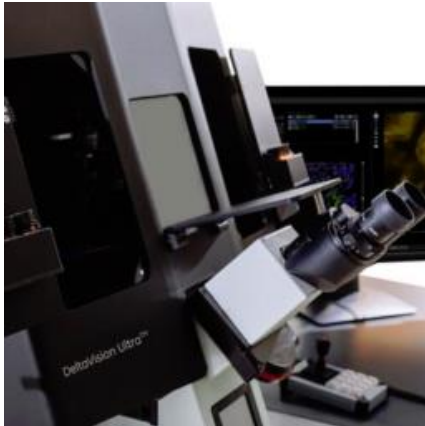


# DeltaVision 2 Ultra



Installed 2018. Inverse widefield microscope equipped with a 4-Megapixel sCMOS camera for fast fluorescence and brightfield imaging. Sedat setup with filters for all conventional dyes from blue to deep red. 7-color solid state light source for fluorescence imaging with Köhler and critical illumination, respectively. White LED for brightfield, DIC optics. Motorized XY stage, hardware autofocus and environmental chamber for temperature and CO<sub>2</sub> control, onboard deconvolution.

(Last update Jan. 2023)

## Stand

Olympus IX-73, inverse, auxiliary magnification (1.6x, manual)

## Objectives

- UPlanSApo 10x/0.4
- UPlanXApo 40x/0.95 Corr
- UPlanXApo 40x/1.4 Oil
- UPlanSApo 60x/1.3 Silicone Corr
- UPlanXApo 60x/1.42 Oil
- UPlanSApo 100x/1.4 Oil

## Light sources

- 7-color SSI: 390 nm (55 mW), 438 nm (90 mW), 475 nm (50 mW), 513 nm (15 mW), 542 nm (90 mW), 575 nm (70 mW), 632 nm (50 mW), with cleanup filters (Semrock FF01, see below). Switching time between wavelengths < 1 ms. Fiber optic module switchable between Köhler and critical illumination, equipped with photosensor to correct intensity fluctuations.
- White LED, DIC optics

## Filters

- Motorized reflector turret (8 pos.) and filter wheels for the camera (10 pos.) and binocular (7 pos.) ports (switching time 100 ms for adjacent positions)

	LED clean-up	Reflector turret	Emission filter wheel
1	DAPI (390/18)	Quad TRITC	DAPI (435/48)
2	CFP (438/24)	Quad mCherry	CFP (475/24)
3	GFP (475/28)	Triple CFP/YFP/mCherry	GFP (525/48)
4	YFP (513/17)	Triple DAPI/GFP/mCherry	YFP (548/22)
5	TRITC (542/27)		TRITC (597/45)
6	mCherry (575/25)		mCherry (625/45)

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Cy5 (632/22)

Cy5 (679/34)

- Polychroic specifications/bands:

Pos.	Polychroic	Channel	Excitation Band	Emission Band
1	Quad DAPI/GFP/TRITC/Cy5	DAPI	390/18	433/47
		GFP	475/28	526/52
		TRITC	542/27	588/47
		CY5	632/22	676/48
2	Quad DAPI/GFP/mCherry/Cy5	DAPI	390/18	433/47
		GFP	475/28	526/52
		mCherry	575/25	608/19
		Cy5	632/22	676/48
3	Triple CFP/YFP/mCherry	CFP	438/24	475/24
		YFP	513/17	548/22
		mCherry	575/25	608/19
4	Triple DAPI/GFP/mCherry	DAPI	390/22	435/48
		GFP	475/33	525/48
		mCherry	575/31	625/45

## Camera

- sCMOS sensor, 2040 x 2040 pixels, 6.5  $\mu\text{m}$  pixel size, 16 bit per pixel, up to 65 fps, peak QE 82%

## XYZ stage and stage inserts

- XYZ travel range 106 x 70 x 7 mm (repeatability +/- 0.2  $\mu\text{m}$ , minimum step size 10 nm)
- Hardware autofocus (785 nm, precision 50 nm @ 60x/NA 1.42 Oil)
- Inserts for slides (75 x 25 mm), chambered coverglass (60 x 24 mm), 35 mm dishes, multiwell plates

## Environmental control

- Temperature (ambient +7°C to 40°C +/-0.1°C)
- CO<sub>2</sub> (0-20% +/-2%)

## Software

- AcquireUltra user interface 1.2.3 running on Linux (CentOS 7)
- softWorX 7.2.1 suite for 2D/3D visualization, analysis and deconvolution

## Additional Devices

- Immersion oils with refractive indices from 1.510 to 1.520 (in increments of 0.002)
- Dry objective UApo/340 20x/0.75 (on request)