

AdventHealth Research Institute Research Lab & Biorepository



Research Institute

Research Laboratory Capabilities

Clinical research capabilities

- **Sample processing and shipping by a dedicated team of Research Assistants**
 - Tissue and blood collection (bulk [e.g. AdventHealth hospital-wide] and study-specific)
 - IATA certified Research Assistants
- Research dedicated temperature-controlled centrifuges
- 4°, -20°, -80° C and vapor phase liquid nitrogen storage for short- and long-term sample storage
- Anaerobic chamber for stool processing
- Hamilton Robotics automated liquid handling robot with LIMS integration for accessioning
 - LIMS - Abbott Informatics "STARLIMS"
- **AdventHealth Laboratory**
 - CMS, CAP, AABB and ASHI Accredited

Research Laboratory Capabilities

Biorepository

➤ **Sample storage conditions and capacities**

- -80°C: >800,000 samples with >1,250,000 sample capacity
- Vapor phase liquid nitrogen: >50,000 samples with >200,000 sample capacity

➤ **FFPE biorepository**

- >1,000,000 FFPE samples of various tissue types stored in a climate-controlled facility
- +200,000 samples per year growth

➤ **Facility**

- Research Laboratory footprint >10,000 sq. ft. of wet lab space across six sites
- 450 kW back-up generator
- "Aeroscout," real-time remote temperature monitoring and alerting system
- STARLIMS sample inventory and chain of custody management

Research Laboratory Capabilities

Research capabilities

➤ Primary cell isolation and culture

- BSL-2 laboratory with class II biosafety cabinets
- Fluorescence-activated cell sorting
 - BD FACSaria SORP sorter
 - Beckman MoFlo sorter

➤ Small particle analysis

- Nanosight

➤ Tissue characterization and functional analysis

- Fluorescent microscopy
- Radiometric assays
 - Liquid Scintillation Counter (^{14}C , ^3H)
 - Gamma Counter

➤ Tissue characterization and functional analysis (cont'd)

- High-res Metabolic Assays (Oxygraph & Seahorse)
- Fluorometry

➤ Molecular and biochemical analysis

- Gene expression and SNP analysis
 - qRT-PCR
 - Bioanalyzer
- Immunoassays
 - Western Blotting
 - Capillary Electrophoresis
 - ELISA
 - Mesoscale Discovery

Research Laboratory Capabilities

Research capabilities

➤ **Molecular and biochemical analysis (cont'd)**

- Stable isotope analysis
 - Thermo Scientific Isotope Ratio Mass Spec (IRMS)
- Metabolic phenotyping
 - Agilent GC/MS

➤ **Metabolomics**

- Targeted Metabolomics
 - (3) QQQ "Triple Quad" LC/MS Instruments
- Global "Unbiased" Metabolomics
 - Q-Exactive Hybrid Quadrupole Orbitrap Mass Spectrometer