

LIFE SCIENCES IN DELAWARE

MOMENTUM + OPPORTUNITY


DelawareBio
ADVANCING BIOSCIENCE INNOVATION

 **DELAWARE
PROSPERITY
PARTNERSHIP**

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A joint report from the Delaware BioScience Association and the Delaware Prosperity Partnership

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LIFE
SCIENCES
IN DELAWARE

The momentum of Delaware’s life sciences sector has never been greater. From established global leaders to fast-growing companies to scores of smaller startups, the state’s life sciences community is thriving, developing and delivering innovative medicines, devices, and technologies to address everything from the Covid-19 pandemic to hard-to-treat cancers and sustainable farming practices. This growth has been fueled by Delaware’s rich scientific heritage, one of the world’s best regional talent pools, an increasingly diverse range of firms, and a collaborative, supportive network of industry, higher education, and government.

Within a period of days this summer, two significant events underlined the state’s unique position for global leadership in the sector.

First was the announcement of a several hundred-million-dollar-investment in a new pharmaceutical development and manufacturing facility in Middletown. The operation will employ nearly 500 in the initial phase and could employ more than 1,000 workers in a few years, across roles ranging from manufacturing to management to administration. The second was news that

NIIMBL—the National Institute for Innovation in Manufacturing Biopharmaceuticals, based at the University of Delaware’s STAR Campus—will receive \$153 million from the U.S. Department of Commerce to advance its mission of driving innovation in domestic biopharmaceutical manufacturing by developing flexible, agile, and cost-effective manufacturing processes.

These major developments—along with plans for hundreds of millions to be invested in a science and innovation park at the former DuPont Chestnut Run site, a new \$10 million program supporting the expansion of lab space, the launch of a legislative Life Science Caucus in the General Assembly, and one of the market’s most successful IPOs of the last year by a local biotech—send a clear signal that the life sciences will drive Delaware’s economic future while delivering immense value to patients and public health.

In recent years, national organizations have periodically attempted to measure aspects of the life sciences landscape in Delaware, but there has been no comprehensive effort to capture the full vitality, breadth, impact, and opportunity for the state. The Delaware BioScience Association (Delaware Bio) and the Delaware Prosperity Partnership (DPP) have partnered to produce this baseline report on Delaware’s life sciences sector to assess and frame the industry’s size and importance; inform key stakeholders within and outside Delaware about the diversity and evolution of the state’s bioscience sector; and identify priority opportunities to continue to grow a sector so vital to Delaware’s future.

EXECUTIVE SUMMARY

Delaware, with unique strengths and distinct advantages as part of a thriving Mid-Atlantic region, is ideally positioned to seize a coming wave of opportunities in the life sciences sector into the next decade and beyond.

Bioscience is a leading economic driver in Delaware, with the state poised for significant growth

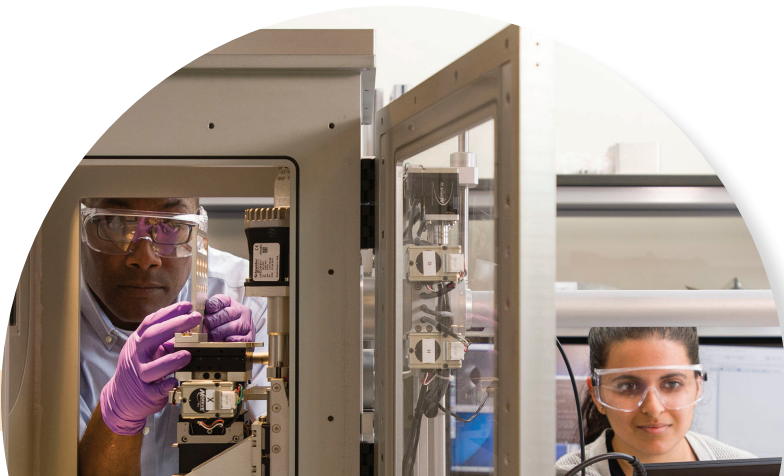
- Delaware’s life sciences sector employs approximately 11,000 people (2.5% of total state employment) and directly generates at least \$2 billion in GDP annually (2.5% of total state GDP)
- Life sciences employers in Delaware generate annual payrolls of at least \$230 million
- There has been a significant, sustained growth in interest from life sciences companies in expanding in or moving to Delaware, validated by the decision of WuXi STA to build a new \$510M, 500 employee biopharmaceutical production facility with opportunity for growth

There has never been a moment when the value of bioscientific innovation has been more apparent

- The Covid-19 pandemic has made clear the industry’s immense value and urgent work
- Nationally, employment in the sector reached a record high in 1Q21, up 16% in four years
- Venture capital investment soared throughout 2020, and in the first quarter of 2021 alone totaled approximately \$10 billion, easily the largest quarterly total in the past 25 years

Delaware sits in the heart of the Mid-Atlantic region, with distinct business advantages—yet has room to strengthen its visibility and identity

- Nearly 30% of all biochemists and biophysicists in the U.S. are employed in DE, MD, NJ, and PA, while one out of six U.S. pharmaceutical employees works in the greater Mid-Atlantic region
- Forbes’ “Best States for Business Rankings” ranks Delaware 2nd-best for business costs in the nation, while the state has the 6th-lowest property taxes nationally
- Delaware ranks 3rd nationally for overall corporate tax favorability
- Delaware has the 4th-highest concentration of employed PhDs in health, science, and engineering, and ranked 9th in the Milken Institute’s 2020 State Technology and Science Index



The composition of Delaware’s bioscience landscape has been transformed in recent years, with increased depth and diversity across the sector

- The number of life sciences establishments in Delaware has grown significantly in the past decade, most notably in the biotechnology R&D subindustry with an increase of 65%
- Fast-growth startups like Prelude Therapeutics and Nikang Therapeutics have each raised hundreds of millions of dollars in venture capital, while mid-sized firms like Frontier Scientific Services and QPS have grown rapidly in recent years
- Industry stalwarts such as Incyte and Gore, from which scientists have gone on to found their own companies in Delaware, are thriving and expansions at Air Liquide, the formation of Corteva, and FMC’s Delaware entry add agricultural and industrial bioscience depth

Delaware draws on a world class talent pool in the state and regional labor market

- The Philadelphia-Camden-Wilmington metro area—which includes northern Delaware—ranks 4th in life sciences employment nationally, with Delaware employers drawing approximately one out of five life scientists employed in Delaware from across state lines
- More than one-third of all Philadelphia metro area chemical engineers work in New Castle County, although New Castle County accounts for just 9% of the total metro population
- More than 109,000 people in the region hold a terminal degree in biological, agricultural, and environmental sciences, or 6.6% of all degree-holders—a rate on par with Greater Boston



The state is home to a wide range of degree and training programs to develop the future talent pipeline, and institutions are innovating to respond to employer demand

- The number of associate degrees or higher in life sciences disciplines awarded by Delaware institutions has grown by 64% since 2010
- University of Delaware (UD) programs span all life sciences disciplines from general biology, to plant science, to marine biosciences, and medical laboratory sciences, while Delaware State University (DSU) has programs in agriculture, general biology, natural resources management, and neuroscience
- Delaware Technical Community College (DTCC) and Wilmington University also provide critical support for the life sciences talent pipeline, from specific, tailored training to continuing education
- Innovative collaborations are blooming such as ChristianaCare's Gene Editing Institute and DTCC's partnership to develop the first-ever gene editing curriculum for community college students in 2017

Companies in the state are supported by a collaborative ecosystem driven by private and public activity

- The National Institute for Innovation in Manufacturing Biopharmaceuticals (NIIMBL) recently opened a \$156 million, 200,000 square-foot building at UD, for R&D and biopharmaceutical workforce training
- Multiple organizations actively support the sector's growth, including Delaware BioScience Association, Delaware IDeA Network of Biomedical Research Excellence, Delaware Manufacturing Extension Partnership, Optical Science Center for Applied Research at DSU, Delaware Technology Park, Delaware Innovation Space, and more
- A new graduated lab space fund is already eagerly being tapped, with \$10 million in FY2022 to incentivize lab construction for small to medium sized companies to grow in Delaware

Delaware's academic institutions are key drivers of innovation and research in the state's life sciences ecosystem, with substantial R&D expenditures

- Most of the state's academic R&D is conducted at UD with more than \$200 million in 2019, with about one-third (\$60.5 million) devoted to life sciences-related research
- UD's chemical engineering R&D expenditures are more than seven times greater than other institutions in the region on a per capita basis
- DSU's R&D spend was \$23 million in 2019, with a higher share focused on life sciences-related research (about 60%, or \$13.8 million)
- Delaware life sciences R&D expenditures are tilted more heavily toward agricultural sciences than in neighboring states—a fact owing to Delaware's agricultural legacy, but also the absence of a medical school which tend to account for an outsize share of life sciences R&D

Still, private industry and venture capital are key drivers in the state's life sciences growth

- Delaware ranks 8th nationally in bioscience-related patents per capita, supported by UD's Office of Economic Innovation and Partnerships (OEIP) and the state's deep bench of IP experts
- Delaware ranked 7th nationally for life sciences venture capital funding per capita between 2016 and 2019—outpacing PA, MD, and NJ—as investment grew from \$22.2 million in 2017 to \$111.4 million in 2018 and \$123.9 million in 2019, driven largely by investments in Prelude Therapeutics

Delaware has several strategic opportunities to accelerate growth in life sciences.

To ensure and accelerate the sector's continued success, industry, higher education, and state leaders must focus on strategic investments in workforce development, lab space supply, industry/higher education collaboration, and access to capital.

The growth in federal funding for Delaware institutions undergirds the scale of R&D activity in the state

- UD ranks among the top 10% nationally for National Science Foundation R&D expenditures, while DSU ranks 5th among HBCUs for R&D expenditures
- Since 2000, Delaware's R&D funding from the National Institutes of Health, as a share of overall NIH R&D allocation, has more than doubled to \$58 million in 2020
- Delaware is among the top three recipients, on a per capita basis, of funding from NIH Institutional Development Award (IDeA) program

