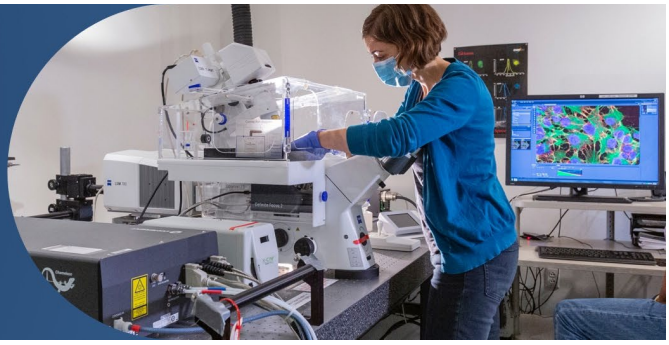
Fred Hutch
Cancer Center

Cellular Imaging

Research Administration
Seattle, WA • 501(c)(3) Nonprofit



Fred Hutch's Shared Resources are catalysts for lifesaving discoveries. This uniquely centralized program of 15 specialized core facilities and scientific services drives advances by integrating dedicated experts and cutting-edge technologies across the entire research pipeline, from basic science to clinical trial.

DeltaVision Elite

3D deconvolution microscope system

Excitation sources

- Solid-state light engine with seven excitation bands: 390 nm, 440 nm, 475 nm, 510 nm, 545 nm, 580 nm, 640 nm

Objectives

- 10x/0.4 (air), 20x/0.75 (air), 40x/0.85 (air), 40x/1.3 (oil), 60x/1.42 (oil), 100x/1.40 (oil)

Camera

- Photometrics CoolSNAP HQ2

Capabilities

- Multidimensional acquisition (x,y,z, wavelength, time
- Up to five channels (fluorescence and brightfield/DIC)
- Multi-point acquisition
- Large area acquisition (tiling)
- Autofocus
- Fast acquisition mode
- Fluorescence resonance energy transfer, or FRET

Recommended uses

- High-resolution multicolor fluorescence imaging of thin specimens (yeast and mammalian cells, thin tissue sections, worm embryos)
- Time-lapse imaging of live cells
- Colocalization studies ¬ FRET

General information

The Deltavision Elite image restoration system uses knowledge of the 3D imaging properties of the microscope (point spread function or PSF) to improve three-dimensional microscopy data by remapping the out-of-focus signal, thereby enhancing image resolution and contrast and providing more quantitatively accurate data.

The proprietary illumination light path of the new DeltaVision Elite has been redesigned to produce intense and even illumination over the captured field of view. This results in greater sensitivity (i.e., very short exposure times, ideal for fast image acquisition) and reduces background for high-contrast images. The system uses a novel light engine that provides seven user-selectable excitation bands suitable for a wide array of fluorescent labels and fluorescent proteins. The elimination of excitation filters allows very fast switching for rapid image acquisition, especially in combination with double and triple band pass emission filters. The microscope includes the Ultimate Focus hardware autofocus system to keep the specimen in focus during extended timelapse experiments. It is built on an Olympus IX71 inverted microscope with a proprietary highprecision Applied Precision x,y,z stage and light delivery optics.

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LEARN MORE

Cellular Imaging Core
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FILTER	EXCITATION	EMISSION
DAPI	390 +/- 9	435 +/- 24
FITC	475 +/- 14	523 +/- 25
TRITC	542 +/- 14	594 +/- 23
AF594	575 +/- 13	632 +/- 30
Cy5	632 +/- 11	676 +/- 17
CFP	438 +/- 12	470 +/- 12
GFP	475 +/- 14	525 +/- 25
YFP	513 +/- 9	559 +/- 19
RFP	575 +/- 13	632 +/- 30