



The Innovative Biopharmaceutical Industry's Contributions to STEM Education in

New Jersey

The science, technology, engineering, and mathematics (STEM) workforce is a critical driver of New Jersey's economy and key to ensuring U.S. global competitiveness. However, several STEM education indicators suggest that the U.S. is falling behind other countries and while New Jersey students are among the U.S. leaders in math achievement and among the top half of states in science achievement, preparing the next generation of STEM talent must remain a top priority.

In an effort to curb national trends in student STEM proficiency and performance relative to other countries, innovative biopharmaceutical companies are supporting at least 27 STEM education programs in New Jersey that include a wide variety of innovative programs including hands-on, experiential learning for students and teacher professional development. An additional 14 industry-supported national level programs are also helping advance STEM education in New Jersey and across the country. These efforts are vital to New Jersey's future economic growth and sustainability as the state is projected to have 269,000 STEM job openings by 2018.

Number of NJ STEM education programs supported by the biopharmaceutical industry¹

27

Number of national-level programs open to NJ students and teachers¹

14

Projected STEM jobs to fill in NJ by 2018²

269,000

National Assessment of Educational Progress Ranking for 8th Grade NJ students³

SCIENCE

24th

MATH

3rd

NJ high school students interested in STEM major or career (U.S. = 26%)⁴

26%

Biopharmaceutical Industry Economic Footprint in NJ⁵

322,049

\$87.0B

TOTAL JOBS

TOTAL OUTPUT

Industry-supported STEM Education Programs in New Jersey

- **Bristol-Myers Squibb** supports a varied set of New Jersey-based STEM education programs including (for more information see http://www.bms.com/responsibility/building_our_communities/science_tech/Pages/default.aspx):
 - Three Bristol-Myers Squibb Centers for Science Teaching and Learning at Rider University (New Jersey), Monclair State University (New Jersey), and at Quinnipiac University (Connecticut) are changing the way teachers learn to teach science and math. In addition, the Centers are helping to advance the Next-Generation Science Standards.
 - Mentoring and otherwise supporting undergraduate researchers in the life sciences at nearby colleges and universities including: The College of New Jersey; Rider University; Monmouth University; and Middlesex County College.
 - Sponsoring and mentoring 10 FIRST (For Inspiration and Recognition of Science and Technology) Robotics Competition and/or FIRST Technology Challenge teams in New Jersey and Connecticut.

- Employee service on science advisory boards or participating in other advisory capacities to help improve STEM education at several New Jersey colleges and universities.
 - Providing financial and in-kind support to enhance hands-on, inquiry-based learning in STEM at K-12 and two- and four-year postsecondary schools. Examples include outfitting new laboratories and purchasing human simulators for training nursing students.
 - Supporting several programs that encourage high-performing high school students to pursue science-based careers including the R&D Council of New Jersey Merit Scholars, the Governor's School in the Sciences at Drew University, and the Independent College Fund of New Jersey.
 - Developing a program at the Stony Brook-Millstone Watershed Association Reserve in Hopewell, that gives inner-city children from Trenton an opportunity to learn about biology and their natural environment.
- **Celgene** is supporting several scholarships focused in biotechnology, biological sciences and chemistry through the Independent College Fund of New Jersey.
 - **Daiichi Sankyo** provides funding and volunteer support for Students 2 Science (S2S) a non-profit corporation that inspires, motivates and educates middle and high school students to pursue careers in STEM subjects. S2S operates a commercial grade Technology Center in East Hanover.
<https://www.students2science.org/>
 - **Eisai USA Foundation** contributes to a local high school scholarship fund for members of the robotics competition team.
 - **GlaxoSmithKline** supports the Delaware Valley Science Fair which works with schools to stimulate, nurture and reward the study of STEM subjects among junior and senior high school students using a program of carefully defined science and engineering competitions, organized by grade level.
 - **Merck** established a program to train science teachers and administrators in 1993, the Merck Institute for Science Education (MISE). MISE has evolved into a multi-faceted set of training programs providing education, workshops, support coaches, and family science activity nights for partner school districts in New Jersey and Pennsylvania.
<http://www.mise.org/secure/index.html>

- **Novartis Pharmaceuticals** and the Novartis Foundation support a varied set of New Jersey-based STEM education programs including (for more information see <http://www.novartis.com/corporate-responsibility/responsible-business-practices/community-engagement/science-education.shtml>):
 - Multi-faceted support for the Novartis LINK Community School Science Program, an independent middle school in Newark, which includes construction of a state-of-the-art science lab, development of an interactive science curriculum, and mentoring for students.
 - A partnership with the New Jersey Institute of Technology supporting students in a summer enrichment program.
 - Supporting regional FIRST Robotics competitions.
 - Partnering with New Jersey City University to provide support for middle and high school summer enrichment programs.
 - Supporting the Independent College Fund of New Jersey with several Novartis Science Scholarships.
 - Providing funding to Teach for America, a non-profit organization dedicated to providing quality teachers in low-income communities throughout the U.S., to support science teachers in urban areas.
 - Supporting the New Jersey Governor's School in the Sciences at Drew University, an intensive 3-week summer research program for high-achieving high school juniors in New Jersey.
- **Novo Nordisk** supports a varied set of New Jersey-based STEM education programs including:
 - College scholarships for students who intend to pursue careers in diabetes or hemophilia related fields.
 - Supporting summer research programs at colleges and universities.
 - Sponsoring and supporting middle school robotics programs.
 - Developing web-based education initiatives designed for teachers in the classroom and students for science projects.
- **Sanofi** sponsors and supports two local STEM education initiatives in New Jersey including:
 - Funding college scholarships for high school seniors with the highest achievement in biology.
 - Supporting FIRST Robotics teams locally.

- **Sunovion Pharmaceuticals** sponsors a two-year post-doctoral fellowship in regulatory affairs in partnership with Rutgers University.
<http://pharmafellows.rutgers.edu/companies.php?id=sunovion>.

To learn more about what the biopharmaceutical industry is doing to improve STEM education in the U.S., visit:

www.phrma.org/innovation/STEM

