



College of Biological Sciences

Research Capabilities & College Info

About the College of Biological Sciences

University trustees created the College of Biological Sciences in 1966 to play a vital role in leading-edge research and education in the exciting new arena of modern biology. We have done exactly that: we are recognized as a leader in undergraduate education, graduate training and world-class research in the biological sciences. Six departments reflect the scope of biology today: Biochemistry; Entomology; Evolution, Ecology and Organismal Biology; Microbiology; Molecular Genetics; and Plant Cellular and Molecular Biology. Although existing departments have been reconfigured, renamed and updated and new departments have been created to keep pace with rapid changes; many of these core disciplines have been an important part of the university's mission since its founding.

Biological Sciences Quick Facts (2008)

- Six departments: Biochemistry; Entomology; Evolution, Ecology & Organismal Biology; Microbiology; Molecular Genetics; Plant Cellular & Molecular Biology
- 117 teacher-researchers, including four Ohio Eminent Scholars
- Nearly \$20 million in external research funding in 2007
- 442 graduate students, 11 departmental and interdisciplinary graduate programs
- Our Annual Undergraduate Research Colloquium showcases outstanding undergraduate research

Research Excellence

One hundred seventeen faculty members conduct fully-funded research on a variety of globally-important topics, from biofuels to improving food crops to searching for ways to develop more specifically-targeted drugs. They received nearly \$20M in 2007 from federal-granting agencies, such as: NSF, NIH, DOE, DOD, USDA; state agencies; nonprofit foundations; and industry.

Major Awards include

- * Gates Foundation to Richard Sayre for BioCassava Plus
- * Biocomplexity grant (NSF) to David Culver
- * Arabidopsis 2010 award (NSF) to Erich Grotewold and Rebecca Lamb
- * DOE awards to Robert Tabita for biofuels research

Ohio State's Targeted Investment in Excellence (TIE) Initiative

We contribute to three of these high-priority research programs, Mathematical Biosciences, Public Health Preparedness, and Plant Translational Sciences, selected for their excellence, impact and viability in making significant contributions to important, multi-disciplinary areas.

biosci.osu.edu



College of Biological Sciences

Facilities

Bacillus Genetic Stock Center

The Bacillus Genetic Stock Center (BGSC) maintains genetically characterized strains, cloning vectors, and bacteriophage for the genus *Bacillus* and related organisms and to distribute these materials without prejudice to qualified scientists and educators throughout the world. Since 1978, the National Science Foundation has funded the activities of the BGSC. The Department of Biochemistry provides facilities and administrative support.

Biological Sciences Greenhouse

Completed in September 1993, The Biological Sciences Greenhouse Facility houses an insectary, a quarantine facility, two research laboratories, a growth chamber area and a preparation room in addition to teaching and research greenhouse space. The facility has 15,120 square feet under glass divided into 24 individual computer controlled environments to allow optimal research and teaching opportunities. There are ten 10'X12' zones, five 20'X24' zones, eight 24'X40' zones and one 24'X80' zone each with perimeter hot water heat, hot and cold water, fertilizer injected water, metal halide high intensity discharge lights, and evaporative cooling.

Arabidopsis Biological Resource Center

The Arabidopsis Biological Resource Center (ABRC) was established in September, 1991. Primary support for the ABRC is provided by a National Science Foundation grant. The ABRC acquires, preserves and distributes seed and DNA resources that are useful to the Arabidopsis research community. The ABRC's holdings and stock distribution rates have increased rapidly so that presently hundreds of thousands of stocks are available. More than 100,000 stocks are shipped annually to researchers in more than 60 countries, and modest fees for stocks are charged.

Plant-Microbe Genomics Facility

This facility, established in 2000, serves the entire Ohio State University as well as the researchers in the state of Ohio and beyond, by providing resources in order to study genomes from DNA sequence to protein expression.

The facility uses the automated 3730 DNA Analyzer from Applied Biosystems, Inc. and BigDye Terminator Cycle Sequencing chemistry. This instrument utilizes fluorescent dye labeled nucleotides and provides high volume capabilities, e.g. 384 sequencing reactions in 12 hours, and typically yields 800 to 1000 bases per reaction depending upon the quality and nature of the template.

The facility has a iCycler iQ Real-Time Detection System (BioRad) which can accurately quantitate PCR products in real time. The iQ system is very sensitive and can simultaneously measure up to 4 different PCR products in each of 96-wells. This system is adept at precisely measuring the concentration of specific RNAs, measuring gene copy number as well as performing other applications that require the measurement of specific DNA molecules. The iQ system can analyze all of the current detection chemistries, such as 5xBR Green, Tagman, Molecular Beacons, etc.

biosci.osu.edu