

**CONNECTICUT BIOSICENCE
STRATEGIC PLAN
EXECUTIVE SUMMARY
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Connecticut Bioscience Executive Summary

Connecticut (CT) has a history of success in the bioscience and healthcare-related industries with its leading pharmaceutical, medical device, healthcare, insurance and genomics companies. In addition, the state has the advantage of top-tier academic institutions conducting ground-breaking research and fostering technology commercialization. From developing UConn Health and the Connecticut Biosciences Innovation Fund (CBIF), to the recruitment of Jackson Laboratory and Yale University's development of the \$25M Blavatnik Fund, the state now has many of the innovation layers needed to ensure it is well-positioned for future growth.

- CT's bioscience sector currently employs nearly 39,000 workers in over 2,500 companies.
- Every new job in the industry results in an additional 3.9 jobs created
- CT ranks 4th in the nation for bioscience patents per 1,000 people.
- 54% of all venture capital invested in state is in bioscience
- 80% of all CT academic R&D investments are in bioscience
- CT ranks as the nation's 5th most innovative state.
- CT has a highly educated workforce, ranking 3rd in adult population with advanced degrees.
- CT ranks 6th in the US for the number of scientists and engineers in the workforce per capita

While we start from a position of some strength, there is much work to be done to develop the bioscience sector and compete effectively with our neighboring states. New York (NY) and Massachusetts (MA) have grown their biosciences ecosystem far faster than CT over the last decade. For CT to capitalize on this high growth/high paying sector we encourage the State to think differently and enact more pro-business policies, tax regimes and investments. We need to recruit more companies, support the startups, develop the infrastructure, change tax regimes and create more jobs.

Connecticut Bioscience Ecosystem

There are various stakeholders from both the public and private sectors that are a key component of the bioscience ecosystem driving the bioscience economy. BioCT is the dedicated advocacy and engagement group that facilitates many of the sector initiatives. Academic institutions and non-profit institutions such as Yale University, UConn and The Jackson Laboratory for Genomic Medicine are leading cutting-edge research.

While CT lost Bristol Myers Squibb (BMS) and Bayer over the last decade, large pharma companies continue to have a significant footprint contributing to the local economy. These companies reduced the size of their workforce over the last decade as they went through their industry cycles of growth and shrinkage. Boehringer Ingelheim and Pfizer are committed to staying in CT and are supportive to the industry and workforce.



The state also has a strong small-to midsize businesses in the industry with both private and public companies.



In the last decade, several initiatives were undertaken to build upon the state’s capabilities and attract entrepreneurs and capital. Funding included state support to enhance the UConn Health Center, The Jackson Laboratory’s expansion into CT, and the establishment of CBIF — all focused on closing the gap created by the loss of jobs in the large pharma sector (e.g. Bayer, Pfizer and BMS) and by the 2008 recession. More recently, many of those initiatives seeded successes including:

- A growing UConn **Technology Incubation Program** with quality lab space for over 40 startups
- The **Jackson Laboratory** for Genomic Medicine facility’s multiple collaborations with UConn and Connecticut Children’s Medical Center
- Addition of **BioCT’s CURE Innovation Commons**, a bioscience incubator utilizing ex-Pfizer space
- The **Blavatnik Fund** which provides \$25M in private dollars to Yale University for grants to foster more technology commercialization activities for licensing and startup opportunities
- **CBIF** provides \$204M allocated by the state to invest in startups and key academic/state initiatives
- A **growing small to midsize biopharma** sector with 2 major NASDAQ IPOs in last 18 months with Arvinas and Biohaven Pharmaceuticals
- **Sema4**, a Mount Sinai predictive health diagnostics company, moved its headquarters to Stamford with 400+ employees in Branford and Stamford

Economic Development Support

In addition, various organizations have provided additional critical business and economic development support, such as:

- Financial: Equity, loan, grant, and advisory support programs through various entities
- Tax Incentives: R&D tax credits and Angel investor tax credit program

Opportunities to Further Leverage CT’s Bioscience Ecosystem

Key Strengths to Leverage

- Top-tier academic institutions with technology commercialization potential
- Strong bioscience and healthcare talent pool from pharma, insurance and serial entrepreneurs
- High quality of life and attractive location near NY, Boston, MA, New Jersey and Philadelphia
- High risk very early stage capital from CBIF
- Healthcare insurance companies such as Aetna, Anthem, United Healthcare and Cigna as part of the bioscience ecosystem. Presence of biotech, healthcare and insurance creates unique innovation ecosystem.

Opportunities to become more competitive:

- Infrastructure
 - Quality, affordable lab space for small to medium size cos.
 - Create spaces where people want to work
 - Offer 100% personal income tax remittance to new employees from the 5th to 75th FTE
 - Remove the capital base tax
- Transportation – Easy access, commutable
 - Light rail/more commuter rail options
 - Need to connect Philadelphia, New Jersey, New York City, New Haven and Boston
- People – attract and retain the current and the next generation of talent and high paying jobs.
- Funding – attract new private capital for early stage venture opportunities

Formulating a CT Bioscience 10-Year Strategic Plan (2019-2028)

While much has been accomplished to stimulate CT's bioscience ecosystem, it is imperative we support a strategic plan for the next decade to leverage our successes, learn from our setbacks, and drive CT forward as a leading bioscience and healthcare hub. Objectives will require both short and long-term planning goals focused on infrastructure, investment, workforce talent, business climate and education. Key themes are highlighted below:

Marketing & Branding

- Launch marketing campaign to combat negative CT perceptions and focus on CT strengths
- CI and BioCT to co-manage the hiring of an agency to create a marketing plan, social media campaign, PR and a dedicated website to promote CT as a bioscience hub. Funding provided by CBIF
- Identify core competencies (genomics, microbiome, pharma development, diagnostics, med devices, insure tech, AI)

Attracting Investment Capital

- Continue CBIF's seeding early stage companies to attract talent and capital; attract additional venture funds to invest in CT via CI's Fund of Funds program; promote angel tax and VC life sciences tax credit
- Cultivate partnerships with local, regional VCs/angels/family offices/biotech/Pharma for capital, networking, recruitment
- Leverage more private capital and public/private partnerships for infrastructure, seed funding, and a more independent, self-sustaining ecosystem

Workforce Development

- Continue/expand funding for internships, work-study programs for pre-grads, postdocs to train and retain talent; develop curriculums for all levels of workforce
- Continue/expand future talent development by partnering with K12 schools for STEM/company collaborations
- Increase the number of employees by 25%

Business Development/Recruitment

- Expand outreach to emerging foreign biopharma companies with market caps > \$1B who would benefit from a US presence
- Develop a plan and a budget for a "Roosevelt Island" RFP to attract another major academic research institution to CT, or to build on the strengths of the leaders we have
- Promote University-Industry Collaborations with existing stakeholders in innovation places to attract new companies, partnerships, talent
- Offer personal and business tax incentives, student loan forgiveness
- Increase by 25% the number of companies

Infrastructure Improvements

- Identify and develop space for lab and offices for companies' expansion; co-existence of established companies with start-ups facilitates success by scale (similar to Boston which is attractive for talent, as it offers multiple job opportunities)
- Continue adding infrastructure improvements including modern transportation
- Investing in vibrant cities (parking, streetscapes, arts to build & attract community)

Key contributors providing input for this summary included representatives from: Department of Economic and Community Development; Connecticut Innovations; BioCT; Biohaven; Rallybio; Aetna; Pfizer; Boehringer Ingelheim; Sema4; The Jackson Laboratory; University of Connecticut; University of Connecticut Health Center; Yale University; Elm Street Ventures; Achillion Pharmaceuticals; Diameter Health; Trevi Pharmaceuticals; Medtronic; Canaan Partners; Southern Connecticut State University; and the Connecticut Technology Council.