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DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

Government-Owned Inventions; Availability for Licensing

AGENCY: National Institutes of Health

ACTION: Notice

SUMMARY: The inventions listed below are owned by an agency of the U.S.

Government and are available for licensing in the U.S. in accordance with 35 U.S.C. 209 and 37 CFR Part 404 to achieve expeditious commercialization of results of federally-funded research and development.

FOR FURTHER INFORMATION CONTACT: Licensing information may be obtained by emailing the indicated licensing contact at the National Heart, Lung, and Blood, Office of Technology Transfer and Development Office of Technology Transfer, 31 Center Drive Room 4A29, MSC2479, Bethesda, MD 20892-2479; telephone: 301-402-5579. A signed Confidential Disclosure Agreement may be required to receive any unpublished information.

SUPPLEMENTARY INFORMATION: Technology description follows.

Multi-Photon Microscopy System Configured for Multiview Non-Linear Optical Imaging
This invention is a microscopy device and system for multi-photon microscopy utilizing

multi-view nonlinear optical imaging. Nonlinear optical imaging remains the premier technique for deep-tissue imaging in which typically a multi photon arrangement may be used to illuminate and excite a sample. However, the penetration depth, signal-to-noise ratio, and resolution of this technique is ultimately limited by scattering. The present system addresses these issues by sequential excitation of a sample through three or more objective lenses oriented at different axes intersecting the sample. Each objective lens is capable of focused sequential excitation that elicits fluorescence emissions from the excited sample, which is then simultaneously detected by each respective objective lens along a respective longitudinal axis. Including multiple lenses will improve the penetration depth and at the same time decrease the loss of detail because of scattering. The system also can overcome losses in spatial resolution because of the scattering of the excitation and emission light.

Potential Commercial Applications:

- High resolution multi-photon microscopy
- Deep tissue visualization

Competitive Advantages

- improved signal-to-noise ratio
- improved spatial resolution

Development Stage:

- Prototype

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Intellectual Property: HHS Reference No. E-229-2015/0; U.S. Provisional
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