To analyze the tubulin dynamics during spindle formation, Drosophila S2 cells were transfected with mEos2-labled tubulin. By local irradiation with UV laser light (405nm) the green fluorescent mEos2 photoconverts to a red fluorescent dye. In contrast to photobleaching, where the fluorescent signal is locally depleted, the photoswitching allowed the independent observation of two different tubulin fractions in space and time.

https://rapp-opto.com/wp-content/uploads/2018/10/thorn-ucsf-spindle-elongation_x264.mp4

Movie1: Photoconversion of mEos2-labeled tubulin in the spindle of a Drosophila S2 cell. The video is sped up 20-fold from real time.

Setup:

- Microscope: Standard widefield microscope
- Objective: 100x NA 1.4
- 405 & 473 nm diode laser

Rapp OptoElectronic Components:

- UGA-40 – point scanning device (integrated in µ-manager)

Data taken from:

Kurt’s Microscopy Blog
http://nic.ucsf.edu/blog/2014/04/photobleaching-and-photoactivation/

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