

PBC Core Research Facilities

The Phoenix Bioscience Core's core facilities offer cutting-edge technology, specialized equipment, and expert services to support research and innovation. These shared resources help advance scientific discovery and foster collaboration across academia, healthcare, and industry.

Arizona State University

ASU Core Research Facilities provide access to advanced equipment, in-depth consultation and individualized services to help you achieve your research goals on any budget, scale or timeline.

Clinical Research Services Capabilities

The facilities located on the second level of 850 PBC are accessible to researchers conducting clinical trials and include:

- 11 private exam rooms designed to be flexible and accommodate various research procedures with a Biosafety level 2 approval
- Multipurpose rooms that support community intervention studies, surveys and behavioral research
- Metabolic kitchen with two cooking and prep stations, pantry, freezers, refrigerators and adjacent dining area
- Medical supervision with on-site physician support as needed

Technical capabilities include:

- Clinical ultrasound facilities
- Resting and exercise EKG
- Dedicated phlebotomy space for blood collection by venipuncture, IV line or fingerstick
- Metabolic measurement space using glucose and meal tolerance testing
- Point of care equipment for analysis of glucose and HbA1c
- Stadiometers, scales and vitals cart stations
- Fully equipped central processing lab for processing, aliquoting and temporary storage of biospecimens with refrigerator, -20 freezer, two refrigerated centrifuges, two biosafety cabinets and flushing service sink

Cardiovascular and Exercise Physiology Lab

The lab is adjacent to the clinical space, providing access to a wide array of research equipment. This encompasses metabolic measurement systems, isokinetic and isometric dynamometers, cycle ergometers, high-performance treadmills, non-invasive central arterial pressure waveform analyzers, and continuous non-invasive hemodynamic monitoring systems.

Features of the space include:

- TuffTread High Speed Elite treadmills
- Lode, Monark and Keiser cycle ergometers

- Parvomedics, Cosmed K5, and Vyair Vynthus Mobile Metabolic Systems
- SphygmoCor XCEL non-invasive central arterial pressure waveform analyzer
- Terason Usmart 3300 ultrasound units equipped with linear, curved and cardiac transducers
- Biodex System 4 Pro Isokinetic and Isometric dynamometer
- Vitals carts, heart rate, SpO₂, and 2-temp sensors
- GE EKG systems
- Finapres Nova- Non-invasive Continuous Hemodynamic Monitoring system

Medical oversight and expert staff

The CRS unit provides investigators with experienced clinical research staff. Registered sonographers, certified phlebotomists, research technicians and project management support are available at a fee-for-service rate.

Translational Research Laboratory

ASU's wet lab space offers a wide range of analytical testing equipment that includes chemical, hormone, metabolite and immunological assays. The laboratory includes space for lab benches, -80°C freezers and large equipment. Additional areas house five individual lab rooms for specialized analysis equipment and a processing room with service sink.

Features of the space include:

- High-performance liquid and gas chromatography
- Quantitative PCR
- Western blotting
- Immunoblotting
- Chemiluminescent, fluorescent-based spectrophotometry
- Advanced multiplex analysis
- Clinical Research sample analysis

Imaging

CRS offers imaging services including cardiovascular, musculoskeletal and general ultrasound imaging capabilities. Additionally, a dual-energy x-ray densitometry (DXA) scanner is available for body composition.

Nutrition

Clinical Research Services connects researchers with advanced nutritional modalities within the Phoenix Metro area. The facilities provide a research kitchen, as well as a fully equipped teaching kitchen with observing stations. These provisions allow ASU researchers and staff to perform an assortment of metabolic monitoring and testing.

Clinical Research Services can support:

- Feeding and supplement studies
- Oral glucose tolerance and meal testing
- Resting energy expenditure/metabolic rate

- Research kitchen
- Food consumption areas

Sample collection

Clinical Research Services supports researchers with space capabilities for advanced sample collection, storage, processing, clinical training and clinical procedural practices within the Phoenix Metro area.

Clinical Research Services can provide:

- High-quality phlebotomy services, including IV, fingerstick, and ultrasound technology
- Sample Preparation
- Sample Storage
- Private and semi-private flexible exam rooms
- Clinical procedure rooms
- Processing rooms with storage space
- Centrifuges with included computer access
- Clinical sample preparation lab

University of Arizona

The U of A College of Medicine – Phoenix offers the following core services. Please contact the [Translational Research Office](#) or the specified core director for further information on the services, expertise, training and fees.

Core & Shared Equipment List

- **Biomedical Imaging Core**
 - The [Biomedical Imaging Core](#) (BIC) provides cutting-edge imaging and data analysis tools to allow innovative investigative research. The Core offers training, consultation and access to the Olympus Multiphoton FV MPE RS Apollo System, Zeiss LSM 710 Confocal and Zeiss AXIO M2 Imager Epifluorescent microscopes.
- **Flow Cytometry Core**
 - The [Flow Cytometry Core](#) at the U of A College of Medicine – Phoenix provides expert analysis on state-of-the-art technology in flow cytometry, multiparameter cell sorting and analysis to investigators at the college, clinical laboratories and biotechnology companies.
- **Neurocircuits and Behavior Core**
 - The [Neurocircuits and Behavior Core](#) (NBC) provides state-of-the-art equipment and resources to support the comprehensive assessment of cognitive, sensory, motor, and affective behavior in preclinical models. To complement these capabilities, the core offers an extensive suite of advanced technologies for in vivo monitoring and manipulation of neural activity in behaving subjects.
- **Biostatistics and Study Design Services**

- Biostatistics applies statistical reasoning and methods to biomedical and public health research. Our support is vital at every stage of a research project, from study design to publication.

- **Research & High-Performance Compute**

- The college provides support for high performance computing (HPC), new lab setup, research data hardware and software, research computing needs assessments, servers and research drive setup.

- **Biological Irradiator and Imager**

- The Biological Irradiator and Imager Shared Equipment resource provides access to x-ray irradiation and x-ray and luminescence imaging on the Phoenix Biomedical Campus near 7th Street and Van Buren Street. This resource is sponsored by the University of Arizona College of Medicine – Phoenix and the University of Arizona Cancer Center.

Nanotechnology Services

- **Nanofabrication** – The nanofabrication facility occupies 900 square feet with a 750 square foot Class 1000 cleanroom.
- **Plastic Fabrication** – Services to address your prototyping needs for the development of integrated assay platforms using Lab on Chip (LOC's) or multi-layer thermoplastic laminates.
- **Bioassay Development/Molecular Techniques** – Expertise in performing molecular laboratory services that comprise bioassay chemistries development and validation but also analytical tests with the scope of nucleic acids and proteins.
- **Instrumentation/Software Development** – Prototyping services ranging from circuit design, boards prototyping, electronic assembly and full instrumentation development within compliant industry quality standards.

University of Arizona Core Services Complete List

The University of Arizona maintains a number of research cores for use by faculty, students, and scientists in government and industry. The core facilities provide users with access not only to the latest instrumentation, but also to experienced staff with expertise in designing and conducting experiments and analyzing data.

Laboratory Operations

Laboratory Operations assists principal investigators in complying with local, state and federal regulations governing their research; establishes laboratory vendor services, service contracts and delivery schedules; and assists new laboratories with purchasing and setup of research equipment and capital purchases. Please reach out to PBC-TREO-LABOPS@arizona.edu with any questions.

Biomedical Sciences Partnership Building

The Biomedical Sciences Partnership Building (BSPB) serves as a hub for health care science and research. The BSPB houses researchers with a myriad of backgrounds and is the home to multiple labs and core facilities.

TGEN – City of Hope

Collaborative Sequencing Center (CSC)

The CSC provides investigators with access to best-in-class short and long read sequencing instrumentation to support all analysis needs including whole genome, telomere-telomere assembly, exomes, RNA sequencing, and full-length transcript sequencing. We will work with you to tailor your project to meet your needs. We also fully acknowledge and communicate the limitations of each platform and focus on providing customers with data that meets their true analytical needs.

Instruments Available:

Short read

- Illumina Novaseq X
- Illumina iSeq 100Element Aviti 24

Long read

- PacBio Revio
- Oxford Nanopore PromethION - 24

Integrated Mass Spectrometry Shared Resource (IMS)

Offers unparalleled bioanalytical profiling designed to advance your scientific discoveries. Our state-of-the-art equipment and scientific expertise empower you to:

- Identify and quantify thousands of proteins and metabolites across various biological samples, including tissues, cell lines, biofluids, and more.
- Explore post-translational modifications like phosphorylation and acetylation to gain a deeper understanding of cellular processes.
- Perform large-cohort relative quantitation and routine metabolomic analysis with robust quality control measures.
- With expertise beyond instrumentation, you can engage with the IMS team for collaborative research support, including experimental design, grant preparation, and manuscript assistance.

Instruments Available:

- Thermo Astral Zoom
- Bruker timsTOF HT
- Bruker timsTOF Ultra AIP
- Thermo Orbitrap Eclipse
- Thermo Altis TQ

- Thermo Stellar
- Illumina Protein Prep (9.5k protein panel)

Center for Spatial Multi-Omics (COSMO)

With spatial transcriptomics, you can profile the RNA expression of a large tissue at sub-cellular resolution. By offering a variety of services and instrument options, we allow you to visualize your samples in brand new ways. Investigate the molecular changes within individual cells while preserving cellular neighborhoods and anatomical structures for histological analyses.

Instruments Available:

- 10x Genomics Xenium
- 10X Genomics HD
- Vizgen Merscope Ultra

TGen Integrated Microbiomics Center (TIMC)

Harness cutting-edge multi-omic technologies and sophisticated bioinformatics to provide detailed microbiome analyses that are not only custom-made but also easily interpretable and adaptable for further analysis. Our commitment extends into medical research, where we empower clinicians and researchers with precise data integrations to explore new frontiers in diagnosis and treatment.

Microbiome Analysis Pipeline:

- Sample Extraction
- Metagenome Library construction
- Metagenome Next Gen Sequencing
- Bioinformatic Analysis

Arizona Core Network

The Arizona Core Network connects researchers with the core research facilities at Arizona's public universities to propel and refine new technologies, ventures, and discoveries.

- [Search for facilities, equipment and services.](#)

Journal Resources and Access

Arizona State University

- [Lib Guides](#) - Explore databases for curated discipline-specific content.
- [ASU Library](#)

JSTOR

JSTOR is a part of ITHAKA, a not-for-profit organization helping the academic community use digital technologies to preserve the scholarly record and to advance research and teaching in sustainable ways.

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