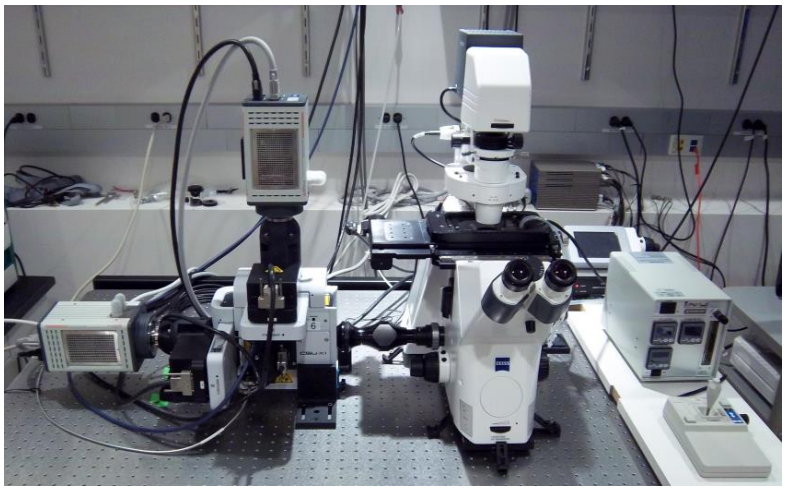
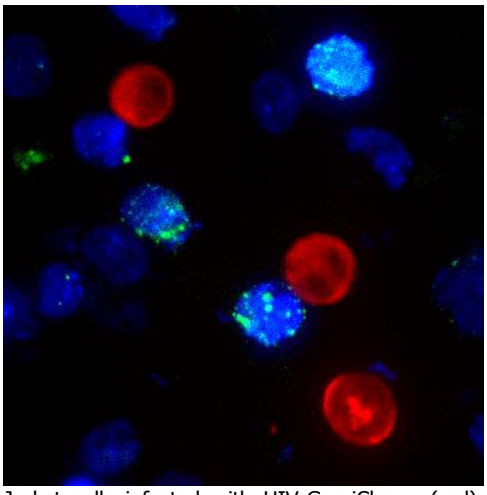
Spinning Disk Confocal





Jurkat cells infected with HIV-Gag-iCherry (red), incubated with target MT4 cells with eFluor 450 (blue) and eFluor 488 anti-CXCR4 (green). Image courtesy of Talia Swartz, Ben Chen Lab.

The Spinning Disk Confocal microscope system provides an optimal solution for high speed live cell imaging. This custom system is comprised of a Yokogawa CSU-X1 spinning disk scan head mounted to a Zeiss AxioObserver Z1 inverted microscope and controlled by MetaMorph image acquisition software. Dual Hamamatsu EM-CCD C9100 digital cameras enable simultaneous imaging of up to two fluorescent channels. Its Prairie Technologies Aurora solid state diode laser launch has five laser lines: 405nm, 488nm, 515nm, 561nm, and 640nm. The Spinning Disk microscope has multiple features to enable a wide range of live confocal imaging experiments, including: a Tokai Hit incubator with controlled temperature, CO2, and humidity; a lens heater; adapters for cell chambers, dishes, and slides; an encoded motorized stage that can mark multiple points within a sample or between different wells; a Piezo focus device for high speed z-stack imaging; and an on-site tissue culture facility to maintain cells prior to imaging.

Confocal Specifications

Laser Lines	Cameras	Emission Filters	Dichroics	Scan Modes	Pixel Clock Rate	Bit Depth	Resolution
405	**Camera 1:** Hamamatsu EM-CCD C9100	LP 561 BP 452/45 BP 542/27 BP 676/29 BP 605/15 BP 525/45	T405/488/568/647	Frame	0.69 MHz (Normal CCD readout)	12	max: 512 x 512
488	**Camera 2:** Hamamatsu EM-CCD C9100	LP 405 BP 452/45 BP 525/30 BP 676/29 LP 561 BP 542/27	T442/514/647	Z-stack	2.75 MHz (Normal CCD readout)		min: 128 x 128
515				Timelapse	0.69 MHz (EM-CCD readout)		
561				Multiple Stage Positions	2.75 MHz (EM-CCD readout)		
640					11 MHz (EM-CCD readout)		

Objectives

Magnification	Immersion	NA
20x	Air	0.4
40x	Oil	0.6
40x	Oil	1.3
63x	Oil	1.4
100x	Oil	1.4