



New Jersey

Programs & Initiatives Advancing the Biopharmaceutical Industry



Key Programs & Initiatives

The opportunities generated by the biopharmaceutical sector as a leader in innovation and high quality job creation are not limited to just a few states, but have a substantial national footprint across states. States proactively pursue the development of the biopharmaceutical sector because it represents: a large-scale, geographically dispersed supply chain spanning R&D through to production and distribution; a key driver of the economy including the recent economic recovery; and a sector paying high wage rates in quality jobs. States are deploying a range of programs and initiatives to support and grow the biopharmaceutical industry, including: comprehensive state development strategies; investments in R&D and related infrastructure; programs to boost venture capital, entrepreneurship, and innovation development; advanced manufacturing; economic incentive initiatives; and programs working to advance STEM education and training. New Jersey continues to actively support the development and growth of emerging biosciences companies through its Edison Innovation Fund activities.

Quick Guide: New Jersey's Programs & Initiatives Advancing the Biopharmaceutical Industry



Comprehensive State Strategies to Support Biopharmaceutical Development:

- Edison Innovation Fund



R&D Investment & Infrastructure:

- Innovation Zones, including the Technology Centre of New Jersey



Venture Capital, Entrepreneurship, and Other Innovation Related Programs and Initiatives:

- Commercialization Center for Innovative Technologies
- Edison Innovation Angel Growth Fund
- Edison Innovation VC Growth Fund
- Edison Innovation Growth Stars Fund
- Edison Innovation Fund VC Fund Investment



Advanced Manufacturing:

- NSF Engineering Research Center for Structured Organic Particulate Systems



Economic Incentives:

- R&D Tax Credit
- Angel Investment Tax Credit



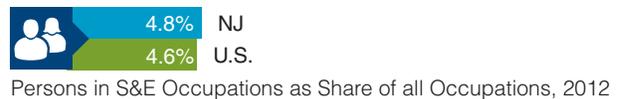
STEM Workforce & Education:

- New Jersey STEM Database
- STEM Afterschool Initiative
- Governor's STEM Scholars

Impacts

- **Edison Innovation Fund** – has invested over \$40 million in 12 venture funds; to date, these funds have leveraged the EDA's investment in New Jersey businesses by more than 62 times.

New Jersey by the Numbers



Source: National Science Foundation, Science & Engineering Indicators 2014.

Comprehensive State Strategies to Support Biopharmaceutical Development

Dating back to the late 2000s, New Jersey rebranded its efforts to support the biosciences and other technology industries as the “Edison Innovation Fund.” The Edison Innovation Fund is an integrated set of resources that support technology and life science initiatives at all stages of development from discovery through to commercialization. The fund, which includes programs administered by the New Jersey Economic Development Authority (NJEDA), is now targeted to invest in companies and support Innovation Zones that bring industry and university assets together.

One key element of the original Edison Innovation Fund is no longer in operation. In July of 2010, New Jersey closed its Commission on Science and Technology (NJCST). Some programs targeted to industry that were administered by NJCST continue, but those in support of research and talent development are no longer in operation.

Programs and Initiatives to Build Bioscience Infrastructure

Innovation Zones. Under the Edison Innovation Fund, the State of New Jersey has created three research parks, referred to as Innovation Zones, throughout the state that encompass state universities, research institutions, and related businesses. The Innovation Zones include areas within the cities of Camden, Newark, and the Greater New Brunswick area.

- These Innovation Zones are a collaborative state effort involving the New Jersey Economic Development Authority and other state agencies.
- Each Innovation Zone is anchored with an existing or planned state-of-the-art technology center, offering companies opportunities to lease office, wet and dry laboratory, and production space at attractive rents. Enhanced financial incentives are available to eligible technology and life science businesses locating in these zones.

The premier Innovation Zone is the Technology Centre of New Jersey, which has approximately 325,000 square feet of space, including being home to the state’s leading bioscience incubator, the Commercialization Center for Innovative Technologies.

- More than \$100 million has been invested in facilities and improvements to meet the specialized lab needs of emerging research and development companies in the biosciences, microelectronics, advanced materials, and communications technologies industries.
- Stand-alone facilities from 5,000 to 60,000 square feet can accommodate state-of-the-art clean rooms and wet labs.

Venture Capital, Entrepreneurship, and Other Innovation Related Programs and Initiatives

Entrepreneurial Development

Commercialization Center for Innovative Technologies (CCIT).

This is a targeted incubation program for bioscience companies. It offers a large, 46,000-square-foot wet lab facility at affordable rates for qualified emerging bioscience companies.

- Companies located in CCIT also have access to a variety of professional services through a Strategic Partner Advantage Network (SPAN) and an active entrepreneur-in-residence program.
- Technical assistance is available in the areas of accounting, clinical development and regulatory compliance, human resources, insurance, law and marketing through SPAN.
- CCIT is also recognized by the National Business Incubation Association as a Soft Landings International Incubator, capable of helping nondomestic companies enter the domestic market with translation services, cutting through red tape, accessing capital, domestic market research, and other programs.
- At any one time, CCIT houses over 20 emerging bioscience companies. The 2013 NJEDA annual report cites a number of successful bioscience graduates of CCIT, including Amicus Therapeutics, Genewiz and Chromocell Corporation, which today boast over 100 employees each.

Venture Financing

Edison Innovation Angel Growth Fund. Angel supported technology companies with minimum trailing 12 month commercial revenues of \$500,000 may be eligible for up to \$250,000 in subordinated convertible debt financing. Growth capital through the Edison Innovation Angel Growth Fund can be used for key hires, product rollout, product enhancement, and marketing/sales. There is a 2:1 angel match funding requirement that must be received within 90 days prior to application.

Edison Innovation VC Growth Fund. Venture capital (VC) supported technology companies with minimum trailing 12 month commercial revenues of \$500,000 may be eligible for up to \$1 million in subordinated convertible debt financing. Growth capital through the Edison Innovation VC Growth Fund can be used for key

hires, product rollout, product enhancement, and marketing/sales. There is a 1:1 VC match funding requirement that must be received within 90 days prior to application.

Edison Innovation Growth Stars Fund. Angel and/or VC supported technology companies with minimum trailing 12 month commercial revenues of \$2,000,000 may be eligible for up to \$500,000 in subordinated convertible debt financing. Growth capital through the Edison Innovation Growth Stars Fund can be used for key hires, product rollout, product enhancement, and marketing/sales. There is a 1:1 match funding requirement that must be received within 90 days prior to application.

Edison Innovation Fund VC Fund Investment. NJEDA, through the Edison Innovation Fund, makes investments in privately managed, early-stage venture capital funds.

- These investments are expected to earn a reasonable rate of return, and demonstrate an ability to leverage the EDA's investment with other investment dollars at a minimum ratio of 3:1.
- Several bioscience venture capital funds have received NJEDA investments, including Quaker BioVentures and NewSpring Health Capital.
- **Outcomes:** According to its 2013 annual report, NJEDA has approved investments in 12 venture funds in excess of \$40 million; to date, these funds have leveraged the EDA's investment in New Jersey businesses by more than 62 times.

Advanced Manufacturing Programs and Initiatives

Rutgers leads the NSF Engineering Research Center for Structured Organic Particulate Systems (C-SOPS), which works in collaboration with industry to modernize pharmaceutical manufacturing and dosage forms.

- Industry research includes addressing the issues faced with poorly soluble drugs. Soluble drugs are designed to help manufacturers deliver "personalized medicine" and drop-on-demand (DOD), which addresses a patient's specific health needs by precisely tailoring dosage units.
- In addition, the Center is advancing drug nanoparticles dispersed in a thin polymer film that is well-suited for flexible dosing therapies, in both oral and transdermal applications.
- C-SOPS researchers are also pursuing continuous manufacturing, an alternative approach to traditional batch processing. We are focusing on the adaptation of various unit operations into the continuous mode: blending, lubrication, wet and dry granulation, direct compaction, capsule filling, coating, and tableting of dry powders and granules. The success of the continuous manufacturing operation has generated considerable industry attention.

- It includes a GMP-quality facility specifically designed for pharmaceutical manufacturing research, with dedicated space for nano-catalysts and reaction engineering activities.
- Among its industry partners are Abbvie, Amgen, Boehringer Ingelheim, Bristol-Myers Squibb, GlaxoSmithKline, Johnson & Johnson, Lilly, Merck and Pfizer, as well as many technology suppliers and integrators for the pharmaceutical industry.

Economic Incentives

R&D Tax Credits. New Jersey offers a 10 percent research and development tax credit, applying federal definitions for calculating qualified research expenditures. Unused R&D tax credits can be carried forward for either 7 or 15 years.

- Qualified biotechnology and technology companies may be eligible to sell R&D tax credits, as well as unused net operating losses, to unrelated profitable corporations for at least 80 percent of their value, up to a maximum lifetime benefit of \$15 million.
- To qualify, the applicant must have at least one full-time employee working in New Jersey if incorporated less than three years, five full-time employees in New Jersey if incorporated more than three years but less than five years, and 10 full-time employees in New Jersey if incorporated more than five years.

Angel Investor Tax Credit. Signed into law in January 2013, the Angel Investor Tax Credit program provides credits against New Jersey corporation business or gross income tax for 10 percent of a qualified investor in an emerging technology business with a physical presence in New Jersey and that conducts research, manufacturing, or technology commercialization in the state.

STEM Workforce and Education Programs and Initiatives

New Jersey STEM Database. Developed and maintained by the New Jersey R&D Council to raise awareness for students and teachers of STEM opportunities.

- The database includes hundreds of initiatives and programs with the goal of advancing STEM education for both students and educators.
- These initiatives and programs comprise those funded through the state and local school districts as well as by the NJ R&D Council members, including: Bristol-Myers Squibb, Celgene, GlaxoSmithKline, Johnson & Johnson, Merck, Novartis, and Roche, among others.

STEM Afterschool Initiative. The Statewide Network for New Jersey's Afterschool Communities provides technical assistance and resources from its public-private partnership across education, government, industry, and health and human services stakeholders to utilize afterschool programs to raise student awareness and teach STEM skills. Through a number of program components – such as the Garden State Girls STEM Collaborative, Leap into Science and the 21st Century Afterschool Science Project – the Network helps support a wide array of afterschool offerings that combine STEM learning with the youth development expertise of afterschool professionals.

Governor's STEM Scholars. This public-private partnership among the Research & Development Council of New Jersey, Governor's Office, New Jersey Department of Education, and Secretary of Higher Education, this program brings together a diverse and representative group of 50 high school and post-secondary student leaders who are interested in pursuing a STEM-related major and career in New Jersey's vast STEM economy.

- The program selects student leaders who are interested in STEM so that they can be exposed to everything New Jersey has to offer in STEM across all sectors – academia, industry, and government.
- Through a series of four conferences during the school year, as well as trips to STEM organizations across the state, the Governor's STEM Scholars provides students with opportunities to closely interact with New Jersey STEM professionals, research organizations, and state policymakers to educate themselves about and experience the state's STEM economy.
- The program offers scholars mentoring opportunities and enables them to make personal and professional connections that can last throughout their academic and professional careers.