

APPENDIX – Technology Transfer in Tennessee

Examples of state commercialization initiatives

OHIO Third Frontier

www.thirdfrontier.com

Ohio's Third Frontier program has become an important part of Ohio's efforts to build a strong, technology-based economy. Started in 2002, the \$2.3 billion initiative supports research, commercialization, entrepreneur programs, capital formation, and workforce development. The cumulative effect of the program has provided new investment leverage outside state government, retention, expansion, and attraction of companies, and well-paying jobs. As of January 2008 the state jobs initiative spurred growth through the following activities:

- State funds awarded \$638 million; co-investment and leverage \$2.4 billion
- Jobs created/retained 5,641; direct and indirect jobs created 14,101
- Companies created/attracted 383; average salary \$67,277

Massachusetts

www.masslifesciences.com

In 2010 Massachusetts launched a \$1 billion, 10-year life science initiative including a life sciences tax incentive program through the Massachusetts Life Sciences Center. The Center was created in 2006 to promote the life sciences through research, development and commercialization funding, as well as building alliances in the industry and promoting workforce development.

The state's research institutions including the University of Massachusetts and the Massachusetts Institute of Technology (MIT) are major factors in the state's life sciences success. MIT supports commercialization through proof-of-concept grants up to \$50,000 as well as innovation grants up to \$250,000. In the last decade, MIT brings more than 20 companies a year to commercialization on average. The university has an aggressive innovation center that offers total wrap-around services including mentoring programs, an entrepreneur contest where the startup must include one MIT student and compete with other companies to receive \$100,000 in seed funding and an industry specific Technology Showcase which matches in and out of state entrepreneurs with university innovations.

Colorado

Colorado's "Advancement of New Bioscience Discoveries" legislation of 2005 is essentially a state bioscience proof-of-concept (POC) program. This program provides funds to be used on a one-to-one matched basis for development-oriented research to accelerate commercialization by reducing inventions to operational practice and validating their ability to address significant market applications. The State bioscience preclinical research program awards (which include an 8% facilities and administrative cost) are designated at between \$50k and \$200k. Technologies are competitively selected after several steps to confirm the potential for commercial success.

Link to the legislation: http://www.leg.state.co.us/Clics2006A/csl.nsf/fsbillcont3/14A80D716E4F3BFD872571010064303D?Open&file=1360_enr.pdf

Kansas Economic Growth Act

<http://kansasbioauthority.org>

The Kansas Economic Growth Act of 2004 demonstrated the state's deep commitment to continued bioscience growth. The act created the Kansas Bioscience Authority and appropriated \$581 million to invest in the expansion of the state's bioscience clusters, research capacity, startups, and business expansion. The 2008 Kansas Bioscience Index 2008 reported the following economic return on state investments:

- 981 private biosciences companies in 2004 and 1,075 in 2006, a 9.6% increase in two years
- Employment rose from 14,889 in 2004 to 16,135 in 2006
- Bioscience venture capital investment amounted to \$101.4 million

- Academic R&D spending in bioscience accounted for 62% of total academic R&D spending in the state

Georgia

The Georgia Research Alliance Eminent Scholars Program was created in 1990 in hopes of attracting pre-eminent scientists to Georgia's universities. These scientists now lead programs of research and development in areas with the most potential for generating new high-value companies, growing established companies, and creating new high-wage jobs. To date, the Alliance has invested approximately \$400 million. This investment has helped to attract more than 50 Eminent Scholars, leverage an additional \$2 billion in federal and private funding, create more than 5,000 new technology jobs, generate some 120 new technology companies, and allow established Georgia companies to expand into new markets. Link to the legislation: http://www.legis.ga.gov/legis/2005_06/pdf/sb556.pdf

Kentucky SBIR Matching Fund

House Bill 422 passed in 2006 authorizing the Kentucky Economic Development Finance Authority to match federal Small Business Innovation Research and Small Business Technology Transfer awards to high-tech companies in Kentucky. This includes matching awards of up to \$100,000 to support Phase I exploration of the technical merit or feasibility of an idea or technology. Phase II federal awards, which support full-scale research and development, would be matched by the commonwealth up to \$500,000. Link to the legislation: <http://www.lrc.ky.gov/record/06rs/HB422.htm>

Texas: Emerging Technology Fund

The Texas Emerging Technology Fund was created by House Bill 1765 in 2005 and reauthorized in 2007 in an effort to speed up the process of commercialization. The purpose of the fund is to generate new jobs and companies from technologies created by institutions of higher education in Texas. The Fund is dedicated to recruiting research talent, matching grants to help draw down federal dollars, and to help push technology through the commercialization phase. This legislation also creates Regional Centers of Innovation and Commercialization (RCICs). These RCICs are expected to foster collaboration on emerging technologies between public and private entities and institutions of higher education. For more information: <http://www.statutes.legis.state.tx.us/SOTWDocs/GV/pdf/GV.490.pdf>

Examples in Mentorship and Workforce Development

San Diego CONNECT

CONNECT of San Diego is designed to link entrepreneurs with critical resources for success, by providing networking opportunities as well as expertise to San Diego's technology-based firms. Through the use of partnerships with the region's industry specific organizations and individuals, CONNECT assists entrepreneurs and bioscience companies with commercializing ideas, patents, and other opportunities surrounding university or private research institute R&D efforts. Connect was founded in 1985 by the University of California-San Diego and the San Diego Economic Development Corporation. The program has built a successful mentorship and education programming for entrepreneurs as a part of their many efforts to increase innovation and commercialization in the region. For more information: <http://www.connect.org/about/index.htm>

North Carolina: The Golden LEAF

The North Carolina Legislature approved a law in 1999 that placed tobacco settlement payments into three separate trust funds. One of the trust funds created is the Golden LEAF (Long-term Economic Advancement Foundation). In 2003, The Golden LEAF Foundation's board committed \$60 million to create a statewide training program for bio-manufacturing workers. This grant combined with \$4.5 million from the North Carolina Biosciences Organization provided the North Carolina State University in

Raleigh with \$36 million to construct a bio-manufacturing facility to train workers. In the 2007, Golden LEAF awarded \$750,000 to construct and operate a modular biodiesel testing facility at Appalachian State University. Link to the legislation: <http://www.ncga.state.nc.us/sessions/1999/bills/senate/pdf/s6v7.pdf>
For more information: <http://goldenleaf.org>

Illinois: BioTIP

The Illinois Department of Community Economic Opportunity created the Biotechnology/Bioscience Training Investment Program (BioTIP) to provide state funded grants to companies to cover training costs for graduate students who find part-time employment as lab technicians/engineers in the biotechnology sector as well as additional training to students to enhance their practical skills. Under this program, employers are reimbursed for up to 50% of the costs for training for graduate student employees.

Examples in retention and recruitment efforts

Texas

In 2003, the Texas Legislature passed HB 2425, an exemption from the state's sales and use tax on "pharmaceutical biotechnology clean-room" construction and equipment. The exemption applies to all tangible personal property used in connection with manufacturing, processing, or fabrication of a pharmaceutical biotechnology product in a clean-room environment. Link to the legislation: <http://www.legis.state.tx.us/tlodocs/78R/billtext/doc/HB02425F.doc>

Maryland

Maryland's 2005 Biotechnology Investment Tax Credit program, HB 664, provides income tax credits for individuals, corporations and qualified Maryland venture capital firms that invest in qualified Maryland biotechnology companies. The value of the credit is equal to 50% of an eligible investment made to a qualified Maryland company during the taxable year. The maximum amount of the credit cannot exceed \$50,000 for individual investors and \$250,000 for corporations and qualified Maryland venture capital funds. A qualified Maryland biotechnology company has its headquarters and base of operations in the state, has fewer than 50 employees, and has been in active business no longer than 10 years. A qualified venture capital firm has at least two principals who each have at least 5 years of venture capital experience and has its principal place of operation in Maryland.

Missouri

Missouri's New Enterprise Creation Tax Credit, HB 664, offers a \$20 million pool of 100 percent tax credits to individual and corporate investors in venture funds that are approved by the Missouri Seed Capital Investment Board. Link to the legislation: <http://www.house.mo.gov/content.aspx?info=/bills99/biltxt99/intro99/HB0664I.htm>

Oregon University Venture Development Fund

Oregon's University Venture Development Fund, authorized by the state legislature in 2007, allows the state's taxpayers to receive a 60 percent income tax credit on contributions that will be applied toward commercialization and entrepreneurial programs at Oregon's eight public universities. The fund will enable an aggregate \$14 million to be provided to the universities, with each institution's allocation formulated by its annual income from research grants and contracts. Link to the legislation: <http://www.leg.state.or.us/07reg/measpdf/sb0500.dir/sb0582.en.pdf>

New Jersey

In 1997, New Jersey passed the "High-Tech Job Retention" legislation, an economic development bill designed to incentivize investment in small high-tech companies with fewer than 225 employees. The law, a four-bill package included an investment tax credit; a transferable research and development tax credit; extension of net operating losses carry-forwards from 7 years to 15 years; and research and development tax credits. Links to the legislation:

<http://www.njleg.state.nj.us/9697/Bills/PL97/334 .HTM>
<http://www.njleg.state.nj.us/bills/BillView.asp>
<http://www.njleg.state.nj.us/bills/BillView.asp>
<http://www.njleg.state.nj.us/bills/BillView.asp>

Colorado

The Colorado State Legislature enacted legislation in 1999 establishing a refund for qualified taxpayers of all state sales and use tax paid during a given calendar year for the purchase, storage, use, or consumption of tangible personal property to be used in Colorado directly and predominately in research and development of biotechnology. Link to the legislation:

http://www.state.co.us/gov_dir/leg_dir/sess1999/hbills99/hb1335.htm

Michigan

Michigan's 21st Century Jobs Fund Public Act 225 is a \$2 billion, ten-year initiative to accelerate the diversification of the state's economy and devotes approximately \$800 million for technologies in the targeted sectors of life sciences, alternative energy, and other industries. The annual awards are administered by the Michigan Economic Development Corporation (MEDC) with contracts that establish conditions and mileposts for receipt of funds. The Jobs Fund's Competitive-Edge Technologies Program invests in funds or alongside qualified private equity funds, qualified mezzanine funds, and qualified venture capital funds and a commercial enhancement program to assist small companies.

General Examples of Technology Transfer Operations

University of Utah

In 2005, the University of Utah's president transferred the technology commercialization office out of the research administration division and handed its oversight to the Dean of Utah's business school. The university combined three previously independent units into a new division called "Technology Ventures" mandate was to accelerate the rate of start-up formation, connect the technology transfer office to the university's Entrepreneur Center, improve the university's industry research partnerships, and streamline its technology licensing strategy. Since, the University of Utah has spun off high numbers of startups based on licensed university technology.