Nikon Instruments Eclipse Ti-E Inverted Microscope coupled with Nipkow spinning disk confocal imager CARV II

Location

Room D / basement / 048 (l. 2472)

Institute of Physiology of the Czech Academy of Sciences (CAS), Areal Krč, Vídeňská 1083, Prague 4

Usage rules

See the document **General Usage Rules for Confocal Microscopes**

Specification of the confocal microscope Nikon Ti-E / Crest CARV II

1. **Microscope.** The inverted fluorescent microscope Nikon Ti-E with motorized stage Prior Proscan III enables one to conduct multiple ROI, Tile Scan and Mark&Find experiments. The microscope is coupled with Nipkow spinning disc imager CARV II that contains a unit for confocal and FRAP imaging. The whole system is placed on an active pneumatic anti-vibration table STable© Supertech.

2. Available objectives.
•Nikon CFI Plan Fluor 10X, DIC, 10x/0.3 NA, WD = 16 mm;
•Nikon CFI ADL 10X, Ph, 10x/0.25, WD = 6.2 mm;
•Nikon CFI Plan Fluor 20X, DIC, 20x/0.5 NA, WD = 2.1 mm;
•Nikon CFI S Fluor 40X Oil, DIC, 40x/1.3 NA, WD = 0.22 mm;
•Nikon CFI Plan Apo Lambda 60X Oil, DIC, 60x/1.4 NA, WD = 0.13 mm;
•Nikon CFI Plan Apo VC 100X Oil, DIC, 100x/1.4 NA, WD = 0.13 mm;
For more information, please visit Nikon website

3. Illumination path. The sample can be illuminated by a halogen lamp in transmission mode or by the mercury lamp X-Cite® 120PC Q in epi-fluorescent mode. The provided spectrum ranges from 300 nm to 700 nm and the illumination path is optimized for common dyes (DAPI, GFP, Cy3, Texas Red, Cy5).

4. Detection path. The emission path is equipped with band pass filters that are optimized for the above mentioned dyes. The image is acquired by a cooled

monochromatic 16bit CCD camera Hamamatsu Orca-R^2 with resolution 1344 (H) x 1024 (W), pixel size 6,45 μm x 6,45 μm, acquisition speed 16,2 fps and quantum efficiency over 70 %.

5. Box incubator. The system Okolab UNO-COMBINED-CONTROLLER controls the environmental parameters such as temperature (ambient temperature to 50° C), CO_2 (0 to 15 %) and relative humidity (up to 75 % for 37° C). The size of the box is 85,5 x 127,7 x 25,0 mm.

6. Software. The whole system is controlled through NIS-Elements AR that supports a tool for running complex tasks (module Jobs).

Useful websites
- [Reservation system](#) at the Institute of Physiology, Czech Academy of Sciences:

- [Specification of optical microscopes](#) at the Institute of Physiology, Czech Academy of Sciences:

- Detailed description of the microscope:
[Internal users](#)

[External users](#)

- Information on the equipment that has been included into the project [Czech-BioImaging](#)
- [Training protocol – internal users](#) (including the rules for entering the facilities with laser scanning confocal microscopes at the Institute of Physiology, Czech Academy of Sciences, [template PDF](#))
- [Training protocol – external users](#)

- Image processing in free software [NIS-Elements Viewer](#)
- Image processing and analysis with open source program Fiji (Fiji is Just ImageJ) that includes a number of useful plug-ins:
[Bioformats (former LOCI Tools)](#)
[SLIM Curve](#) or https://slim-curve.github.io/
[ImageJ world mailing list](#)

- Interactive dye spectra viewer:

ThermoFisher (Life Technologies) interactive Spectra Viewer
Leica FluoScout
BdBioSciences Spectrum Viewer
BioLegend SpectraAnalyzer

-Tables of fluorescent dyes spectra