



North Dakota

Programs & Initiatives Advancing the Biopharmaceutical Industry



Key Programs & Initiatives

The opportunities generated by the biopharmaceutical sector as a leader in innovation and high quality job creation are not limited to just a few states, but have a substantial national footprint. States proactively pursue the development of the biopharmaceutical sector because it represents: a large-scale, geographically dispersed supply chain spanning R&D through to production and distribution; a key driver of the economy including the recent economic recovery; and a sector paying high wage rates in quality jobs. States are deploying a range of programs and initiatives to support and grow the biopharmaceutical industry, including: comprehensive state development strategies; investments in R&D and related infrastructure; programs to boost venture capital, entrepreneurship, and innovation development; advanced manufacturing; economic incentive initiatives; and programs working to advance STEM education and training. North Dakota's economy is driven by its agricultural and natural resources, and as a result many of North Dakota's bioscience development efforts are focused in bioenergy and bioproducts, commercial products made from renewable resources. However, the state also targets the biomanufacturing segment of the state's advanced manufacturing industry, and has also made several significant investments in biopharmaceutical R&D through its Centers of Excellence Program.

Quick Guide: North Dakota's Programs & Initiatives Advancing the Biopharmaceutical Industry



Comprehensive State Strategies to Support Biopharmaceutical Development:

- North Dakota Economic Strategic Plan 2010-2020)



R&D Investment:

- Research ND Grant Program
- Centers of Excellence



Biosciences Infrastructure Development:

- North Dakota State University Research and Technology Park



Venture Capital, Entrepreneurship, and Other Innovation Related Programs and Initiatives:

- University of North Dakota Center for Innovation
- University of North Dakota Tech Accelerator Facility
- Innovate ND
- Venture Capital Loan Program
- North Dakota Research Venture Grants



Economic Incentives:

- Angel fund tax credit
- Research expense credit



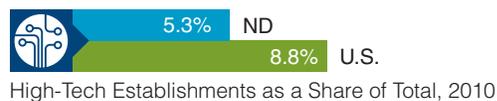
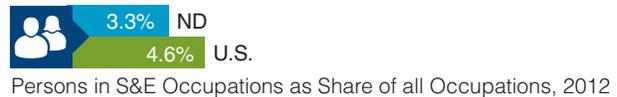
STEM Workforce & Education:

- North Dakota STEM Network
- Operation Intern

Impacts

- **The University of North Dakota Center for Innovation** – has supported 160 angel investors in starting nine angel funds since 2006, which have in turn invested in 43 ventures resulting in over \$26 million in equity invested.
- **Operation Intern** – From 2011-13, the program matched 400 high school and college students to internship opportunities in over 200 state companies. Operation Intern currently has 112 participating employers.

North Dakota by the Numbers



Source: National Science Foundation, Science & Engineering Indicators 2014.

Comprehensive State Strategies to Support Biopharmaceutical Development

North Dakota Economic Strategic Plan 2010-2020. The plan was developed by the North Dakota Economic Development Foundation, a private sector advisory group charged by the North Dakota legislature to advise the governor and the Department of Commerce on strategies to improve the state's competitiveness and increase economic growth. The report targets the biomanufacturing segment of the state's advanced manufacturing industry as a critical industry to develop, and reports that more than 50 percent of North Dakota's technology-based manufacturing workforce are employed in the state's biotech industry. The strategy also recommends continued investment in research efforts by university-industry partnerships focused on the state's emerging industries, including the life sciences.

R&D Investment and Infrastructure Programs and Initiatives

Research ND Grant Program. This program is housed within the North Dakota Department of Commerce and offers qualified research projects by private sector companies with up to \$300,000 in matching funds, as well as providing access to research resources at the state's research universities. The Research ND funds may be used for:

- Commercialization of new technologies;
- Research and development of new products; and,
- Improvement of existing products or processes.

Research ND also provides:

- Funding for the development of vaccines and antibodies, and their subsequent commercialization. Funding for the program over the 2015-2017 period is projected to total \$4 million.
- Fast Track funds to help companies that are dealing with time-sensitive projects or unplanned events. These funds apply to companies that have projects with less than 1 year in duration, are partnering with a North Dakota private sector entity, or are collaborating with a North Dakota manufacturer, and need to start on the project immediately.

Centers of Excellence. There are to date 21 Centers of Excellence and Research Excellence in North Dakota, all located on the campuses of state universities and colleges. The centers of research and development specialize in six different fields: life sciences, advanced manufacturing, agriculture, aerospace, energy and technology and entrepreneurship. Key life science centers include:

- Center for Biopharmaceutical Research and Production (CBRP) at North Dakota State University: This center, founded in 2008, was established to support the full range of biopharmaceutical research, from basic research to product development and manufacturing. The CBRP also works to attract biotechnology companies to the state. To do this it offers industry-specific training programs, attracts grants and other private investment, and works with companies to help them locate their drug product research and manufacturing facilities to North Dakota. The center was given more than \$3 million in state funding in 2010 to help in the development of medicine and vaccines that could stimulate the local economy.
- Center of Research Excellence for Avian Therapeutics for Infectious Diseases (COREATID): Established in August of 2012 and located at the University of North Dakota School of Medicine and Health Sciences, COREATID conducts research related to avian influenza and other conditions. The center was established with a \$700,000 award and has resulted in \$1.43 million being leveraged through matching funds.

Outcomes: Collectively, these centers have generated significant economic returns for the state, with an estimated economic impact of \$635 million as of June 2012. This value includes \$216 million from the Centers and grant recipients.

Programs and Initiatives to Build Bioscience Infrastructure

North Dakota State University Research and Technology Park.

Located in Fargo, the mission of this park is to commercialize NDSU-based technology and build relationships with industry leaders and international and local centers of excellence to help grow the state's economy. Key aspects include:

- The park sits on 55 acres of land and offers entrepreneurs access to offices, manufacturing and lab space (both wet and dry) through its technology incubator, as well as venture capital through an angel investment fund and other sources.
- The park is also home to the Technology Incubator, which opened in March of 2007. The Technology Incubator

offers almost 50,000 square feet of manufacturing space, boardrooms, shared production areas and wet and dry lab space. Other services include client networking, mentoring and business assistance.

- The incubator has 14 tenants, including three bioscience-related companies.

Venture Capital, Entrepreneurship, and Other Innovation Related Programs and Initiatives

Innovation Development

This University of North Dakota Center for Innovation.

Started in 1984 as a branch of the UND College of Business and Public Administration, the UND Center for Innovation was one of the first entrepreneur outreach centers in the nation. The center provides SBIR proposal assistance, and helps innovators start businesses and develop and commercialize their technologies, as well as helping them secure capital from other private and public sources. The center also helps manage two business incubators at the UND Tech Park, which currently houses 45 tenants, including two bioscience-related companies. The incubators (Ina Mae Rude Center and the Skalicky Tech Incubator) house wet labs as well as state-of-the-art offices and board rooms.

- **Outcomes:** The University of North Dakota Center for Innovation has supported 160 angel investors in starting nine angel funds since 2006, which have in turn invested in 43 ventures resulting in over \$26 million in equity invested.

Entrepreneurial Development

University of North Dakota Tech Accelerator Facility. This facility offers 50,000 square feet of research space and laboratories with a focus on life sciences and advanced technologies. The facility is one of the few places in the nation that houses Biosafety Level 3 and 3E labs. The Tech Accelerator Facility has attracted small businesses through its services and laboratory space as well as the steady stream of science graduates from UND, which have led to the development of student internship programs. The facility currently has five private sector partners.

Innovate ND. This statewide program was established to help innovators and entrepreneurs in North Dakota get the resources they need to become successful. Innovate ND allows members

to work at one of a number of entrepreneurial centers around the state, where they receive business mentoring, planning tools, and networking opportunities. The program also hosts boot camps where entrepreneurs can learn business management and other skills, and competitions are held where startups can test their business idea or compete for venture capital investments.

Venture Financing

Venture Capital Loan Program. The program provides equity funding for new and expanding companies in North Dakota. Early stage companies may receive funding through the Bank of North Dakota, especially for those that fall into one of the state's target industries which includes the life sciences. The bank also invests in later stage companies in the service, business and manufacturing industries. The venture capital loan program provides start-up funds to firms up to a maximum of \$300,000.

Research ND Venture Grant Program. The North Dakota legislative assembly established the Research ND Venture Grant Program in 2013. This program is designed to provide grants to start-ups or spin-outs that are based on university-developed technologies to help commercialize those technologies and bring them to market. Grants are available at two phases: Phase I awards are provided to companies that can build a viable business based on a university technology, and Phase II awards are provided to companies that have been awarded Phase I awards and need assistance in refining the technology. Phase I awards can be up to \$100,000 in value and Phase II awards can reach \$150,000. In June of this year the ND Centers of Excellence awarded seven Phase I venture grants, three to NDSU (totaling about \$300,000) and four to UND (totaling almost \$400,000).

Economic Incentives

Angel fund tax credit. Individuals and other entities that invest in an angel fund in North Dakota are eligible to apply for the Angel Investment Tax Credit. This state tax credit can equal up to 45 percent of the investment made, with a maximum credit limit of \$45,000 per year. A taxpayer may claim no more than \$500,000 in tax credits over the taxpayer's lifetime. An unused credit may be rolled over to the next year for up to seven years.

Research expense credit. North Dakota established a research expense credit to help entities in the state cover some of their research costs. The research credit is equal to 25 percent of the first \$100,000 on qualified expenses that exceed the base amount, and is equal to a percentage of the excess of qualified research expenses in North Dakota over the base period research expenses.

STEM Workforce & Education Programs and Initiatives

ND STEM Network. The ND STEM Network works to ensure that STEM literacy is attainable for all North Dakota students, and that STEM education is responsive to real-world opportunities and commercial needs within the state. The network seeks to enhance STEM education in state institutions, and also works to create STEM-related workforce training and economic development opportunities through transformation and innovation in STEM education.

Operation Intern. Administered by the North Dakota Department of Commerce, this program is designed to expand the number of new internships, work experience opportunities, and apprenticeship positions with North Dakota employers.

- The program focuses on developing internship opportunities in five key industries: value-added agriculture, advanced manufacturing, energy, technology-based businesses including the life sciences, and tourism.
- The Operation Intern Program was started in 2007 and was funded by a \$600,000 appropriation from the state legislature. The North Dakota legislature and governor have allocated \$1,500,000 in funding for the 2015-17 biennium. This funding allows the program to provide \$3,000 in matching funds to employers per each internship approved, with a maximum of \$30,000 per biennium.
- **Outcomes:** Over the 2011-2013 biennium, the Operation Intern Program matched 400 students to internship opportunities in over 200 state companies. The program currently has 112 participating employers.