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LIFE SCIENCES

SECTOR SNAPSHOT DECEMBER 2023

ADVANCE CT
CONNECTICUT

TABLE OF CONTENTS

ABOUT ADVANCECT

OUR MISSION

AdvanceCT is a nonprofit economic development organization that drives job creation and new capital investment in Connecticut through business attraction, retention and expansion.

WHAT WE DO

Part of Team Connecticut, Connecticut's economic development partnership, **AdvanceCT** is the leading business attraction entity for the state.

AdvanceCT, in close collaboration with the Connecticut Department of Economic and Community Development (DECD) and partners statewide, provides business support services to companies looking to locate and grow in Connecticut.

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27.8K
Jobs

1,300
Establishments

$7.8 Billion
State GDP

SOURCE: LIGHTCAST, 2022; ADVANCECT CALCULATIONS

Scaled by population, Connecticut is:

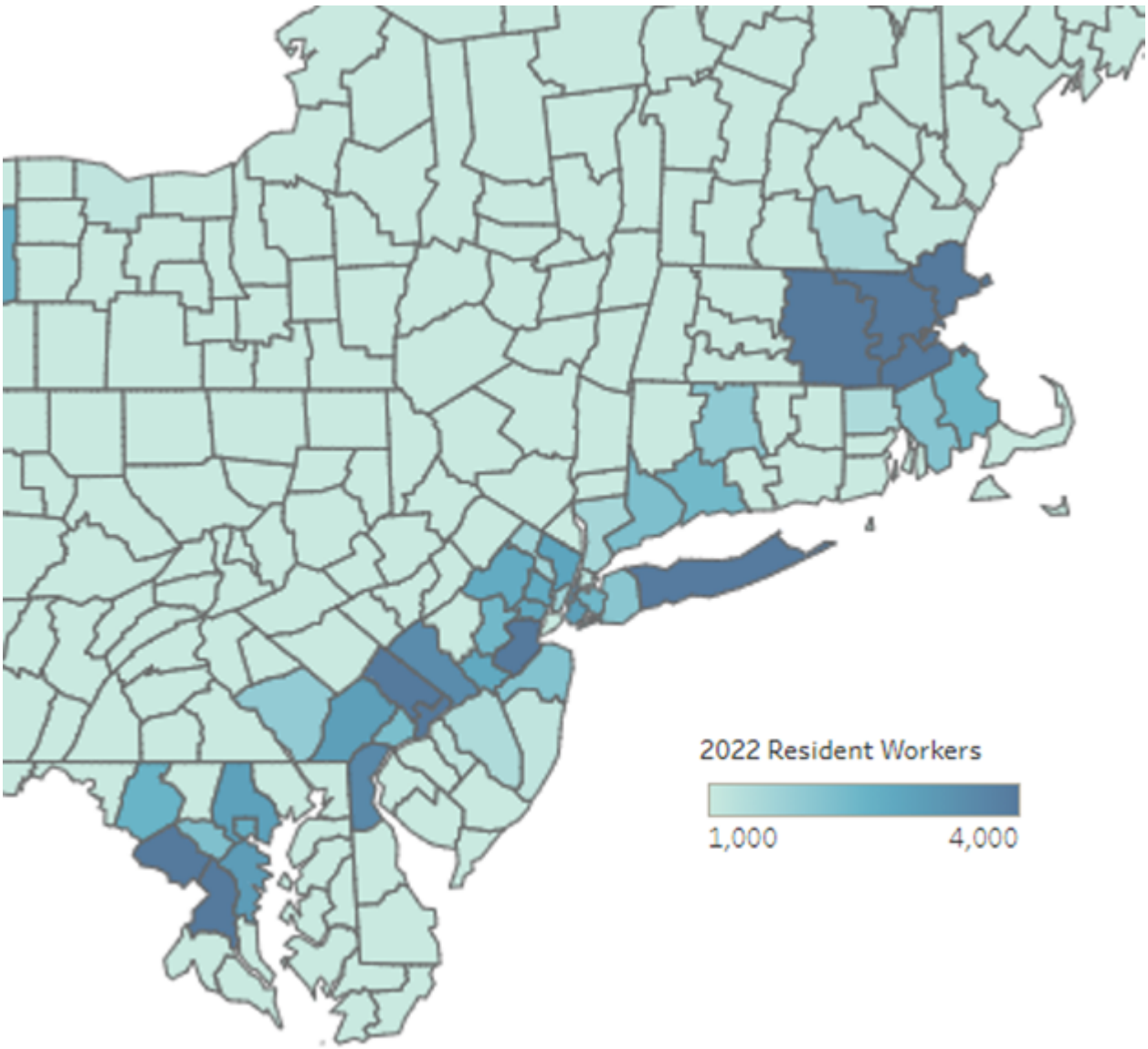
#5 state for **bioscience venture capital investment**

#3 in the nation for **bioscience patents**

#2 state for **academic bioscience R&D investment**

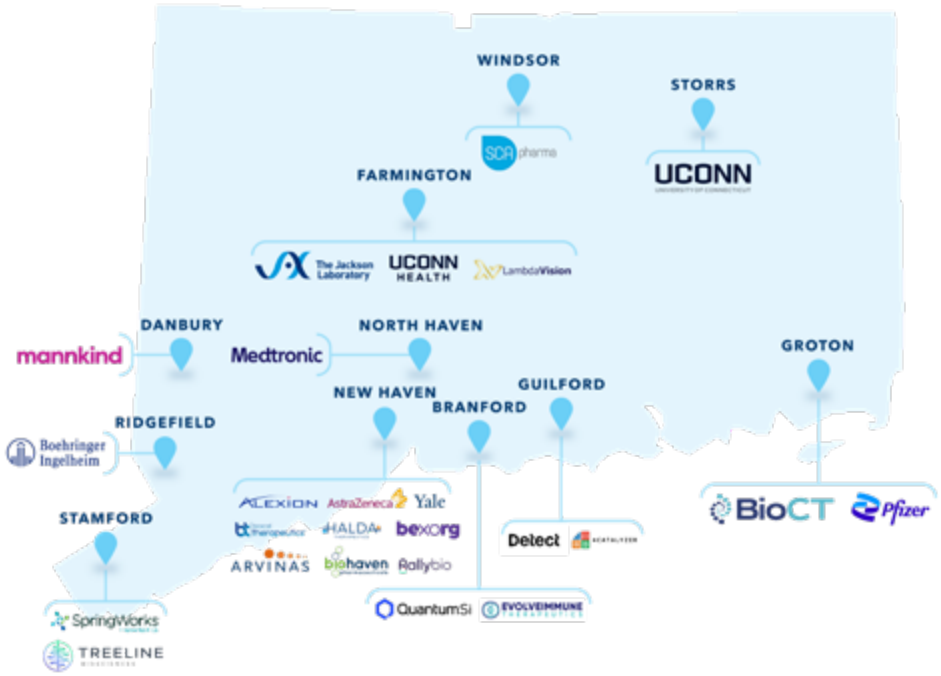
STATS ARE PER CAPITA. SOURCE: TECONOMY/BIO, 2022

Life Sciences Workforce in the Northeast Corridor



Connecticut is part of a dynamic life sciences ecosystem that includes some of the top life sciences clusters in the country.

SOURCE: LIGHTCAST, 2022; RESIDENT WORKERS BASED ON CUSHMAN AND WAKEFIELD LIFE SCIENCES OCCUPATIONS DEFINITION.



A Sampling of Connecticut's Life Sciences Ecosystem

enko · Z-MEDICA · Teleflex · P2 Science · Artizan Biosciences · Intus Biosciences

ReNetX Bio · CytoVeris · Tangen · UConn Technology Incubation Program · abcam · BioMed X

Celldex therapeutics · Medtronic · bioxcel therapeutics · Loxo Oncology at Lilly · CaroGen Corporation · Frequency Therapeutics

connecticut innovations · QuantumSi · mannkind · tastesnatural · Cybrexa Therapeutics · trevi Therapeutics

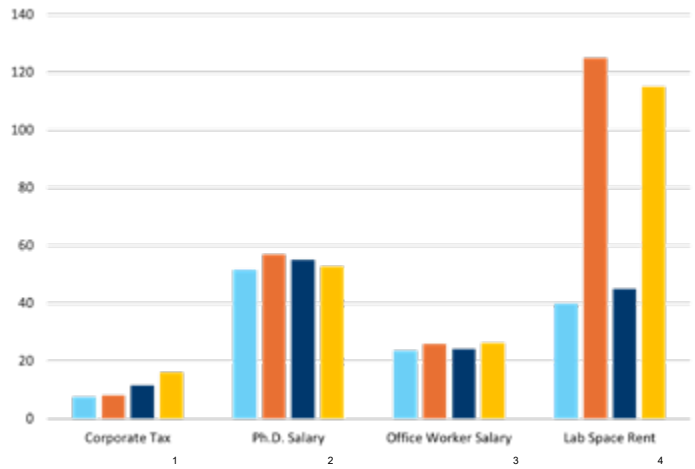
biolabs · azitra · ViiV Healthcare · biohaven pharmaceuticals · Torigen Pharmaceuticals · NECTx

AbbraTech · SIDUMA Therapeutics · ReST Therapeutics

The Connecticut Cost Advantage

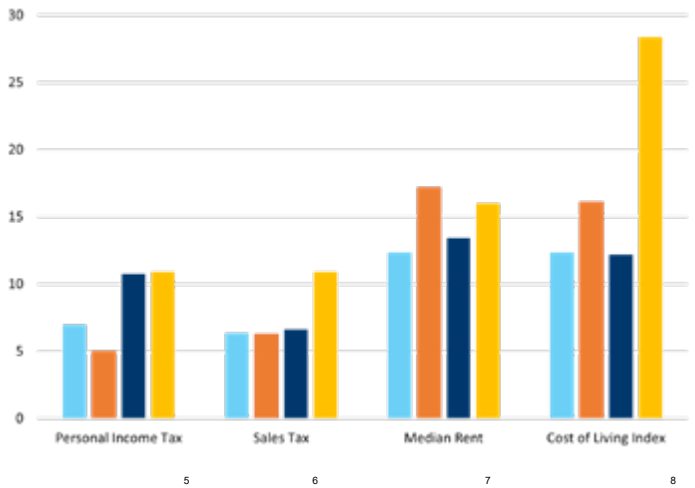
New Haven, CT Boston, MA Princeton, NJ New York, NY

Business Costs



Significantly lower cost of doing business

Personal Costs



Lower living expenses and a great quality of life

[1]Tax Foundation, 2022; New York State Dept of Taxation and Finance, 2022. Top marginal tax rate. New York includes state tax and NYC business corporation tax. CT tax is the greater of 7.5% of taxable net income or 0.21% of capital base. Capital base tax drops to 0.11% in 2023 and will be eliminated in 2024. [2]Lightcast, 2022. Average Hourly Earnings by county for Biological Scientists. [3]Lightcast, 2022. Average Hourly Earnings by county for Office and Administrative Support Occupations. [4]Cushman & Wakefield, Q2 2023; Colliers, 2022. Lab space rental costs in ft². New Jersey is statewide average. [5]Tax Foundation, 2022. Top marginal individual income tax rate. [6]Tax Foundation, 2022; New York State Dept of Taxation and Finance, 2022. [7]U.S. Census Bureau, ACS 5-year, 2021. Median monthly rent by county, divided by 100 for scaling purposes. 8C2ER, 2022. County cost of living index, divided by 10 for scaling purposes.

TALENT

LIFE SCIENCES SECTOR SNAPSHOT

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Connecticut has a Strong Life Sciences Talent Ecosystem

Connecticut has quality talent and is more affordable than many large life sciences hubs.

Talent in Connecticut

New Haven is the fastest growing MSA for Physical, Engineering, and Life Science R&D jobs

581% GROWTH FROM 2017-2022*

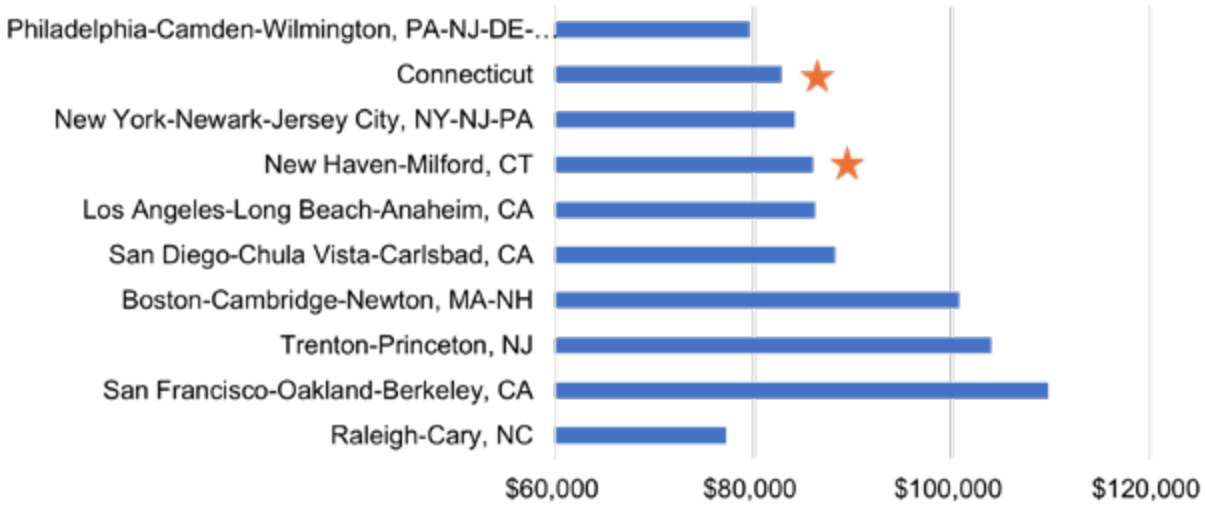
Nearly 17,000 software developers

24% GROWTH FROM 2017-2022

CT has 34% more engineers than the national average

#3 most educated workforce in the U.S. (WalletHub, 2023)

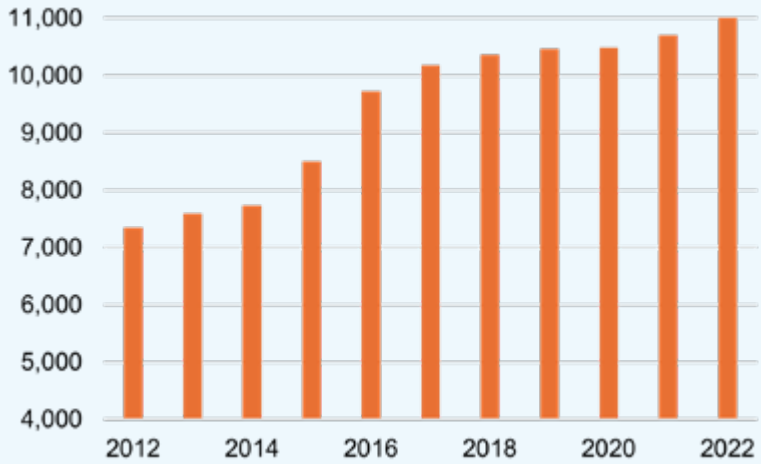
Life Sciences Talent Median Annual Earnings



SOURCE: LIGHTCAST, 2022; CUSHMAN AND WAKEFIELD LIFE SCIENCES OCCUPATIONS DEFINITION; ADVANCECT CALCULATIONS.
*COMPARED TO MSAS WITH MINIMUM 1,500 INDUSTRY JOBS.

Connecticut has a Robust Life Sciences Educational Pipeline

Connecticut STEM Graduates



SOURCE: LIGHTCAST, 2022; U.S. DEPARTMENT OF HOMELAND SECURITY DEFINITION

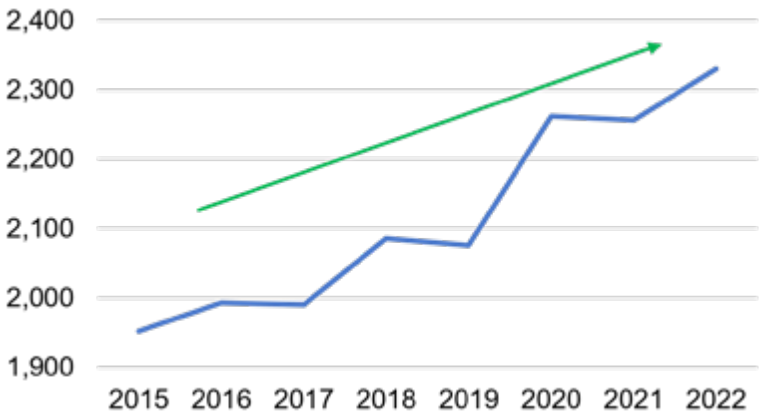
21% of all Connecticut grads are in STEM fields

LIGHTCAST, 2022; U.S. DHS DEFINITION; ADVANCECT CALCULATIONS

STEM completions in Connecticut up 50% since 2012

LIGHTCAST, 2022; U.S. DHS DEFINITION; ADVANCECT CALCULATIONS

Connecticut Biological & Biomedical Science Graduates



SOURCE: LIGHTCAST, 2022

#3 state for biological/ biomedical science advanced degrees awarded per capita

LIGHTCAST, 2022; ADVANCECT CALCULATIONS

Notes: Advanced degrees defined as master and doctorate degrees; states with fewer than 200 advanced degrees excluded from the rankings analysis.

The Right Assets to Fuel Continued Growth of the Life Sciences Sector

Connecticut provides specialized assets that the life sciences ecosystem requires – from laboratory space to research partnerships, generalized production workers to top engineers, and healthcare experts to leading scientists.

Research Universities

Yale

3.2K+ faculty in medicine; 2,885 research awards[1]

UCONN HEALTH

4.6K faculty at UConn Health[2]

Advanced Manufacturing Sector

CT is #6 in the U.S. for concentration of engineers[7]

74K

life sciences relevant production jobs[7]

Healthcare Services

Yale NewHaven Health

30,000+ employees/staff[3]

Hartford HealthCare
Hartford Hospital

33,000+ employees/staff[4]

208K health services jobs statewide
10% ABOVE THE NATIONAL CONCENTRATION[7]

Large Pharma Presence

Boehringer Ingelheim

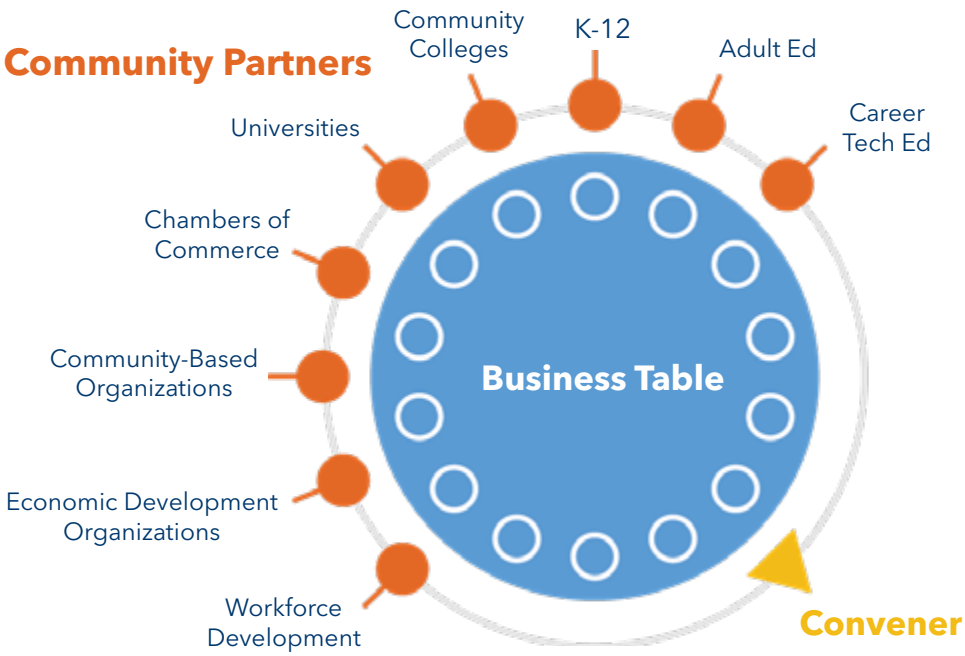
Pfizer

6,900 employees between Pfizer and BI Connecticut locations.[5,6]

10,000+ R&D jobs in Life Sciences Statewide[7]

SOURCE: [1]YALE SCHOOL OF MEDICINE, OFFICE OF COMMUNICATIONS, 2022; [2]UCONN, 2022; [3]YALE NEW HAVEN HEALTH, FY 2022; [4]HARTFORD HEALTHCARE, 2022. [5]HARTFORD BUSINESS JOURNAL, 2020. [6]HEARST MEDIA, 2023. [7]LIGHTCAST, 2022; ADVANCECT CALCULATIONS.

Growing the Talent Pipeline



NEXT GENERATION SECTOR PARTNERSHIPS

Bioscience Collaborative

Partnerships Driving Growth

Public and private organizations working to develop a more inclusive and diverse talent pipeline in the sciences.

YALE Pathways to Science · HARTFORD PROMISE · BioPath · LIFE-SCIENCE SPRINTS IN CONNECTICUT · New Haven PROMISE

Example Partnership	Partners	Purpose
BioPath	Southern Connecticut State University NHV	Grow the bioscience sector through bioscience related academic pathways and workforce development Provide students with access to boot camps, internships, research experience

REAL ESTATE

LIFE SCIENCES SECTOR SNAPSHOT

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Real Estate in New Haven

101 College Street | COMING 2024

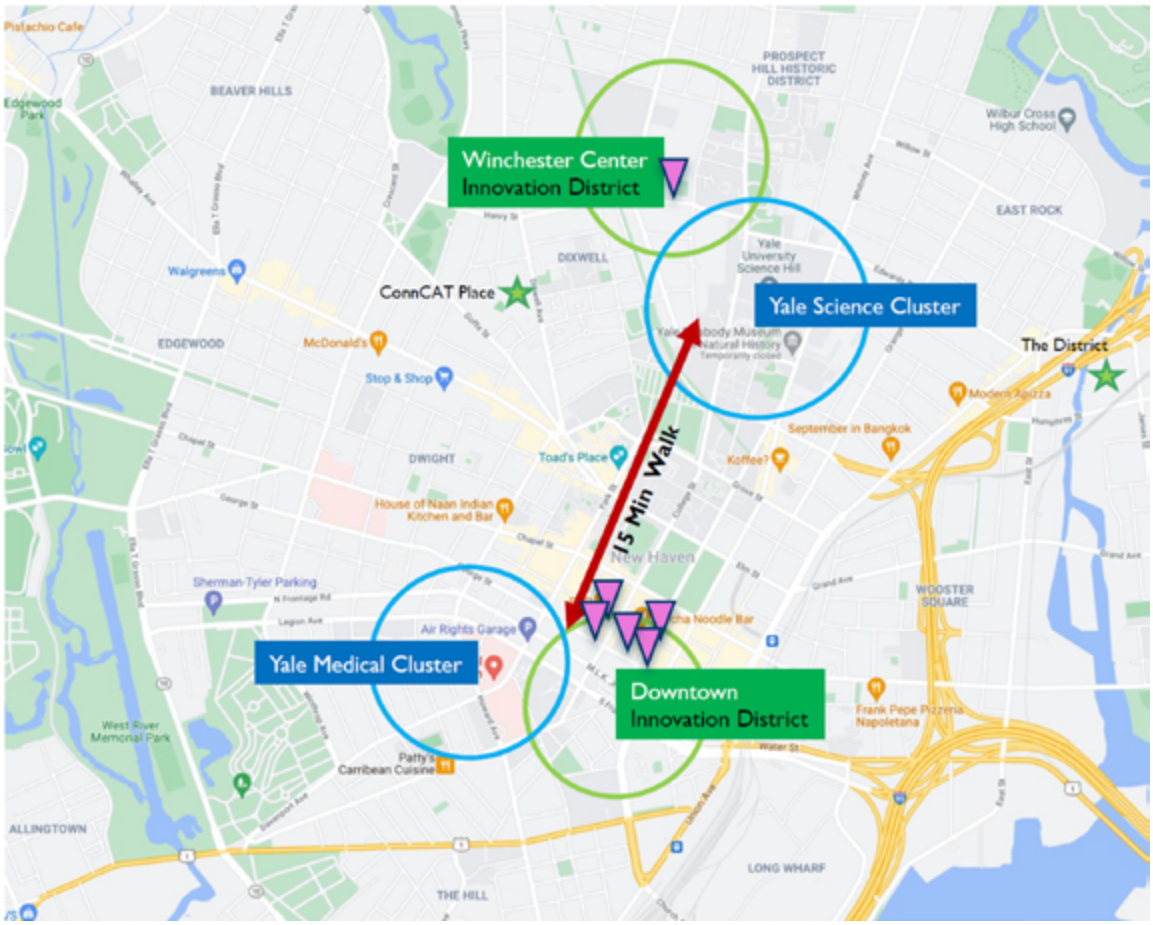
- Major **public-private partnership** with the State of Connecticut, showcasing CT's strategic commitment to industry growth
- 10-story **500,000 SF** bioscience building
- State-of-the-art **R&D/lab facilities** and incubators
- Generate a local pipeline of **highly-skilled, well-educated workers** to staff growing biosciences companies.

ALEXION AstraZeneca ARVINAS Yale biolabs NEW HAVEN

265 South Orange St | COMING Q2 2025

- Ideally located in **downtown New Haven** with proximity to major life sciences employers and partners
- 11-storybuilding with **253,000 SF of office and lab space** to accelerate your growth
- Generate a local pipeline of **highly-skilled, well-educated workers** to staff growing biosciences companies.
- Numerous **amenities** including private terraces, parking garage, and conference spaces

Yale Life Sciences IP Finds Success in New Haven Region



Source: Twining Properties; LM Development Partners; AdvanceCT

100 College Street
Alexion/AstraZeneca*
Wu Tsai Institute –Yale*

101 College Street
Arvinas*
Alexion/AstraZeneca*
BioLabs Incubator
Yale University*

60 Temple Street
Invicro LLC

55 Church Street
Aztek Bio
Siduma Therapeutics*

115 Munson Street
Arvinas*
Halda Therapeutics*

300 George Street
Yale University*

Branford, CT
(<15-minute drive from Yale campus, not pictured)
Ancera
Azitra Inc.
Bioxcel Branford
CGI Pharmaceuticals Inc.*
Glaxosmithkline
IsoPlexis*
Quantum-Si*

*Entities built on Yale IP

ACCESS TO CAPITAL

LIFE SCIENCES SECTOR SNAPSHOT

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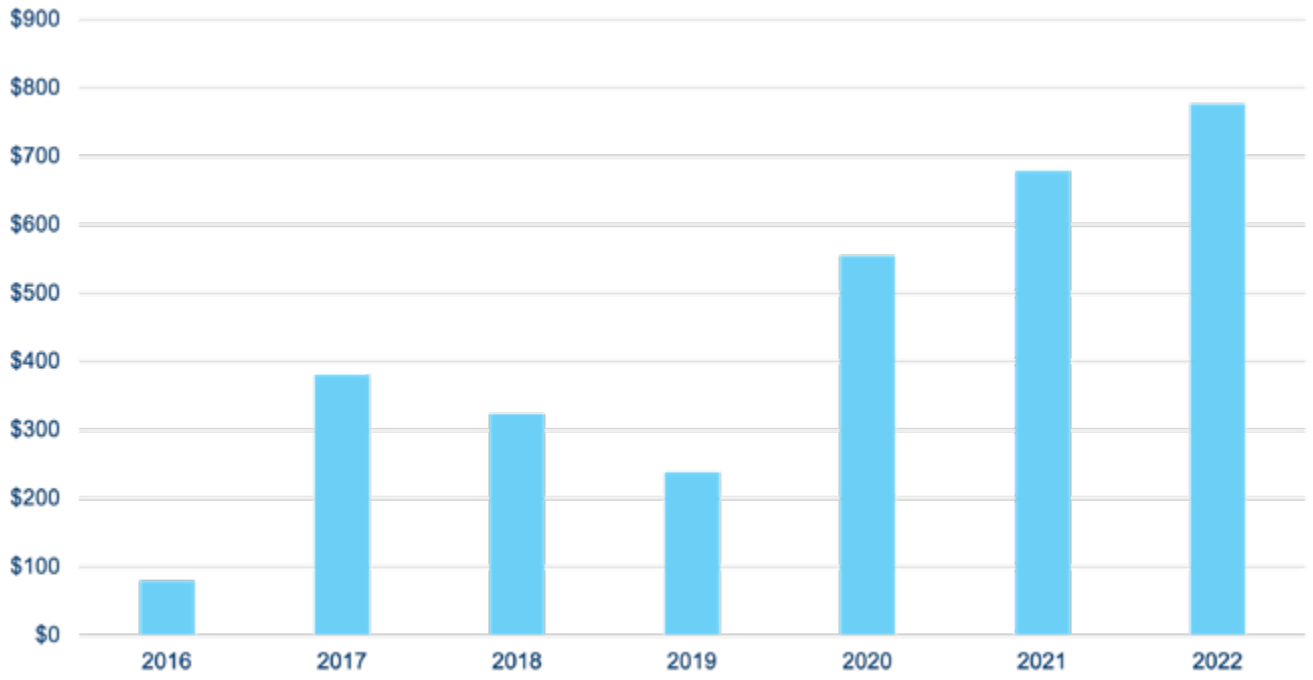
Life Sciences Venture Capital in Connecticut is on the Rise

Pharmaceutical & Biotechnology Venture Capital Funding by Year
(Millions USD)



Pharma and Biotech venture capital in Connecticut is **up 871% since 2016** and has **more than tripled since 2019.**

#8 state for **total VC funding**

#4 state for **VC funding per capita**

SOURCE: PITCHBOOK, PHARMACEUTICALS & BIOTECHNOLOGY INDUSTRY GROUP, CT HQS; U.S. CENSUS BUREAU, PEP 2022; ADVANCECT CALCULATIONS
VC PER STATE BY HQ LOCATION, 2022 POPULATION

Life Sciences IPOs **$1.9 Billion Raised**

IPOs worth more than $908 million, follow-on offerings of $446 million, and reverse mergers of $574 million from Connecticut companies over the last five years.[1]

ARVINAS	biohaven pharmaceuticals	bioxcel therapeutics	Intensity Therapeutics	isoplexis
$125 Million	$194 Million	$60 Million	$15 Million	$125 Million

Rallybio	SpringWorks Therapeutics	RENOVACOR Transformative Therapies for Cardiovascular Disease	trevi THERAPEUTICS
$81 Million	$162 Million	$72 Million	$70 Million

SPAC IPOs from Relevant CT Companies[2]

QuantumSi	Butterfly
$511 Million	$414 Million

Life Sciences M&A **$21 Billion in M&A Deals**

More than $21 Billion in M&A for Connecticut Life Sciences companies since 2017.[1]

AGL We grow for good.	biohaven pharmaceuticals	escientia embrace exceptional life	KLEO PHARMACEUTICALS	LOXO ONCOLOGY at Lilly
$101 Million	$13 Billion	$50 Million	$20 Million	$6.9 Billion

PLAS-PAK INDUSTRIES, INC.	Perosphere	Protein Sciences CORPORATION	ScarAway	SOUTHERN CT WELLNESS & HERLING
$71 Million	$50 Million	$744 Million	$19 Million	$14 Million

Z-MEDICA Now part of Teleflex	ALEXION AstraZeneca	CORE INFORMATICS
$525 Million	$41 Billion	$94 Million

SOURCE: [1]PITCHBOOK, 2022; ADVANCECT CALCULATIONS. PHARMACEUTICAL & BIOTECHNOLOGY INDUSTRY GROUP, CT HQS. [2]PITCHBOOK, 2021; YALE VENTURES, 2021; ADVANCECT CALCULATIONS. IPO AND M&A DEAL SIZES PER COMPANY.

Connecticut Universities Develop Valuable IP

Yale Life Sciences IP Driving Investment

Yale IP based life sciences companies raised $831 million in 2021.

spring health	isoplexis	Singleron 新格元生物科技	HALDA THERAPEUTICS	TruCode
$190 Million	$260 Million	$100 Million	$41 Million	$75 Million

UConn Life Sciences IP and TIP Driving Investment

UConn startups and TIP companies raised $144 million in 2021.

Rallybio	Vanessa Biotech	ALLYX THERAPEUTICS	TORIGEN Pharmaceuticals	CytoVeris
$81 Million	$40 Million	$7.6 Million	$4.5 Million	$3.8 Million

SOURCE: PITCHBOOK, 2021; YALE VENTURES, 2021; UNIVERSITY OF CONNECTICUT TECHNOLOGY INCUBATION PROGRAM, 2021; ADVANCECT CALCULATIONS. COMPANIES LISTED REPRESENT THE LARGEST TRANSACTIONS. *ALLYX IS AFFILIATED WITH BOTH YALE AND UCONN.

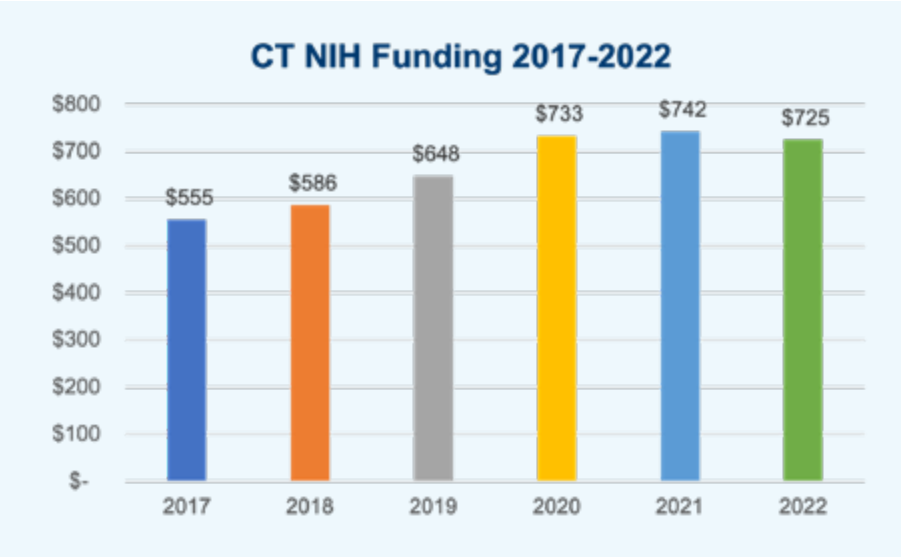
$2.6B

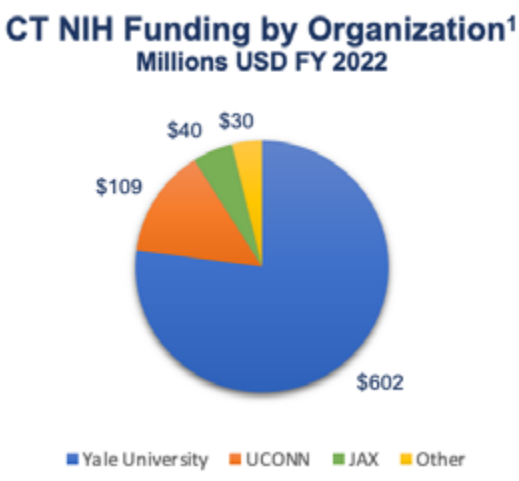
raised for Yale and UConn life sciences affiliates since 2017

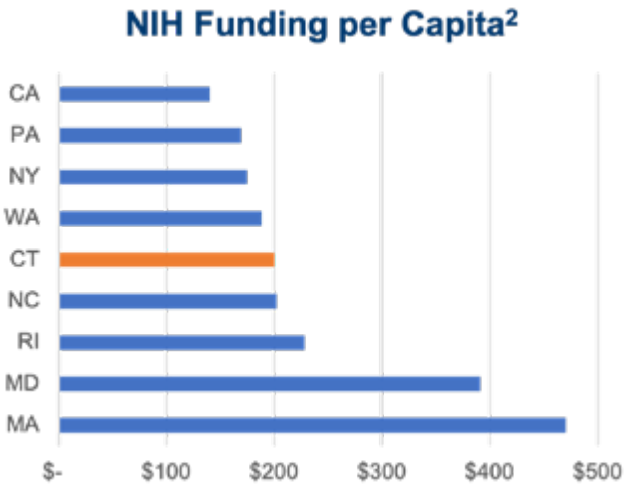
92

Yale and UConn affiliate companies funded since 2017

A Robust Culture of R&D Backed By Proven Growth



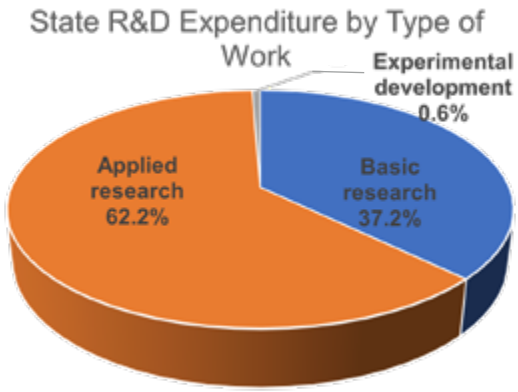


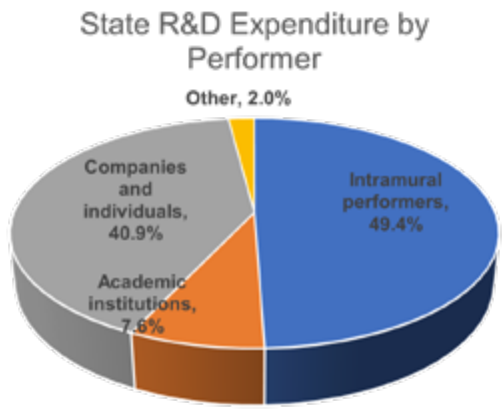


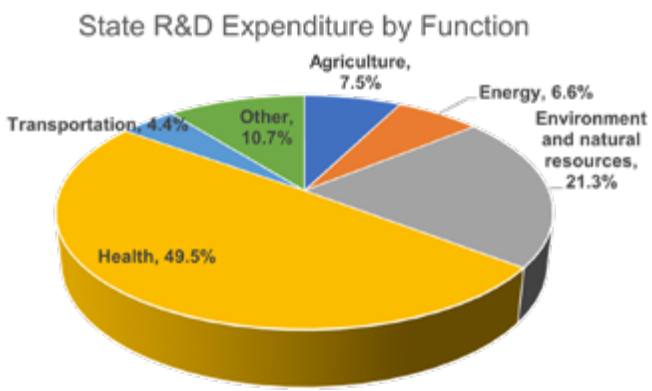
#5 in U.S. for **NIH funding per capita**

SOURCE: [1]NIH REPORTER, 2022; JAX-GENOMIC MEDICINE; ADVANCECT CALCULATIONS
[2]NIH REPORTER, 2022; U.S. CENSUS BUREAU, 2022; ADVANCECT CALCULATIONS

Connecticut is Committed to R&D







9th Highest State R&D Expenditures[1]

$55M R&D investment in 2021

6th Highest State Expenditures for Health R&D[1]

Connecticut Expanding Life Sciences Infrastructure:

CT is making considerable investments in the development of 101 College Street in New Haven.[2]

More than $7 Million in CTNext Grants for the New Haven Innovation Collaborative[3]

$4.2 Million grant from CT DECD to develop BioCT Innovation Commons[4]

SOURCE: [1]NCSES NSF, FY2021; ADVANCECT CALCULATIONS [2]STATE OF CONNECTICUT OFFICE OF THE GOVERNOR, 2021 [3]NEW HAVEN INNOVATION COLLABORATIVE, 2022 [4]CT INNOVATION COMMONS, 2022

INDUSTRY STRENGTHS

LIFE SCIENCES SECTOR SNAPSHOT

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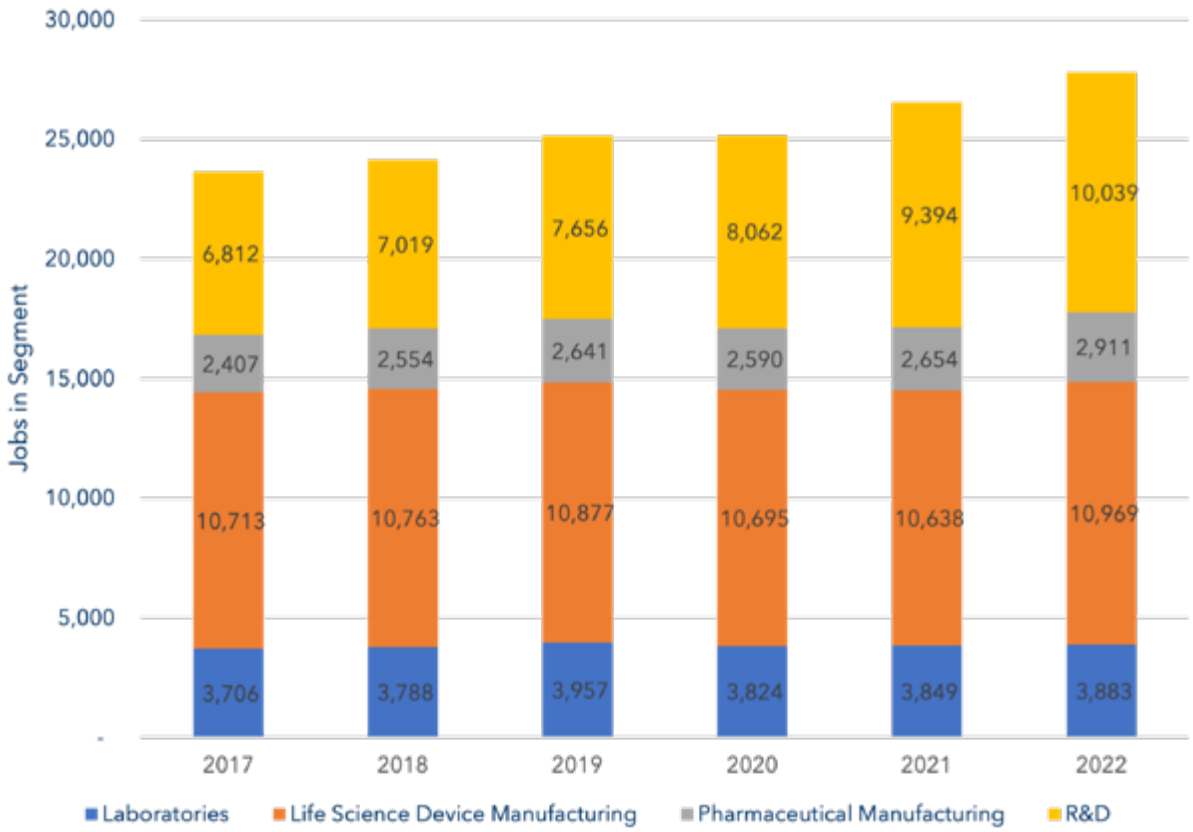
Jobs by Subsector



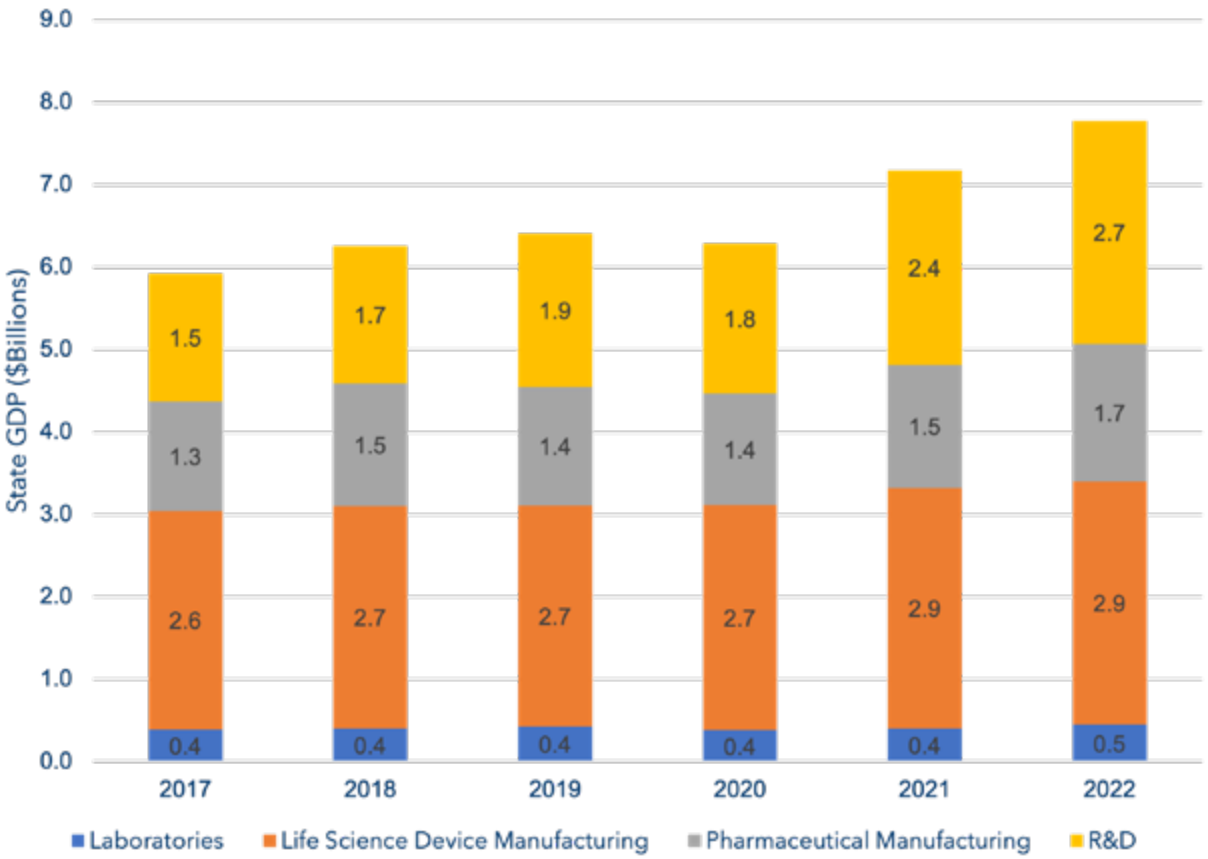
Scientific R&D subsector contributes 36% of all jobs in the Life Sciences Ecosystem. Ecosystem jobs have grown 18% since 2017, 77% of those jobs have been R&D.

Top Job Contributing Industries

R&D in Life Sciences (except Nano/Biotech)
Surgical and Medical Instrument Mfg.
R&D in Biotechnology
Medical Laboratories
Testing Labs
Medicinal and Botanical Mfg.

SOURCE: LIGHTCAST, 2022; ADVANCECT CALCULATIONS

State GDP by Subsector

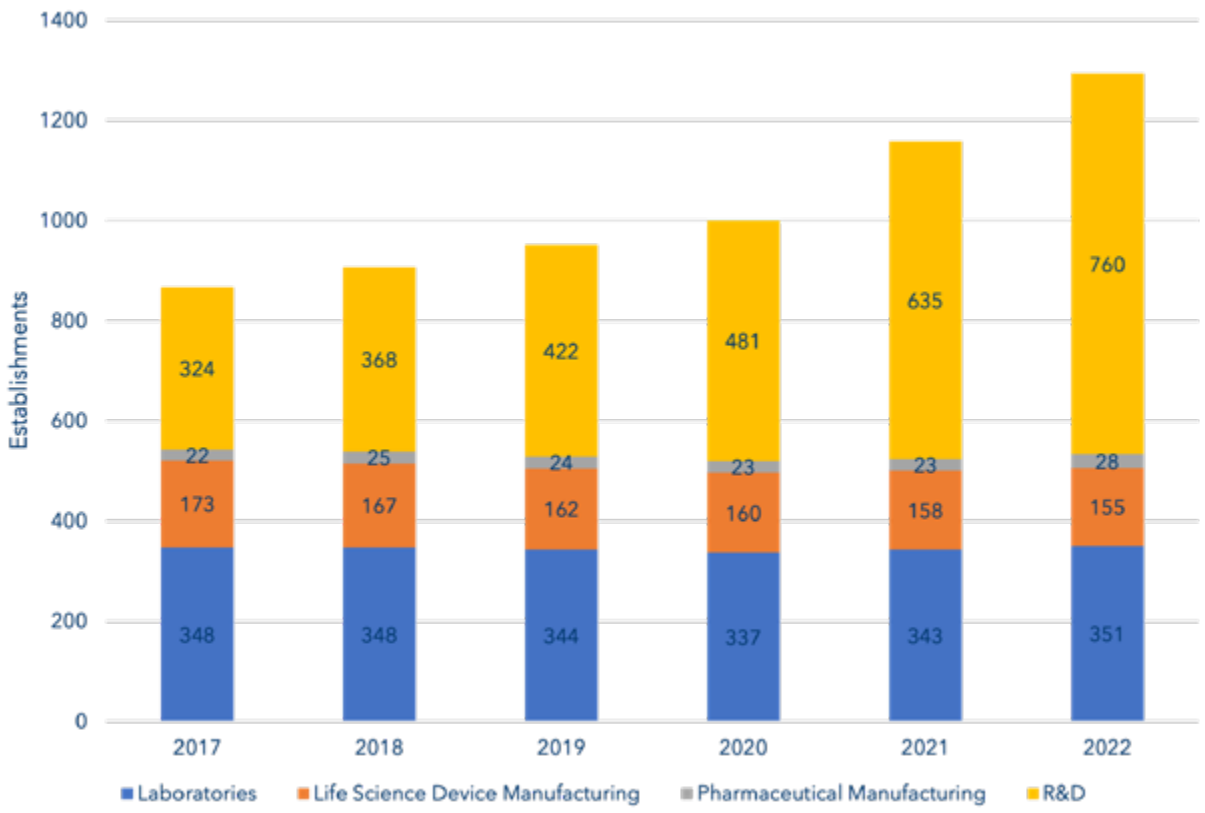


Scientific R&D subsector contributes 35% of State GDP in the Life Sciences ecosystem

Subsector	Workforce Productivity, 2022*
Pharmaceutical Manufacturing	$575,223
Life Sciences Device Manufacturing	$268,712
Laboratories	$116,330
Scientific R&D	$269,256
Connecticut Life Sciences Ecosystem	**$279,718**

SOURCE: LIGHTCAST, 2022; ADVANCECT CALCULATIONS; *PRODUCTIVITY IS DEFINED AS STATE GDP PER WORKER

Establishments by Subsector



Scientific R&D subsector makes up 59% of establishments in the Life Sciences ecosystem

Subsector	Avg Jobs per Location, 2022*
Pharmaceutical Manufacturing	103
Life Science Device Manufacturing	71
Research and Development	13
Laboratories	11
Connecticut Life Sciences Ecosystem	**21**

SOURCE: LIGHTCAST, 2022; ADVANCECT CALCULATIONS

Connecticut Life Sciences Subsectors

	Pharmaceutical Manufacturing	Life Sciences Equipment & Supplies Manufacturing	Laboratories	Scientific Research & Development	Ecosystem
2022 Jobs	3.2K	10.7K	3.9K	10.0K	27.8K
2017 - 2022 Jobs % Change	5%	2%	5%	47%	18%
2022 LQ*	0.83	1.86	0.83	1.09	1.19
2022 Locations	34	149	351	760	1,294
2022 State GDP (Millions USD)	$1,900	$2,732	$452	$2,703	$7,777

*Location quotient (LQ) is a way of quantifying how concentrated a particular industry, cluster, occupation, or demographic group is in a region as compared to the nation.

SOURCE: LIGHTCAST, 2022; ADVANCECT CALCULATIONS

Subsector Industries

Pharmaceutical Manufacturing

- Medicinal and Botanical Mfg.
- Pharmaceutical Preparation Mfg.
- In-Vitro Diagnostic Substance Mfg.
- Biological Product (Non-Diagnostic) Mfg.

Life Sciences Equipment & Supplies Manufacturing

- Optical Instrument and Lens Mfg.
- Electromedical/Therap. Apparatus Mfg.
- Analytical Laboratory Instrument Mfg.
- Irradiation Apparatus Mfg.
- Surgical and Medical Instrument Mfg.
- Surgical Appliance and Supplies Mfg.
- Dental Equipment and Supplies Mfg.
- Ophthalmic Mfg.

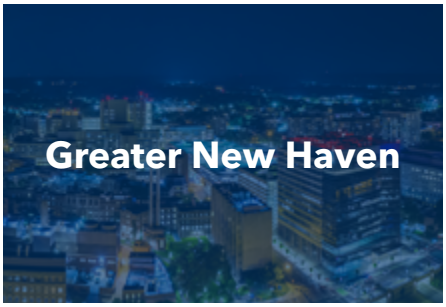
Laboratories

- Testing Lab
- Medical Laboratories

Scientific Research & Development

- R&D in Nanotechnology
- R&D in Biotech (except Nanotechnology)
- R&D in Sciences (except Nano/Biotechnology)

Connecticut has Standout Life Sciences Metros



$40M

research grant from the NSF awarded to UConn Health in 2021 – **the largest grant in UConn history**

UCONN, 2021

38

UConn-affiliated **life sciences startups** within the last 10 years

UCONN, 2022

$16.7M

generated in **NIH funding** in FY2023

NIH REPORTER, FY2023

#2

among MSAs with at least 2K industry jobs for **surgical and medical instrument manufacturing job concentration**

LIGHTCAST, 2022; ADVANCECT CALCULATIONS

7.5X

the national concentration of surgical and medical instrument manufacturing jobs

LIGHTCAST, 2022; ADVANCECT CALCULATIONS

581%

growth in **Physical, Engineering and Life Science R&D jobs**, fastest growing among **MSA's with 1,500+ industry jobs**.

LIGHTCAST 2022; ADVANCECT CALCULATIONS

#6

among MSAs with at least 350 industry jobs for **irradiation apparatus manufacturing job concentration** with **9.7X the national concentration**

LIGHTCAST, 2022; ADVANCECT CALCULATIONS

70%

job growth in **Physical, Engineering, and Life Science R&D jobs** from 2017-2022 (4,200 jobs)

LIGHTCAST, 2022; ADVANCECT CALCULATIONS

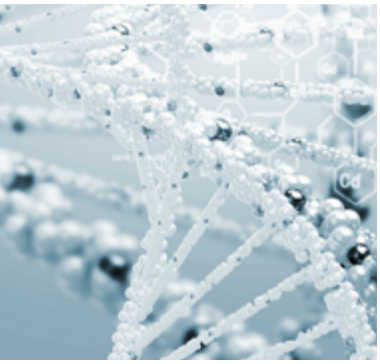
Greater New Haven refers to the New Haven-Milford, CT MSA. Greater Hartford includes the Hartford-East Hartford-Middletown, CT MSA. Greater Stamford includes the Bridgeport-Stamford-Norwalk, CT MSA.

Connecticut Is Competitive In Life Sciences

Surgical and Medical Instrument Manufacturing

3.2x the national job concentration

4th in the U.S. for job concentration in this industry.



Irradiation Apparatus Manufacturing

3.2x the national job concentration

4th in the U.S. for job concentration in this industry.

Medicinal and Botanical Manufacturing

3.7x the national job concentration

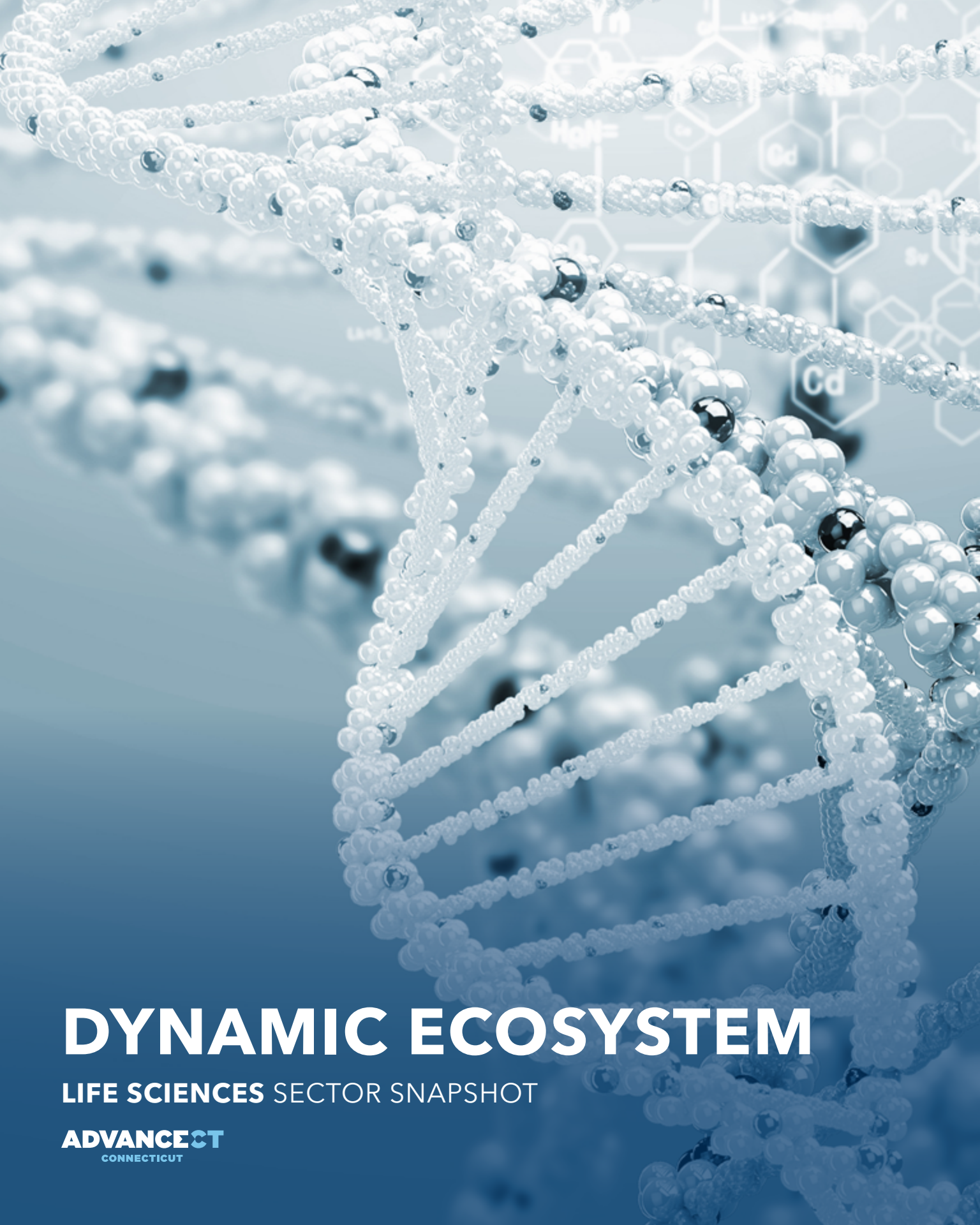
4th in the U.S. for job concentration in this industry.

Research & Development in Sciences

#4 for worker productivity **in all Scientific R&D**

#4 for worker productivity in **Physical, Engineering, and Life Sciences R&D**

SOURCE: LIGHTCAST, 2022; ADVANCECT CALCULATIONS



DYNAMIC ECOSYSTEM

LIFE SCIENCES SECTOR SNAPSHOT

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Incubators To Fuel Growth

State-of-the-art turnkey labs and offices

Access to scientists and entrepreneurial community

Access to facilities, library and databases

Animal facilities and clinical trials

Farmington | Groton | New Haven | Stamford

UCONN TECHNOLOGY INCUBATION PROGRAM

BioCT Innovation Commons

biolabs Yale WEST CAMPUS

New Haven Innovation Labs

THE JOHN B. PIERCE LABORATORY
Physiology and Health in the Modern Environment

The Jackson Laboratory

Farmington, Connecticut

The Jackson Laboratory

Providing precise genomic solutions for disease to the global biomedical community and improving human health.

$45M in grant awards brought to Connecticut in 2022.

492 Employees, including:
23 PI/Professors
24 Research Scientists
$51M in total salaries

SOURCE: THE JACKSON LABORATORY, FY2022 DATA, 2023 PROGRAM STATS

Beyond research, JAX Labs is training the next generation of Connecticut's premier Life Science talent.

Jackson Laboratory for Genomic Medicine Currently supporting:
26 Postdoctoral associates
27 UConn Health graduate students
5 Post baccalaureate researchers (PhD, MD/PhD)
3 Visiting trainees

JAX Summer Student Program supports 10 undergrads in a 10-week, full-time residential paid and mentored research experience.

Teaching the Genome Generation reached 1,700 high school students across 22 schools in 2022-23 and trained 15 based teachers in the program.

Standout Life Sciences Industries

Research & Development in Sciences

(Except Nano/Biotechnology)

Most Jobs in Ecosystem
7,490 Jobs
65% Growth

Highest State GDP in Ecosystem
$1.8B State GDP
82% Growth

Specialized:
1.29 LQ

Surgical and Medical Instrument Manufacturing

2nd Most Jobs in Ecosystem
5,100 Jobs
11% Growth

3rd Highest State GDP in Ecosystem
$1.1B State GDP
24% Growth

Highly Specialized:
3.23 LQ

Medicinal and Botanical Manufacturing

7th Most Jobs in Ecosystem
1,700 Jobs
3% Growth

2nd Highest State GDP in Ecosystem
$1.4B State GDP
Nearly 20% Growth

Highly Specialized:
3.72 LQ

Growth calculated from 2017 to 2022.

SOURCE: LIGHTCAST, 2022; ADVANCECT CALCULATIONS

FOR MORE INFORMATION, CONTACT:

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