



MISSOURI POLICIES AND PROGRAMS

HIGHLIGHTS

- *Missouri has a sizable and rapidly growing biopharmaceutical industry that supported more than 65,000 jobs and contributed \$11.1 billion to the state economy in 2006, including direct, indirect and induced impacts*
- *In 2007, Missouri committed \$355 million for facility and infrastructure improvements at Missouri's colleges and universities through its Lewis and Clark Discovery Initiative*
- *Missouri's Life Sciences Research Trust Fund provides funding, in cooperation with other governmental and not-for-profit private entities, to enhance the state's ability to perform research that will better serve the health and welfare of its residents*

Missouri's Biopharmaceutical Industry

Missouri's biopharmaceutical sector is mid-sized, yet growing rapidly and highly impactful.¹ The state industry employed about 10,900 in 2006, a level reached following strong growth during the preceding decade.² Missouri biopharmaceutical firms added jobs at a compound annual growth rate (CAGR) of 8.1 percent since 1996, significantly faster than the 3.1 percent CAGR of the national sector. These jobs pay, on average, nearly \$93,000 in Missouri. The sector has a broad impact on the Missouri economy, supporting \$11.1 billion in total economic output, including direct, indirect and induced impacts, with \$356,000 in direct impacts attributed to each worker in the sector—more than two and one-half times the national average output per employee.

Biopharmaceutical Sector Performance Measures	MO	US
Direct Employment, 2006	10,884	686,442
Direct Employment Growth (CAGR), 1996-2006	8.1%	3.1%
Average Annual Wages (Direct Employment), 2006	\$92,606	\$88,929
Total Supported Employment (incl. Direct), 2006	65,192	3,233,920
Total Economic Output, 2006 (\$ billions)	\$11.1	\$294.6
Direct Output per Direct Employee, 2006	\$356,301	\$128,925
Active Clinical Trials, 2008	2,397	21,795

Source: Archstone Consulting, *The Biopharmaceutical Sector's Impact on the U.S. Economy*, prepared for PhRMA, 2009.

CAGR = Compound Annual Growth Rate

Missouri's Approach to Growing the Biopharmaceutical Industry

In 2003, the State of Missouri, the University of Missouri System, the Donald Danforth Foundation and the Ewing Marion Kauffmann Foundation commissioned an analysis to examine the state's life sciences sector and set forth a set of strategies and actions designed to make the life sciences a key driver of the state's economy. The state believed that growth of the life sciences industry would diversify its economy, helping to move from a traditional manufacturing base to a more knowledge-driven economy; increase incomes of its citizens; and help the state attract and retain scientific and technological talent.

"To compete in the new global economy, we must race forward in new fields, including life and plant sciences, high-tech research and alternative energy—while also revitalizing our agricultural and manufacturing industries."

Governor Jay Nixon
Transform.MO.gov

The analysis showed that Missouri had considerable life sciences assets, including its public and private educational institutions, the Stowers Institute for Medical Research in Kansas City and the Donald Danforth Plant Sciences Center in St. Louis, as well as a base of bioprocessing and biopharmaceutical manufacturing firms. The study also concluded that the state had not, however, established its position as a leader in the life sciences. A three-pronged approach was proposed to position Missouri to become a leading Midwest life sciences center.

The strategy set out a series of actions designed to increase the state's research capacity, aggressively implement economic development initiatives and strengthen the state's bioscience talent pool.

Missouri's Bioscience Vision

"[Our vision is to become a] leading Midwest life sciences center, among the nation's and world's leaders, in plant, animal, and human health, recognized for its world-class research and exceptional ability to commercialize research discoveries into new products and services. Missouri will be home to leading-edge researchers and leading-edge firms whose discoveries and products contribute to both a healthy citizenry and a healthy economy, driven by the state's life sciences base."

Life Sciences & Missouri's
Economic Future:
An Opportunity to Build One Missouri, 2003
[http://research.missouri.edu/
division/files/Battelle.pdf](http://research.missouri.edu/division/files/Battelle.pdf)

Since the strategy was adopted, Missouri has made significant investments in its universities for facilities and other infrastructure and invested in life sciences research, commercialization and technology transfer. Missouri offers services to help start-up companies succeed through a network of innovation centers and incubators and is supporting the development of bioscience-focused research parks.

Missouri is targeting six life sciences fields, two of which are related to the biopharmaceutical sector, pharmaceutical and human health, and comparative medicines.

To further develop the state's research and product development capabilities; a Missouri Life Sciences Project has been formed that includes political, industrial and academic life sciences leaders. The Missouri Life Sciences Project launched a web site (www.missourilifesciences.com) in the Spring of 2009 to serve as a single point for information on the state's life sciences industry, resources and assets. Project coordinators for the Missouri Life Sciences Project include: Missouri Hawthorn Foundation, Missouri Department of Economic Development, Missouri Technology Corporation/Research Alliance of Missouri, the University of Missouri and MOBIO, the statewide bioscience industry association.

Major State Initiatives to Attract and Grow the Biopharmaceutical Industry

Lewis and Clark Discovery Initiative

The Lewis and Clark Discovery Initiative, established by statute in 2007, was approved in order to invest \$355 million in facility and infrastructure improvements at Missouri's colleges and universities.³ The funds support the development of new research labs, teaching facilities, business incubators and a new plant sciences research

center. It is anticipated that these funds will leverage more than \$230 million in federal and local matching money, resulting in a total investment of approximately \$550 million.

In addition to supporting research capacity, the Initiative also provides \$15 million to the Missouri Technology Corporation (MTC) to support commercialization activities. The MTC is a private, not-for-profit corporation led by a 15-member Board of Directors comprised of leaders in the fields of science and technology and representatives of public and private universities, businesses, and the public. The MTC is charged by law with being a focal point for creating better ways for Missouri businesses to interface with universities to

- Solve technical and productivity issues
- Bring more research funding and emphasis to Missouri universities, especially involving the life sciences, information technology and advanced manufacturing
- Create and manage a system to transfer new discoveries into the marketplace in order to create companies and jobs.

Examples of Projects Funded by the Lewis and Clark Discovery Initiative in FY 2007 and FY 2008

- Missouri Opportunity Scholarship Fund – \$100 million
- Missouri Discovery Alliance Endowment – \$5 million, expected to provide \$250,000 annually to attract, retain, and create life sciences companies
- Missouri Endowed Professorship Initiative – \$20 million, expected to support 40 endowed professorships
- Various capital improvement projects on Missouri university and college campuses –\$299.7 million

University of Missouri System Web Site
[http://www.umsystem.edu/ums/departments/gr/newslett
er/060127/01-27-06AllocationPlanFinalIII.pdf](http://www.umsystem.edu/ums/departments/gr/newsletter/060127/01-27-06AllocationPlanFinalIII.pdf)

Life Sciences Research Trust Fund

The Life Sciences Research Trust Fund (LSRTF) was established by legislation passed in 2003. The legislation directed the state treasurer to: "deposit into the fund twenty-five percent of all moneys received from the state's tobacco settlement agreement, beginning in FY 2007 and in perpetuity thereafter." Its statutory mission is to provide funding to be used strategically, in cooperation with other

governmental and not-for-profit private entities, to enhance the state of Missouri's ability to perform research that will better serve the health and welfare of its residents by

- Building on the success of research institutions located in Missouri
- Creating new research and development institutions in Missouri and attracting more to relocate
- Commercializing life sciences technologies developed by such institutions
- Enhancing the capacity of the state's research institutions to carry out their respective missions.

The General Assembly allocated \$13.4 million to the Life Sciences Research Trust Fund in FY 2007, FY 2008, and FY 2009. The FY 2010 budget includes \$13.3 million for the fund.

Life Science Research Trust Fund Supports New Nanomedicine Institute

The LSRTF is funding the St. Louis Institute of Nanomedicine Working Group, a collaborative regional effort to apply advances in nanotechnology to the treatment of human diseases. The Institute, which was awarded \$1.5 million for 3 years from the LSRTF, will promote joint research projects and permit sharing of equipment and other resources. Founding members include Washington University, the University of Missouri–St. Louis, St. Louis University and St. Louis Community College.

www.nanotechwire.com
03/26/2009

¹ The biopharmaceutical sector is defined as including pharmaceutical and medicine manufacturing and scientific research and development services. The bioscience sector is broader and includes medical devices and agricultural feedstocks and chemicals in addition to biopharmaceuticals. Some states use the term life sciences or biomedical sciences, which often include hospitals and health care institutions as well.

² Archstone Consulting, The Biopharmaceutical Sector's Impact on the U.S. Economy, prepared for PhRMA, 2009.

³ Lewis and Clark Discovery Initiative
<http://www.ded.mo.gov/lcdi/frequentlyaskedquestions.pdf>, 09/19/2008.

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