**Fluorescence inverted confocal spinning disk microscope Olympus SpinSR10**

**Equipment:** Olympus SpinSR10

**No. of Equipment: IEM12**

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**Equipment Description**

The Olympus SpinSR10 is a fluorescence inverted confocal spinning disk microscope with super-resolution mode. It is designed for fast 3D super resolution imaging and prolonged cell viability in time-lapse experiments, the IXplore SpinSR microscope system offers XY resolution down to 120 nm without the need for dedicated labeling procedures.

**Specifications and technical features:**

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| --- | --- |
| Illumination | Halogen lamp for transmission light illuminationCoolLED pE-300ultra fluorescence light source (3x LED: 405, 488, 561 nm)Solid-state laser 405 nm (50 mW) Solid-state laser 488 nm (100 mW)Solid-state laser 561 nm (100 mW)Solid-state laser 640 nm (100 mW) |
| Objectives | UPLXAPO 10X, dry, NA 0.4, WD 3.1 mmUPLXAPO 20X, dry, NA 0.8, WD 0.6 mmUPLXAPO 40X, dry, NA 0.95, WD 0.18 mmUPLXAPO 60 X, oil, NA 1.42, WD 0.15 mm |
| Filter sets | DAPI: ex. 330 – 385 nm, em. LP 420 nm, DM: 400 nmFITC: ex. 470 – 490 nm, em. LP 520 nm, DM: 500 nmTRITC: ex. 510 – 550 nm, em. LP 590 nm, DM: 570 nmCY5:  |
| Detectors | 2x Hamamatsu ORCA-Flash4.0 CMOS camera for two – channel imaging.Resolution: 2048 x 2048 pxPixel size: 6.5 µm x 6.5 µmLive frame rates: 100 fps (2048 x 2048), binning 2 x 2 and 4 x 4 |
| Scanning module | Yokogawa CSU-W1 confocal scanner unit with spinning diskPinhole diameter: 50 µmTunable rotation speed >4000 rpm.,Scan speed >100 fps Effective view field number 18mm.Motorized magnification lens for super-resolution mode. XY resolution max 120 nm.  |
| Stage | PC-controlled motorized stage  |
| Software | cellSens Dimension, ScanR Acquisition, ScanR Analysis |
| Additional equipment | PECON cellVivo incubator with adjustable temperature and CO2/O2 concentration |

**Location:**

- building La, 1st floor, room 1.17

**Applications:**

- Fast and multi-colour

- Super-resolution imaging

 Various measurement options: multi-channel imaging, z-stack, time series, mosaic, smart experiment design

- Long term live-cell imaging available

- Transmission light microscopy, DIC

**Specification of expertise relevant to NanoEnviCz workpackage**

**WP3**a,d,f,g,h, **WP4**a,b, **WP6**a,d, **WP7**a,c,e,h,i, **WP9**a,b,c,d

**Detailed description of expertise**

**Please, specify the main research topics connected with equipment**:

Olympus SpinSR10 is a system used in nanotoxicology. It allows super-resolution confocal imaging, Long term live-cell imaging or transmission light microscopy.

**Please, specify the secondary research topics connected with equipment**:

The system may be used in toxicology in general, or in any application that requires analyzes and monitoring live-cells.

**Keywords describing research area:**

Live-cell imaging, nanotoxicity, biological effects of nanomaterials, nanoparticles

**Competence**

**Relevance for applied and industrial research:**

Analyzes of effects of xenobiotics, including nanomaterials, with the aim to identify possible negative response of the organism to the exposure to these compounds.

**Relevance for fundamental studies:**

The Olympus SpinSR10 is a fluorescence inverted confocal spinning disk microscope with super-resolution mode. It is designed for fast 3D super resolution imaging and prolonged cell viability in time-lapse experiments.