

MASSACHUSETTS LIFE SCIENCES CENTER



Fiscal Year 2015 Annual Report



MASSACHUSETTS LIFE SCIENCES CENTER



To: Governor Charlie Baker
Secretary of Administration and Finance Kristen Lepore
Secretary of Housing & Economic Development Jay Ash
Senate President Stan Rosenberg
Speaker of the House Robert DeLeo
State Comptroller Thomas G. Shack III
Clerk of the Senate William Welch
Clerk of the House of Representatives Steven James

By forward: House and Senate Committees on Ways and Means and the Joint Committee on Economic Development and Emerging Technologies

Date: September 30, 2015

Re: FY 2015 Annual Report of the Massachusetts Life Sciences Center

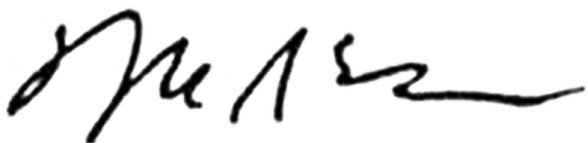
The Massachusetts Life Sciences Center (MLSC) respectfully submits this Annual Report detailing the organization's operations and accomplishments during Fiscal Year (FY) 2015.

For the past seven years, the MLSC has led the state's life sciences initiative – a \$1 billion initiative designed to strengthen the state's economy by accelerating the growth of our life sciences sectors in Massachusetts. The MLSC's goal has been to make Massachusetts the strongest life sciences ecosystem in the world and the best place in the world for life sciences companies to do business.

The MLSC collaborates with the private sector to accelerate the pace of innovation and economic development in all regions of Massachusetts. The MLSC's strategy has been based on the belief that the best role for the state is to invest in Massachusetts' innovation capacity – the ability to produce and commercialize a flow of innovative life sciences technologies over the long term. Since 2008, the MLSC has invested aggressively in five "enablers" that build innovation capacity: translational research, entrepreneurship, workforce development, infrastructure and collaboration.

This report and the accompanying FY 2015 Audit Report are submitted in fulfillment of the requirements mandated by the General Court pursuant to the MLSC's enabling statute of the Massachusetts General Laws, Chapter 23I (formerly Section 7, now Section 15), as amended by Chapter 130 of the Acts of 2008. Financial statements are contained in the accompanying FY 2015 Audit Report by McGladrey LLP.

As always, we appreciate your continued interest and support.



Mike Kennealy, Acting President & Chief Executive Officer

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The Life Sciences Stampede to Massachusetts

In November 2014, Shire Pharmaceuticals announced the company's plans to move its U.S. life sciences headquarters and 500 additional employees to Massachusetts. The Boston Business Journal published an article on the announcement with the headline "Shire joins biotech stampede into Massachusetts; new HQ and 500 employees coming to Lexington," following a series of announcements by top international biopharma companies, such as Baxter spin-off Baxalta and GE Healthcare, of plans to expand in the Bay State. Fifteen of the top twenty global leaders in biopharma now have a presence in Massachusetts, and many, like Pfizer, Biogen, Novartis, Shire and Sanofi-Genzyme each have over 1,000 employees in the state. Many of these companies had little to no presence here seven years ago. Over the past year we have embraced and incorporated the term, "life sciences stampede" into our message to the world, and we have continued to attract companies large and small from across the globe, bringing thousands of jobs and important new healthcare technologies with them.

In order to build the world's leading ecosystem for life sciences innovation and growth, the MLSC has invested or committed more than \$595 million as of the end of FY 2015 across the state, literally from Cape Cod to the Berkshires. We have leveraged those public dollars with more than \$2 billion of matching outside investment.

Over the past year, we have implemented new strategies, programs and partnerships in an effort to accelerate the commercialization of promising treatments, therapies, and cures that hold great potential for creating jobs, and for improving human health and patient care. This year, we announced the first round of grants under our new Milestone Achievement Program (MAP), a program that provides grant funding to promising early-stage companies to help them perform and complete essential value-creating milestones. At the 2015 BIO International Convention, the MLSC, the Conference of Boston Teaching Hospitals and the University of Massachusetts Memorial Medical Center announced the launch of the Massachusetts Clinical Innovation Gateway, a new web portal that will allow life sciences companies from Massachusetts and around the world to seek opportunities to partner with Massachusetts academic medical centers on research and clinical initiatives. We also took our spirit of collaboration to new horizons, through a collaboration with the Center for the Advancement of Science in Space (CASIS). During FY 2015, in partnership with CASIS, we launched the Galactic Grant Competition, which allowed Massachusetts life sciences companies to compete for up to \$500,000 in grant funding to support experiments on the International Space Station's (ISS) U.S. National Laboratory, and the International Space Station STEM Challenge, a \$50,000 grant competition that allowed Massachusetts middle schools to compete for resources to send a life sciences research experiment to the ISS. In December 2014, the MLSC awarded the first round of grants through our Universal Partnerships (UP) Program, building on our efforts to support and foster international research collaborations with Massachusetts companies.

While continuing to innovate through new programs and initiatives, the MLSC has also continued to run a broad portfolio of programs that have proven successful over past years, including the Accelerator Loan Program, the competitive Capital Program, the Cooperative Research Matching Grant Program, the Internship Challenge and the Tax Incentive Program. These programs continue to fill gaps in the process of innovation, create jobs and support scientific research that holds potential to improve the human condition.

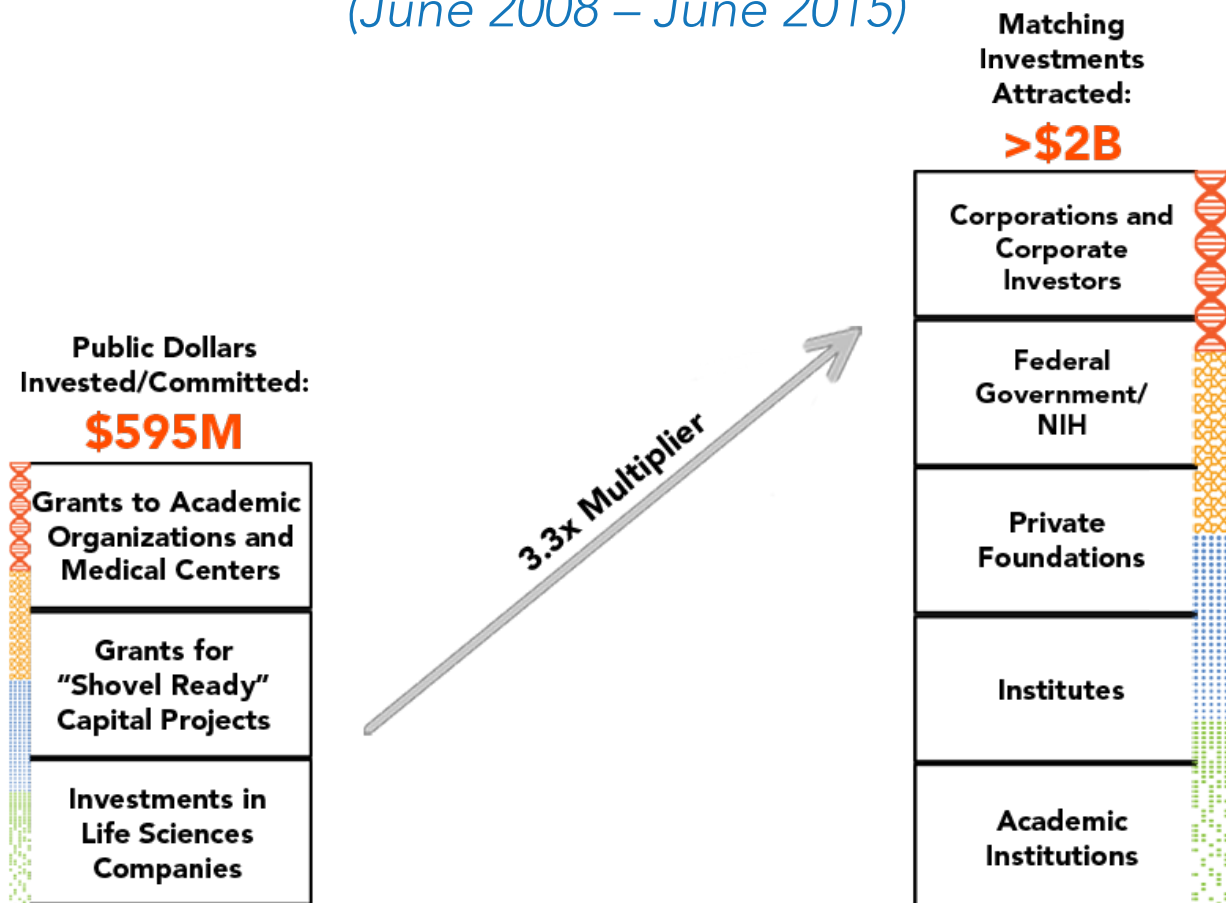


The Bottom Line

The MLSC's investment strategy remains focused on public-private collaboration and achieving high leverage on public tax dollars. Since 2008, the MLSC has directly invested or committed more than \$595 million and leveraged more than \$2 billion in third-party investment. In other words, every \$1 of taxpayer money that the MLSC has invested has attracted more than \$3.3 in additional, outside investment. This has created a portfolio of approximately \$2.6 billion in public-private investments in the state's life sciences ecosystem that would not have existed without the Life Sciences Initiative.

While investing in any industry is not without risk, the MLSC has continued its run of success at making sound investments within the life sciences sectors thanks to the guidance of an experienced and diverse group of leaders and experts that volunteer their time to review applications and conduct a thorough and transparent review process. The multi-disciplinary scientific, investment, business and legal expertise that informs the MLSC's decisions continues to provide the Center with the knowledge that is needed to determine the best use of public dollars in order to highly leverage the Commonwealth's funds and deliver major impact.

MLSC Investment and Commitments to Date by Dollar Amount (June 2008 – June 2015)

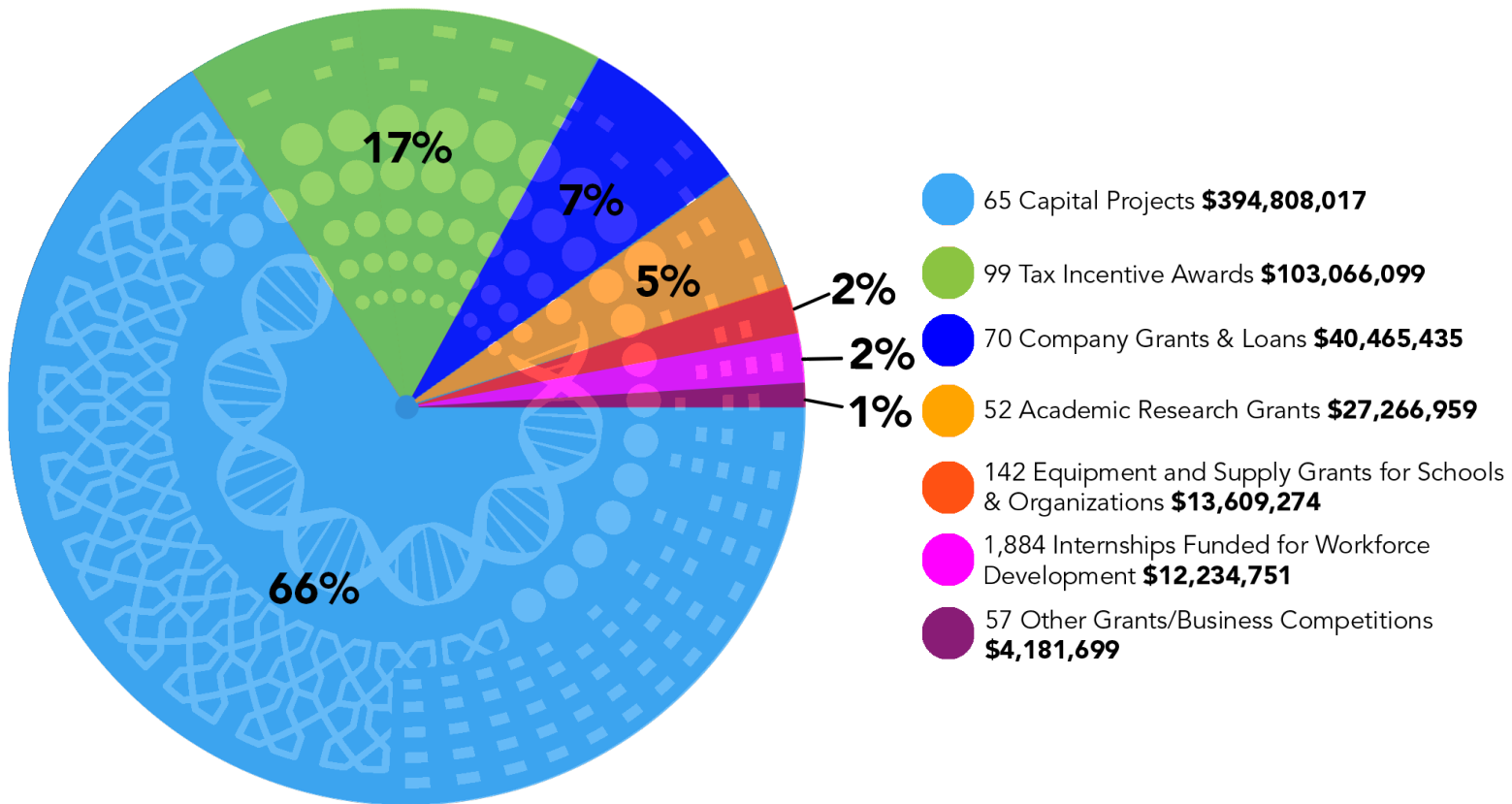


The MLSC's investment portfolio continues to grow and reflects the organization's strategy of filling development gaps faced by companies of all sizes and strengthening the state's position as the leader in life sciences. The MLSC invests in five key "innovation enablers":

- Translational research partnerships between industry and academic institutions;
- Entrepreneurship and the pipeline of early stage companies;
- Workforce development;
- Infrastructure; and
- New models of collaboration within the state and internationally.

The MLSC currently manages a portfolio of over 600 individual grants, loans and tax incentives.

*The MLSC's Investments and Commitments to Date
by Dollar Amount (June 2008 - June 2015)*



Highlights of the MLSC's FY 2015 investment commitments include:

- Capital Grants for 16 infrastructure projects totaling approximately \$27 million in investment or commitment, including five grants to community colleges;
- Equipment and Supply Grants to 44 high schools and middle schools across the state totaling nearly \$3.8 million;
- \$1 million towards the development of a unique Ebola diagnostic test;
- \$550,000 awarded to two companies and two middle schools to conduct research on the International Space Station;
- More than \$2.2 million in grants awarded to early-stage companies towards the completion of research and development milestones;
- Tax incentive awards to 11 companies totaling more than \$19 million; and
- Placement of 430 interns at companies across the state.



Massachusetts Company Attraction and Expansion

The MLSC actively recruits new companies to the state through its marketing efforts and programs highlighting the state's world-class academic institutions, teaching hospitals and research institutes, access to a talented workforce and a vibrant investment community. The MLSC also makes companies, coming to or expanding in Massachusetts, aware of the opportunities to partner with existing industry leaders in all sectors of the life sciences, and to enjoy proximity to innovative young companies, all within a supportive environment for growth.

FY 2015 saw some of the largest life sciences companies in the world announce intentions to launch or expand their presence in Massachusetts, including successful recruitment of such industry giants as Baxter, GE Healthcare and Shire. Alongside MassBio and MassMEDIC, and with sister agencies in state and local government, the MLSC continued to work with companies large and small to attract them to Massachusetts, and to help organize the announcement of expansions, relocations and grand openings. A selection of these announcements is below:

- **Eli Lilly and Company** announced plans to establish a new drug delivery and device innovation center in Cambridge that will help attract top scientists and bioengineers, as well as enhance Lilly's local business development presence. The 23,000 square foot center will open by the end of the year with a planned staff of at least 30 scientists and engineers.
- **Baxter International Inc.** formed a new global innovation and R&D center in Cambridge for Baxter's biopharmaceuticals business, which became a separate, independent global company known as Baxalta as of May 2015. The new facility, eventually slated to reach 200,000 square feet, began operations at the end of 2014. The company plans to employ over 400 people in this facility.
- **GE Healthcare Life Sciences** announced it will create a new U.S. headquarters in Marlborough. The company will be making a \$21 million investment in the facility which will house more than 500 employees, including the creation of more than 220 new jobs.
- **EMD Serono, Inc.**, an affiliate of Merck KGaA, announced the official site opening of their new Sagamore Building in Billerica, MA. EMD Serono had 854 employees across Massachusetts as of last year and plans to expand by 20%.
- **Shire** announced plans to establish its U.S. operational headquarters in Lexington moving more than 500 staff to the location from its Chesterbrook, Pennsylvania site. Shire said the move will save the company \$25 million annually starting in 2016.
- **Philips** signed a \$25 million, five-year research alliance with MIT and is moving its U.S. R&D headquarters to Cambridge from its current headquarters in Westchester County, New York.
- **Amgen** announced that it would expand its research center in Kendall Square and add more jobs from locations across the country to its 250 employees already in Massachusetts.



EMD Serono

Baxter

Shire

Lilly

AMGEN

PHILIPS



Massachusetts Company Attraction and Expansion

- **Tyrogenex**, a leader in the development of novel kinase inhibitors to target angiogenesis opened a new office in Needham.
- **Xcovery**, a developer of next-generation targeted therapeutics for cancer, announced the opening of a new office in Needham.
- **SIRION Biotech**, a viral vector platform company known for creating viral vector solutions for industry and academic partners, committed to opening a new office in Massachusetts.
- **MCC Global Laboratories Inc.**, developers of Elephant™, an innovative terminal cleaning solution for the healthcare market, established operations in Beverly.
- **Whale Imaging Inc.**, a leading manufacturer of surgical imaging systems first recruited to the state in 2013, opened a new 9,000 square foot facility in Waltham.
- **CONTINUUS Pharmaceuticals Inc.** announced the official opening of its new 3,800 square foot facility in Woburn. This is the company's first facility since spinning out of the Novartis-MIT Center for Continuous Manufacturing in 2012.
- **WuXi AppTec**, an open-access R&D capability and technology platform company serving the pharmaceutical, biotechnology and medical device industries with operations in China and the United States, celebrated the grand opening of its innovation hub network office in Cambridge.
- **Dicerna Pharmaceuticals, Inc.**, a leader in the development of RNAi therapeutics, opened a new 37,000 square foot office and state-of-the-art R&D laboratory in Cambridge's Alewife neighborhood.
- **Voyager Therapeutics**, a gene therapy company treating diseases of the central nervous system, celebrated the opening of its new headquarters in Cambridge.
- **Nihon Kohden**, based in Japan, opened its first U.S. facility in Cambridge. The facility is approximately 1,600 square feet and the company plans to hire 5 people in the first year.
- **ORYZON Genomics**, announced that the company is opening a U.S. operation which will be located in Cambridge.
- **MediSapiens**, after being incorporated in the U.S. at the end of 2013, fully launched its operations in Massachusetts with offices in the Cambridge Innovation Center.
- **Bio-Pact**, a manufacturer of next-generation carbon nanotubes, announced the relocation of its corporate headquarters from Phoenix, Arizona to Cambridge.

Tyrogenex

WuXi AppTec

Dicerna
pharmaceuticals

CONTINUUS
pharmaceuticals

ORYZON

MCC
LABORATORY

NIHON KOHDEN

biopact

SIRION
BIOTECH

MediSapiens

Voyager
THERAPEUTICS

Xcovery

WHALE
beyond image



Propelling Companies of the Future

Accelerating the Growth of Early-Stage Companies

In FY 2015, the MLSC continued its commitment to entrepreneurship and the pipeline of new life sciences companies in Massachusetts by awarding nearly \$5 million in Accelerator Loans to five early-stage companies. To date, Accelerator companies have raised more than \$200 million in funding and acquisition proceeds subsequent to receiving a loan from the MLSC.

The MLSC's Accelerator Loan Program provides working capital to early-stage life sciences companies at a critical stage in their development. This program seeks to de-risk these companies for future – usually private – investment by funding the steps necessary to achieve critical milestones. Some of these companies may hold the promise of becoming the next Philips or Genzyme, while others will be acquired by large companies that are increasingly depending on “external innovation” for growth. Creative entrepreneurs developing promising technologies fuel Massachusetts’ vibrant innovation culture which has been a fundamental factor in attracting larger companies to set up operations in Massachusetts. Likewise it continues to draw global life science leaders to expand in Massachusetts, in order to have a front-row seat to the breakthroughs that are happening here.

During FY 2015, the MLSC administered two rounds of the Accelerator Loan Program, receiving a total of 46 applications, of which 42 were eligible for review by experts selected from among the MLSC’s 200-plus volunteer peer reviewers. The MLSC’s peer reviewers recommended 31 of these applicants for review by the MLSC’s Scientific Advisory Board (see Appendix B). Eleven companies were then recommended by the Scientific Advisory Board (“SAB”) for due diligence and review by the Investment Subcommittee of the MLSC’s Board of Directors (see Appendix A). Five of these companies were approved for a loan by the full Board of Directors as indicated below:

Accelerator Loans awarded in FY 2015

Company	Location	Area of Development	Loan Amount
3Derm Systems, Inc.	Cambridge	Designs and deploys a skin imaging system that allows primary care physicians to take clinical-quality 3D images of concerning skin lesions and upload them for instant review by a dermatologist.	\$1,000,000
Parsagen Diagnostics, Inc.	Boston	Develops rapid non-invasive diagnostic tests with unprecedented accuracy in predicting preterm birth within 7 and 14 days of presentation.	\$1,000,000
Sabik Medical, Inc.*	Sudbury	Develops radiopharmaceuticals to image and treat serious cancers.	\$1,000,000
Windgap Medical, Inc.	Somerville	Developing a compact and easy to use epinephrine autoinjector for the treatment of anaphylaxis.	\$999,696
X4 Pharmaceuticals, Inc.**	Belmont	Develops oral small molecule CXCR4 antagonist therapeutics for the treatment of several different cancers.	\$1,000,000

*Sabik Medical's award was based on achieving certain closing conditions which were not achieved. Consequently the award was terminated in the spring of 2015.

**Subsequent to June 30, 2015, X4 Pharmaceuticals informed the MLSC that it had raised \$37 million in private financing and therefore the company became ineligible for the loan award.



This fiscal year saw a number of Accelerator portfolio companies receive regulatory approvals and additional outside investment



In FY 2015, Criscot Inc., an awardee from FY 2012 based in Concord, raised over \$3 million in equity. They also announced that they secured a supply partnership with a large healthcare provider group purchasing organization. Last year, Criscot launched their breakthrough product, Sephure.



Bio2 Technologies, Inc., an FY 2013 awardee, received important 510k clearance from the U.S. Food and Drug Administration ("FDA") for its CLM Bioactive Scaffold. The Woburn-based company is also working on a suite of products for use in reconstructive surgery of the extremities.



Arch Therapeutics, Inc., a Framingham-based medical device company and FY 2013 awardee, announced that it raised \$5 million in equity and debt financings. The proceeds of this fundraising will help the company continue to develop their technology and commercialize their device to achieve hemostasis in minimally invasive and open surgical procedures.



Myomo, Inc., a Cambridge-based Accelerator awardee from FY 2012, raised nearly \$5 million in a Series B-1 financing. This additional funding will allow the medical device company, which specializes in myoelectric orthotics, to support investments in sales and marketing, new product development, and expanded clinical trials.



An FY 2011 awardee, Allurion Technologies (formerly-known-as SGL Medical) from Wellesley raised more than \$3 million. This awardee has developed a medical device to treat obesity, the Elipse™, that does not require surgery, endoscopy or anesthesia.

From the Accelerator Loan Program's inception through the end of FY 2015, the MLSC has funded or committed to lend a total of approximately \$22.7 million in Accelerator Loans to 32 early-stage companies.*

*Three companies that have received Accelerator Loans in the past have ceased operations, including Grove Instruments, Inc., an FY 2011 loan recipient, which ceased operations in the spring of 2015.



Boosting Early-Stage Milestone Completion

In FY 2015, the MLSC launched a new grant program aimed at early-stage life sciences companies that need to complete a critical milestone in order to attract additional outside funding and propel the future development of their technology. After an analysis of the current funding environment, and in-depth discussions with early-stage life sciences entrepreneurs, investors, and mentors, the MLSC discovered an existing gap and structured the Life Sciences Milestone Achievement Program (MAP) to help fill that need.

The MAP launched in November 2014 and applications were due on February 2, 2015. The inaugural round of the MAP attracted 98 applications, of which 52 were eligible for review by experts selected from the MLSC's peer review panel and SAB. An SAB member chaired the program and oversaw the review process. The MLSC's review panel recommended 24 of these applicants to move forward in the process, where applicants addressed reviewers' questions. The applicant responses and applications were discussed in a review meeting, where 16 finalists were recommended to advance to the Investment Committee of the MLSC's Board of Directors. Twelve of these companies were approved for more than \$2 million in grants by the Board of Directors as indicated below, enabling these companies to each start work on fundamental milestone projects. These milestones involved product development and scale-up, business strategy, clinical and regulatory processes, or market validation and analyses.

Just over 60% of MAP awardees had proposed product development milestones; some examples include the development and scale-up of a device to be used for human pre-clinical studies and a first-in-pig demonstration of a working prototype. The remaining awardees had marketing, business, or clinical and regulatory milestones including new patent applications, relocation of manufacturing processes in order to gain regulatory approvals, and clinical effectiveness studies.

The breadth of indications and medical conditions to be addressed by MAP awardees is wide; therapeutics and diagnostics for diseases such as cancer, cardiovascular disease, and ALS are being developed, as well as various solutions for insomnia, chronic pain, and wound healing.

MAP Grants awarded in FY 2015

Company	Location	Milestone	Grant Amount
Akita Innovations, Inc.	North Billerica	Product Development	\$168,955
Aquinnah Pharmaceuticals, Inc.	Cambridge	Product Development	\$200,000
Cognition Medical Corp.	Cambridge	Product Development	\$190,000
Cre8MDI LLC	Chelmsford	Product Development	\$200,000
Energesis Pharmaceuticals Inc.	Cambridge	Product Development	\$200,000
Extend BioSciences Inc.	Cambridge	Business Milestone	\$200,000
InsomniSolv, Inc.	Beverly	Clinical / Regulatory	\$83,380
LayerBio, Inc.	Arlington	Manufacturing Scale-Up	\$200,000
MCC Global Laboratories, Inc.	Beverly	Clinical / Regulatory	\$200,000
Micro-Leads, Inc.	Boston	Product Development	\$200,000
PathMaker Neurosystems Inc.	Boston	Product Development	\$200,000
Platelet Biogenesis, Inc.	Chestnut Hill	Product Development	\$200,000



Investing in Infrastructure

The MLSC's investments in infrastructure are funded through the MLSC's Capital Fund, which expended over \$77.6 million in FY 2015 as part of the state's overall capital plan. Through the Life Sciences Initiative, half of the resources committed (\$500 million of the total \$1 billion) are dedicated to capital projects.

The MLSC is committed to using its capital fund to ensure that the resources and infrastructure needed to maintain and strengthen our position as the global life sciences leader are in place across the entire Commonwealth. In support of this commitment, the MLSC uses its grants to engage and build on the strengths of the state's different regions and to ensure that institutions and regions across the state have the necessary infrastructure to contribute in meaningful ways to the fastest growing industry in the state.

To date, the MLSC's infrastructure investments have contributed or will contribute to the creation of more than 1.5 million square feet of new life sciences research and manufacturing space across the Commonwealth, while creating more than 4,300 jobs in the building trades and in the life sciences.

In response to our FY 2015 (fourth annual) competitive solicitation, the MLSC received 51 eligible applications for infrastructure projects from across the state. The MLSC's Board of Directors approved 10 new Capital Project Grants, five Equipment and Supply Grants for community colleges and a planning grant. These investments are summarized below:

Infrastructure Investments to Accelerate Innovation

Boston University/Boston Medical Center (Boston)

Boston University and Boston Medical Center were awarded over \$1.7 million to launch an expansive Lung Regeneration Initiative (LRI) as part of their Center for Regenerative Medicine. The goal of the LRI is the clinical application of recent BU-led discoveries in stem cell research, such as the treatment of lung diseases with personalized therapeutics, as well as the ultimate reconstitution of diseased lung epithelia in patients with emphysema. The LRI also aims to define and launch treatments for pulmonary fibrosis, pulmonary hypertension, cystic fibrosis, and acute lung injury from inhaled pathogens.

Boston Children's Hospital (Boston)

Boston Children's Hospital was awarded over \$2.2 million to enable an existing human neuron differentiation service to merge with an existing cellular assay development and screening core in a newly renovated core facility called the Human Neuron Core. The creation of this new resource at BCH will accelerate research into new treatments that will specifically benefit children with neurodevelopmental, psychiatric and neurological disorders to broadly facilitate new avenues of research for clinical investigators who lack direct experience in stem cell biology.

Brigham and Women's/Forsyth Institute (Boston/Cambridge)

The Forsyth Institute and Brigham & Women's Hospital were awarded over \$4.8 million to fund the creation of the Massachusetts Host-Microbiome Center, which will accelerate practical understanding of how personal microbial communities interact to promote health or cause disease. The project draws upon unique expertise among state institutions that have pioneered functional systems to identify causative effects of microbial communities in vivo, namely The Forsyth Institute, Brigham & Women's Hospital, Boston Children's Hospital and the Harvard Digestive Diseases Center.

Massachusetts Institute of Technology (MIT) (Cambridge)

MIT received over \$1.8 million for a project aimed at establishing new genetic models for brain disorders research. The project will take advantage of the recently developed CRISPR technology, a powerful method for making precise genetic changes in living cells and organisms. The focus of the project is on psychiatric disorders, which are among the most disabling yet poorly understood human diseases, but the technology platform will be widely applicable to many questions in basic and translational neuroscience.



University of Massachusetts Medical School (Worcester)

UMass Medical School was awarded \$5 million to support a joint venture with Harvard Medical School to establish a facility for High Resolution Cryo-Electron Microscopy (Cryo-EM). Cryo-EM is a critical new technology for studying the relationships between structure and function in large molecular complexes within cells. One of the most important new tools for drug design and development, Cryo-EM will play a critical role in identifying likely therapeutic approaches for a broad range of diseases, particularly neurological disorders such as Alzheimer's, immunological disorders, and diabetes.

"Our medical school feels privileged to be part of an initiative that illustrates why Massachusetts is leading the nation in life sciences research, investment and innovation."

- Michael F. Collins, Chancellor of UMass Medical School

Training the Next Generation of Life Sciences Talent

Bay Path University (Longmeadow)

Bay Path University in Longmeadow was awarded \$500,000 to purchase science equipment and supplies that will enable the University to expand opportunities for collaborative student research and through the integration of new science equipment, better prepare young women for career success in the life sciences sectors.

Berkshire Community College (Pittsfield)

Berkshire Community College (BCC) was awarded \$500,000 in funding to launch an educational underpinning that will support the development of the Berkshire Innovation Center (BIC). BCC plans to purchase state-of-the-art reverse engineering equipment and 3-D prototype printers, and develop new courses, which will help to establish a foundation to provide students with advanced learning opportunities.

Boston University's Biomedical Laboratory and Clinical Sciences (BLCS) Program (Boston)

BLCS received \$180,000 in funding to enhance the quality of the training, add to the competencies of the students and to enable the BLCS program to obtain essential equipment. BLCS purchased a small bioreactor, a small bench top fluorescence activated cell analyzer, and implemented an electronic laboratory information and management system to train students for the changing environment for record keeping in the biotech industry.

Holyoke Community College (Holyoke)

Holyoke Community College (HCC) was awarded \$300,000 to purchase biotechnology equipment and supplies. This request is part of a larger capital project, for which HCC received a \$3.8 million award from the MLSC in 2013 for 13,000 square feet of lab space and the creation of a Center for Life Sciences. This includes

a clean room for the biological sciences, which will be the only clean room in Western Massachusetts to support training for students, faculty and industry partners. The construction is expected to be completed during the 2017-2018 school year.

Just-A-Start Corporation (Cambridge)

Just-A-Start Corporation (JAS) was awarded \$49,992 to improve classroom technology and equipment for its Biomedical Career Program (BCP). The BCP provides opportunities for low and moderate income adults to obtain entry level positions and increase their earning potential. The biomedical industry is able to hire from a diverse group of prepared graduates of this free nine-month program. Participants receive academic training in science and technology and laboratory skills and a certification in collaboration with Bunker Hill Community College.

Quinsigamond Community College (Worcester)

Quinsigamond Community College (QCC) was awarded \$5 million to enhance its existing life sciences programming and expand the college's life sciences and biotechnology programming into Southbridge and downtown Worcester. Last fiscal year, QCC received \$499,880 in funding from the MLSC to support and enhance the school's life sciences training facilities located on their main campus in Worcester.

Regis College (Weston)

Regis College was awarded \$355,000 to invest in critically needed equipment that will provide life sciences education opportunities to underserved populations. The grant will also better prepare students for graduate studies, position Regis for advanced biomedical science and regulatory studies education programs, and increase the number of graduates who will be contributing competitively and substantially to Massachusetts' innovation economy.



Roxbury Community College (Boston)

Roxbury Community College (RCC) was awarded \$3 million in grant funding to build additional science labs and renovate existing lab space for its new Life Sciences Institute (LSI). The renovations will play a significant role in promoting an environment that fosters innovation and undergraduate student research at RCC, which is critical to maintaining students' interest in the life sciences. RCC's student body is predominately made up of students of color and immigrant communities, uniquely positioning the College to fill the need for a diverse, well-trained and local life sciences workforce.

Springfield Technical Community College (Springfield)

Springfield Technical Community College (STCC) was awarded \$1,000,000 to establish a Biomedical Engineering Technology associate's degree program

with two BMET (Biomedical Instrumentation and Biomedical Device Manufacturing) tracks, and to enhance STCC's existing Biotechnology associate's degree program. As the only technical community college in Massachusetts, STCC has an on-going need for up-to-date industry-aligned equipment and lab space for life sciences programs.

Wellesley College (Wellesley)

Wellesley College was awarded a \$50,000 grant to support the planning and design phase of the renovation and modernization of their Science Center. The grant will be used to plan for laboratories and teaching facilities that will increase faculty research capabilities, enhance faculty recruitment, and strengthen the learning experience so more students will persist in science majors and go on to STEM careers.

Working Space for Early-Stage Companies

Boston University Business Innovation Center (Boston)

The Boston University Innovation Center was awarded \$363,750 to convert current office space to laboratory space dedicated to fulfilling the needs of start-ups in the biophotonic field. The new laboratory will provide facilities and space for up to four companies. The Boston University Photonics Center (BUPC) is a national leader in biophotonic research, a life sciences speciality that uses light to understand cellular behavior and to diagnose and treat diseases.

Below and on the following page is a list of awards made by the MLSC since the inception of the MLSC capital fund and the status of each project.

Capital Awards from Inception through June 30, 2015

Infrastructure Investments to Accelerate Innovation	Total Award	Year of Award	Status at End of FY 2015
Boston Children's Hospital	\$4,014,031	FY 2013	Completed
Boston Children's Hospital	\$2,263,133	FY 2015	Ongoing
Boston University Medical School	\$1,743,648	FY 2015	Ongoing
Brigham & Women's Hospital	\$2,603,537	FY 2015	Ongoing
Dana Farber Molecular Cancer Imaging Center	\$10,000,000	FY 2012	Ongoing
Harvard Medical School	\$5,000,000	FY 2013	Ongoing
Joslin Translational Center for the Cure of Diabetes	\$5,000,000	FY 2012	Completed
MA Green High Performance Computing Center	\$4,540,000	FY 2013	Ongoing
Marine Biological Laboratory in Woods Hole	\$10,000,000	FY 2009	Completed
Massachusetts Institute of Technology	\$1,838,000	FY 2015	Ongoing
MassBiologics-UMass Medical School	\$5,000,000	FY 2014	Ongoing
The Forsyth Institute	\$4,133,215	FY 2013	Completed
The Forsyth Institute	\$2,210,229	FY 2015	Ongoing
Tufts/Cummings School of Veterinary Medicine, NE Regional Biosafety Lab in Grafton	\$9,500,000	FY 2009	Completed
UMass Amherst Life Sciences Laboratories	\$95,000,000	FY 2013	Ongoing
UMass Boston /Dana Farber Center for Personalized Cancer Therapy	\$2,000,000	FY 2011	Ongoing
UMass Boston /Dana Farber Center for Personalized Cancer Therapy Expansion	\$8,000,000	FY 2014	Ongoing
UMass Dartmouth Advanced Technology Manufacturing Center (ATMC)	\$11,400,000	FY 2012	Completed



UMass Dartmouth/Vector Manufacturing Center	\$20,600,000	FY 2012	Completed
UMass Lowell Emerging Technologies and Innovation Center	\$10,000,000	FY 2012	Completed
UMass Medical School	\$5,000,000	FY 2015	Ongoing
UMass Medical School Albert Sherman Center	\$90,000,000	FY 2010	Completed

Training the Next Generation of Life Sciences Talent	Total Award	Year of Award	Status at End of FY 2015
Bay Path College	\$50,000	FY 2013	Completed
Bay Path University	\$500,000	FY 2015	Ongoing
Berkshire Community College	\$500,000	FY 2015	Ongoing
Boston University Biomedical Lab and Clinical Sciences Program	\$180,000	FY 2015	Ongoing
Bunker Hill Community College	\$200,000	FY 2013	Completed
Cape Cod Community College	\$395,485	FY 2014	Ongoing
City of Taunton	\$55,000	FY 2014	Ongoing
Framingham State University	\$3,000,000	FY 2014	Ongoing
Holyoke Community College	\$3,800,000	FY 2013	Ongoing
Holyoke Community College	\$300,000	FY 2015	Ongoing
Just-A-Start	\$46,099	FY 2014	Completed
Just-A-Start	\$49,992	FY 2015	Ongoing
MassBay Community College	\$50,000	FY 2014	Ongoing
Middlesex Community College	\$36,664	FY 2013	Completed
Middlesex Community College	\$3,000,000	FY 2014	Ongoing
Mount Wachusett Community College	\$500,000	FY 2014	Ongoing
Museum of Science "Hall of Human Life"	\$5,000,000	FY 2012	Completed
North Shore Biotech Consortium	\$5,000,000	FY 2014	Ongoing
Northern Essex Community College	\$1,242,000	FY 2013	Ongoing
Quincy College	\$94,087	FY 2013	Completed
Quincy College	\$500,000	FY 2014	Ongoing
Quinsigamond Community College	\$310,000	FY 2013	Completed
Quinsigamond Community College	\$499,880	FY 2014	Completed
Quinsigamond Community College	\$5,000,000	FY 2015	Ongoing
Regis College	\$50,000	FY 2013	Completed
Regis College	\$355,000	FY 2015	Ongoing
Roxbury Community College	\$3,000,000	FY 2015	Ongoing
Springfield Technical Community College	\$85,673	FY 2013	Completed
Springfield Technical Community College	\$1,000,000	FY 2015	Ongoing
Wellesley College	\$50,000	FY 2015	Ongoing
Western New England University	\$500,000	FY 2014	Completed
Worcester Polytechnic Institute (Biomanufacturing Education & Training Center)	\$2,950,000	FY 2010	Completed

Working Space for Early-Stage Companies	Total Award	Year of Award	Status at End of FY 2015
BayState Medical Center/Health Informatics & Technology Innovation Center	\$5,500,000	FY 2013	Ongoing
Boston University Business Innovation Center	\$363,750	FY 2015	Ongoing
Gateway Park-MBI	\$2,200,000	FY 2010	Completed
LabCentral	\$4,955,515	FY 2013	Completed
LabCentral	\$5,000,000	FY 2014	Ongoing
New Bedford Economic Development Council	\$75,000	FY 2014	Completed
Pittsfield Economic Development Authority	\$55,000	FY 2013	Completed
Pittsfield Economic Development Authority	\$9,670,000	FY 2014	Ongoing
UMass Boston VDC	\$588,848	FY 2014	Ongoing
UMass Lowell Innovation Hub	\$1,000,000	FY 2014	Ongoing
UMass Lowell M2D2	\$4,046,697	FY 2014	Ongoing
Venture Café	\$347,000	FY 2014	Ongoing

Municipal Infrastructure to Support Life Sciences Growth	Total Award	Year of Award	Status at End of FY 2015
Framingham Wastewater and Pumping Station	\$12,860,534	FY 2009	Completed



From Bench to Bedside: Academic Research Grant Programs

The MLSC's key priorities include preserving the strong competitive position of Massachusetts' academic institutions and medical centers, supporting translational research in the life sciences, and accelerating the discovery and transfer of technology out of academic settings.

Cooperative Research Matching Grants

The MLSC's Cooperative Research Matching Grants encourage industry-sponsored research collaborations with Massachusetts academic institutions to accelerate translational research. Non-profit academic/research institutions and industry partners are eligible to apply for grant funding of up to \$500,000 over two years, provided that the industry sponsor matches the MLSC funds on at least a 1:1 basis. Funds to support these cooperative research projects are given as grants to the academic partner. Since 2008, the MLSC has awarded 18 grants under this program, totaling over \$8.7 million.

In the FY 2015 round of awards, projects were funded to address epilepsy, sepsis, microbial resistance to antibiotics, treatment of severe abdominal hemorrhage, cystic fibrosis and Amyotrophic Lateral Sclerosis (ALS). Research institutions that received awards included Boston Children's Hospital, Fraunhofer Center for Manufacturing Innovation, Harvard University School of Engineering, and Massachusetts General Hospital.

One of these research grants, awarded to Harvard University's School of Engineering, developed a completely new class of instrumentation using microfluidics that can be used in biotechnology and basic medical research, and ultimately for diagnostic purposes. Dr. David Weitz, the Principal Investigator for this grant, explained that: "A new spinoff company was created to exploit this technology. The company is GnuBio which is located in Kendall Square and currently employs over 45 people. These are new biotech jobs in Massachusetts that exist in large part because of the support of the MLSC."

The Massachusetts Neuroscience Consortium

The Massachusetts Neuroscience Consortium was launched in June 2012 at the BIO International Convention in Boston. Charter Consortium members were AbbVie, Biogen, EMD Serono, Janssen, Merck, Pfizer, and Sunovion Pharmaceuticals, Inc. The MLSC used its convening power to bring these companies together to form a new model for collaboration with the research community in order to accelerate the pace of discovery. The Consortium is funded 100% by Consortium members. The MLSC acts as a trustee for the funds and awards are not funded by the MLSC.

For the first solicitation, Consortium members received and evaluated nearly 100 applications, selecting seven pre-clinical projects to fund at Massachusetts academic and research institutions. Selected projects focus on Alzheimer's disease, Multiple Sclerosis, neuropathic pain and Parkinson's disease. Members of the Consortium are working collaboratively with the project Principal Investigators and making good progress.

In December 2014, the MLSC awarded the second round of awards made by the Neuroscience Consortium. Nearly 60 applications were received and Consortium members selected six pre-clinical projects to fund at Massachusetts academic and research institutions with a focus on Multiple Sclerosis, Alzheimer's disease, Amyotrophic Lateral Sclerosis (ALS) and Parkinson's disease. Participating members each committed \$250,000 to the Consortium for this round, for a total of \$1.5 million.

In December 2014, the 13 awardees from both rounds gathered at Merck Research Laboratories in Boston to share their knowledge and progress on projects funded in the first round and to present project aims for projects funded in the second round.



FY 2015 Cooperative Research Matching Grants

Recipient	Location	Project Description	Grant Amount
Dr. David King / Massachusetts General Hospital in partnership with Arsenal Medical	Boston	Work on the development of a self-expanding foam, ResQFoam, to treat severe abdominal hemorrhage. A key commercialization activity to move this promising technology from bench to point-of-injury is the development of a robust, hand-operated, portable delivery system for foam administration. Arsenal Medical intends to use safety and effectiveness findings from this grant as the basis for product development and regulatory submission of the foam for pelvic bleeding.	\$225,000
Dr. Samuel Moskowitz / Massachusetts General Hospital in partnership with EnBiotix	Boston	Identify the optimal metabolite-tobramycin ratio and dosing of EBX-001 for the treatment of P. aeruginosa infections in cystic fibrosis patients. The regulatory route for EBX-001 is anticipated to be straight-forward given the "generally recognized-as-safe" classification of the metabolite and the great deal of safety and efficacy data that is available for tobramycin. EBX-001 has the potential to significantly reduce the impact of such infections in CF patients by improving mortality and quality of life.	\$191,504
Dr. Alexander Rotenberg / Boston Children's Hospital in partnership with Neuroelectronics	Boston	Conduct a randomized placebo-controlled trial to test whether cathodal transcranial direct current stimulation (tDCS) suppresses seizures in patients with focal seizures. The hypothesis for this research is that repeated daily sessions of cathodal tDCS will lead to a clinically significant decrease in seizures in patients with medically-refractory focal epilepsy. The field of epilepsy research has been turning steadily towards nonpharmacologic options such as focal brain stimulation. Non-invasive neurostimulation techniques, such as tDCS, are uniquely suited to mass distribution and treatment, even at home, as they are lightweight, portable, inexpensive and have a favorable safety profile.	\$448,876
Dr. Alexis Sauer-Budge /Fraunhofer in partnership with AdvanDx	Cambridge	Development of a rapid and low cost system for positively identifying the microbes causing sepsis, which would then lead to faster treatment. Sepsis accounts for 40% of all ICU costs, making it the most expensive condition treated in US hospitals. According to the federal Agency for Healthcare Research and Quality, sepsis cases cost more than \$20 billion to treat in 2011.	\$225,000
Dr. Brian Wainger / Massachusetts General Hospital in partnership with GlaxoSmithKline	Boston	Develop a cell-based personalized medicine platform to optimize selection of clinical trial subjects, create new diagnostics and generate novel medicines to treat diseases such as ALS. Funding from the MLSC will support the in vitro phenotypic analysis of study subject-derived motor neurons, to determine whether such analysis can predict clinical neurophysiological phenotype and the effects of the drug in study subjects.	\$450,000
Dr. David Weitz / Harvard University in partnership with BASF	Cambridge	Develop a microfluidics platform for Droplet-based Microbial Inhibition Testing (Drop-MINT) to enable rapid identification of novel peptides and compounds with anti-microbial properties. If platform development is successful, the technology will be commercialized through a fee-for-service start-up company that will be headquartered in Massachusetts. Harvard's industry partner is BASF, which will have an option to invest in the start-up company via BASF Venture Capital.	\$450,000

FY 2015 Neuroscience Consortium Awards

Primary Investigator (PI)	Institution	Disease Area	Project Liaison	Project Description	Total Award
Carmela Abraham, Ph.D.	Boston University School of Medicine	Multiple Sclerosis	EMD Serono	Klotho as a novel molecular target for inducing remyelination in MS	\$250,000
Michael Greenberg, Ph.D.	Harvard Medical School	Alzheimer's	Sunovion Pharmaceuticals Inc.	Genome-wide screen for novel negative regulators of synapse number as potential therapeutic targets of Alzheimer's Disease	\$250,000
Bradley T. Hyman, M.D., Ph.D.	Massachusetts General Hospital	Alzheimer's	Janssen Research & Development, LLC	Tau propagation and AD	\$250,000
Tsuneya Ikezu, Ph.D.	Boston University School of Medicine	Alzheimer's	AbbVie	Target validation and development of drug discovery platform for TREM2/TYROBP signaling pathway modulators	\$249,994
Thomas L. Schwarz, Ph.D.	Boston Children's Hospital	Amyotrophic Lateral Sclerosis	Biogen	High-content screen for modulators of mitochondrial otility	\$248,992
Hanno Steen, Ph.D.	Boston Children's Hospital	Parkinson's	Merck	Co-regulation proteomics to identify targets of LRRK2 in Parkinson's	\$250,000



Training the Next Generation of Life Sciences Experts

STEM Equipment and Supplies Grant Program

The STEM Equipment and Supplies Grant Program enables the purchase of equipment and supplies for high schools and middle schools in the Commonwealth in order to train students in life sciences technology and research. The program seeks to increase student achievement and student interest in STEM (Science, Technology, Engineering, and Math), as well as support the implementation of state STEM standards.

These grants enable schools to provide a breadth of training ranging from general STEM education curricula to biotechnology and robotics. Our goal is that these grants will help increase the diversity of workers that are being well-prepared for entry-level positions in the life sciences workforce.

Eligible schools include vocational technical high schools, public high schools and middle schools in Massachusetts' Gateway Cities, high schools and middle schools serving a low-income student population, and workforce training programs throughout the state. High schools, and organizations serving such high schools, can apply for up to \$250,000 in grant funding. Applicants seeking funding of greater than \$100,000 (but no more than \$250,000) are required to secure matching funds for any amount over \$100,000 from an industry partner. Middle schools are eligible for up to \$50,000 (no match required).

In December 2014, the MLSC awarded 44 grants across the state totaling nearly \$3.8 million. This includes 30 applicants representing 40 high schools, 14 applicants representing 29 middle schools, and one maker space serving middle school students. Industry sponsors contributed more than \$83,000 in matching funds and in-kind donations as part of this past year's program.



Schools and Organizations Awarded STEM Equipment and Supplies Grants in FY 2015

School/Organization	City/Town	Award Amount
Attleboro High School	Attleboro	\$68,880
Barnstable High School	Hyannis	\$98,220
Bay Path Regional Vocational Technical High School	Charlton	\$26,510
Blackstone Valley Regional Vocational Technical High School	Upton	\$90,119
Breed Middle School	Lynn	\$50,000
Bristol-Plymouth Regional Technical School	Taunton	\$55,086
Brockton High School	Brockton	\$98,633
Brooke Charter Schools (East Boston; Mattapan; Roslindale)	Boston	\$48,000
Cambridge Rindge and Latin School & Massachusetts Academy of Math and Science	Cambridge/ Worcester	\$100,000
Chicopee Comprehensive High School	Chicopee	\$83,086
Codman Academy Charter School	Dorchester	\$8,830
East Boston High School	East Boston	\$88,230
Everett High School	Everett	\$99,949
Fitchburg High School	Fitchburg	\$99,216
Fitchburg Public Schools (Arthur M. Longsjo, Jr.; Memorial)	Fitchburg	\$99,095
Franklin County Technical School	Turners Falls	\$99,557
Global Learning Charter Public (Middle) School	New Bedford	\$43,698
Joseph P. Keefe Technical School (South Middlesex Technical School District)	Framingham	\$98,820
Lowell High School	Lowell	\$100,000
Lowell Makes	Lowell	\$50,000
Lowell Middlesex Academy Charter School	Lowell	\$90,726
Lynn Vocational Technical Institute	Lynn	\$99,908
Massachusetts Biotechnology Education Foundation (MassBioEd)	Cambridge	\$139,999
Medford Vocational Technical High School	Medford	\$99,979
Minuteman Career and Technical High School	Lexington	\$88,971
New Bedford Public Schools (Roosevelt; Normandin; Keith)	New Bedford	\$50,000
North Brookfield High School	North Brookfield	\$96,750
Old Colony Regional Vocational Technical High School	Rochester	\$93,620
O'Maley Innovation Middle School	Gloucester	\$21,566
Quabbin Regional High School	Barre	\$99,147
Quaboag Regional Middle High School	Warren	\$100,000
Quincy Public (Middle) Schools (Atlantic; Broad Meadows; Central; Point Webster; Sterling)	Quincy	\$49,689
Resiliency Middle School	Fall River	\$48,000
Revere High School	Revere	\$96,306
Revere Public (Middle) Schools (Garfield; Rumney Marsh Academy; Susan B. Anthony)	Revere	\$149,986
South Shore Vocational Technical School District	Hanover	\$133,000
Springfield High School of Commerce	Springfield	\$99,991
Thurgood Marshall Middle School	Lynn	\$50,000
Tri-County Regional Vocational Technical High School	Franklin	\$98,963
Upper Cape Cod Regional Technical School	Bourne	\$99,666
Veritas Preparatory Charter School	Springfield	\$50,000
Waltham High School	Waltham	\$98,742
Worcester Public Schools (Burncoat; Worcester East; Forest Grove; Sullivan; Claremont; UPCS)	Worcester	\$265,142
Zanetti Montessori Magnet School	Springfield	\$48,456

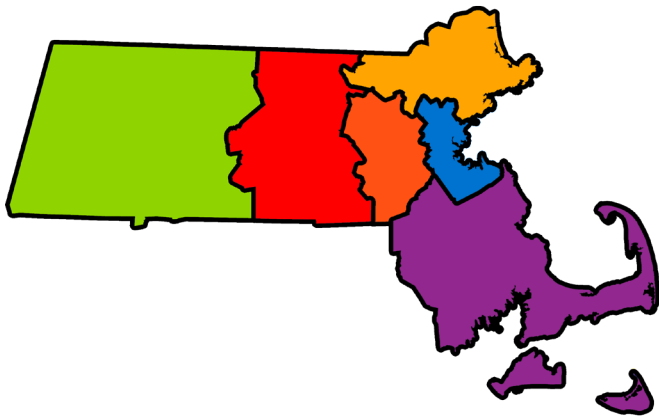


The Internship Challenge

The year-round Internship Challenge has continued to be the MLSC's flagship workforce development program, creating nearly 1,900 paid internship opportunities at nearly 500 life sciences companies throughout the Commonwealth. Interns have represented 180 different colleges and universities.

The Internship Challenge focuses on enhancing the talent pipeline for life sciences companies while providing students and recent graduates with practical, "hands-on" experience that prepares them to step into the workforce ready to meet the job requirements of life sciences employers. The program subsidizes paid internships for undergraduate sophomores, juniors and seniors; community college students; Master's students; and recent college graduates.

Intern Host Companies by Region



Western	4%
Central	8%
MetroWest	18%
Northeast	17%
Greater Boston	49%
Southeast	4%

Host companies commit to providing a dedicated mentor and a meaningful internship opportunity related to the academic focus of their interns. The MLSC provides an online interface to connect host companies with student candidates; students complete an online application, which includes a cover letter and their resume, and host companies review applications to match skills with their needs. Host companies can hire up to two interns per year, but have the option to hire an additional two interns that are enrolled in a community college. At the conclusion of the internship, the MLSC reimburses companies for intern stipends of up to \$7,200, which allows for 12 weeks of full-time work at the maximum reimbursable pay rate of \$15 per hour.

The MLSC conducts a survey of both interns and sponsors at the conclusion of each internship period because the MLSC believes that the Internship Challenge participants themselves provide the best evidence of the program's value and impact. Surveys of participating interns show that over 30% of the interns that were entering the workforce (recent graduates) found immediate full-time employment as a result of their internships. In most cases, these interns were hired by the company that hosted their respective internships.

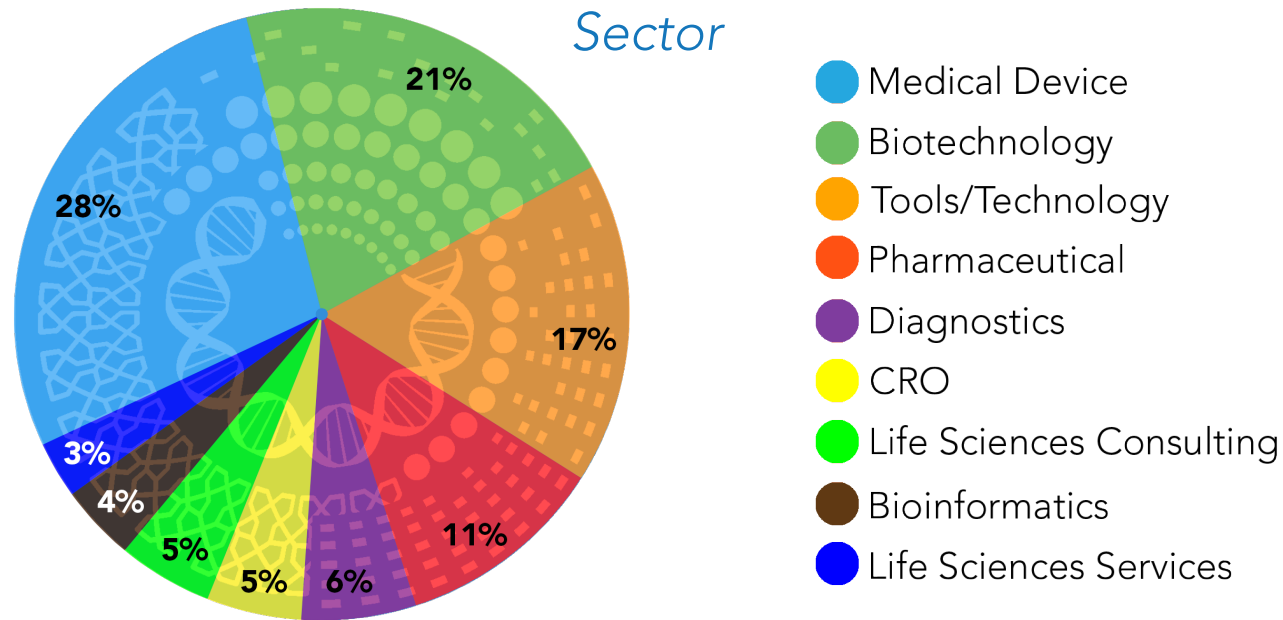
92% of responding interns indicated that their internship met or exceeded their expectations. **88%** of responding interns indicated that their internship reinforced their interest in working in the life sciences.

Surveys of participating companies show that **96%** indicated that their intern(s) met or exceeded their expectations. **81%** of companies indicated that the technical skills demonstrated by intern(s) were comparable to their best hires at this stage in their educational and career development.



The Internship Challenge is designed to expand the pool of prospective employees who have practical experience, enhance opportunities for mentoring, enable more students to explore career opportunities, provide students interested in working in the life sciences with a peer network through educational and informational exchange events, and expose students to entrepreneurship.

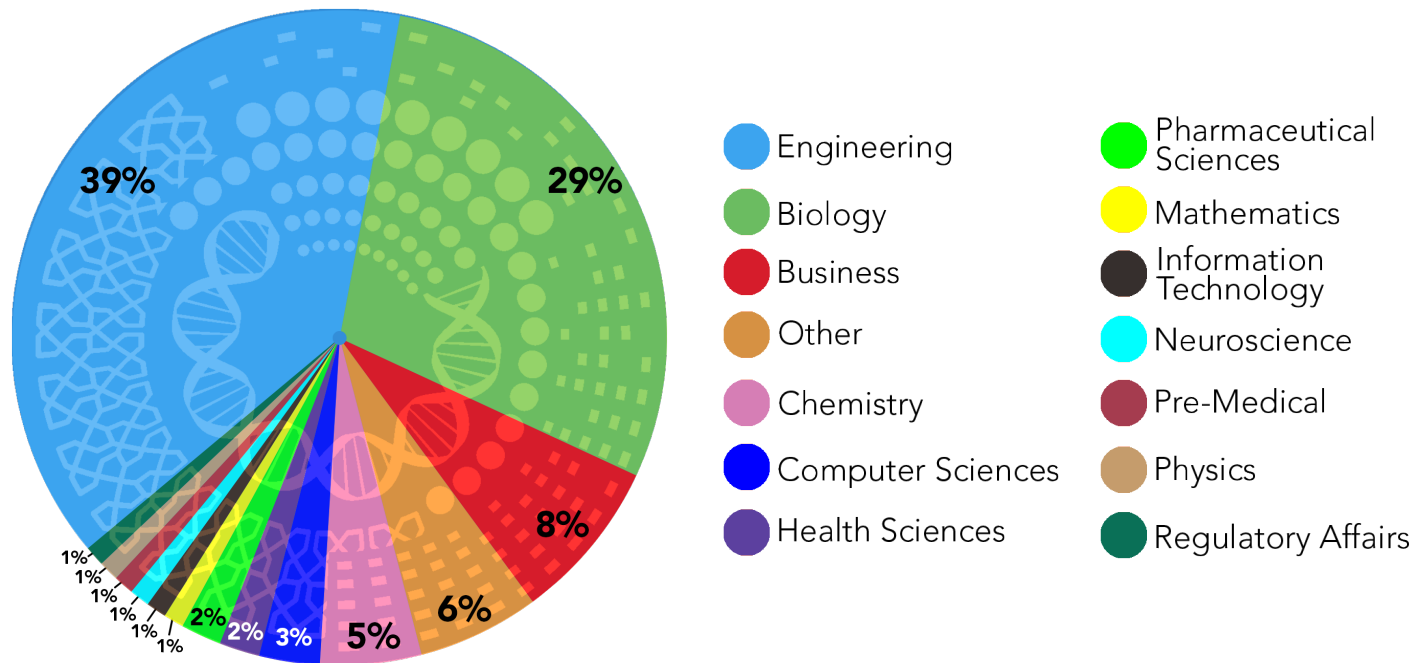
Distribution of Internship Challenge Companies by Company Sector



The Internship Challenge is also a human-capital subsidy program for small and early-stage companies. The MLSC only reimburses intern stipends for companies with 100 or fewer employees in Massachusetts (and up to 250 globally). Because participating interns work in smaller companies, they also receive exposure to the dynamic entrepreneurial environment.

In FY 2015, more than 2,000 students and recent graduates submitted applications for review by more than 300 companies across Massachusetts. The 2014-2015 program placed a total of 430 interns with 234 host companies (see Appendix C for a complete list of 2014-15 Internship Challenge host companies). Interns were demographically diverse and represented 92 different colleges and universities. The Internship Challenge program is broadly inclusive, as the data in this section illustrates.

Academic Major of Participating Interns



Supporting STEM

(Science, Technology, Engineering & Math)

Education and an Inclusive Workforce

The MLSC awarded approximately \$417,000 to 10 programs focused on STEM education and diversity in the life sciences workforce during FY 2015. The grants reflect the MLSC's commitment to build a more inclusive life sciences workforce.

The ten organizations that received FY 2015 grants focus on different strategies for enhancing STEM education and diversity:

The Partnership: Diversity-Focused Professional Development Program for the Life Sciences (\$100,000)

The Partnership is developing a robust diversity-focused professional development program tailored specifically for the life sciences industry. In concert with Biogen, the Partnership is convening leaders from the largest companies and organizations in the Massachusetts life sciences industry. A workshop will convene influential executives, senior leaders and human resources professionals from various corporations and industries in order to identify needs and solutions to increase diversity and inclusion within life sciences organizations and in leadership positions, and to pinpoint methods to retain these professionals. The Partnership will develop a program using its leadership development model based on the outcomes of the convening and analysis specific to the life sciences.

MedTech and BioTech Veterans Program (MVP) (\$50,000)

Recognizing that there is a real need for talented employees in the growing medical device manufacturing industry, MVP was created to bring veterans and transitioning military professionals into medical device companies. Since 2010, 250 veterans and transitioning military have been able to participate in the program, and in 2014 the success of MVP compelled the founders to scale up to help a thousand veterans per year. The MLSC grant will assist MVP in further growing its program to assist Massachusetts veterans and transitioning military professionals with finding careers in medical device companies.

Boys & Girls Club of Worcester, Advancement of STEM Programs (\$50,000)

The Boys & Girls Club of Worcester serves 6,000 children annually, with more than 350 boys and girls participating in programs each day. Having recently

completed a new, state-of-the-art facility, the Club now seeks to further these improvements by purchasing and installing new networked computer workstations and expanding STEM program offerings. MLSC funding will enable the purchase of over 30 networked computer workstations and also will support the expansion of the Club's STEM programming, specifically in robotics and digital arts. Additionally, the Club will use MLSC funds to expand gender-specific STEM offerings to expose more girls to STEM.

Just-A-Start: Evaluation of the Biomedical Careers Program (\$40,304)

Just-A-Start Corporation (JAS) is a non-profit community development agency dedicated to building a better future through education and training. As part of their efforts, JAS provides the Biomedical Careers Program (BCP), which prepares low-to moderate-income graduates for entry level jobs in the biomedical industry, with a tuition-free, nine month, 760 hour program. This MLSC grant will support the comprehensive evaluation of Just-A-Start's BCP by the Center for Social Policy of the University of Massachusetts at Boston to assess the impacts of the program and to enhance its ability to plan for changes in the biomedical job market in the coming years.

The Possible Project: Project STEAM-related programming (\$40,000)

The Possible Project (TPP) is a youth entrepreneurship program designed to close the opportunity gap and provide 21st century career skills to high school students. It was founded in 2010 by lifelong entrepreneurs Mark and Becky Levin in Cambridge, and plans to expand to additional sites nationally beginning with a second Massachusetts city in 2015. MLSC funding will support TPP's new 1,800 square foot Makerspace, which will bring cutting-edge manufacturing technology and digital arts to students.



Steps to Success (STS): Life Sciences LEGO Mindstorms Integration Project (\$33,282)

STS' School Success Program provides after school education to approximately 270 students in grades 4 - 12, helping these young people to succeed and graduate from high school, well-poised to persist through post-secondary education. STS now seeks to integrate STEM learning into its program model. LEGO offers learning products and curricula designed to increase opportunities for students to meaningfully practice and master math, science, engineering and technology skills, thereby piquing their interest in these subjects. Steps to Success will utilize the MLSC grant to fund professional development training in LEGO robotics, as well as technology and personnel costs associated with program implementation.

Mount Holyoke College iDesign Workshop for Female Community College Students (\$30,000)

MLSC funding for the iDesign summer workshop will be used to target and recruit 14 women attending Massachusetts community colleges who either have expressed an interest in STEM but may not have had previous exposure to design thinking, engineering, physics, and computer science or who are taking STEM courses. The design of this workshop will be modeled on a 4-credit, first-year seminar for Mount Holyoke College (MHC) undergraduates with no background in technology. All participants will receive a full scholarship, travel funds, and lunch.

The Springfield Urban League: Be the STEM: Academic and Career Mentoring Program (\$30,000)

The Springfield Urban League (SUL) serves the African-American and other minority communities in Greater Springfield by advocating for and providing model services to enhance the academic and social development of young people and families, promoting economic self-sufficiency, and fostering racial inclusion and social justice. In fiscal year 2014, MLSC awarded SUL a grant for its Be the STEM

program aimed at engaging students in a group mentoring experience where they will have an opportunity to build personal, character and social skills, to improve academic progress that will help ensure future success, and to provide students with knowledge of various STEM disciplines and career opportunities. MLSC's additional funding will allow SUL to increase the program's existing services and to increase the number of program participants from 20 to 30 students, including students in the 7th and 8th grades.

MassMEDIC's MedTech IGNITE's Bay State Shadowing Program (\$25,000)

The mission of MassMEDIC's MedTech IGNITE is to provide a focal point for entrepreneurs in early-stage Massachusetts medical device startups where they can seek guidance to foster success. Currently, new startups are spinning out of this program. The purpose of MLSC funding is to expand the shadowing program beyond Bay State Medical Center in Springfield and Boston Medical Center in the South End of Boston to include hospitals in the Partners Healthcare System, the UMass Medical Center in Worcester, and Lowell General.

Bentley University's Center for Women and Business (\$18,000)

The MLSC is supporting Bentley University's Center for Women and Business through an \$18,000 grant for the Corporate Challenge, an initiative that engages employers that formally commit to growing and retaining women at all levels. The Center for Women and Business will work with its Corporate Challenge members to develop and manage a variety of programming that will include workshops, conferences, peer exchanges, and thought leadership on topics such as: gender intelligence, sponsorship and mentoring, closing the wage gap, men as allies/the role of men and fathers in women's advancement, measurement of progress, workplace flexibility, employee resource groups, and women's leadership development.

The MLSC will continue to seek additional opportunities to expand access to STEM education and to ensure an inclusive life sciences workforce in the fiscal year ahead.



Industry and Job Creation

The Life Sciences Tax Incentive Program

In FY 2015, the MLSC awarded over \$19 million in tax incentives to 11 life sciences companies under the MLSC's 2014 Life Sciences Tax Incentive program. The companies receiving tax incentive awards have committed to creating 1,075 new jobs in the Commonwealth during calendar year 2015.

The Life Sciences Act authorizes up to \$25 million in tax incentives each year for companies engaged in life sciences research and development, commercialization, and manufacturing. The primary goal of the program is to incentivize life sciences companies to create new long-term jobs in Massachusetts. Companies receiving incentives must commit to the creation of a specific number of net new jobs during the following calendar year and also to the retention of those jobs for a five-year period.

The 2014 round of the program offered 10 different incentives, which address the significant expenditures associated with the life sciences R&D cycle, high costs of translating research into commercially viable products, and substantial investment in manufacturing products.

A total of 37 companies applied for tax incentives in 2014. Details of the 11 tax incentive awardees are below:

Tax Incentives Awarded Under the MLSC's 2014 Life Sciences Tax Incentive Program

Company	Location	Tax Incentive Amount Awarded	Jobs Committed
Baxter Healthcare Corporation	Cambridge	\$4,400,000	220
GE Healthcare Bio-Sciences Corp.	Marlborough	\$3,150,000	175
Alnylam Pharmaceuticals, Inc.	Cambridge	\$1,800,000	100
Amgen Inc.	Cambridge	\$1,800,000	100
Philips Electronics North America	Andover	\$1,800,000	100
Biogen	Cambridge	\$1,440,000	80
Merrimack Pharmaceuticals, Inc.	Cambridge	\$1,350,000	75
Alkermes, Inc.	Waltham	\$975,000	65
Synageva BioPharma Corp.	Lexington	\$900,000	60
Quest Diagnostics Incorporated	Marlborough	\$900,000	50
SMC Ltd	Sterling	\$500,000	50
Total		\$19,015,000	1,075



The MLSC takes its stewardship of these resources seriously and has built in strong accountability measures to ensure that the program has “teeth.” The MLSC carefully monitors the performance of companies that have received tax incentives to ensure compliance with the headcount requirements they are required to reach per their agreement with the Center. Headcount requirements must not only be met in the year following receipt of the award, but also maintained for the following five years. As part of the MLSC’s agreements with awardees, recipients of tax incentives are required to report job creation results to the Center by the end of the calendar year. Under the Life Sciences Act, the Department of Revenue has the authority to recover or “claw back” incentives from companies that the MLSC determines will not meet the minimum job creation threshold in their tax incentive agreement.

Some awardees have declined their awards due to changes in their business or general economic conditions. Some awardees also have determined that they were unlikely to reach their job creation commitment under the statutory guidelines and opted to voluntarily terminate their agreements, either by foregoing taking the tax benefits at all or by returning the benefits to the Commonwealth if they had already received them. Since inception, the MLSC has decertified two awardees for not achieving the statutory thresholds. A total of 24 active* companies have received two or more active awards, illustrating their continued commitment to growing their headcount in the Commonwealth.

In FY 2015, awardees from the 2009 through 2013 tax programs were required to report their headcount as of December 31, 2014. As of December 31, 2014, reporting awardees from the 2009 through 2013 programs had hired and maintained 5,847 employees, representing a 156% percent attainment of their commitment.

As of June 30, 2015, there were 78 active awards from the 2010 through 2013 program years, with a combined commitment of fulfilling or maintaining 3,046 new hires under the program. The awardees from the 2009 program completed** their 5 year term on December 31, 2014 and no future reporting is required.

The results of these awards will be reported to the MLSC in January 2016. To date, the Tax Incentive Program has resulted in combined net new hire commitment or actual new hires of 4,540 jobs among active and completed awards.

Summary of the Tax Incentive Program from Inception to June 30, 2015

Program Year	Number of Awards Provided	Dollar Amount of Awards Provided	Number of Active* Awards as of June 30, 2015	Dollar Amount of Active* Awards as of June 30, 2015
2010	24	\$24,390,292	12	\$17,166,186
2011	26	\$20,340,884	18	\$12,208,937
2012	24	***\$22,992,583	20	\$18,920,583
2013	32	\$24,498,182	28	\$22,706,133
2014	11	\$19,015,000	11	\$19,015,000
Total Active	117	\$111,236,641	89	\$90,016,839
Program Year	Number of Awards Provided	Dollar Amount of Awards Provided	Number of Completed** Awards as of June 30, 2015	Dollar Amount of Completed** Awards as of June 30, 2015
2009 Completed	26	\$24,420,000	10	\$13,049,260
Total	143	\$135,656,941	99	\$103,066,099

*Active awards indicate that the recipient company is still within the five year period under their tax incentive agreement.

**Completed awards indicate that the recipient company has completed their five year requirement under their tax incentive agreement.

***In FY 2012, Shire HGT, Inc., of Lexington received an additional \$3.5 million in tax incentives under an existing tax commitment by the Commonwealth.



Building Partnerships

The MLSC created its international programs based on our belief that knowledge creation occurs worldwide, and that global collaboration between life sciences organizations will accelerate scientific and commercial breakthroughs and fuel economic development.

International Collaborative Industry Program (ICIP)

In FY 2015, the MLSC successfully completed its second round of the International Collaborative Industry Program (ICIP). ICIP creates the opportunity for Massachusetts companies to apply for matching grants (\$75,000 minimum to \$400,000 maximum) to fund collaborative R&D projects with companies in international partner regions. The second round of ICIP included six partner regions:

- Alsace (France)
- Quebec (Canada)
- Victoria (Australia)
- Wallonia (Belgium)
- Israel
- Medicon Valley (Sweden and Denmark)

Collaborative projects selected for awards are funded collectively: each of the awarded companies contributes funding, the MLSC provides a grant to the Massachusetts partner company and the collaborating region provides a grant to its regional partner company.

Submitted applications were jointly reviewed by the MLSC SAB and expert reviewers in our partner geographies.

In March 2015 the MLSC Board of Directors approved awards to four Massachusetts companies, totaling \$1.6 million dollars:

ICIP Program Awards

Company	Location	Amount Awarded	In Partnership With
Q State Biosciences, Inc.	Cambridge	\$400,000	Anagenesis Alsace, France
Lantern Pharma, Inc.	Cambridge	\$400,000	Oncology Venture Denmark
Triton Systems, Inc.	Chelmsford	\$400,000	Grey Innovation Victoria, Australia
KEW Group Inc.	Cambridge	\$400,000	DiaTech Technology Quebec, Canada



The Universal Partnerships Program (UP)

The Universal Partnerships Program (UP) reflects the MLSC's commitment to further strengthen Massachusetts's global leadership position in the life sciences, to drive future economic growth and employ new models of collaboration.

UP provides grant funding for R&D collaborations between Massachusetts companies and partners that can include industry, academic institutions, hospitals, or research institutes in any non-U.S. geography. Grants can range from \$50,000 to \$200,000.

Applications for UP were accepted throughout the year and an ongoing review allowed for a streamlined decision process. A competitive proposal focused on a well-articulated milestone within an R&D project with a goal of completion within roughly one year.

In FY 2015 the MLSC Board of Directors approved awards to seven Massachusetts companies, totaling more than \$1.3 million dollars. Those awardees are below.

UP Program Awards

Company	Location	Amount Awarded	In Partnership With
Avaxia Biologics Inc.	Lexington	\$200,000	Delphi Genetics / Wallonia Belgium
Matrivax R&D Corporation	Boston	\$190,000	Synermore Biologics/Taiwan
Riparian Pharmaceuticals	Boston	\$200,000	Hybrigenics Services / France
PNP Research Corporation	Drury	\$198,400	BBI Solutions / UK
Barrett Technology Inc.	Newton	\$200,000	SenseGraphics / Sweden
Cam Med LLC	West Newton	\$175,000	Dongguan Xindingyuan Jidian / Guangdong China
Felicitex Therapeutics Inc.	Newton	\$200,000	Selvita / Poland

The International Partnership Assistant Portal (IP-ap)

In November 2012, the MLSC launched the International Partnership Assistance Portal (IP-ap), a tool that enables international and Massachusetts companies to explore potential partnerships 24/7/365. The portal also enables Massachusetts companies to pursue partnerships with one another. The MLSC hosts IP-ap as a free, password-protected, cloud-based portal. Since its launch, IP-ap has become a growing global database of potential partners from a range of therapeutic areas and industry sectors within the life sciences.

At the close of FY 2015, the IP-ap database contained 271 company profiles (168 International and 103 Massachusetts) and dozens of profiles from international and local life sciences-related agencies and institutions. International companies listed in the portal represent 26 countries and five continents. Massachusetts companies from more than 43 cities and towns have registered their business profiles in the portal.



A New Horizon: Galactic Partnerships

The MLSC has always prided itself on the unique partnerships it participates in, both domestically and internationally, but in FY 2015, we took our collaborations to literally new heights. Partnering with the Center for the Advancement of Science in Space (CASIS), the MLSC announced two new competitions granting awardees the opportunity to have research conducted on the International Space Station (ISS). The partnership was conceived to take advantage of the ISS R&D Conference taking place in Boston in early July, 2015 where the winners of each competition were announced.

The first program, the “Galactic Grant Competition” offered Massachusetts-based life sciences companies access to the distinct attributes of the ISS research platform. The microgravity environment on the ISS has profound and unique effects on biological phenomena and can enable discoveries with terrestrial applications, including drug discovery, development, delivery, and diagnostics. The other competition, the “Space Station STEM Challenge” was created for Massachusetts middle school students. Teams composed of public middle school students competed to design, build and send their own original research experiments to the ISS, while a runner up team would conduct ground-based experiments as a ground-based control.

At the ISS R&D Conference, alongside Governor Charlie Baker, the MLSC announced the winners of the Galactic Grant Competition. Cambridge based Zaiput Flow Technologies and Nanobiosym Inc. were awarded a total of \$500,000 by the MLSC, which was leveraged by up to \$7.4 million each with support from CASIS to fly their projects up to the station, conduct their projects on station, and bring the experiments back to earth.

Astronaut Cady Coleman helped announce the winners of the \$50,000 Space Station STEM Challenge on day three of the ISS R&D Conference. Talbot Middle School in Fall River, MA was the winner of the Space Station STEM Challenge and Collins Middle School in Salem, MA was the runner up. Talbot will receive a flight-based NanoLab, and a grant in the amount of \$6,000 to purchase materials to support the experiment. Collins will receive \$5,000 to conduct the same experiment on the ground for comparison of results.



Education and Outreach Partnerships

During FY 2015, the MLSC awarded a \$50,000 grant to the Prostate Health Education Network (PHEN) for an evaluation of the Impact of PHEN's Prostate Health Education and Awareness Activities and an Expansion of PHEN Programs to Worcester County.

Founded in Massachusetts in 2003, PHEN is the leading nonprofit organization nationally focused on the urgent and unmet prostate health education and awareness needs of African-American men, who die of prostate cancer at a rate that is 2.5 times greater than that of all other men. Lack of awareness and knowledge about the disease are major contributing factors to this health crisis. PHEN's educational outreach activities, which focus on information about risk level, screening guidelines, treatment options and survivorship issues, provide knowledge that is critical to surviving prostate cancer and also help remove the long-standing fear, silence and stigma surrounding the disease in the African-American community.

PHEN plans to use a portion of MLSC's grant to fund the evaluation of the above-described education and outreach activities. PHEN will use MLSC funding to conduct two rigorous, scientific evaluation processes, gathering data on each of its four programs (Monthly Support Groups, PHEN Survivor Network, Father's Day Rally and Educational Symposia) to determine the effect PHEN initiatives have had on increasing prostate health education and awareness.

Having made great strides in reaching out to and educating the African-American community in the Boston metropolitan area, PHEN also will use a portion of MLSC's grant to extend its outreach to Worcester, which has the second largest African-American population in the Commonwealth. In partnership with the University of Massachusetts Medical School, MLSC funds will be used to create a new support group and PHEN Survivor Network in Worcester to enable PHEN to reach approximately 40,000 additional African-American Massachusetts residents.

Massachusetts Clinical Innovation Gateway

During the 2015 BIO International Convention, the Massachusetts Life Sciences Center (MLSC) joined the Conference of Boston Teaching Hospitals (COBTH) and the University of Massachusetts Memorial Medical Center to announce the launch of the Massachusetts Clinical Innovation Gateway. The new web portal will allow life sciences companies from around the world to seek opportunities to partner with Massachusetts Academic Medical Centers (AMCs) on research and clinical initiatives.

The MLSC and COBTH have developed a form and process to triage partnership requests from interested life sciences companies. Companies seeking to explore partnership opportunities with Massachusetts AMCs can complete the online form, which will be sent to representatives from each of the AMCs for review and consideration. Participating AMCs include:



BRIGHAM
AND
WOMEN'S
HOSPITAL



BRIGHAM AND WOMEN'S
Faulkner Hospital

Tufts Medical Center

Floating Hospital
for Children
at Tufts Medical Center



Cambridge Health Alliance
A COMMUNITY OF CARING



DANA-FARBER
CANCER INSTITUTE

St. Elizabeth's
Medical Center
A STEWARD FAMILY HOSPITAL

Massachusetts
Eye and Ear
Infirmary



Lahey Hospital
& Medical Center



UMassMemorial
Medical Center
A Member of UMass Memorial Health Care



Carney Hospital
A STEWARD FAMILY HOSPITAL



Participation in Global Conferences and Trade Shows

In FY 2015, the MLSC was represented at key international life sciences conferences in Japan, Germany, Korea, China, Switzerland and Scotland. In addition, several key industry conferences were held within the United States, including multiple conferences in Boston as well as in New York and Philadelphia. Through its participation in conferences and trade shows, the MLSC has established strategic relationships with industry, government officials, and academic institutions in many regions of the world creating business development opportunities that would otherwise not be available. These relationships, and those established in previous years, have created job growth in Massachusetts through the expansion and relocation of international companies to the Commonwealth as well as opportunities abroad for Massachusetts companies. Coupled with funding through the MLSC's international collaboration programs, these relationships are helping the Commonwealth maintain its global leadership in the life sciences while playing an expanded role in the global economy.

BIO International Convention 2015

The 2015 BIO International Convention took place in Philadelphia, PA, on June 16-18. Once again, Massachusetts had strong representation from industry, academia, and government within the Massachusetts Pavilion, which drew heavy traffic throughout the show. Within the Massachusetts Pavilion a press announcement, four panel discussions, and a well-attended networking session took place. State and local officials participated in more than 15 business development meetings with domestic life sciences companies and met with more than a dozen international company representatives to strengthen relationships and collaborations, and explain why Massachusetts is a great place to do business. The Chinese BIO delegation gathered for a photo and networking opportunity within the pavilion, and as always, the Massachusetts networking reception was a well-attended event.

During BIO, the MLSC announced three company wins for Massachusetts: SIRION Biotech, headquartered in Germany, an expansion win that is working with the MLSC to locate lab and office space in Massachusetts; and Tarogenyx and Xcovery, related companies with offices in Florida, announced their expansion into Needham.



Staying Connected

The MLSC's communications and marketing program keeps stakeholders and the general public informed about the MLSC's investment of public dollars, promotes public accountability for the MLSC's progress in accomplishing its mission, and provides ongoing updates and information exchange with the life sciences community in order to encourage its involvement and input. Communication and outreach have been integral to the MLSC's success in attracting a robust and diverse pool of applicants for MLSC programs.

During FY 2015



The MLSC grew its email contact list from 5,500 to 6,000



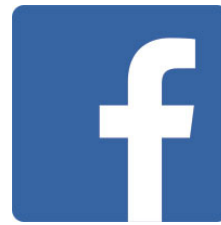
The MLSC website was viewed over 225,000 times. Visitors used the site as both a hub for information and a portal for submitting applications to MLSC programs.



The MLSC grew its Twitter follower base from 1,600 to more than 2,700



The MLSC averaged more than 800 impressions (views) on LinkedIn



The MLSC grew its Facebook fans from 150 to 300

The MLSC also continued its monthly television segment on New England Cable News (NECN), sharing updates on MLSC activities and important news from the state's life sciences community.

In FY 2015 the MLSC maintained a high-level of visibility in the media, including more than 2,300 media mentions.

During FY 2015, MLSC staff participated as presenters, speakers, or panelists at more than 60 public events.



The Way Forward

Through seven years of strategic investment Massachusetts has become the clear global leader in life sciences, and a magnet for life sciences companies large and small from all over the world that want to be a part of the world's leading ecosystem for life sciences innovation and growth. Over the coming year we will continue to work with companies from across the globe to facilitate their arrival and expansion in Massachusetts, bringing new jobs, technologies and partnership opportunities with them.

This past year has brought a lot of change for the MLSC, including new leadership on the state level and at the Center. We are thankful to founding President & CEO Susan Windham-Bannister, Ph.D., for her vision and leadership, and to Acting President & CEO Mike Kennealy for his stewardship of the Center during a period of transition. We are excited to welcome our new President & CEO, Travis McCready.

The state budget provides for a FY 2016 investment fund appropriation of \$10 million, contingent on the State Comptroller's declaration of a consolidated net surplus for FY 2015. The MLSC appreciates, and is grateful to Governor Baker and his Administration, and the State Legislature under the leadership of Senate President Stan Rosenberg and Speaker of the House Robert DeLeo, for prioritizing this funding within the state budget. We look forward to working with these leaders and our partners in industry and academia as we continue to develop strategies for future growth.

The MLSC looks forward to delivering another high-impact year in FY 2016 as we continue to strengthen and expand Massachusetts' thriving life sciences ecosystem.



Appendix A

The Board of Directors of the Massachusetts Life Sciences Center as of June 30, 2015

Jay Ash, Co-Chair

Secretary, Executive Office of Housing and Economic Development

Kristen Lepore, Co-Chair

Secretary, Executive Office for Administration and Finance

Edward J. Benz, Jr., M.D.

President and CEO, Dana-Farber Cancer Institute

Robert L. Caret, Ph.D.

President, University of Massachusetts

Adelene Perkins

Chair, President and Chief Executive Officer, Infinity Pharmaceuticals

Lydia Villa-Komaroff, Ph.D.

Director and Retired Founding CEO, Cytonome/ST

Peter Parker, Ph.D.

President, BioInnovation LLC, Co-Founder, LabCentral

Appendix B

Massachusetts Life Sciences Center Scientific Advisory Board as of June 30, 2015

Harvey Lodish, Ph.D., Chair

Whitehead Institute for Biomedical Research and Professor of Biology and of Bioengineering, Massachusetts Institute of Technology

Hillel Bachrach

Chairman, Viztek & UltraSPECT

James Barry, Ph.D.

Executive Vice President and COO, Arsenal Medical

Kevin J. Bitterman, Ph.D.

Principal, Polaris Venture Partners

Dalia Cohen, Ph.D.

Head of Research, Beryllium

James J. Collins, Ph.D.

Professor of Biomedical Engineering, Massachusetts Institute of Technology

John M. Collins, Ph.D.

Chief Operating Officer, Center for Integration of Medicine & Innovative Technology (CIMIT)

Robert D'Amato, M.D., Ph.D.

Judah Folkman Chair in Surgery and Director, Center for Macular Degeneration Research, Children's Hospital, Boston

T. (Teo) Forcht Dagi, M.D.

Former Partner, HLM Venture Partners

Glenn R. Gaudette, Ph.D.

Associate Professor, Biomedical Engineering, Worcester Polytechnic Institute

José-Carlos Gutiérrez-Ramos, Ph.D.

CEO, Synlogic

Andrew Jay, DMD

Fund Head, Healthcare Fund, Siemens Venture Capital

Rick Jones, MD

Co-COO, Broadview Ventures

Henry Kay

U.S. Partner, Medica Venture Partners

Dale Larson

Director of Biomedical Systems, Draper Laboratory

Alison Lawton

Board Member, Cubist Pharmaceuticals & Verastem

Judith Lieberman, Ph.D., M.D.

Senior Investigator, Immune Disease Institute, Children's Hospital Boston and Professor of Pediatrics, Harvard Medical School

Lita L. Nelsen

Director, Technology Licensing Office, Massachusetts Institute of Technology

Barbara Osborne

Professor of Veterinary and Animal Sciences, University of Massachusetts Amherst

Carmichael Roberts, Ph.D.

Partner, North Bridge Venture Partners

Frederick J. Schoen, M.D., Ph.D.

Executive Vice-Chairman, Department of Pathology at Brigham and Women's Hospital

Lauren Silverman, Ph.D.

Managing Director, Novartis Option Fund

Alan E. Smith, Ph.D.

Former Chief Scientific Officer, Genzyme Corporation

Alison Taunton-Rigby, Ph.D.

Co-founder, CEO and Director, RiboNovix, Inc.

Guillermo Tearney, M.D., Ph.D.

Professor of Pathology, Harvard Medical School

David Walt, Ph.D.

Robinson Professor of Chemistry and Howard Hughes Medical Institute Professor, Tufts University School of Medicine

Appendix C

2014-2015 Internship Challenge Host Companies

Comapny	Location	Company	Location
A Chemtek, Inc.	Worcester	Blue Sky Biotech, Inc.	Worcester
AB Biosciences, Inc.	Boston	Blue Stream Laboratories, Inc.	Cambridge
Abazyme LLC	Cambridge	Boston Device Development Inc.	Newton
Accelaron Pharma	Cambridge	Boston MedTech Advisors	Dedham
Acetylon Pharmaceuticals, Inc.	Boston	Boston Micromachines Corporation	Cambridge
Addgene, Inc.	Cambridge	Boyd Technologies Inc.	Lee
Advanced Instruments, Inc.	Norwood	Brain Backups	Everett
Advanced Radiation Therapy	Tyngsboro	Cambridge Biomedical Inc.	Boston
Advanced Research and Development	Lexington	Catapult Product Development, Inc.	Waltham
AdvanDx Inc.	Woburn	Cell Assay Innovations, Inc.	Beverly
Agilux Laboratories	Worcester	Celldex Therapeutics	Needham
Agrivida, Inc.	Medford	CELLTREAT Scientific Products, LLC	Shirley
Akrivis Technologies, LLC	Cambridge	CeQur Corp.	Marlborough
Alacrita LLC	Cambridge	Boxford	Cambridge
Albright Technologies	Leominster	Cerulean Pharma Inc.	Cambridge
Allurion Technologies	Wellesley	ChemGenes Corp.	Wilmington
Alzheimers Disease Center	Quincy	CIRTEC Medical Systems, LLC	East Longmeadow
Anderson Biotests, LLC	Bedford	CMC Consulting Boston, Inc.	Framingham
Anika Therapeutics	Bedford	Cocoon Biotech Inc.	Boston
Antagen Pharmaceuticals, Inc.	Boston	Collegium Pharmaceutical, Inc.	Canton
Aphios Corporation	Woburn	Constant Therapy Inc.	Lexington
Arch Therapeutics, Inc.	Wellesley	Constellation Pharmaceuticals	Cambridge
Arsenal Medical	Watertown	CONTINUUS Pharmaceuticals, Inc.	Woburn
Artaic	Boston	Corbus Pharmaceuticals, Inc. (fka JB Therapeutics)	Norwood
Arteriocyte Medical Systems	Hopkinton	Court Square Group, Inc.	Springfield
Artietis Corporation	Boston	Courtagen Life Sciences	Woburn
Artisan Consulting	Waltham	Covaris Inc.	Woburn
Asaman Inc.	Abington	CRYOOCYTE INC.	Allston
Atlantic Lab Equipment LLC	Salem	CryoXtract Instruments, LLC	Arlington
Avaxia Biologics, Inc.	Lexington	CSA Medical, Inc.	Lexington
Averica Discovery Services	Worcester	CuriRx Inc.	Wilmington
Bach Pharma, Inc.	North Andover	Curoverse, Inc.	Boston
Baylis Medical	Burlington	Cytonome/ST, LLC	Boston
Bethcare, Inc.	Boston	Dermal Photonics Corporation	Danvers
Bio2 Technologies, Inc.	Woburn	Detector Technology, Inc.	Palmer
BIOBASE Corporation	Beverly	DiscX, LLC	Waltham
Bio-Detail Corporation	Worcester	DNA Medicine Institute	Cambridge
Biomedical Research Models Inc.	Worcester	Editas Medicine, Inc.	Cambridge
BioScale, Inc.	Lexington	eGenesis Inc.	Boston
BioSensics LLC	Cambridge	Ekam Imaging, Inc.	Boston
BioVolutions Inc.	Woburn	Endodynamix, Inc.	Salem
Blend Therapeutics	Watertown	Endosim LLC	Hudson
Blue Ocean Biomanufacturing, Inc.	Worcester	enEvolv, Inc.	Cambridge

Appendix C

2014-2015 Internship Challenge Host Companies

Company	Location	Company	Location
Enumeral Biomedical, Corp.	Cambridge	IonSense, Inc.	Saugus
Environmental Health & Engineering Inc.	Needham	IPFINI, Inc.	Sudbury
EpigenDx, Inc.	Hopkinton	iQuartic Inc.	Brookline
Essential Life Solutions Ltd.	Stoughton	iSpecimen Inc.	Lexington
Etiometry, Inc.	Boston	Jounce Therapeutics	Cambridge
Eutropics Pharmaceuticals Inc.	Cambridge	KBioBox Inc.	Worcester
Everost, Inc.	Sturbridge	KBioSim Inc.	Worcester
Excellims Corp.	Acton	KeraFAST, Inc.	Boston
Extend Biosciences Inc.	Cambridge	Kesin Medicine, Inc.	Lowell
FastCAP SYSTEMS Corporation	Boston	Labminds	Boston
First Light Biosciences	Bedford	Lariat Biosciences, Inc.	Beverly
Five Star Manufacturing Inc.	New Bedford	LaVoie Strategic Communications Group	Waltham
FloDesign Sonics, Inc.	Wilbraham	LayerBio	Arlington
Focused Genomics (dba Parabase Genomics)	Boston	Life Science Nation	Boston
Fractyl Laboratories Inc.	Waltham	Little Sparrows Technologies	Winchester
G & F Medical, Inc	Danvers	Mayly Inc.	Brighton
Gecko Health Innovations	Cambridge	MedPanel, LLC	Cambridge
Gen9, Inc.	Cambridge	Medrobotics Corporation	Raynham
Genetic Services, Inc	Cambridge	Medtechna Incorporated	Dedham
Genocea Biosciences, Inc.	Cambridge	Microbiome Health Research Institute (OpenBiome)	Medford
GenoSpace, LLC	Cambridge	Microbiotix, Inc.	Worcester
Genty LLC	Somerville	Micro-Leads, Inc.	Boston
GI Dynamics, Inc.	Lexington	Microtest Laboratories, Inc.	Agawam
Giner, Inc.	Newton	Mouse Specifics	Framingham
Ginkgo BioWorks, Inc.	Boston	MX Orthopedics	Billerica
Grove Instruments	Worcester	Myomo, Inc.	Cambridge
Guided Surgery Solutions	Wellesley	Nemucore Medical Innovations, Inc.	Worcester
Halloran Consulting Group, Inc.	Waltham	Neo-Advent Technologies, LLC	Littleton
HelixBind, Inc.	Marlborough	New England Peptide Inc.	Gardner
HepatoChem Inc.	Beverly	Nexcelom Bioscience LLC	Lawrence
HighRes Biosolutions Inc.	Woburn	NexGen Arrays, LLC	Boston
Hstar Technologies Co.	Cambridge	NinePoint Medical, Inc.	Cambridge
Human Metabolome Technologies Inc.	Boston	Nivarta, Inc.	Cambridge
Hybrigenics Corporation	Cambridge	NKT Therapeutics Inc.	Waltham
Incite Advisors, Inc.	Auburn	Nonspec	Carlisle
InCrowd, Inc.	Cambridge	Northeast Biomedical, Inc.	Tyngsboro
InfoBionic	Lowell	Nuclea Biotechnologies, Inc.	Pittsfield
Infraredx, Inc.	Burlington	Olaris Therapeutics, Inc.	Cambridge
Institute for Pediatric Innovation	Cambridge	Oncovision, Inc.	Boston
Interactive Motion Technologies, Inc.	Watertown	OpenClinica LLC	Waltham
inviCRO, LLC	Boston	Optimum Technologies, Inc.	Southbridge
iOmics Corporation	Worcester	ORIG3N, Inc.	Boston

Appendix C

2014-2015 Internship Challenge Host Companies

Company	Location	Company	Location
Orthotics & Prosthetics Labs	Springfield	Sano LLC	Wellesley
Parcell Laboratories, LLC	Natick	Sathguru Inc.	Boston
Pavoda Inc.	Sudbury	SBH Sciences, Inc.	Natick
iQuartic Inc.	Brookline	Securus Medical Group, Inc.	Beverly
Phosphorex, Inc.	Hopkinton	Selecta Biosciences, Inc.	Watertown
pION INC.	Woburn	Seminex Corporation	Peabody
PixarBio Corp.	Medford	Senscio Systems, Inc.	Boxborough
Podimetrics, Inc.	Somerville	Sentien Biotechnologies, Inc.	Medford
Polycarbon Industries (PCI Synthesis, Inc)	Newburyport	Seventh Sense Biosystems, Inc.	Cambridge
Portal Instruments, Inc.	Cambridge	Shaser Bioscience	Lexington
Precision Fabricators Ltd.	Stoughton	Speech Technology and Applied Research	Bedford
PrepMD	Braintree	Sproxil, Inc.	Cambridge
Pressure BioSciences, Inc.	South Easton	STC Biologics, Inc.	Cambridge
Privo Technologies	Cambridge	Teleos Therapeutics	Medford
Project Lever LLC	Cambridge	Tetraphase Pharmaceuticals, Inc.	Watertown
Proveris Scientific Corporation	Marlborough	Thermedical, Inc.	Waltham
Putnam Associates	Burlington	Tissue Solutions, LLC	Marblehead
Q-State Biosciences, Inc.	Cambridge	Ubiqi Health, Inc.	Somerville
Quad Technologies	Beverly	Union Biometrica, Inc.	Holliston
Quanterix Corporation	Lexington	VasoTech, Inc.	Lowell
Ra Pharmaceuticals	Cambridge	Vaxess Technologies, Inc.	Cambridge
RainDance Technologies, Inc.	Billerica	Veritas Genetics Inc.	Beverly
RAN Biotechnologies, Inc.	Beverly	Viatar LLC	Lowell
RaNA Therapeutics, Inc.	Cambridge	VitaThreads, LLC	Worcester
Respiratory Motion, Inc.	Waltham	Vivonics, Inc.	Waltham
Riparian Pharmaceuticals	Boston	Windgap Medical, Inc.	Somerville
Robie Device Group, LLC	North Andover	World Care Clinical, LLC	Boston
Rogers Sciences Inc.	Beverly	X-BODY, Inc.	Waltham
Rowat Management Services LLC	Sherborn	X-Chem, Inc.	Waltham
SafePath Medical, Inc.	Lowell	Xenetic Biosciences	Lexington
Safety Partners, Inc.	Bedford	Xtal BioStructures Inc.	Natick
Sage Science Inc.	Beverly	ZS Genetics, Inc.	Wakefield
Sample6 Technologies, Inc.	Cambridge		

Appendix D

List of Active Certified Life Sciences Companies as of June 30, 2015

Company	Location	Company	Location
3Derm Systems, Inc.	Cambridge	Eutropics Pharmaceuticals, Inc.	Cambridge
908 Devices, Inc.	Boston	Excellims Corporation	Acton
Aegerion Pharmaceuticals, Inc.	Cambridge	Extend Biosciences Inc.	Cambridge
AesRx, LLC	Newton	Felicitex Therapeutics Inc.	Newton
Akita Innovations, Inc.	North Billerica	Foundation Medicine, Inc.	Cambridge
Alcyone Lifesciences, Inc.	Concord	GE Healthcare Bio-Sciences Corp.	Marlborough
Alkermes, Inc.	Waltham	Grove Instruments, Inc.	Worcester
Allurion Technologies, Inc.	Wellesley	Guided Surgery Solutions, LLC	Wellesley
Alnylam Pharmaceuticals, Inc.	Cambridge	Hepatochem, Inc.	Cambridge
Amgen Inc.	Cambridge	Immunexcite, Inc.	Lexington
Aquinnah Pharmaceuticals, Inc.	Cambridge	InsomniSolv, Inc.	Beverly
Arch Therapeutics, Inc.	Wellesley	Instrumentation Laboratory Company	Bedford
Avaxia Biologics, Inc.	Lexington	inviCRO, LLC	Boston
Barrett Technology Inc.	Newton	Ironwood Pharmaceuticals, Inc.	Cambridge
Baxter Healthcare Corporation	Cambridge	Jounce Therapeutics, Inc.	Cambridge
Bind Biosciences, Inc.	Cambridge	KEW Group Inc.	Cambridge
Bio2 Technologies, Inc.	Woburn	Lantern Pharma, Inc.	Cambridge
Biogen, Inc.	Cambridge	LayerBio, Inc.	Arlington
Bluebird Bio, Inc.	Cambridge	LeMaitre Vascular, Inc.	Burlington
Blueprint Medicines Corporation	Cambridge	Lightlab Imaging, Inc.	Westford
Boston Heart Diagnostics Corporation	Framingham	Lumicell Diagnostics, Inc.	Wellesley
Bruker Corporation	Billerica	Masy Systems, Inc.	Pepperell
Cam Med LLC	West Newton	Matrivax R&D Corporation	Boston
Cell Signaling Technology	Danvers	MCC Global Laboratories, Inc.	Beverly
Charm Sciences, Inc.	Lawrence	MedicaMetrix, Inc.	Wayland
Cognition Medical Corp.	Cambridge	Merrimack Pharmaceuticals, Inc.	Cambridge
Covaris, Inc.	Woburn	Micro-Leads, Inc.	Boston
Cre8MDI LLC	Cambridge	Micron Products, Inc.	Fitchburg
Cristcot Medical, Inc.	Sudbury	Moderna Therapeutics, Inc.	Cambridge
CSA Medical, Inc.	Lexington	Momenta Pharmaceuticals, Inc.	Cambridge
CytonomeST, LLC	Boston	Myomo, Inc.	Cambridge
DePuy Orthopaedics, Inc.	Raynham	New England Biolabs, Inc.	Ipswich
EMD Millipore Corporation	Billerica	NinePoint Medical, Inc.	Cambridge
Energesis Pharmaceuticals Inc.	Cambridge	Nova Biomedical Corporation	Waltham
Enzymatics, Inc.	Cambridge	Nuclea Biotechnologies, LLC	Pittsfield
Epizyme, Inc.	Cambridge	NxStage Medical, Inc.	Lawrence

Appendix D

List of Active Certified Life Sciences Companies as of June 30, 2015

Company	Location
OMNIlife science, Inc.	Taunton
Pall Corporation	Westborough
PAREXEL International Corporation	Lowell
Parsagen Diagnostics, Inc.	Boston
PathMaker Neurosystems, Inc.	Boston
PerkinElmer, Inc.	Waltham
Pharmalucence, Inc.	Bedford
Philips Electronics North America	Andover
Platelet Biogenesis, Inc.	Chestnut Hill
PNP Research Corporation	Drury
Q State Biosciences, Inc.	Cambridge
Quanterix Corporation	Cambridge
Quest Diagnostics, Incorporated	Cambridge
Ra Pharmaceuticals, Inc.	Cambridge
Riparian Pharmaceuticals	Boston
Sample6 Technologies, Inc.	Boston
Sanofi-Aventis, Inc.	Cambridge
SBH Sciences, Inc.	Natick
Shire Human Genetic Therapies, Inc.	Lexington
SMC Ltd	Sterling
Strohl Medical Technologies, Inc.	Weymouth
Synageva BioPharma Corporation	Lexington
T2Biosystems, Inc.	Lexington
Triton Systems, Inc.	Chelmsford
uniQure, Inc.	Lexington
Valerion Thereapeutics, Inc.	Boston
Vaxess Technologies, Inc.	Cambridge
Windgap Medical	Somerville
Wolfe Laboratories, Inc.	Watertown
X4 Pharmaceuticals, Inc.	Belmont