RAPP

Enlightening Your Vision

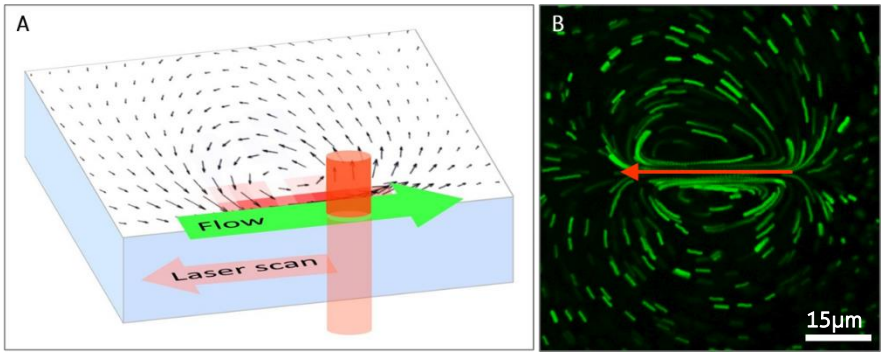
NEW

FLUCS

Micro Flow Photomanipulation

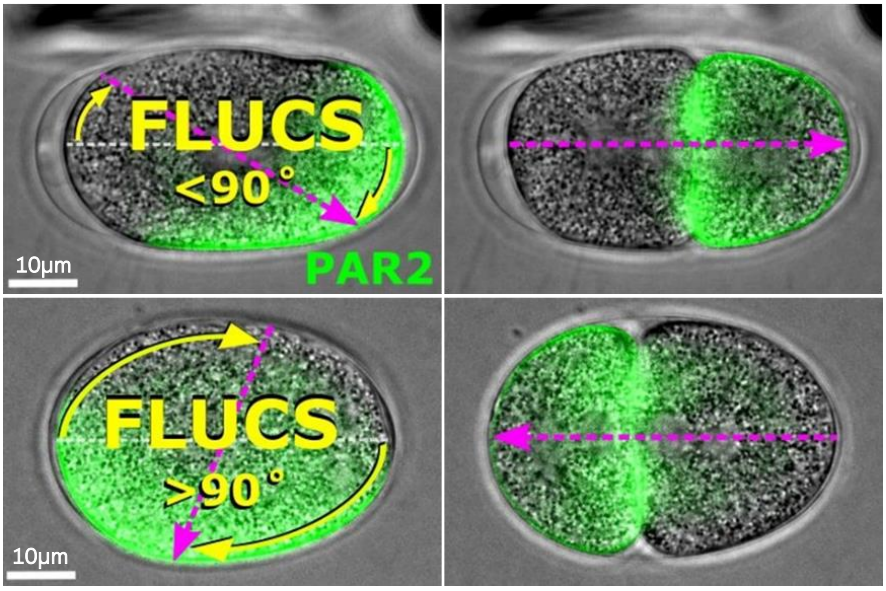
FLUCS – A New Photomanipulation Technique

With FLUCS (Focused Light-Induced Cytoplasmic Streaming) photomanipulation, the non-invasive and flexible control of microscopic flows, we offer the microscopist a completely new tool to manipulate the sample.



A: Principle of the method: Moderate heating of the sample with a rapidly scanned infrared laser induces directional thermo-viscous fluid flows. By flexibly designing the scan pattern of the laser, the fluid is pumped along pre-defined paths in the focal plane of the microscope. **B**: Transport of fluorescence beads: The red arrow indicates the scan direction of the focused infrared laser.

Developmental Biology Application



FLUCS-induced rotational flow in the cytoplasm moves PAR2 domains and inverts the embryonic body axis (purple arrow) of *C. elegans* worms *in vivo*. If the critical angle of 90 degrees is exceeded during the FLUCS-induced rotation (yellow arrows), the PAR2 domain relaxes towards the opposite pole. (Mittasch et al. 2018)

Applications

- Cell biology
- Developmental biology
- Biophysics
- Microfluidics
- Medical research
- Material science

Features

- Ability to actively control the motion of a fluid
- Generate multiple flow patterns
- Easy integration in complex experimental setups
- Speed control by adjusting laser power and scan speed
- Intuitive and user-friendly software control
- Compatible with all common microscopes

Developed in collaboration with the Max-Planck-Institute of Molecular Cell Biology and Genetics (MPI-CBG), Germany.

MAX PLANCK INSTITUTE OF MOLECULAR CELL BIOLOGY AND GENETICS

RAPP

Rapp OptoElectronic GmbH
Kronskamp 110
22880 Wedel, Germany

phone: +49 4103 701 89-0
email: info@rapp-opto.com
www.rapp-opto.com