

Sea Horse & Fluorescent Plate Reader

XF[®]24 Extracellular Flux Analyzer simultaneously interrogates the two major energy producing pathways of the cell – mitochondrial respiration and glycolysis - in a microplate, in real-time. The XF[®]24 Analyzer determines *in vitro* oxygen consumption rate (OCR), and extracellular acidification rate (ECAR), in order to assess cellular functions such as oxidative phosphorylation, glycolysis, and fatty acid oxidation.

The measurement of cellular bioenergetics on live cells enables time-resolved analysis and testing of multiple conditions per assay well. XF assays provide increased throughput and use less sample compared to conventional respirometry techniques. By incorporating automated compound addition and solid-state fluorescence sensors in a microplate format, XF technology provides the tools to:

- Simultaneously measure oxygen consumption rate (OCR) and extracellular acidification rate (ECAR) in all assay wells.
- Rapidly detect cellular responses to substrates, inhibitors, and other perturbants.
- Test more conditions with the same amount of sample, maximizing the value of each experiment.

The XF[®] Extracellular Flux Analyzer, XF stress test kits, reagents, consumables, and software tools work together to simplify the measurement of cellular metabolism. The power of this platform has enabled researchers to generate data for over 1000 publications.

Our extended wavelength fluorescent plate reader is commonly used in ELISAs and protein measurements.

OFFICE OF RESEARCH

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www.evms.edu

RESEARCH CORE SERVICES



EVMS
Eastern Virginia Medical School

Flow Cytometry Core Facility

The EVMS Flow Cytometry Core Facility provides access to flow cytometry instrumentation and expertise to support research at EVMS and the research community of Hampton Roads, including Old Dominion University, Hampton University, Norfolk State University and the American Red Cross. Two instruments are available in the facility: a Cytex upgraded FACSCalibur and an iCyt Reflection. The upgraded FACSCalibur is a 3-laser analyzer, capable of multicolor analysis of up to 8 colors, and is used for flow cytometric analysis of cells. The Reflection is a state-of-the-art, high-speed cell sorter. While capable of multicolor analysis of up to 10 colors with 3 lasers, the Reflection can perform 2- and 4-way bulk sorting of cells of interest.

George L. Wright, Jr. Center for Biomedical Proteomics

Located within the Leroy T. Canoles Jr. Cancer Research Center, the George L. Wright Jr. Center for Biomedical Proteomics center provides proteomics support to investigators in the Cancer Center and the general scientific community. The services provided include: Protein extraction, high resolution accurate mass determination (HRMS) for intact proteins as well as single proteins and mixtures, qualitative analysis for peptides, and global or targeted quantitative analysis for peptides. Instruments available include: Ion traps, HPLC systems, mass spectrometers and protein/peptide fractionators, as well as data analysis software. A full list of instruments can be found on the Proteomics Core website.

Microscopy and Imaging Core Facility

The EVMS Microscopy and Imaging Facility provides technical assistance and training in microscopy and

image analysis to all faculty, staff and students of the Medical School and is available for a fee to institutions outside EVMS. The Microscopy & Imaging Facility is equipped with: (1) An upright and inverted fluorescence microscopes with digital cameras; (2) a Zeiss 510 Laser Scanning Confocal Microscope with 3 lasers and a META system, which employs spectral signature analysis to separate up to 8 fluorochromes with highly overlapping emission spectra; and (3) a JEOL 1200EXII transmission electron microscope with an AMT XR111 digital camera for ultrastructural examination of biological tissue. The Facility has computers equipped with image analysis software (MetaMorph) and the director provides assistance and training in its use.

Molecular Core Facility

The Molecular Core supports research and education at EVMS by housing technologically advanced equipment for analysis of DNA, RNA and protein, such as an automated sequencer, a real time PCR machine, an Odyssey infrared scanner, and a Gene Atlas Microarray System. Equipment in the core includes: BioRad CFX96 Real Time Thermal Cycler, Applied Biosystems Genetic Analyzer, Probe sonicator, Kodak Gel Documentation Station, Nanodrop, Odyssey Infrared Western Blot Analyzer, Nucleofector, Bioinformatics Computers running IPA, VectorNTI, Vector Xpression, VectorPathblazer, ImageQuant, & Sequence Scanner, Perkin Elmer Microarray Spotter and Scanner and an Affymetrix Gene Atlas Microarray System. The director provides one-on-one training sessions and personalized experimental services for a modest fee. The facility is also used as teaching space for laboratory courses offered by the Biomedical Sciences Graduate Program.

Biorepository

The biorepository is the EVMS infrastructure that provides for the procurement, identification, collection,

storage and distribution of biospecimens for research purposes. The biorepository has dedicated personnel for hardware and software management, procurement, data entry, reporting and regulatory tasks, distribution and histology tasks and functions; under the direction of Laurie Wellman, Ph.D. The facility is housed in the Pathology Department in Lewis Hall. Immunohistochemistry services, tissue micro array and a laser capture microdissection instrument (Arcturus XT-TI) are available. Different tumor tissues are currently stored; other types of tissues will be added in the coming years.

Vivarium and Zebra Fish Core Facility

Vivarium

The AAALAC accredited animal research facility located inside of the EVMS campus covers a space of approximately 24,345 ft². The newly-renovated facility is able to house multiple species, including mice under modern barrier facilities. BSL-2 rooms are available for use, if needed, and the animals are cared for by a full-time veterinarian with trained support staff. The vivarium is set up to assist the investigators with breeding programs, diet studies and drug delivery. The facility contains modern surgical suites and imaging via ultrasound, X-ray and an IVIS Lumina imaging system. The IVIS Lumina is an *in vivo* imaging system with fluorescence, bioluminescence, X-ray and visible light imaging capabilities

Zebrafish core

The Zebrafish core, located in the vivarium, consists of both a housing unit and Zebrafish embryo manipulation/microinjection equipment. The Zebrafish Core includes an Aquaneering® E-rack which provides advantages in size and portability. The core is setup to allow for gene manipulation in this animal model. An experienced core director is available to assist investigators and provide training.