NCBiotech: transforming the life science ecosystem




BASF


TransEnterix R&D


NCState/BTEC

NCBiotech: transforming life science in North Carolina,
and North Carolina through life science.

**NCBiotech's mission is to grow the life sciences in North Carolina.
Our focus is to help your business, technology,
or career advance to the next level —
a transformation with winning outcomes for you,
for North Carolina and for the world.**

Find your transformation with NCBiotech.

North Carolina Biotechnology Center

Transformation

The act of changing from one form into a different, more valuable form.

It's what NCBiotech does for North Carolina and our life science community. For three decades, we've helped thousands of people, companies, technologies — and ourselves — advance to the next stage.

We coax technologies forward, support company growth through investment, coaching and connections, and identify and nurture emerging opportunities. We've worked with partners to build the specialized job-ready workforce that keeps North Carolina a global life science leader.

And we've transformed North Carolina through the life sciences — through creation of jobs, tax revenue and global business opportunities, while improving quality of life at home and around the world.

NCBiotech is a knowledge bank of people with relationships and expertise — people who amass the best talent and companies for North Carolina. We solve. We create. We nurture people and ideas. On the following pages, we share some stories of transformation and ways that we can help to transform your business.

A history that informs the future

Forward-thinking leaders in business, academics and policy established the North Carolina Biotechnology Center in 1984 to capture the amazing promise of new life science opportunities.

The challenge was to harness the power of that initial collaboration to establish a new, statewide business sector. Today, with more than three decades of growth, change and state support, NCBiotech serves as a trove of expertise and a driver of transformation. Anticipating and adapting to social and technological change. And always focusing on the mission of ensuring North Carolina's global life science leadership.

Transforming Business

Our team supports growth in every stage of business development. We guide emerging companies through early obstacles to growth. We connect the right partners as companies grow to continue that progress. We anticipate the needs of companies both in and outside of North Carolina. NCBiotech provides expertise that positions life science companies to thrive in North Carolina.

Transforming the Ecosystem

Whatever challenge your life science company encounters, NCBiotech's diverse pool of connections meets the need. Our intelligence-gathering professionals provide market reports to companies seeking a competitive advantage. Companies small and large benefit from our meeting and office space. We foster plans for expansion, developing the right talent and infrastructure to bring products to market. We're the GPS to help companies navigate the life science ecosystem. And we constantly highlight our companies' successes.

Transforming Technology and Companies

Emerging startups and researchers across North Carolina benefit from our funding programs, which fill funding gaps along the innovation continuum all the way through production. Our competitive early funding programs enable companies to reach the milestones that bring follow-on funding. We also use our funding mechanisms to provide creative solutions as companies grow in North Carolina.

LaunchBio/Eric Waters

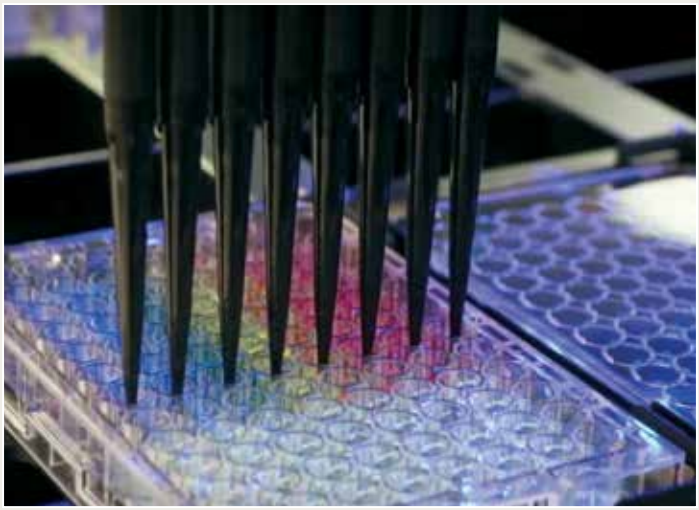
"In addition to federal grants, NCBiotech loans are critical to securing substantial venture backing. This is as much for NCBiotech's independent scientific validation as for the funding itself. In this sense, NCBiotech loans are a vitally important key to unlocking future success."

— Greg Mossinghoff, chief business officer, Symberix, Inc.

Duke University Brain Center

Istari Oncology

Glioblastoma is a devastating disease that kills nearly 13,000 people each year in the U.S. alone, most within two years of diagnosis. A world-renowned team of Duke brain cancer researchers developed an oncolytic poliovirus therapy that appears to extend patient survival. The results of the initial patient trials were followed on several episodes of *60 Minutes* and have generated strong public and investor interest. NCBiotech awarded a $50,000 grant to support the transfer and scale-up of the virus from the National Cancer Institute, allowing the treatment to move from Duke research lab to clinical trials with Istari.



Locus Biosciences

Locus Biosciences

Locus Biosciences is developing CRISPR-based smart bomb drugs that kill antibiotic-resistant bacteria by selectively destroying their DNA while sparing non-threatening bacteria. The Research Triangle Park gene therapy company avoids some of the recently publicized complications of CRISPR-Cas9 by using another approach, CRISPR-Cas3, to kill targeted pathogens. The 2015 spinout of North Carolina State University was born with the help of two loans from NCBiotech. Three of the four scientific founders of Locus have also received Biotech Center grants totaling more than $300,000. Locus has more recently raised $19 million and is gaining international attention, developing precision antimicrobials that can combat antibiotic-resistant superbugs.

NCBiotech is North Carolina's go-to life science resource, supporting your commercialization pipeline. Here's how we do it.

Idea

Innovation is in our DNA. As a convener, we bring together scientists within and across two dozen disciplines or interests. We look around the corner for the next convergence of life science and another sector. And we bring together the many parties who have an interest in the future of North Carolina's life science transformation.

- Exchange groups
  ncbiotech.org/exchange
- Calendar of Events
  ncbiotech.org/events

Research

For more than three decades, millions of dollars of **NCBiotech grants have supported technology-based economic development** by supporting universities in their roles as key pillars and originators of technology development. Grants continue to build academic research capacity, develop a highly specialized scientific workforce, and seed early technologies with disruptive commercial potential.

- Funding program information
  ncbiotech.org/grants

Translation

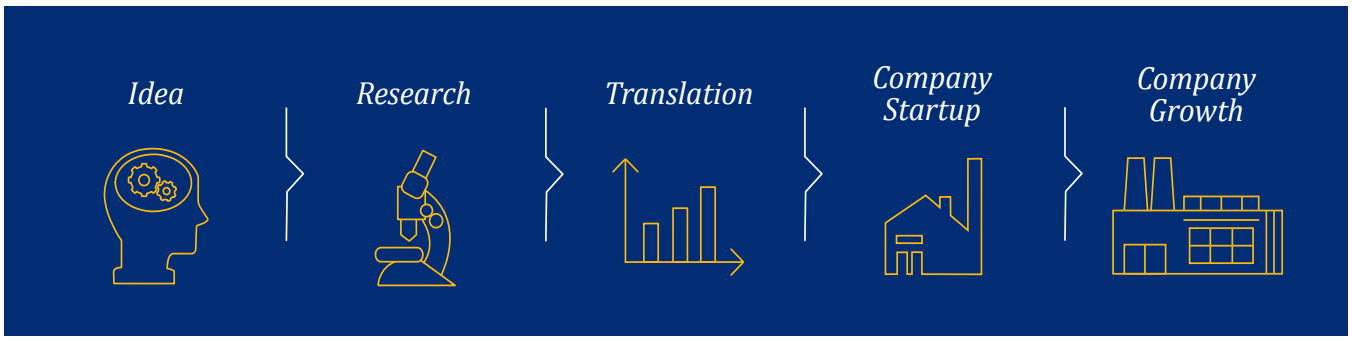
North Carolina's research universities are becoming increasingly responsible for the initial translation of promising technologies into commercially viable products. **NCBiotech grants support translation in three ways:** by pairing faculty researchers with commercial advisers to jointly explore applications of their technologies; by funding studies that will provide data required by potential corporate licensees; and by syndicating critical stakeholders around the development of commercially promising technologies.

NCBiotech brings science to life. And life to science.

Microbiome Consortium /NCBiotech IEG

Appalachian State University

Ribometrix



Company Startup

Life science entrepreneurship is a high-risk path. To help innovative life science companies navigate this path, NCBiotech catalyzes their startup and early growth in three major ways:

1. Investing in early-stage companies through two loan programs. One funding program supports business inception, early product development, fundraising and partnering. The second helps companies reach critical milestones and leverage matching venture funds. ***ncbiotech.org/loans***

NCBiotech loans are often the first source of outside funding, allowing startups to bridge the early-stage funding gap. At the same time, our funding provides a vote of confidence from outside experts that attracts subsequent attention and investment for the company.

2. Coaching and mentoring entrepreneurs on business, product development and fund-raising strategy.

3. Making connections: between entrepreneurs and partners, employees and service providers ***(ncbiotech.org/baton)***; between venture capital and angel investors and promising companies; and between technology scouts and North Carolina companies and academic researchers. ***(ncbiotech.org/partnering)***

Grifols

Company Growth

NCBiotech is the **one-stop shop for life science companies expanding or locating** in North Carolina.

Our team members connect companies with the people and resources they need to grow, and we help solve challenges along the way. Our partnerships with government and economic development agencies, along with our industry contacts, help companies seamlessly integrate and grow with our life science ecosystem. As companies add jobs — whether in R&D, contract research, or manufacturing — we work with our education partners to shore up the talent pipeline. Ask us about:

- Market research resources, including research analysts who answer life science business questions. ***ncbiotech.org/lsi***
- Office space in our Landing Pad for companies moving to N.C., and a conference center for meetings. ***ncbiotech.org/spaces***
- Performance-based grants for local governments to accelerate specific expansion or location projects and create jobs. ***ncbiotech.org/whync***

Transforming a State Through its Diverse Strengths

From its roots in crop and animal agriculture to its prowess in manufacturing pharmaceuticals and gene therapies, North Carolina boasts a strong record of success.

shutterstock

Precision BioSciences

Duke University spinout Precision BioSciences is using its ARCUS genome-editing platform to develop treatments for genetic and infectious disease and cancer immunotherapy, as well as better foods. It has quickly grown to more than 100 employees, and recently inked a deal with Gilead Sciences to develop hepatitis B treatments. The potential $445 million collaboration is one of many human health applications of Precision's platform, which is also being applied in the agriculture sector by the company's Elo Life Systems business unit. Elo uses Precision's platform and other new technologies for applications in crop improvement, animal genetics, industrial biotechnology and sustainable agriculture. The company has an ongoing partnership with agricultural giant Cargill to reduce saturated fat in canola oil.

North Carolina's contribution to the life sciences is wide-ranging — from clinical trials in the east to intravenous solutions in the west. Facilities in between produce vaccines, small and large molecules, and newer gene and cell therapies. Research labs test and develop the next therapies, diagnostics, medical devices and other medical innovations.

Meanwhile, our prestigious research universities every year launch exciting new entrepreneurial ventures, many with NCBiotech funding support. And a steady influx of companies recruited from around the world powers the ecosystem that fuels North Carolina's global life science leadership.

At the center of this activity is the North Carolina Biotechnology Center — nurturing growth through our many technology development, company growth and recruitment activities. As the agent of transformation for all things life science in North Carolina, NCBiotech has grown the state's industry from a handful of companies in the 1980s to more than 700 today.

To keep pace with this dynamic industry, **NCBiotech periodically launches initiatives designed to capture emerging opportunities.** No matter the geography or the technology, our approach is the same — bring together a diversity of stakeholders in the target area, forge consensus, and ultimately implement solutions that keep life science and North Carolina moving forward.

Examples include our collaborative around precision health, which includes scientists, healthcare professionals, insurers and even investors. It extends to the convergence of our historical strength in agriculture and new technologies, making sure our crop and animal health sectors continue to thrive here.

North Carolina's strong military presence — and changing defense needs — created an opportunity to augment life-saving technologies already being developed in North Carolina. And our long-term attention to biomanufacturing worker training is helping the state evolve to produce the next generation of therapies for debilitating diseases.

Syngenta

Like opportunity, our initiatives change based on market needs, and they always drive the transformation of North Carolina through life science.

Read more about our current initiatives at ***ncbiotech.org/initiatives.***

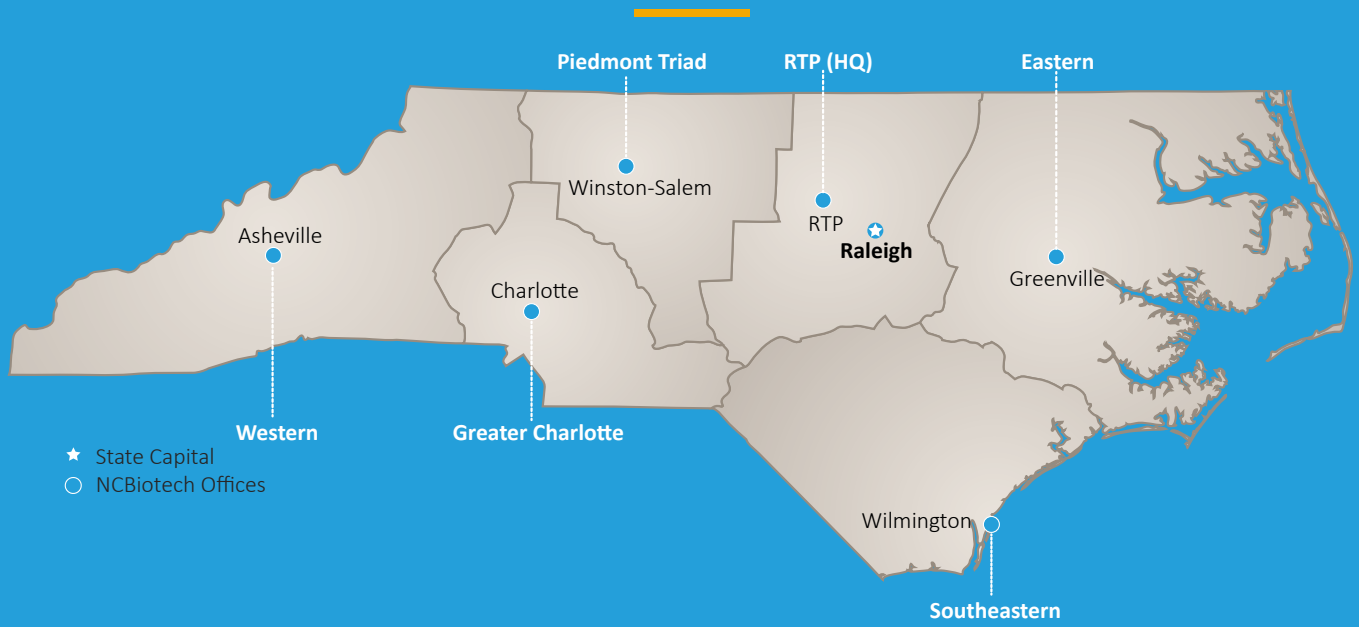
NCBiotech partners with local communities across the state via five regional offices.

The statewide team facilitates interaction and seamless use of all NCBiotech programs and services. This creates a competitive advantage for regions, growing a stronger life science ecosystem. Community leaders guide regional growth through advisory committees.

- Western (Asheville)
- Greater Charlotte
- Eastern (Greenville)
- Headquarters (Research Triangle Park)
- Southeastern (Wilmington)
- Piedmont Triad (Winston-Salem)

"When I started the company 10 years ago, people told me I should be in Silicon Valley or Boston. But I said we could recruit all the talent we need right here. And that proved to be the case. We have so much potential for growth."

— Todd M. Pope, president and CEO of TransEnterix



North Carolina's Thriving Life Science Sector

Whether you're developing, manufacturing or distributing a product, North Carolina's ecosystem will accelerate your market entry. Our strong business climate, low operating costs and a pipeline of highly skilled talent will transform your business. The stories below illustrate these assets. Visit our one-stop shop for company expansion or location: *ncbiotech.org/WhyNC*

NCPSN-ECU

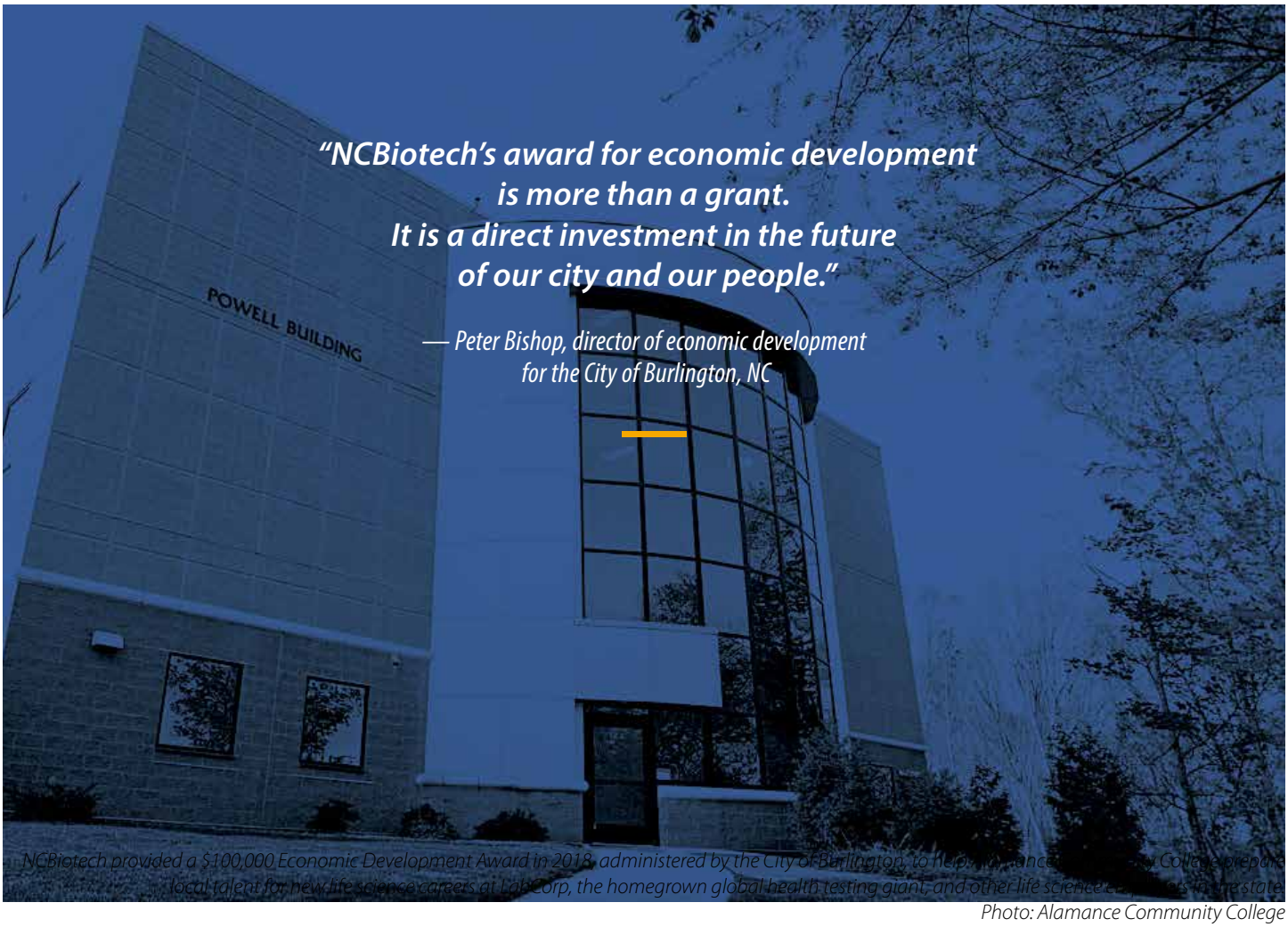
NC Pharmaceutical Services Network

At a former Greenville textile plant, the next class of pharmaceutical workers are being trained for high-paying jobs. This is a high-profile example of North Carolina's transformation from a textile manufacturing state to global leadership in pharmaceutical manufacturing. The North Carolina Pharmaceutical Services Network (NCPSN) provides hands-on training at both Pitt Community College and East Carolina University to prepare current and newly hired workers in all aspects of manufacturing oral solid dose pharmaceuticals — pills and tablets. The $2 million-plus facility not only benefits pharmaceutical manufacturing companies in the region, but also stands ready to attract new ones. Pharmaceutical companies in the region have more than $3 billion in capital investment projects planned or underway, according to NCPSN.

Glenmark Pharmaceuticals

Glenmark Pharmaceuticals

Glenmark Pharmaceuticals, an India-based global pharmaceutical company, says it is committed to growing its pharmaceutical manufacturing facility in Union County, outside Charlotte. Glenmark purchased the 15-acre Monroe site for its first North American manufacturing facility in 2014. The company says it has subsequently invested more than $100 million in the original 102,000-square-foot facility and an adjacent five acres at the Monroe Corporate Center site, with plans for future expansion. The Monroe facility is designed to manufacture a variety of fixed-dose pharmaceutical formulations. At peak capacity, the company expects the site to produce 300 to 400 million tablets and capsules, 20 to 25 million vials and prefilled syringes, and 25 to 30 million ampoules for inhaled formulations.



"NCBiotech's award for economic development is more than a grant. It is a direct investment in the future of our city and our people."

— Peter Bishop, director of economic development for the City of Burlington, NC

NCBiotech provided a $100,000 Economic Development Award in 2018, administered by the City of Burlington, to help [illegible] College prepare local talent for new life science careers at LabCorp, the homegrown global health testing giant, and other life science [illegible] in the state.

Photo: Alamance Community College

Your catalyst for transformation

NCBiotech opened its doors as a state-funded nonprofit in 1984. Our funding from the state's General Assembly every year since then demonstrates North Carolina's commitment to the life science sector. In three-plus decades, we've leveraged that funding to move North Carolina's life science community forward at every point in the technology development pipeline. It's how we achieve our vision: North Carolina, a global life science leader.

Contact us to start your transformation

ncbiotech.org/transformNC

Want to know more about how North Carolina can transform your business? *ncbiotech.org/transformNC*

North Carolina: a global life science leader

ncbiotech.org/transformNC

North Carolina Biotechnology Center

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Asheville | Charlotte | Greenville | Research Triangle Park | Wilmington | Winston-Salem

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