Discovery Themes at Ohio State
Infectious Disease Assets for Research

TRANSDISCIPLINARY RESEARCH COLLABORATIONS WITHIN REACH

The Ohio State University (OSU) is a dynamic community of enormously diverse resources where opportunity thrives. It is a world-class public research university and the leading comprehensive teaching and research institution in Ohio. With more than 63,000 students, the Wexner Medical Center, 15 colleges, 80 centers and 175 majors, the university offers its students tremendous scope and depth of opportunity across various fields and professions. OSU is the only university in the U.S. with all seven health science colleges (i.e., Medicine, Veterinary Medicine, Pharmacy, Dentistry, Nursing, Optometry, and Allied Medical Professions), a College of Public Health and a College of Food, Agriculture and Environmental Science on one campus, each within walking distance. The unique environment fosters transdisciplinary research efforts that elucidate determinants of human, animal, plant, and environmental health and their interplay (i.e., One Health), and translation of discovery for the treatment and prevention of disease.

NATIONAL RECOGNITION

• 14 NIH T32 Training Grants, including Interdisciplinary program in microbe-host biology (PI: Larry Schlesinger, MD), 5 Research Education Grants (R25s), including Bridging the gap in capacity for global health research and training in Eastern Africa (PI: Wondwossen Gebreyes, PhD), and an NIH T35 Training Grant supporting short term research experiences (PI: Michael Oglesbee DVM, PhD). See: medicine.osu.edu/research_ed/postdoc/current_postdocs/funding/nih_grants vet.osu.edu/research/t-35-training-grant
• Program Project Grant (P01): Retrovirus models of cancer (PI: Patrick Green, PhD)

INNOVATIVE INFRASTRUCTURE FOR INTEGRATED, COLLABORATIVE RESEARCH

• Public Health Preparedness for Infectious Diseases (PHPID, phpid.osu.edu) embodies the trans-institutional vision of inspiring campus-wide collaborative infectious disease education and research. The mission of protecting public health by minimizing zoonotic, sapronotic and food-borne infectious disease threats through innovative interdisciplinarily research is driven by faculty across 10 member colleges.

• Center for Microbial Interface Biology (CMIB, cmb.osu.edu) is a Board of Trustees-approved health sciences center with strong laboratory-based research and education efforts aimed at discovering new diagnostic tools, therapies and vaccines for infectious diseases, including those resulting from bioterrorism. CMIB directs the campus-wide BSL3 biosafety program with BSL3 select agent-approved labs.

• Center for Retrovirus Research (CRR, vet.osu.edu/retrovirus-research) facilitates interdisciplinary investigations of problems relating to prevention and treatment of retrovirus diseases of humans and animals. A major center initiative is the $8.6 million Program Project Grant from the National Cancer Institute to investigate retroviral models of cancer.

• Center for Applied Plant Sciences (CAPS, caps.osu.edu) focuses on bridging the gap between basic and applied research. CAPS is working with the Ohio Agricultural Research and Development Center (OARDC, www.oardc.ohio-state.edu/) and the Ohio BioProducts Innovation Center (OBIC, bioproducts.osu.edu/), along with the Office for Energy and the Environment (OEE) to provide researchers with tools for commercialization of discoveries and, ultimately, economic development opportunities.

• Food Animal Health Research Program (FAHRP, oardc.ohio-state.edu/FAHRP/) has a mission to protect and enhance animal and public health through research, education and outreach; and to support the animal industries in economically producing safe, wholesome food in an environmentally and socially responsible manner.

• Global Health Education Program (GHP, vet.osu.edu/global) is engaged in promoting and enhancing international partnerships in global health through training, service-learning, research and outreach programs.

• Antimicrobial Stewardship Program (ASP, internalmedicine.osu.edu/infectiousdiseases/about-the-division/asp) is a key initiative to improve the care and outcomes of patients at the Ohio State University Medical Center (OSUMC). ASP focuses on optimizing antimicrobial therapy for inpatients by providing guidance for both selection and dosing of antimicrobial agents, with a major objective being prevention of development, acquisition, and transmission of bacteria resistant to antimicrobial agents.

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OTHER RESOURCES & CORE FACILITIES

- **Arabidopsis Biological Research Center** (ABRC, abrc.osu.edu/) collects, preserves, reproduces and distributes diverse seed and other stocks of Arabidopsis thaliana and related species. Resources are donated by researchers from around the world.

- **The Biomedical Informatics Shared Resource** (BISR, medicine.osu.edu/bmi/resources/bioinformatics) analyzes high-throughput, high dimensional biological data, and other biomedical data and information using state-of-the-art informatics tools and high-quality informatics analysis for the Ohio State University investigators.

- OSU operates three **BSL3 facilities** with approximately 8600 sq ft of laboratory space on the Columbus campus (cmib.osu.edu/facilities/bsl3toc/about), and ABSL2 and ABSL3 facilities on the Wooster campus (ular.osu.edu/about/facilities/).

- **Campus Chemical Instrument Center** (CCIC, ccic.ohio-state.edu/) provides state-of-the-art research facilities for the entire campus in three areas: nuclear magnetic resonance, mass spectrometry and proteomics.

- **Drug Development Institute** (DDI, cancer.osu.edu/research-and-education/drug-development-institute) utilizes a unique, proven approach to identifying promising compounds created by Ohio State cancer research experts, recognizes and optimizes the value of those compounds, and leverages alliances with partners within the University and throughout the global industry to help deliver cancer drugs, and ultimately cures, to patients faster.

- The mission of **Mathematical Biosciences Institute** (MBI, mbi.osu.edu) is to foster innovation in application of mathematical, statistical and computational methods to resolve significant problems in biosciences; to foster development of new areas in mathematical sciences; to engage mathematical and biological scientists in these pursuits; and to expand the community of scholars in mathematical biosciences through education, training and support of students and researchers.

- **Molecular and Cellular Imaging Center** (MCIC, oardc.ohio-state.edu/mcic/) is a shared technology laboratory located at the OARDC which houses equipment and provides research support services in microscopy, and in the areas of genomics and molecular biology (small scale sequencing, genotyping, massive parallel sequencing).

- **Nanotech West Lab** (nanotech.osu.edu/about), the largest nanotechnology user facility in Ohio, houses a 6000 ft2 class 100 cleanroom facility and a 4000 ft2 Biohybrid Laboratory.

- **Nationwide Children's Hospital Center for Vaccines and Immunity** (CVI, www.nationwidechildrens.org/center-for-vaccines-and-immunity) strives to improve the health of children through fundamental and applied research leading to a new generation of safe, protective vaccines against infection, cancer and allergy.

- The emphasis of **Nationwide Children's Hospital Center for Microbial Pathogenesis** (CMP, www.nationwidechildrens.org/microbial-pathogens) is to develop a greater understanding of the molecular mechanisms by which microorganisms cause infectious diseases, as well as how the host responds to these disease states.

- **Translational Data Analytics @ Ohio State** (TDA@OhioState, discovery.osu.edu/TDA) is transforming how the university co-develops data-enriched solutions with the external community.

For more information about career opportunities in infectious disease detection, treatment and prevention visit Discovery.osu.edu.

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