

Laser Scanning Confocal

System Configuration

Microscope model

SP8 (Leica), inverted

Objective Lenses

DRY – air refractive index 1.0003

WATER- refractive index 1.330

OIL- refractive index 1.5180 (23 C)

IMM – refractive index $1.330 \leq n \leq 1.5180$

Resolution (XY, Z)- for wavelength 488nm

Working Distance – distance between Objective Lens and Cover Glass

Phase Ring – Condenser Annulus for Phase Contrast imaging

IC Prism – the Wollaston prism at the objective lens for DIC imaging

Cond. Prism DIC - the Wollaston prism at the condenser for DIC imaging

Type	HC PL FLUOTAR	Working Distance (um)	11000
Magnification	10	Phase Ring	-
Numerical Aperture	0.30	IC Prisms	D1, D, D1-P
Immersion	DRY	Technique	PH1
Resolution XY (um)	0.650	Cond. Prism DIC	K3, K11
Resolution Z (um)	4.767	Number	11506507

Type	HC PL APO CS2	Working Distance (um)	660
Magnification	20	Phase Ring	-
Numerical Aperture	0.75	IC Prisms	C1,C
Immersion	IMM	Technique	CS2
Resolution XY (um)	0.260	Cond. Prism DIC	K6, K3
Resolution Z (um)	1.108	Number	11506343

Type	HC PL APO CS2	Working Distance (um)	240
Magnification	40	Phase Ring	-
Numerical Aperture	1.30	IC Prisms	D,D1,D1-P
Immersion	OIL	Technique	CS2
Resolution XY (um)	0.150	Cond. Prism DIC	K6, K8
Resolution Z (um)	0.299	Number	11506358

Type	HC PL APO CS2	Working Distance (um)	140
Magnification	63	Phase Ring	-
Numerical Aperture	1.40	IC Prisms	E
Immersion	OIL	Technique	CS2
Resolution XY (um)	0.139	Cond. Prism DIC	K10
Resolution Z (um)	0.236	Number	11506350

Type	HC PL APO	Working Distance (um)	100
Magnification	100	Phase Ring	-
Numerical Aperture	1.44	IC Prisms	D
Immersion	OIL	Technique	-
Resolution XY (um)	0.233	Cond. Prism DIC	K10
Resolution Z (um)	0.403	Number	11506325

Type	HC PL APO CS2	Working Distance (um)	300
Magnification	63	Phase Ring	-
Numerical Aperture	1.44	IC Prisms	E
Immersion	WATER	Technique	CS2
Resolution XY (um)	0.163	Cond. Prism DIC	K10
Resolution Z (um)	0.290	Number	11506346

Not installed

Type	HC PL APO CS2	Working Distance (um)	650
Magnification	40	Phase Ring	-
Numerical Aperture	1.1	IC Prisms	E
Immersion	WATER	Technique	CS2
Resolution XY (um)	-	Cond. Prism DIC	K7
Resolution Z (um)	-	Number	11506360

Source of light

For microscope eyepiece imaging: EL6000 external light for the fluorescence excitation

For confocal imaging: pulsed supercontinuum white light source with emission 470÷670 (nm)

Continues radiation lasers: 405 nm, 488 nm, 496 nm, 514 nm, 561 nm, 594 nm, 633 nm

Filter cubes (only for eyepiece imaging)

Excitation/Emission: DAPI, GFP, mCherry

Leica filter cube number: 11513878, 11513900, 11513873

Detectors

Three hybrid detectors, two PMT detectors, one transmission PMT detector

Digital signal 8Bit or 12Bit.

The detection range from 380nm to 670nm

Image format (pixels): 16x16, 64x64, 128x128, 256x256, 512x32, 512x64, 512x512, 1024x256, 1024x512, 1024x1024, 2048x2048.

Scanning speed: 1÷1800 Hz

Autofocus system

Adaptive focus, best focus

Motorized

Stage, Z – galvo stage (range 400 um), objective turret, DIC prisms

Live cell imaging

Stage top incubator Tokai Hit model INUBG2AF-GSI2, temperature controller (37C) with CO₂ mixer.

Available Techniques

Fluorescence imaging

Photobleaching (FRAP)

Resonance scanning mode

Time-Gating

Phase contrast

Differential interference contrast

Z stack

Stage multi-positioning

Scan field rotation

Scan field zoom

Image stitching

Time-lapse