

# R&D to Commercialization

in New York's Capital Region



(Updated April 2022)

## OVERVIEW

Cluster: **22,094** jobs (2020)

- Scientific R&D Services: **8,307**
- Computer Systems Design & Related Services: **5,883**
- Architectural, Engineering, & Related Services: **4,913**
- Management, Scientific, & Technical Consulting Services: **2,748**
- Specialized Design Services: **243**

**1 of 51** metros where businesses spend **\$1B+** annually (2018)

**\$604.7M** university R&D expenditures (FY2020)

**1.5M sf** university R&D space (FY2019)

**\$73.6M** NIH research grants (FY2021)

**\$15.5M** SBIR/STTR grants (FY2020)

**\$53.6M** DARPA and ARPA-E R&D contract awards (2020)

**\$18.6M** US DOE and NYSEDA Renewable Energy R&D Grants (2020)

**2<sup>nd</sup>** most jobs among mid-sized metros in the physical, engineering, and life sciences R&D services industry: **6,994** (June 2021)

**3,831** university R&D personnel, including **754** principal investigators (2019)

**1,400** semiconductor patents listing inventors in 8 counties – more than any state except California (2019)



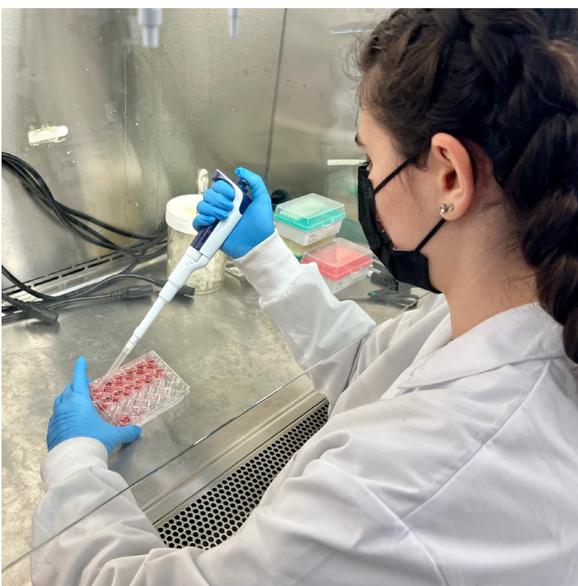
Albany Nanotech Complex



RPI CBIS



GE Research



StemCultures

## TALENT PIPELINE

**PhD-awarding Institutions:** University at Albany, Rensselaer Polytechnic Institute, SUNY Polytechnic Institute, Albany Medical College

- **239** science and engineering PhDs awarded in 2020
- **2.1%** adults have a doctorate – highest doctorate attainment rate in NYS



## BUSINESS R&D LABS

**Applied BioPhysics, Troy:** real-time automated cell-based assays powered by the technology of ECIS

**Applied Materials, Albany:** materials engineering

**Criterion, Saratoga Springs:** phase I-IIIb clinical services, including monitoring, statistics, and BA/BE studies

**Curia, Guilderland:** pharmaceuticals

**Ecovative Design, Green Island:** mycelium materials

**GE Renewable Energy, Schenectady:** renewable energy

**GE Research, Niskayuna:** biotechnology, nanotechnology, renewable energy

**IBM/Samsung, Albany:** semiconductors, AI, quantum computing

**International Electronic Machines Corporation, Troy:** transportation safety and security solutions

**Kitware, Clifton Park:** open source software

**Mechanical Technology Inc., Albany:** metrology equipment

**Mohawk Innovative Technology, Colonie:** oil-free, high-speed rotating machinery

**Plug Power, Latham:** hydrogen fuel cells

**Pulmokine, East Greenbush:** inhalable pulmonary drugs

**Regeneron Pharmaceuticals, East Greenbush:** pharmaceuticals

**SABIC, Selkirk:** chemicals

**SI Group, Niskayuna:** chemicals

**StemCultures, East Greenbush:** controlled-release reagents that provide a stable micro-environment for improved cell growth

**Symmetrix, Clifton Park:** provider of OEM component technology, software tools, and services for CAD/CAE integration

**Taconic Biosciences, East Greenbush and Germantown:** commercial animal models

**Tokyo Electron, Albany:** semiconductors

**Vascular Vision Pharmaceuticals, Wynantskill:** pre-clinical evaluation

## INSTITUTIONAL ASSETS

### ADVANCED ELECTRONICS

- Center for Semiconductor Research, SUNY Poly
- New York State Center of Excellence in Nanoelectronics and Nanotechnology, SUNY Poly
- Materials Engineering Technology Accelerator (META) Center, SUNY Poly
- Center for Materials, Devices, and Integrated Systems, RPI

### ENERGY

- Center for Future Energy Systems, RPI
- Center for Fuel Cell and Hydrogen Research, RPI
- Institute for Energy, the Built Environment, and Smart Systems, RPI
- NYS Center of Excellence in Weather & Climate Analytics, UAlbany
- NYS Center of Excellence Nanoelectronics and Nanotechnology, SUNY Poly
- Renewable Energy Applications Laboratory (REAL) Lab, UAlbany

### LIGHTING

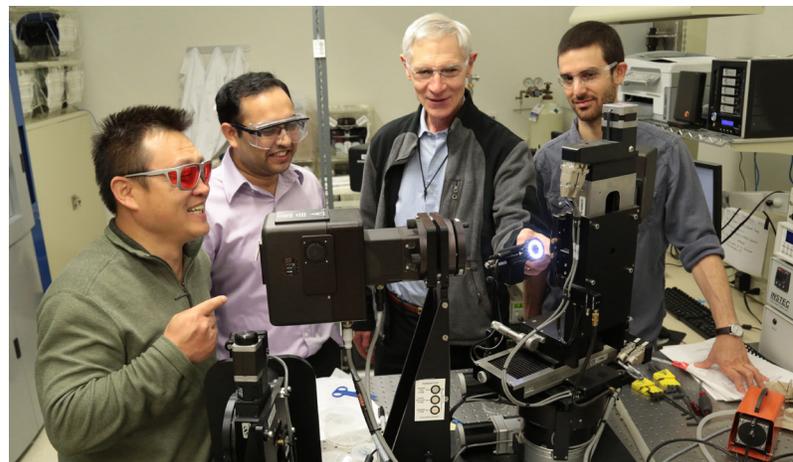
- Lighting Enabling Systems & Applications (LESA), RPI
- Light and Health Research Center, Icahn School of Medicine

### SOFTWARE-IT

- IBM AI Hardware Center, SUNY Poly
- New York State Data Center, SUNY Poly
- Center for Computational Innovations (CCI), RPI
- Institute for Data Exploration and Applications (IDEA), RPI
- The Center for Advanced Red Teaming (CART), UAlbany CEHC
- Institute for Artificial Intelligence, Siena College

### LIFE SCIENCES

- Biomedical Accelerator and Commercialization Center (BAAC), Albany
- Neural Stem Cell Institute, East Greenbush
- NYS DOH Wadsworth Center, Albany
- Regenerative Research Foundation, East Greenbush
- Center for Biotechnology and Interdisciplinary Studies (CBIS), RPI
- Stack Family Center for Biopharmaceutical Education and Training (CBET), Albany
- Center for Integrated Sciences (CIS), Skidmore College
- Integrated Science and Engineering Complex (ISEC), Union College
- Cancer Research Center & Center for Functional Genomics, UAlbany Health Sciences Campus



Mechanical Technology Inc., Albany: Metrology Lab