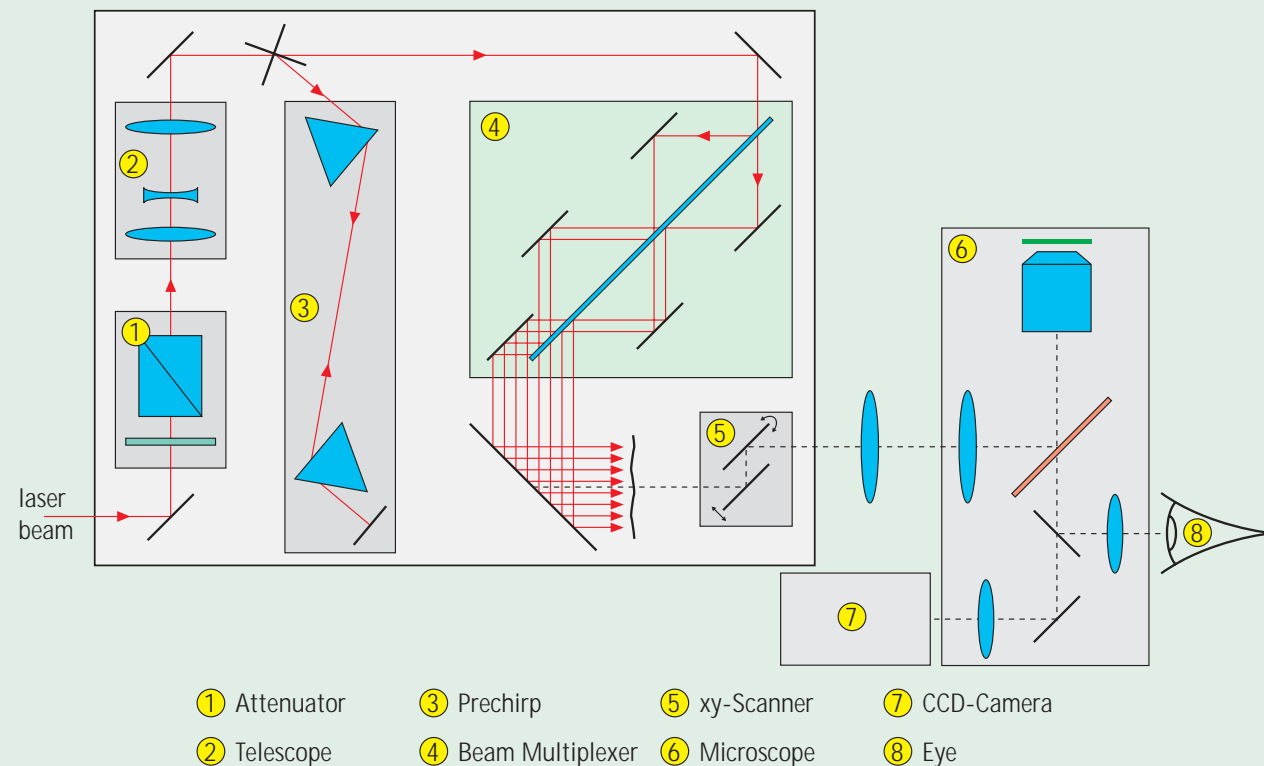


Schematic Set-up



Specifications

- 1, 2, 4, 8, 16, 32, 64 foci arranged in a line
- Typical foci separation from 0.3 μm to 1.3 μm
- Suitable for wavelengths between 750...1150 nm
- Optical throughput within the TriM Scope > 75 %
- User-defined field of view
- Two-axis galvano scanner
- Scan rate up to 3.5 kHz
- Region of interest scanning
- Continuous laser power attenuation
- Chirp compensation

Options

- Spectrograph
- Fast filter wheel
- Motorized xy and xyz-sample-stages
- Different detectors (CCD, BCCD, APD, PMT)
- Suitable for all major microscopes
- 3-D FLIM with PicoStar HR ICCD

TriM Scope

Extension for

Real Time 3-D

Multifocal **M**ultiphoton Laser Scanning **M**icroscopy



LaVision BioTec GmbH
 Meisenstraße 65 ■ D-33607 Bielefeld
 Tel.: +49 (521) 299 77-10 ■ Fax: +49 (521) 299 77-01
 info@LaVisionBioTec.com ■ www.LaVisionBioTec.com

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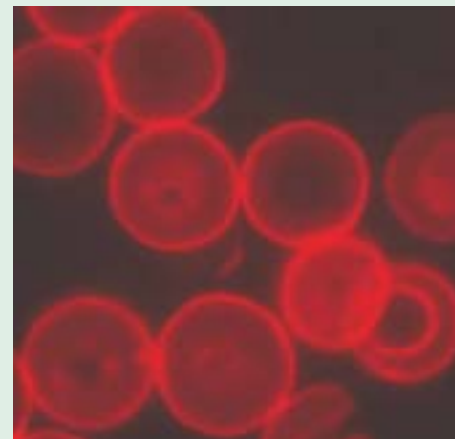
LaVision 
BioTec



64 beams are brighter than one
LaVision BioTec's patented beam multiplexer
technique for advanced real time 3-dimensional
microscopy.

2-photon fluorescence microscopy delivers excellent sectioning capabilities even in dense and thick samples. However, single beam systems are restricted. The laser intensity within the focus already reaches the damaging level of biological samples and cannot be increased anymore to get brighter images. This limitation can be overcome by LaVision BioTec's novel tool for multifocal 2-photon microscopy based on a patented beam multiplexer technique.

Unique flat optics are utilized to divide the incoming laser beam into up to 64 beamlets. A line of equally spaced and bright foci is created and scanned in the object plane. This results in either 64 times brighter images or 64 times higher image acquisition rates compared to single beam 2-photon scanning microscopes.



Applications

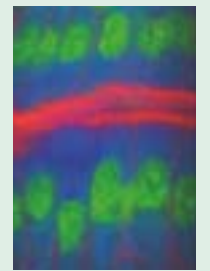
- Imaging of living cells
- Motion tracking of cell compartments
- Observation of fast signal transduction processes (Ca^{2+})
- Single molecule studies
- Picosecond time-resolved microscopy (4D FLIM)
- FRET, FRAP

Variable number of foci

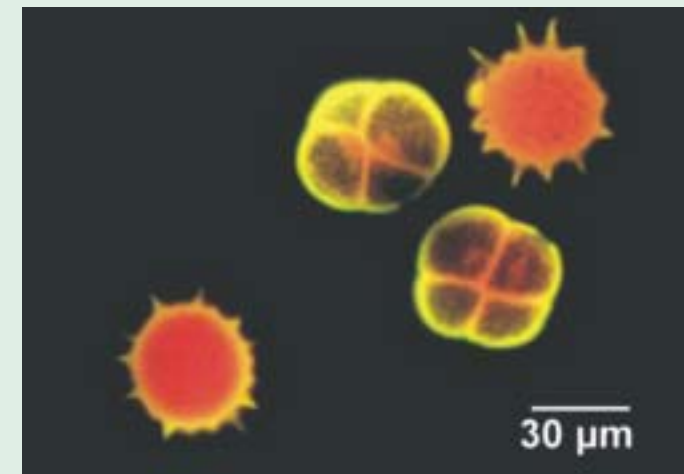
Scattering and wavefront distortion in dense tissue demand for increased excitation power. Therefore the number of foci can be set by software from 64 foci arranged in a line to a single beam while the fluorescence intensity is doubled with each time the number is reduced by a factor of 2.



Raw Data



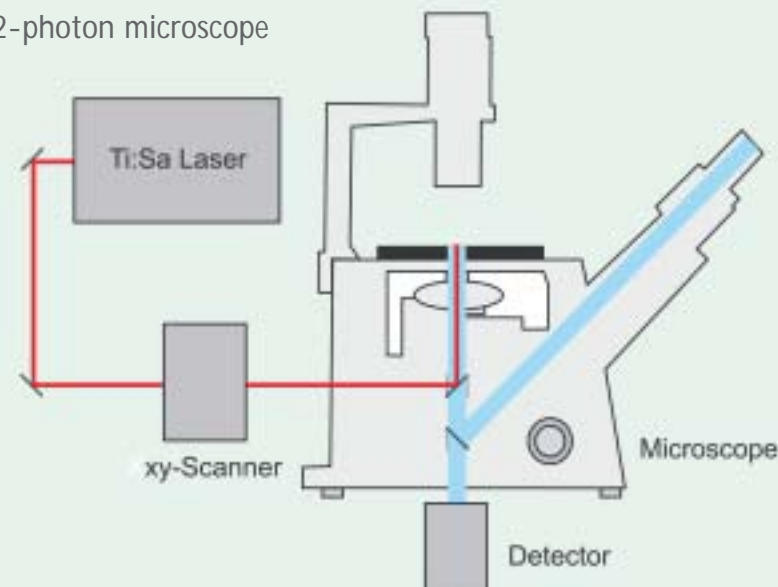
Linear spectral unmixing



Software

- Easy to use fully automated experimental concept
- Real-time visualization and evaluation of multi dimensional data sets
- Multi-exponential FLIM fitting routines
- Advanced linear spectral unmixing routines

Standard 2-photon microscope



TriM Scope Extension

