

Two-Photon Microscopy (2PLSM) on Cell-Biohydrogel Hybrids



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Innovation

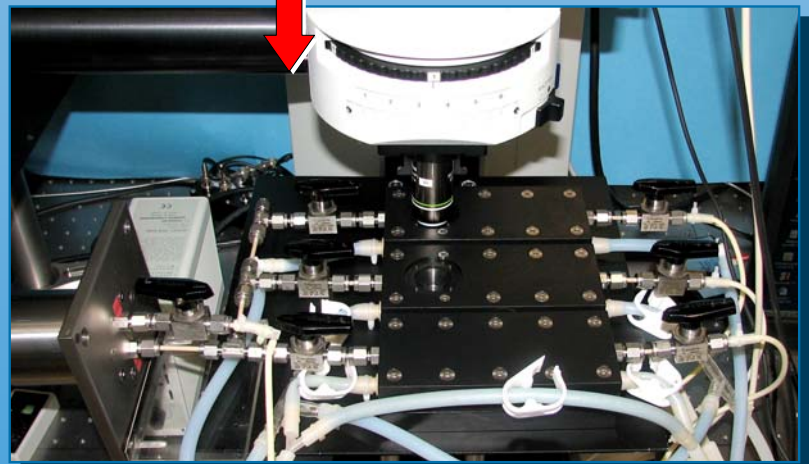
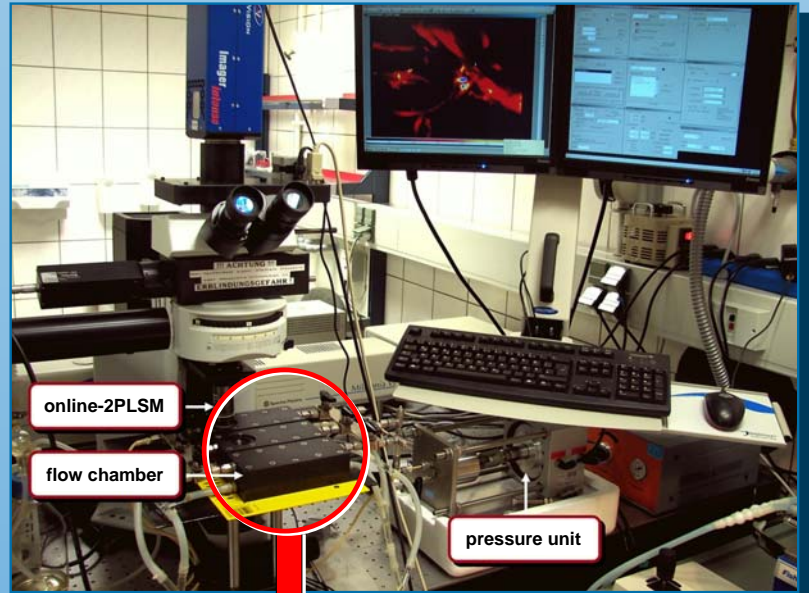
Combination of cell and tissue cultivation on biohydrogel scaffolds under mechanical stimulated conditions with the non-invasive optical control (**online-analysis**)

Two-Photon Microscopy

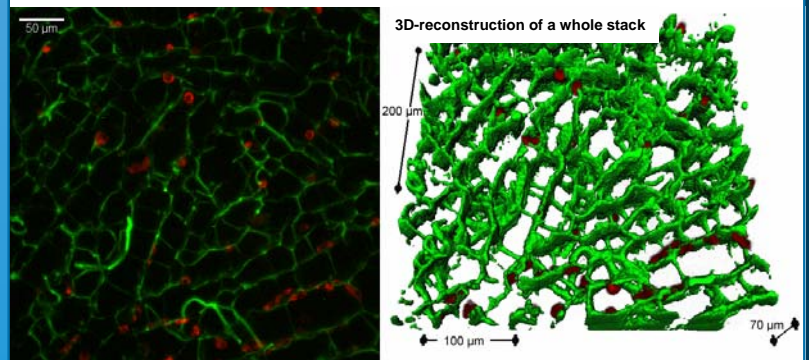
- NIR-excitation (760-980 nm)
- 2P-effect by means of a femto-second pulsed laser
- excitation of autofluorescence
- optical 3D-analysis of biological samples up to a depth of more than 1 mm (X-Y-Z laser scanning)

Features

- spectral analysis of autofluorescence signals of three-dimensional cell and tissue constructs by means of spectrographs or suitable filter sets within the optical detection path
- selective visualization of untreated cells and tissues by false color imaging
- 3D-rendering and quantification of cells and tissues by means of image analysis
- Fluorescence Lifetime Imaging Microscopy (FLIM)
- analysis of cellular interactions



Application example



Chondrocytes (red) on 3D-collagen scaffolds (green): untreated sample, false color image based on differences between the autofluorescence spectra of these main components (spectral unmixing)