



OKLAHOMA STATE UNIVERSITY: BIODIVERSITY BUILDS BRIDGES

Guided by its land-grant mission, Stillwater-based Oklahoma State University (OSU) most notably influences the state through agricultural research, extension and instruction. But, over the course of a century, OSU has evolved into a comprehensive research university emphasizing:

- biosciences research
- energy and environmental research
- sensor and sensor-related research

With the legacy of agricultural excellence as its foundation, OSU's vision for research reinforces efforts to expand the biocorridor in the state.

Jacque Fletcher, OSU plant pathologist, discovered that the resources needed to address a national priority, microbial forensics and agricultural biosecurity, exist right here in Oklahoma. Fletcher's insight was instrumental in bringing together experts needed to make this initiative a reality. Today, she directs the National Institute for Microbial Forensics & Food and Agricultural Biosecurity, performing the only research of its kind in the country. *E. coli* outbreaks, mad cow disease, and the recent anthrax scare are troubling examples of why this critical research is needed.

President George Bush and Oklahoma's Governor Brad Henry have both called for alternative fuels programs in response to the nation's increasing demand for energy. OSU's "grassohol" research, led by Ray Huhnke, professor of biosystems and agricultural engineering, will play an important role in reducing the country's gasoline consumption by producing ethanol from switchgrass. An OSU study predicts a 100-million-gallon-per-year biomass-to-ethanol conversion facility would provide more than \$25 million to local farmers.

At OSU's Center for Veterinary Health Sciences (CVHS), Guangping Chen received three grants this past year valued at more than \$1.5 million for research on drug-metabolizing enzymes. Chen's research on sulfotransferases will have a significant impact on human health. William Barrow received additional funding from the National Institutes of Health (NIH) for an expanded drug screening program. The funding allows Barrow's team to screen more drugs with robotics and perform assays – an invaluable resource for NIH researchers. NIH has awarded \$7.9 million to the CVHS for its drug screening program.

An interdisciplinary research team from the OSU-Center for Health Sciences (CHS) and OSU-Stillwater has developed ways to capture information from biomedical signals. The result is the OSU Center for Biomedical Signal Analysis and Integrative Diagnostics, which promises to advance diagnosis and treatment of cardiovascular disease. The OSU partners, led by Bruce Benjamin, CHS, and Ranga Komanduri, OSU-Stillwater, crafted computerized diagnostic systems that work together to harness the signals and pinpoint problems.

Learn more at www.vpr.okstate.edu.

OKLAHOMA'S BIOSCIENCE INDUSTRY

- More than **44,000** people are directly employed in Oklahoma's bioscience industry.
- The economic impact of direct jobs is **\$1.95 billion**.
- Total employment (including spin-off jobs) generated by the industry exceeds **90,000**.
- The total economic impact (including spin-off jobs) of the bioscience industry is **\$3.4 billion**.
- Oklahoma's bioscience sector consists of two major components: bioscience goods and services; and bioscience research and education.
- Overall estimated bioscience goods and services production employment is **39,862 people**.
- The employment estimate for bioscience research and education is **4,574 people**.