vCAm

Volumetric Calcium Imaging 2-Photon Activity Microscope Module

Unlock the Power of Light Beads Microscopy

Transform Your Research with Advanced Brain Imaging Technology

Introducing vCAm, the groundbreaking add-on device for two-photon microscopes that's changing the game in neuroscience research. Powered by innovative Light Beads Microscopy (LBM) technology, vCAm pushes the boundaries of what's possible in brain imaging.

Unparalleled Speed Meets Exceptional Depth

- Rapid Volumetric Imaging: Capture a 0.5mm deep volume in the time it takes conventional microscopes to image a single plane.
- High-Speed Acquisition: Record up to 30 axial planes within volumes of 300µm to 600µm at 30Hz.
- Cutting-Edge Technology: Developed by Dr. Alipasha Vaziri's renowned Laboratory of Neurotechnology and Biophysics at Rockefeller University.

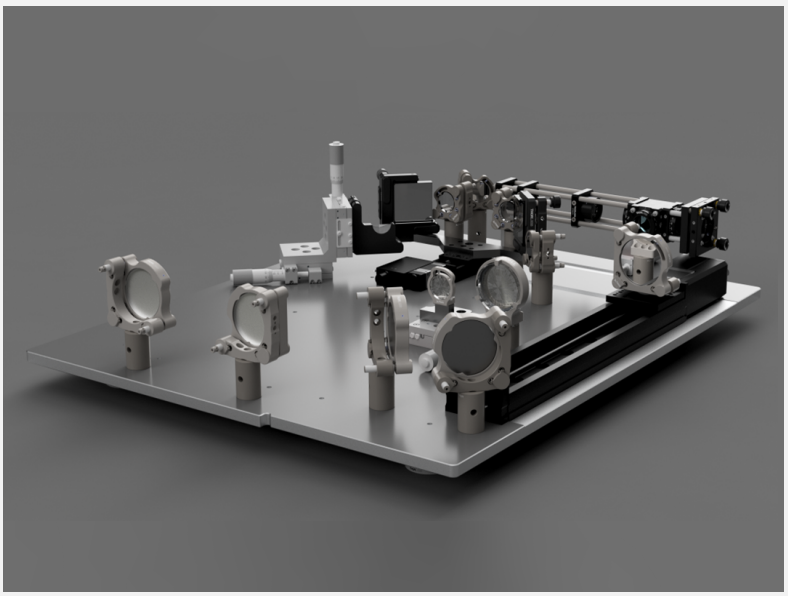
Key Features that Set vCAm Apart

Ultra-Fast Volumetric Imaging
- Record data at rates limited only by GCaMP fluorescence lifetime
- Capture full volumes in the time traditional 2p methods take for a single plane

Superior Signal-to-Noise Ratio
- One excitation pulse per voxel
- Optimizes SNR per unit of excitation power
- Improves image quality and data reliability

Efficient Temporal Multiplexing
- Maximize information gathered per unit time
- Boost overall data acquisition efficiency

Seamless Integration
- Compatible with most 2-photon microscopes
- Upgrade your existing setup with cutting-edge capabilities



Elevate Your Neuroscience Research

- Faster 3D brain activity mapping
- Achieve superior spatial and temporal resolution
- Better visualization of neural networks and their dynamics with unprecedented clarity
- Optimized for use with GCaMP, a common neural activity indicator

Overcoming Traditional Limitations

Two-photon microscopy has long faced challenges in balancing resolution, speed, and signal quality. vCAm tackles these head-on:

- Optimize image resolution
- Maximize acquisition speed
- Enhance signal-to-noise ratio (SNR)
- Overcome brain tissue light-scattering issues

Experience the Future of Brain Imaging Today

Join the forefront of neuroscience research with vCAm. Unlock new insights into brain function and push the boundaries of what's possible in neural imaging.

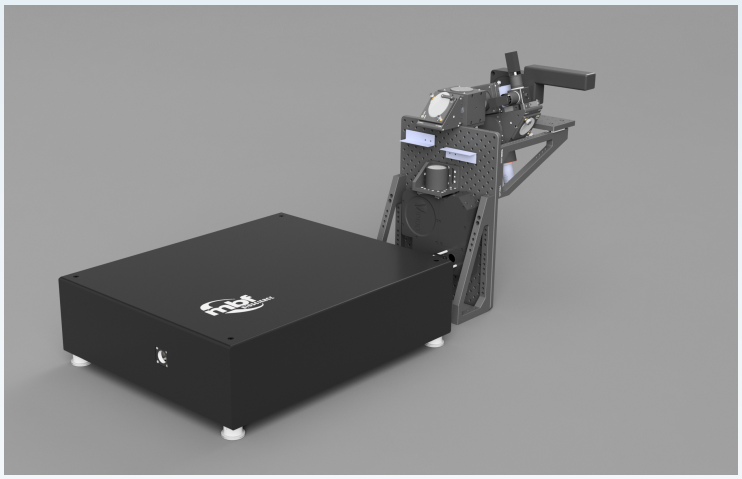
vCAm: Where Speed Meets Depth in Neural Imaging

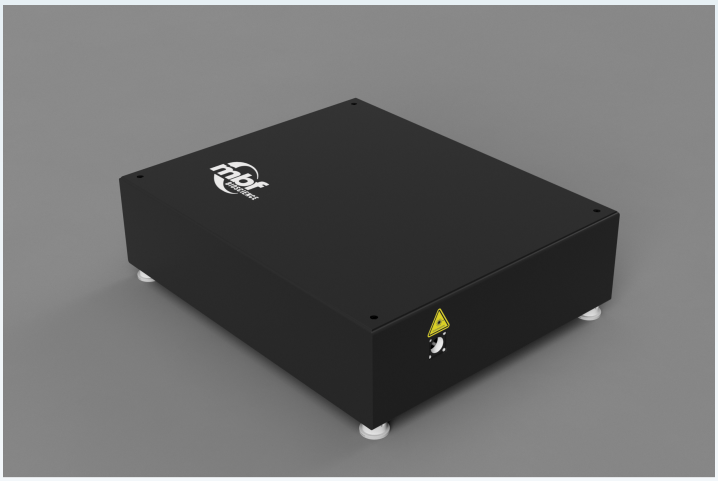
vCAm

Volumetric Calcium Imaging 2-Photon Activity Microscope Module

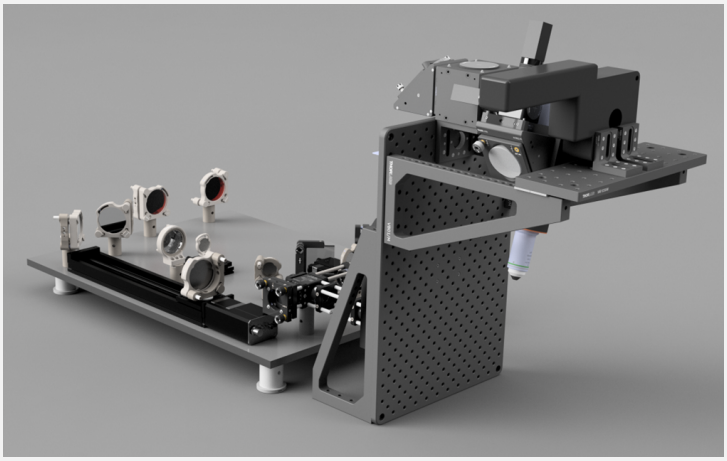
Unlock the Power of Light Beads Microscopy

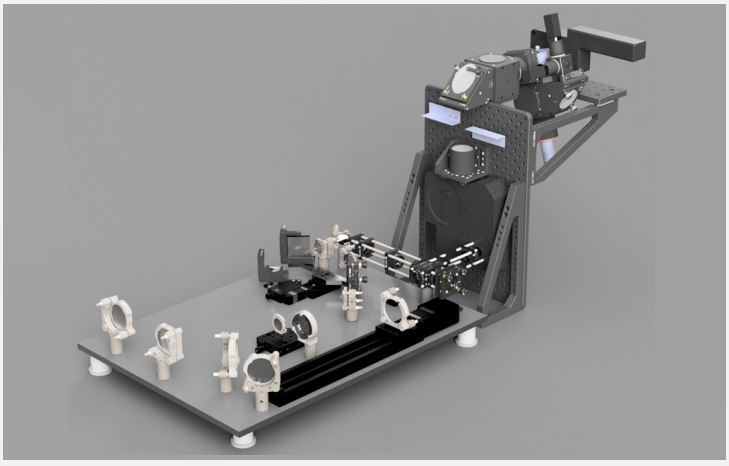
vCAm Multiplexing Module





Example Configuration on a DIY Microscope





Specifications

- Wavelength (nm): 900 to 1050
- Input polarization: vertical
- Input beam size (mm): 3
- Required laser frequency (MHz): 4.5 to 5
- Input height (mm): 100
- Dimensions (mm): 675x500x120

Laser Frequency (MHz)	Maximum Number of Planes*
4.5	32
4.7	30
5	28

*Assuming a temporal window of 6.8ns for the demultiplexing channels

Powered by ScanImage and vDAQ

Learn More