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. 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. Home to significant clusters of biopharmaceutical companies, federally funded labs and R&D centers, major research universities, and independent biomedical research institutes, Virginia has designated the life sciences as one of its key industry and economic drivers.

Impacts

- **CIT’s Federal Funding Assistance Program** – In FY 2013, CIT helped emerging technology companies receive 414 SBIR and STTR awards totaling more than $130M.

- **Virginia Biotechnology Center** – has facilitated the formation of approximately 70 bioscience companies since its creation in 1995.

Virginia by the Numbers

<table>
<thead>
<tr>
<th>Indicator</th>
<th>VA</th>
<th>U.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>R&amp;D as a Share of GSP, 2010</td>
<td>2.4%</td>
<td>2.6%</td>
</tr>
<tr>
<td>Persons in S&amp;E Occupations as Share of all Occupations, 2012</td>
<td>7.6%</td>
<td>4.6%</td>
</tr>
<tr>
<td>Patents per 1,000 people in S&amp;E Occupations, 2012</td>
<td>6.2 Patents</td>
<td>20.3 Patents</td>
</tr>
<tr>
<td>High-Tech Establishments as a Share of Total, 2010</td>
<td>12.3%</td>
<td>8.8%</td>
</tr>
</tbody>
</table>

Source: National Science Foundation, Science & Engineering Indicators 2014.
Comprehensive State Strategies to Support Biopharmaceutical Development

Within the Commonwealth of Virginia, strategic technology-based economic development policies and initiatives are created via collaboration between the Virginia Economic Development Partnership and the affiliated non-profit Center for Innovative Technology (CIT). Within the Research and Technology Strategic Roadmap (issued in 2014), CIT and its state partners designated the life sciences as one of the 11 industries identified as key economic drivers for the Commonwealth. Within life sciences, particular areas of emphasis include: biopharmaceuticals, health IT, bioinformatics, biomarkers, personalized medicine, remote care delivery, medical devices and software, diagnostics, and computer-assisted drug design.

Virginia’s strategic work in life sciences development benefits from the presence of significant clusters of biopharmaceutical companies (e.g. Merck, Abbott, Teva, Novozymes Biologicals, HDL and Fareva), multiple federally funded labs and R&D centers, major research universities (including three academic medical centers), and independent biomedical research institutes (including the Howard Hughes Medical Institute and SRI International).

R&D Investment Programs and Initiatives

CIT’s Commonwealth Research Commercialization Fund (CRCF) invests in research and commercialization at Virginia colleges and universities, companies, federal labs, and other research institutions. The CRCF awards grants and loans to advance targeted in-state research and commercialization. In the three years since the program’s inception in FY 2012, the CRCF made approximately 150 awards totaling approximately $13 million.

There are three main subprograms under the CRCF, including:

- **Research Matching**: Awards to collaborative research partners seeking matches to outside grants.
- **Facilities Enhancement**: Awards to qualifying public or private higher education institutions and political subdivisions in Virginia to help finance facilities used for qualified research or technology commercialization.
- **Commercialization**: Awards to encourage the commercialization of products and services in Virginia.

In support of translational research, the Virginia Biosciences Health Research Corporation (VBHRC) provides grants of $200,000 to $800,000 per project to accelerate translational research and commercialization of breakthrough technologies in the life sciences that address large unmet medical needs with the goal of improving human health. VBHRC is funded by the Virginia General Assembly’s General fund, the University of Virginia, Virginia Commonwealth University, Virginia Tech, Eastern Virginia Medical School, George Mason University, and Old Dominion University.

VBHRC funds significant translational research and commercialization opportunities in the neurosciences, cardio/metabolic diseases, infectious diseases and cancer. Areas of focus include: bioinformatics and medical informatics; point of care diagnostics; and drug discovery and delivery. Grants are required to meet the following criteria:

- Collaborative efforts involving at least two Virginia research universities and one industry partner in the bioscience field in order to accelerate translational research and commercialization.
- Requires proportionately matched industry partner funding scaled for size of enterprise.

Programs and Initiatives to Build Bioscience Infrastructure

The Virginia BioTechnology Research Park in Richmond is specifically focused on meeting the needs of life-science oriented companies and institutions. The Commonwealth of Virginia created the Virginia BioTechnology Research Park Authority as a political subdivision of the state with broad powers and authority to issue bonds and to own and develop properties and facilities for the purpose of enhancing Virginia’s biotechnology industry.

- The park is currently home to approximately 60 life science companies, research institutes, and state/federal labs, employing over 2,400 scientists, engineers, researchers, and related staff.
- Employers on site include early and mid-stage companies; multinational pharmaceutical, environmental and consumer product companies; national healthcare organizations managing the nation’s solid organ transplant program, as well as a number of international companies.
- In addition, the Virginia Biosciences Commercialization Center was formed to assist later-stage companies with products and services that are closer to market, and to serve as a “soft landing” center to foreign bioscience companies looking to enter U.S. markets.
Venture Capital, Entrepreneurship, and Other Innovation Related Programs and Initiatives

Programs in support of life science commercialization and entrepreneurship are coordinated through the non-profit Center for Innovative Technology. CIT is governed by a Board of Directors comprising the Commonwealth’s Secretary of Commerce and Trade, Secretary of Education, and Secretary of technology, together with the Presidents of Virginia’s leading public research universities, and private sector representatives from technology industries and venture capital firms.

- Created in 1985, CIT operates under the mission of plugging gaps at the earliest stages of commercialization and seed funding, and works to help entrepreneurs launch and scale high-growth technology companies.
- CIT has four service lines: CIT Entrepreneur, CIT R&D, CIT Connect, and CIT Broadband. Through the activities of these service lines, CIT leverages public and private sector investments to develop Virginia’s innovation economy.

Innovation Development

Early-stage life science technology commercialization is facilitated through CIT’s Federal Funding Assistance Program. This effort is targeted to assist small businesses pursuing federal Small Business Innovation Research as well as other government contracts.

- It offers a range of services, such as SBIR strategy consultation and mentoring, low cost Phase I and Phase II proposal training and review courses, discounts with proposal consultants (proposal prep & proposal review) and proposal preparation software, referral to law firm for free IP and patent consultation, commercialization plan assistance, and VC/Angel Capital “Readiness” review.
- The SBIR Matching Funds Program awards grants of up to $50,000 to Virginia-based technology companies that have won a Phase I SBIR Award from the National Institutes of Health (NIH). $3 million in Fiscal Years 2013 and 2014 was designated for SBIR awards and for matching federal Small Business Technology Transfer (STTR) awards.
- Outcomes: In FY 2013, CIT helped emerging technology companies receive 414 SBIR and STTR awards totaling more than $130 million.

Entrepreneurial Development

The Virginia BioTechnology Research Park has an incubator facility, the Virginia Biotechnology Center, equipped with 10 wet laboratory/office suites, a shared lab, and 22 private offices for companies not needing a wet lab. All tenants have access to common equipment, meeting rooms and other shared facilities. Business services, such as marketing and accounting, are also available to the companies located within the incubator.

- Outcomes: the Center has facilitated the formation of approximately 70 bioscience companies since its creation in 1995.

Venture Financing

CIT’s GAP Funds is a family of seed- and early-stage investment funds placing near-equity and equity investments in Virginia-based technology, life science, and cleantech companies. The CIT CAP Funds invest in companies with a high potential for achieving rapid growth and generating significant economic returns for entrepreneurs, co-investors, and the Commonwealth of Virginia.

- The GAP Funds are overseen by CIT and private sector experts on an Investment Advisory Board and invest exclusively in companies headquartered, and with an express desire to grow in the Commonwealth of Virginia.
- CIT’s family of funds includes four separate funds, with the GAP BioLife Fund being most relevant to the life sciences sector.
  - The GAP BioLife Fund is available for use in the development of companies in the following life science sectors: biotechnology; biopharmaceuticals; medical devices; laboratory instrumentation: diagnostics; healthcare IT; nutraceuticals; agricultural biotechnology, and biomaterials.

Economic Incentives

R&D Tax Credits. The Commonwealth of Virginia has a Refundable Research and Development Expenses Tax Credit program.

- For taxable years beginning before January 1, 2019, businesses may claim a tax credit equal to 15 percent of the first $234,000 in Virginia qualified research and development expenses incurred during the taxable year, or they may claim a tax credit equal to 20 percent of the first $234,000 in Virginia qualified research and development expenses if the qualified research was conducted in conjunction with a Virginia college or university.
Virginia State Profile

• If the amount of the credit allowed exceeds the taxpayer’s tax liability, the amount that exceeds the tax liability shall be refunded to the taxpayer.
• If the Company is not profitable or otherwise owes no tax in a year, the credit is refundable in cash. The maximum credit to any one company is $35,000.
• There is a statewide cap of $6 million per fiscal year. If applications for credits total less than $6 million, then the remaining balance of credits will be prorated among applicants, up to doubling the amount of their credits. Conversely, if applications for credits exceed $6 million, applicants’ credits will be prorated.

Virginia also offers an R&D Sales Tax Exemption that provides 100 percent exemption from state sales tax on purchase of R&D supplies, equipment, and bio manufacturing production equipment.

The Angel Investor Tax Credit (Virginia Qualified Equity and Subordinated Debt Credit) provides tax credits for individuals or corporations making a qualified investment in the form of “equity” or “subordinated debt” in a pre-qualified small business venture.

• The credit is equal to 50 percent of the qualified business investments made during the taxable year.
• The credit a taxpayer may claim per taxable year may not exceed the credit authorized by the Department of Taxation, $50,000, or the income tax liability on that year’s return, whichever is less.
• The credit is nonrefundable. Unused credits may be carried forward up to 15 years. If total annual requests for the credit exceed $5 million, the Department of Taxation will prorate the credit for each taxpayer.

The Commonwealth of Virginia also has a Capital Gains Tax Exclusion program that provides a 100 percent capital gains tax exclusion for founders of, and investors in, high technology (including life science) start-up companies with principal offices in Virginia. This may be used instead of the Angel Investor Tax Credit. To qualify, a company must have had less than $3 million in revenue in the fiscal year prior to the investment.

STEM Workforce and Education Programs and Initiatives

The Virginia Governor’s STEM Academies Program includes 23 designated STEM academies located throughout the state. Programs at these STEM schools are designed to expand options for the general student population to acquire STEM literacy and other critical skills, knowledge, and credentials that will prepare them for high-demand, high-wage, and high-skill careers in Virginia.

• Each academy is a partnership among school divisions, postsecondary institutions, and business and industry.
• The majority of the 23 schools have a general STEM track, plus career tracks focused on specific science and technological fields of study.
• Two of the 23 schools (Bridging Communities Governor’s STEM Academy and the Lynchburg Regional Governor’s STEM Academy) have a health science track, while one (The Governor’s STEM Academy at Christiansburg High School) has an advanced manufacturing and production track.

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