

Resources & Facilities

ASRC Live Imaging Microscope Core facility:

Located on the 4th and ground floors of ASRC, consists of state-of-art Zeiss LSM 880 Airyscan upright multi photon confocal and Zeiss LSM 880 Airyscan inverted live cell confocal. Both are equipped with 3 confocal detectors and 6 lasers with cutting-edge Airyscan and FAST scanning module optimized for live imaging. The multi photon confocal unit is also equipped with 690nm-1040nm Spectra Physics Deepsee Multi Photon laser, and a unique 20X CLARITY lens with 5.6mm working distance specialized for deep tissue imaging. The Live Cell confocal unit is equipped with Definite Focus to eliminate Z-drift, and a full incubation enclosure enabling temperature, CO₂ and humidity control with self-feedback monitoring. Both are operated with ZEN software capable of Z stacks, timelapse, tiling, multi position, co localization, deconvolution and 3D processing. Together, these two microscopy systems provide an array of imaging and photo manipulation resources and services including: in vivo imaging of live animals, deep imaging of fixed CLARITY tissues or live transparent tissue, fluorescence resonance energy transfer (FRET), long term live imaging with high-resolution optical sectioning at high speeds, photo activation of photo switchable compound, photo bleaching and recovery, laser ablation of targeted cells. The core also provides sophisticated imaging analysis software Imaris for data processing such as 3D/4D reconstruction, movement tracking, filament tracing, lineage tracing, co-localization and volume measurement. The Live imaging core is supervised by a Ph.D. level Scientific Advisor Dr. Ye He, who provides consultation on experimental design, technique support and training to qualified staff for self-operation.

ASRC Bioenergetics Core Facility

The ASRC Bioenergetics Core contains cutting-edge Agilent Seahorse XFe Analyzer which is capable of measuring the oxygen consumption rate (OCR) and extracellular acidification rate (ECAR) of live cells in a multi-well plate to interrogate key cellular functions such as mitochondrial respiration and glycolysis. The instrument can perform compound addition and mixing, label-free detection, and automatic calculation of OCR and ECAR in real time.

Equipment list

Equipment Shared Resource Facility in Imaging Cores at ASRC

Live Imaging

- Zeiss LSM 880 Airyscan upright two photon confocal microscope (FAST module, 405nm, 458nm, 488nm, 514nm, 560nm and 635nm lasers, 690nm-1040nm Spectra Physics Deepsee Multi Photon, 20X CLARITY lens with 5.6mm working distance)
- Zeiss LSM 880 Airyscan inverted live cell confocal microscope (FAST module, 405nm, 458nm, 488nm, 514nm, 560nm and 635nm lasers, live cell incubation chamber)

Analysis Workstations

- With Imaris software pre-installed

Equipment Shared Resource Facility in Bioenergetics Core at ASRC

- Agilent Seahorse XFe24 Live Cell Metabolism Analyzer (24-well plate)

CUNY- ASRC Live Imaging and Bioenergetics Core Facilities

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Budget Planning

Microscopes:

Zeiss LSM880 Live Cell Confocal: \$40/hour

Zeiss Airyscan Two photon: \$60/ hour

Average: \$50/ hour

Small project: 50 – 100 hrs. Total cost \$2,500 - \$5,000

Medium project: 100 - 400 hrs. Total cost \$5,000 - \$20,000

Large project: 400 – 800 hrs. Total cost \$20,000 - \$40,000

Image analysis:

Imaris: \$10/hour

Small project: 10 - 50 hrs. Total cost \$100 - \$500

Medium project: 50 – 100 hrs. Total cost \$500 - \$1,000

Large project: 100 – 200 hrs. Total cost \$1,000 - \$2,000

Agilent Seahorse Cell Analyzer:

One 24 well plate experiment including equipment usage and supplies: \$120/plate

Small project: 10- 20 plates. Total cost \$1,200 - \$2,400

Medium project: 20 – 50 plates. Total cost \$2,400 - \$6,000

Large project: 50 – 100 plates. Total cost \$6,000 - \$12,000

	Microscopes	Imaging analysis	Seahorse Cell Analyzer
Small project	\$2,500 - \$5,000	\$100 - \$500	\$1,200 - \$2,400
Medium project	\$5,000 - \$20,000	\$500 - \$1,000	\$2,400 - \$6,000
Large project	\$20,000 - \$40,000	\$1,000 - \$2,000	\$6,000 - \$12,000

Experimental design, technical support and training will be provided at no charge.

ACKNOWLEDGEMENTS

If any data obtained at the Imaging Facility of CUNY Advanced Science Research Center are used in your manuscripts, meeting presentations, and proposals please acknowledge the Live Imaging and Bioenergetics Facility using the following format. If more than one facility have been used to obtain your data please acknowledge all.

"The author(s) would like to acknowledge the Live Imaging and Bioenergetics Facility of CUNY Advanced Science Research Center for instrument use, scientific and technical assistance."