or surgical robotics.

Figure

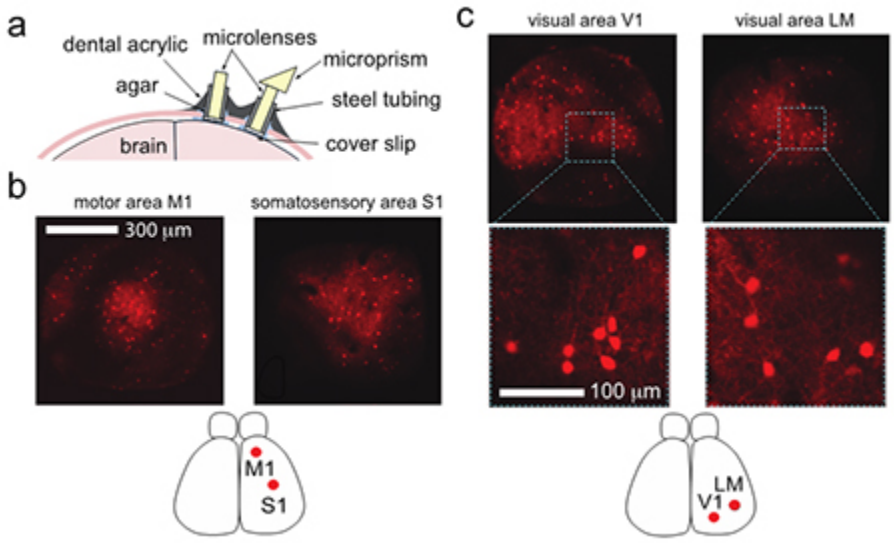

Figure Description: Images from prototype with two robotic arms shows imaging from two distally separated areas of a mouse brain.

Stage of Development
Prototype

Applications

- In vivo imaging
- Simultaneous distal region imaging
- Neuroscience research
- Coupling with optical implant systems
- Robotic surgery

Advantages

- Omnidirectional sample access
- High speed (50 kHz camera)
- Customizable with single or multiphoton imaging
- Cellular resolution

Patents

- Published Application: 20150057550
- Issued: 9,398,935 (USA)

Innovators

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