Core Facilities
Institute for Applied Life Sciences
University of Massachusetts Amherst

Research and Innovation to Translate Basic Science into Product Candidates

PARTNER WITH US!

Our Sister Campuses
UMass has more than 90 Research Core Facilities across the state of Massachusetts that are available to researchers from government, academia and industry on a fee-for-service basis. These shared resources offer a wide range of services to the research community, including cutting-edge technologies, high-end instrumentation and technical support for basic, translational and clinical research.

UMass Boston
100 William T. Morrissey Blvd., Boston, MA
www.umb.edu/orp/research_core_facies

UMass Lowell
One University Avenue, Lowell, MA
www.uml.edu/Research/CRF/

UMass Medical School
55 Lake Ave North, Worcester, MA
www.umassmed.edu/research/cores

Additional Campus Resources
The University of Massachusetts at Amherst offers additional campus resources such as the Human Performance Lab, scientific glassblowing, greenhouses to soil testing and tick testing, to name a few. Learn more about these and many other resources at www.umass.edu/ials/additional-campus-resources.

Nutriceutical Formulation
Chenoweth 127
David Prodanas | dprodana@foodsci.umass.edu
(413) 545-1013
Isolates bioactives by supercritical CO2, concentrates bioactives by reverse osmosis, thermally treat by ultrahigh pasteurization and agitating retort, produce emulsion systems by homogenization and encapsulate by freeze or spray drying.

Raman, IR, and XRF Spectroscopy
Chenoweth
Lili He | lilihe@umass.edu
Provides resourceful advanced spectroscopic analysis of versatile organic and inorganic samples, including agricultural, environmental, food, and biomedical materials, as well as polymers and heavy metals.

Roll-to-Roll Fabrication and Processing Facility
LIL S440 Suite
Jeoff Morse | jmorse@research.umass.edu | (413) 545-5264
Provides a unique set of custom, moving web-based tools for the translation of advanced materials and nanomanufacturing processes to industrially relevant scalable platforms for the development of next generation life science innovations.

Sensor Integration
LIL S469
Robert Jackson | jackson@ecs.umass.edu | (413) 545-1386
Miniaturizing systems in preparation for human testing.

Sleep Monitoring Lab
LIL S360 Suite
Rebecca Spencer | rspencer@psych.umass.edu
(413) 545-5987
Equipped with partial and whole-head EEG systems for recording sleep physiology (sleep staging). A central control room will allow for on-line observation of sleep and monitoring of sleep in populations from infants to the elderly.

X-Ray Scattering Facility
Conte B341, B522
Alex Ribbe | aeribbe@polysci.umass.edu | (413) 658-7415
Instruments dedicated to the structural analysis of crystalline materials, the determination of highly periodic morphologies in self-assembled systems over a large length scale range.

Off-Campus Core Facilities
Histology-Tissue Resources
Bioimaging Resource and Molecular Analysis
Sallie Schneider | sallie.schneider@baystatehealth.org
(413) 794-0941 | Pioneer Valley Life Sciences Institute
Capability to process and paraffin embed human, animal and plant tissues, section fixed or frozen tissues, as well as perform histological analyses.

Massachusetts Green High Performance Computing Center
100 Bigelow Street, Holyoke, MA 01040
John Griffin | john.griffin@umass.edu
(413) 545-9939 | University of Massachusetts Amherst
Provides world-class computational infrastructure, indispensable in the increasingly sensor and data rich environments of modern science and engineering discovery.

Small Molecule Screening Facility (SMSF)
(High Throughput Screening)
University of Massachusetts Medical School
364 Plantation Street, Worcester, MA 01655
Sangram Parelkar | Sangram.Parelkar@umassmed.edu
(508) 856-8315 | University of Massachusetts Amherst
Provides investigators with a platform for assay development and screening of unique, small drug like molecule libraries occupying novel chemical space in a variety of readout systems for the discovery of exceptional chemical probes, potential diagnostic and therapeutic candidates of high impact, as well as research tools.

UMass Medical School
55 Lake Ave North, Worcester, MA
www.umassmed.edu/research/cores

Dining Hall Resources
Center for Nutritional Research
Chenoweth 127
Sallie Schneider | sallie.schneider@baystatehealth.org
(413) 794-0941 | Pioneer Valley Life Sciences Institute

Partners with us!
Advanced Digital Design and Fabrication (ADDFab)  
LSL S5470  
David Follette | follette@umass.edu | (413) 577-4540  
Cutting edge 3D printing in metals and polymers for fabrication, research, training, and education. Printing technologies include DMLS, DET, SLS, FFF and Polyljet.

Animal Imaging  
IBS 068  
Amy Burnside | aburnside@umass.edu | (413) 545-1673  
Designed to assist members of the research community on UMass and other five college campuses to conduct research using live animal imaging technologies. Equipment is capable of fluorescence and luminescence imaging independent of or concurrent with CT imaging. A new high resolution microCT is expected Jan 2019.

Animal Models  
LSL S521  
Wei Cui | wcui@umass.edu | (413) 545-0673  
Provides transgenic, gene targeting, and mouse surgery service and training, performs microinjections of DNA into fertilized embryos to generate transgenic mice. Uses cutting edge technologies-CRISPR/Cas9 genome editing, to generate gene knock-out or knock-in mice or other animal models.

Atomic Force Microscopy (AFM)  
Conte B343  
Alex Ribbe | areibbe@polysci.umass.edu | (413) 658-7415  
Provides analytical and high resolution scanning probe based microscopy. This includes Atomic Force Microscopy (AFM) related techniques such as tapping mode, contact mode or conductive AFM as well as force measurements.

Biophysical Characterization  
LSL S541  
Lizz Barlett | lizzbarlett@umass.edu | (413) 577-0560  
Interactions between biological macromolecules like proteins, nucleic acids, lipids and their complexes, and small molecule interactions with these macromolecules.

Bioproduction/Separation  
LSL S577, S577A  
Lizz Barlett | lizzbarlett@umass.edu | (413) 577-0560  
Equipment for expression, separation, and isolation of biomolecules allowing users to culture cells including bacterial, yeast, insect, plant, and mammalian cells, and then separate biomolecules of interest e.g. proteins, nucleic acids, natural products, and metabolites.

Cell Culture  
LSL S571A, S570  
Mike Dailey | mddailey@umass.edu | (413) 545-2601  
Two cell culture facilities for both biological and bio-engineering approaches. Biosafety cabinets, incubators and general wet lab supplies.

Center for Human Health & Performance (CHfP)  
LSS S360 Suite  
Michael Busa | mbusa@umass.edu | (413) 577-0574  
Exercise Intervention and Outcomes  
Diagnostic testing capabilities include: exercise performance, VO2 max, exercise stress testing, strength testing, body composition (including abdominal obesity) and bone density evaluation.

Human Motion  
Assesses human movement (free living and robot assisted) and human and robotic testing of sensor technologies.

Living Science  
Evaluate biosensor performance in healthy participants or participants who are at risk for chronic disease while living in a natural environment.

Room Calorimeter  
Capable to measure 24 hour human energy expenditure for purposes of movement sensor calibration and validation, and to conduct studies requiring assessment of energy balance and energy metabolism.

Collaboratories  
LSL S461-463, S571-573  
Andreea Vinard | avinar@umass.edu | (413) 577-4582  
Research laboratory spaces available for industry partners, including start up companies emerging from faculty research projects, to partnerships with more established companies that seek space on campus to develop medical devices and healthcare/life science related product candidates, all while retaining their intellectual property (IP).

Computational Modeling  
LSL S527  
Chungwen Liang | chungwen.liang@umass.edu | (413) 577-4569  
Provides consultative and collaborative service in computational and molecular modeling.

Device Characterization  
LSL S517A, S570  
David Follette | follette@umass.edu | (413) 577-4540  
A full suite of mechanical testing capabilities, including tension, compression and torsion fatigue testing, surface roughness measurement, 3D scanning, and surface hardness measurement.

Device Fabrication (Cleanroom)  
Marcus 15  
Qiangfei Xia | qxia@ecs.umass.edu | (413) 545-4571  
Designed to have CMOS processing technologies to serve as a key enabler towards personalized healthcare and preemptive medicine. Specifically, we aim to develop smart and miniature devices, circuits and systems with biomedical applications such as biosensing, DNA sequencing and smart implanting.

Electron Microscopy  
Conte B1163-B1172  
Alex Ribbe | areibbe@polysci.umass.edu | (413) 658-7415  
Transmission (TEM) and Scanning (SEM) Electron Microscopess as well as related sample preparation equipment.

Electronic Materials  
Conte B523, B524  
Vladimir Kuznetsov | duzhko@mail.pse.umass.edu | (413) 577-0902  
Offers a range of state-of-the-art analytical instruments for characterization of optical, electronic, electrical, and electrochemical properties of materials as well as tools for solvent-based fabrication and characterization of such optoelectronic devices as solar cells, light-emitting diodes, and field effect transistors in the inert atmosphere of glove boxes.

Flow Cytometry  
IBS 068  
Amy Burnside | aburnside@umass.edu | (413) 545-1673  
Provides the latest technologies in flow cytometry to the area research community. Fluorescence based flow cytometric analysis and microscope-based high throughput imaging instrumentation is available. Analysis equipment is accessible to trained users 24/7 and fluorescence assisted cells sorting is offered by appointment.

Genomics Resource Laboratory  
Morrell 1, N330  
Ravi Ranjan | ranjan@umass.edu | (413) 577-4501  
Provides Next-Generation DNA Sequencing services, NGS library preparation, DNA and RNA Quality assessment, DNA and RNA isolation, qPCR, Single Cell Sequencing on C1 Single-Cell Auto Prep system.

High Frequency Sensor Development  
LSL S556A  
Robert Jackson | robert.jackson@ecs.umass.edu | (413) 545-1386  
Provides world class measurement capability for frequencies into the Terahertz range. It will be used for high frequency scaling and analysis of materials and for testing high speed communications technologies.

Human Magnetic Resonance Center  
LSL S529  
hmrc@umass.edu  
Brain and body structural and functional imaging and spectroscopy for academic and industry-based research.

Light Microscopy  
LSL S576A  
James Chambers | jchambe@umass.edu | (413) 577-4580  
Nikon instruments that enable a broad range of light microscopy methods and applications.

Mass Spectrometry  
LSL S540  
Stephen Eyles | eyles@biochem.umass.edu | (413) 577-1528  
Analytical mass spectrometry equipment, providing analytical services and expertise in mass spectrometry.

mHealthLab  
LSL S534  
Deepak Ganesan | dganesan@cs.umass.edu | (413) 545-2450  
Prashant Shenoy | prashant.shenoy@ecs.umass.edu | (413) 577-0850  
Develops algorithms and processes for large scale wearable sensor networks to support the development of novel hardware.

Nanofabrication Cleanroom  
Conte B112  
John Nicholson | john.nicholson@research.umass.edu | (413) 545-2772  
Device design, fabrication process formulation, photomask layout design, and prototype testing utilizing traditional and novel approaches to microfabrication and nanofabrication of electronic devices, sensors, microfluidic devices, and nanomaterials test structures.

Nuclear Magnetic Resonance (NMR)  
LGBT 075, 082 & Conte B343, B362  
Weiguo Hu | weiguoh@polysci.umass.edu | (413) 577-1428  
Jasna Fejzo | jfejzo@umass.edu | (413) 545-0081  
The facility provides high field NMR instruments and expertise to elucidate molecular structure, conformation, dynamics and interactions.