NYC Builds Bio+
SEMINAR SERIES SPONSORED BY TRIUMVIRATE ENVIRONMENTAL

Thursday, January 27th  |  12:00 PM - 1:30 PM  |  Online Zoom Event (Details to be provided)
Triumvirate Environmental

Alicia Aniello
General Manager – New York
<table>
<thead>
<tr>
<th>Phase One</th>
<th>Close out and relocation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Fulfilling lease obligations on front end; site and permit close out</td>
</tr>
<tr>
<td></td>
<td>• Laboratory Move and Decommission</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Phase Two</th>
<th>Start Up</th>
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<tbody>
<tr>
<td></td>
<td>• Permit applications</td>
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<tr>
<td></td>
<td>• EHS Planning, and SOP writing</td>
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<tr>
<td></td>
<td>• Hazard Assessments</td>
</tr>
<tr>
<td></td>
<td>• Training and Compliance Calendar buildout</td>
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<tr>
<td></td>
<td>• DEA License support etc.</td>
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<table>
<thead>
<tr>
<th>Phase Three</th>
<th>Tenant Setup</th>
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<tbody>
<tr>
<td></td>
<td>• PPE Assessments</td>
</tr>
<tr>
<td></td>
<td>• Chemical Inventory</td>
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<td></td>
<td>• FDNY Walkthrough</td>
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<tr>
<td></td>
<td>• OSHA Logs set up</td>
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<tr>
<td></td>
<td>• Signage and Labeling</td>
</tr>
<tr>
<td></td>
<td>• Biosafety Cabinet and Fume Hood Certifications</td>
</tr>
<tr>
<td></td>
<td>• Neutralization Tank set up and maintenance</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Phase Four</th>
<th>Ongoing Services</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>• Onsite EHS Support</td>
</tr>
<tr>
<td></td>
<td>• SOP Maintenance</td>
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<tr>
<td></td>
<td>• Recordkeeping</td>
</tr>
<tr>
<td></td>
<td>• Compliance inspections</td>
</tr>
<tr>
<td></td>
<td>• Eyewash and safety shower inspections</td>
</tr>
<tr>
<td></td>
<td>• Emergency spill response services</td>
</tr>
<tr>
<td></td>
<td>• Waste disposal</td>
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</tbody>
</table>
NYC Department of City Planning
NYC Metro Economy:
10.4 Million Jobs, $2 Trillion GDP
#1 in Life Sciences Jobs

<table>
<thead>
<tr>
<th>Jobs</th>
<th>Businesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>NYC Metro</td>
<td>4.6K</td>
</tr>
<tr>
<td>San Francisco</td>
<td>122K</td>
</tr>
<tr>
<td>Boston</td>
<td>3.2K</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>3.3K</td>
</tr>
<tr>
<td>Washington, D.C.</td>
<td>3.4K</td>
</tr>
<tr>
<td>Chicago</td>
<td>1.2K</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>1.7K</td>
</tr>
<tr>
<td>Raleigh-Durham</td>
<td>1.2K</td>
</tr>
</tbody>
</table>

#1 in Life Science Talent

Workers in Life Sciences Occupations by U.S. Metro, 2020

<table>
<thead>
<tr>
<th>Metro</th>
<th>Workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>NYC Metro</td>
<td>84K</td>
</tr>
<tr>
<td>Boston</td>
<td>57K</td>
</tr>
<tr>
<td>Washington, D.C.</td>
<td>51K</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>47K</td>
</tr>
<tr>
<td>San Francisco</td>
<td>42K</td>
</tr>
<tr>
<td>Chicago</td>
<td>36K</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>35K</td>
</tr>
<tr>
<td>San Diego</td>
<td>24K</td>
</tr>
<tr>
<td>Raleigh-Durham</td>
<td>17K</td>
</tr>
</tbody>
</table>

Source: U.S. BLS Metropolitan Area Occupational Employment and Wage Estimates, May 2020
#1 in NIH Funding

Total FY2020 NIH Funding by Metro ($ Billions)

- NYC Metro: $3.56B
- Boston-Cambridge: $2.8B
- Raleigh-Durham: $1.1B
- Philadelphia: $1.2B
- Maryland: $1.9B
- Chicago: $0.9B
- Houston: $0.8B
- San Diego: $1.0B
- LA: $1.4B
- Bay Area: $1.5B
- Seattle: $1.0B

Source: NIH, other metro aggregations from CBRE Research
VC funding has tripled since 2016.

NYC Metro Healthcare/Biotech V.C. Funding by State, FY 2010 - 2020

NIH Funding in the NYC Metro
FY 2020

- < $1M
- $1M – $5M
- $5M – $10M
- $10M – $100M
- > $100M

Regional Rail

National Institutes of Health (NIH), "NIH Awards by Location & Organization." Totals are for federal fiscal year 2020, which runs October 1, 2019 through September 30, 2020.
New Jersey’s Life Sciences Ecosystem

Lenzie Harcum, NJEDA
New Jersey Bioscience Center

50-Acre
5 buildings
redevelopment site
research park

300,000 S.F
of life sciences space
labs/offices

$70 million
invested in facilities and
improvements
Incubator at North Brunswick

- In-house conference rooms, reception and support staff
- Affordable lab space, subsidized rent
- Business education and support programs
- Central NMR, autoclave, dishwashing

46,000 S.F
27 WET LABS
20 COMPANIES

NJ BIOSCIENCE CENTER
Step-Out Labs at North Brunswick

Strategically designed with shared common areas and abundant amenities to create a first-class life sciences environment where post incubation tenants can focus on core scientific activities.

32,626 S. F. of affordable lab and office space that is “plug and play” ready

- Located on the 50 acre New Jersey Bioscience Center campus
- Lab & office modules for post incubation biotech companies
- Facilitate the growth post-incubation biotech companies
- 24/7 Secured card access facility
- HVAC system with individual temperature controlled lab suites
# Over 20 million sq. ft of life sciences space inventory

## SAMPLES OF EXISTING SITES AND THOSE UNDER DEVELOPMENT

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Location</th>
<th>Approximate Size</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON3 campus</td>
<td>Nutley</td>
<td><strong>1 M sq. ft</strong></td>
<td>of life sciences space existing and under development on 116 acres.</td>
</tr>
<tr>
<td>Center of Excellence</td>
<td>Bridgewater</td>
<td>~ <strong>850,000 sq. ft</strong></td>
<td>lab/office on 100 acres</td>
</tr>
<tr>
<td>Princeton West R&amp;D Campus</td>
<td>Hopewell</td>
<td>~ <strong>1.15 M sq. ft</strong></td>
<td>life sciences space on 433 acres.</td>
</tr>
<tr>
<td>Cedarbrook</td>
<td>Cranbury</td>
<td>~ <strong>300,000 sq. ft</strong></td>
<td>lab/office</td>
</tr>
<tr>
<td>Princeton Corp Plaza – Deer Park</td>
<td>South Brunswick</td>
<td>~ <strong>250,000 sq. ft</strong></td>
<td>lab/office – new <strong>60,000 sq. ft</strong> lab/office building under construction</td>
</tr>
<tr>
<td>Forrestal Village</td>
<td>Princeton</td>
<td><strong>300,000 sq. ft</strong></td>
<td>of life sciences space</td>
</tr>
<tr>
<td>NJ Bioscience Center</td>
<td>North Brunswick</td>
<td>~ <strong>300,000 sq. ft</strong></td>
<td>lab/office</td>
</tr>
<tr>
<td>95 Greene Street</td>
<td>Jersey City</td>
<td>A <strong>338,000 sq. ft</strong></td>
<td>multi-tenant urban biopharma site adjacent to the Hudson River waterfront (in development)</td>
</tr>
<tr>
<td>The COVE</td>
<td>Jersey City</td>
<td><strong>1.5 M sq. ft.</strong></td>
<td>of life sciences/healthcare space under development</td>
</tr>
</tbody>
</table>
TOP LIFE SCIENCES COMPANIES ALREADY CHOSE NEW JERSEY

Be among your peers growing here
WORKFORCE

Hire from a robust labor pool

LIFE SCIENCES MANUFACTURING LABOR POOL

New Jersey
Boston/Cambridge, MA MSA
San Francisco, CA MSA
San Diego, CA MSA
Raleigh-Durham, NC MSA

LIFE SCIENCES COMMERCIALIZATION LABOR POOL

New Jersey
Boston/Cambridge, MA MSA
San Francisco, CA MSA
San Diego, CA MSA
Raleigh-Durham
Princeton Innovation Center Biolabs is intended for startups with transformative technologies that are interested in being in a collaborative environment with educational and networking programming.

The **31,000 sqft** space offers a total of **68 lab benches** allowing entrepreneurs to expand across multiple benches or move into private spaces as their project scales in size.
NJ Economic Recovery Act (ERA)

The ERA contains a package of new programs, tax incentives and modifications to, and expansions of, existing NJEDA incentive programs that will build a stronger, fairer New Jersey economy.

**ASPIRE** - Job creation tax credit. Per job awards ranging from $500 - $4000

**TRANSFORMATIVE ASPIRE** - Investment of $100 M+ for renovation or construction of 500,000+ sq. ft. of office or industrial space; 250,000 sq. ft. of film production space; or 1,000 residential units

**EMERGE** - Job creation tax credit. Per job awards ranging from $500 - $4000

**NJ INNOVATION EVERGREEN FUND** - $500M venture investment fund for New Jersey companies

**STRATEGIC INNOVATION CENTER FUND** - $55 M fund for investment in centers to accelerate economic recovery and drive the long-term growth of the State’s innovation economy.

**ANGEL INVESTOR TAX CREDIT (ATC)** - Expanded to $35M annually – investors receive 20% return

**NJ IGNITE** - Provides financial assistance to collaborative workspaces / incubators

**NET OPERATING LOSS (NOL)** - Expanded to $75M annually; lifetime company cap of $20M. Sell portion of biotech losses
THE CATALYST

WESTCHESTER COUNTY BIOSCIENCES INNOVATION
Westchester County Life Sciences Ecosystem

- Accounts for 20% of all NYS life science employment
- 5th largest life sciences cluster in USA
- Patents issued more than doubled from 2000 to 2015: from 614 to 1307.

- Research institutes focusing on neuroscience and brain injury, autism, metabolic disease, obesity, inflammation, rare disease hub in formation
- Clinical trials network with $5MM NYS grant
- Accelerator program – WC Biosciences Accelerator
- Life sciences Incubator – BioInc@NYMC
- Skilled experts in allied fields
- Real estate developers committed to bolstering this sector
Academic Institutions and Research Institutes

- **Berkeley College** (health services mgmt)
- **Burke Neurological Research Institute**
- **Center for Autism and the Developing Brain**
- **Concordia College** (biology, nursing, health studies)
- **Fordham University**, Westchester Campus (social work)
- **Iona College** (bio, chem, psych, entrepreneurship)
- **Long Island University**, Westchester Campus (pharmaceutics, health administration)
- **Manhattanville College** (bio, chem, biochem, nursing)
- **Mercy College** (School of Health and Natural Sciences)
- **Monroe College** (nursing, public health, health care administration)
- **New York Medical College** (MD, OT, PT, Speech, MS/PhD in all health sciences)
- **NYU-Stern**, Westchester Campus (MBA)
- **Pace University** (College of Health Professions, Seidenberg School of Computer Science)
- **Purchase College**, SUNY (bio, chem, biochem)
- **Sarah Lawrence College** (MS in Human Genetics)
- **The College of Westchester** (Health Professions, IT)
- **Touro College of Dental Medicine** (DDS)
- **Westchester Community College**, SUNY
Hospitals

- **Blythedale Children’s Hospital**, Valhalla
- **Four Winds Hospital**, Katonah
- **Hospital for Special Surgery** (outpatient), White Plains
- **Memorial Sloan Kettering** (outpatient), West Harrison
- **Montefiore**:
  - **Burke Rehabilitation Hospital**, White Plains
  - Montefiore Mount Vernon
  - Montefiore New Rochelle
  - White Plains Hospital
- **New York-Presbyterian**:
  - New York-Presbyterian Lawrence, Bronxville
  - New York-Presbyterian Hudson Valley, Cortlandt Manor
  - New York-Presbyterian Westchester Division, White Plains
- **Northwell Health**:
  - Phelps Hospital, Sleepy Hollow
  - Northern Westchester Hospital, Mount Kisco
- **Saint John’s Riverside Hospital**, Yonkers
  - Dobbs Ferry Pavilion
- **Saint Joseph’s Medical Center**, Yonkers
- **St. Vincent’s Hospital**, Harrison
- **WMC Health**:
  - Westchester Medical Center, Valhalla
  - Maria Fareri Children’s Hospital, Valhalla
Mix of Large Well-Known Companies and Startups

**Drug Development**
- Acorda Therapeutics
- Affina Biotech
- Akeso Therapeutics
- Curemark
- Goldilocks Therapeutics
- Histogenetics
- Oligomerix
- NYTMT
- Regeneron
- Sapience Therapeutics
- SHY Therapeutics
- Taro Pharmaceuticals
- TechnoVax

**Medical Devices**
- Aerolase
- Ascenscia
- Digitouch Health
- Enabling Devices
- Retia Medical

**Other specialties**
- Corbet Scientific
- Crave Crush
- Dispersion Technology
- GeneLink
- IntegraMed
- Nutrition21
- International Specialty Chemicals
- Irtronics Instruments

**Digital Health**
- Cognome
- Medisprout
- Playback Health

**Specialties**
- McKesson Corp.
- Momentive
- Prestige Brands
- PTI
- Virodynamics
Interactive map of the Westchester County Biosciences Ecosystem

186 entities overall on the map
- 19 Drug Development companies
- 13 Medical Device companies
- 10 Instrumentation and Equipment manufacturers
- 5 CROs
- 47 Academic and Research institutions
- 13 Disease/Patient Foundations
- 25 Hospitals
- 18 startups completed WCBA
- 10 startups inside BioInc
- Plus Many startups unaffiliated with either of those
NIH Grants in Westchester by Area of Focus, all Recipients  
2012 – 2020

- Westchester has developed a research area of excellence in aging, neurology and neurodegeneration, Alzheimer’s Disease, and spinal cord injury
  - Together, these fields accounted for 45% of all NIH grants received in Westchester between 2012 -2020

- Largest single grant ($2.8M) went to Burke Neurological Institute in 2017 for Spinal Cord Injury

- The Burke Neurological Institute received 4 grants totaling almost $10M since 2016 to study mitochondrial and metabolic dysfunction in age-related neurodegeneration (Alzheimer’s Disease)

- NY Medical College received 4 grants totaling almost $9M to study hormonal regulation of blood pressure (Cardiology)

TOTAL VALUE OF GRANTS IN WESTCHESTER: $150,117,200

*Other includes: Lung Disease, Misc. Health & Policy, Pediatrics, Eye Disorders, Digestive Diseases, Bioengineering, & Women’s Health
Outlook

Biosciences Task Force is working in key areas:

- Talent Pipeline
- Incentives and Investment Capital
- Real estate dedicated to the Life Sciences is on the drawing board
- Identifying or creating suitable graduation space for second stage companies
- Supply Chain
- Soft Landings program and other attraction/recruitment strategies
- Continued support of the earliest stage companies through WCBA
# The Campus

<table>
<thead>
<tr>
<th>Category</th>
<th>Area</th>
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<tbody>
<tr>
<td>Medical Office</td>
<td>400,000 sf</td>
</tr>
<tr>
<td>Bio-Tech/Research</td>
<td>2,144,000 sf</td>
</tr>
<tr>
<td>Children's Science and Education Center</td>
<td>142,000 sf</td>
</tr>
<tr>
<td>Neighborhood Shopping</td>
<td>214,000 sf</td>
</tr>
<tr>
<td>Hotel</td>
<td>100,000 sf</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3,000,000 sf</strong></td>
</tr>
</tbody>
</table>
Regeneron

- Regeneron has committed to a $1.8B upgrade at Tarrytown campus
- Expands the company’s campus by roughly 900,000 square feet, the expansion will cover the design and build-out of up to eight buildings, three parking garages and a central utility plant
- Adding 1,000 new employees over 5 years
- The project will take place in two phases over the next six years, bringing on new preclinical manufacturing and process development suites, labs and offices
BioInc@NYMC is the mid-Hudson’s only fully-equipped biotech incubator on a health sciences college campus.
Features of Biolnc

- Attractive, turnkey, affordable lab space, offices, conference space and meeting rooms
- General lab equipment, cooling systems, and instruments provided
- Access to comprehensive health sciences library
- Favorable pricing at NYMC core facilities, including 31,000 sq ft vivarium
- Access to collaboration with NYMC faculty and researchers
- Access to NYMC students as interns and future employees
- Access to a network of 100+ affiliated hospitals for clinical trials
- Opportunities for collaboration with Westchester’s vibrant business community
- Access to NYS’s active life science and venture capital ecosystems, and world class research institutions
- Convenient, affordable location with easy access to highways, airports, Amtrak and Metro-North
- Access to collaborative community, business support services, and market wisdom
BioInc’s Facilities

- 16,500 square feet of LEED-certified space
  - 17 lab benches and shared equipment space
  - 1 dry lab/workshop
  - 15 private offices
  - 12 Co-working desks
  - Cell culture, chemical fume hood, and cold rooms
  - 2 core labs filled with state of the art equipment
  - 3 conference rooms
  - New offices, co-working desks, and meeting space
  - Event space, collaboration space, and kitchen/cafeteria
Some of BIOINC’S Resident Startups

- **Therapeutics:**
  - Affina Biotechnologies
  - Akeso Therapeutics
  - NYTMT
  - Sapience Therapeutics
  - SHY Therapeutics

- **Medical Devices:**
  - DigiTouch Health
  - MOE Medical
  - Retia Medical

- **Telehealth:**
  - MediSprout
Bridget Gibbons  
Director of Economic Development  
Westchester County  
914-995-2952  
bgibbons@westchestergov.com

Deborah Novick  
Director of Entrepreneurship and Innovation  
9140995-2998  
dnovick@westchestergov.com
NYC Metro Life Sciences Economy and Subclusters

CONNECTICUT
LAB SPACE

115 MUNSON SCIENCE PARK
140Ksqft lab space
Residential/Retail
Live-Work

55 CHURCH
Elm City BioCenter
114Ksqft
5 stories
Lab/Office

101 COLLEGE
500Ksqft
10 Stories
50Ksqft
Incubator/BioLabs

Branford Innovation Park
I95
90Ksqft
Lab/office space

- Over 1.5msqft of graduation lab space in greater New Haven
- Four incubator spaces with over 100Ksqft of lab/office
INCUBATORS FUELING GROWTH

Farmington | Groton | New Haven | Stamford | Storrs

✓ State-of-the-art turn-key labs and office
✓ Access to scientists & entrepreneurial community
✓ Access to facilities, library and databases
✓ Animal facilities and clinical trials

UCONN TECHNOLOGY INCUBATION PROGRAM

101 College Street
New Haven, CT

ARVINAS
Yale biolabs

✓ Live, Work, Eat and Play Environment
✓ 10-story 500,000 SF bioscience building
✓ State-of-the-art R&D/laboratory
✓ Summer 2023

BioCT Innovation Commons
UCONN Cell and Genome Engineering Core

- one-stop shop for researchers to make pairs of cell lines identical to each other except for the specific mutation a researcher is interested in.

Yale Center for Immuno-Oncology

- Developing next generation of immune-based therapies and genetically engineer immune cells to target patient’s cancer.

Wu Tsai Institute

- A new kind of research organization dedicated to understanding cognition by bridging together psychological, biological, and computational sciences.
Who we are...
We are the State of Connecticut’s strategic venture capital arm, and the leading source of financing and ongoing support for innovative, growing companies.

How we help...
Connections: Introductions to our vast network of small and big businesses, talent, university researchers, service providers, suppliers and more.

Business Advisers: Mentors who specialize in your sector or the skills you need, including executives in residence.
✓ 48 companies spun out over the last 5 years

✓ $873 million in investment capital has been raised by Yale companies in the past 5 years

✓ 50+ products currently in Yale's Pharmaceutical Pipeline

✓ $52.2 million raised in new venture financing in 2020
✓ UConn is the largest producer of STEM graduates in CT

✓ UConn is a Carnegie Foundation R1 research university, a distinction held by only 3% of U.S. institutions of higher education

✓ Department of Molecular and Cell Biology awarded $10.8M in new grant funding in FY2020
Providing precise genomic solutions for disease to the global biomedical community and improving human health.
In collaboration with the Connecticut Department of Economic and Community Development (DECD), AdvanceCT strives to build a place where business, government, higher education, and nonprofits come together to implement high impact and inclusive economic development solutions for the state.
BioCT’s mission is to catalyze and accelerate growth in the life sciences with the goal of improving human health, by fostering a rich, innovative ecosystem and promoting Connecticut as a preferred destination for life science exploration and innovation.