

**Massachusetts Life Sciences  
Center  
FY 2011 Annual Report**

*Delivering on the Promise*



**To:** Governor Deval Patrick  
Secretary of Administration and Finance Jay Gonzalez  
Senate President Therese Murray  
Speaker of the House Robert DeLeo  
State Comptroller Martin Benison  
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*

**From:** Susan Windham-Bannister, Ph.D.

**Date:** September 30<sup>th</sup>, 2011

**Re:** Fiscal Year 2011 Annual Report of the Massachusetts Life Sciences Center

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The Massachusetts Life Sciences Center (the "Center") respectfully submits this Annual Report detailing our operations and accomplishments during Fiscal Year 2011.

We are the hub of the Commonwealth's thriving life sciences Supercluster and proudly serve as stewards of the \$1 billion Massachusetts Life Sciences Initiative, which was passed by the Legislature and signed into law in June of 2008. In FY 11 staff at the Center continued to invest public funds in strategic opportunities to deliver on the promise of the Life Sciences Initiative: the promise of job creation and a stronger state economy, the promise of advancing scientific discovery and the commercialization of better and lower-cost treatments, and the promise of reaching the ultimate goal – cures. We also are delivering on the promises inherent in innovative public-private partnerships, a strengthened life sciences community and Massachusetts' position of global life sciences leadership.

This report and the accompanying FY 11 Audit Report are submitted in fulfillment of the requirements mandated by the General Court pursuant to the Center's enabling statute at Mass. Gen. Laws ch. 23I (formerly section 7, now section 15) as amended by Chapter 130 of the Acts of 2008. Financial statements are contained in the accompanying Fiscal Year 2011 Audit Report by PricewaterhouseCoopers.

As always, we appreciate your continued interest and support.

Sincerely,

A handwritten signature in blue ink that reads "Susan Windham-Bannister".

Susan Windham-Bannister, Ph.D.  
President & CEO

## Growing our Life Sciences Supercluster and Global Reach:



*Massachusetts Life Sciences Center  
President & CEO, Dr. Susan Windham-Bannister*

Fiscal Year 2011 was a year of growth, innovation and strengthened global leadership for the Massachusetts life sciences Supercluster. The Center's investments in scientific research, company formation and growth, workforce development and infrastructure projects are enabling Massachusetts to further solidify and advance its position as a world leader in life sciences. Through investments here at home and relationships built throughout the world, we are strengthening the Commonwealth's academic institutions, ensuring access to a highly skilled life sciences workforce now and in the future, keeping our globally-recognized innovation pipeline flowing and improving life sciences infrastructure across the entire state. The Center's programs and incentives are also proving to be a major factor in attracting, retaining and encouraging the growth of life sciences companies both large and small.

The Center's global reach grew substantially in FY 11, through our staff's participation in trade missions to Israel, the United Kingdom and Finland, and a strong showing at the 2011 BIO International Convention. The Center also engaged in meetings with a steady flow of international delegations seeking opportunities to do business *in* and *with* Massachusetts.

International companies continue to choose Massachusetts as the best place to locate their US headquarters, subsidiaries, or expanded operations -- bringing new jobs and promising technologies to the state.

Massachusetts retained our #1 overall ranking in the 2010 Milken Institute State Technology and Science Index, ranking #1 in R&D inputs, risk capital and entrepreneurial infrastructure, and technology and science workforce.

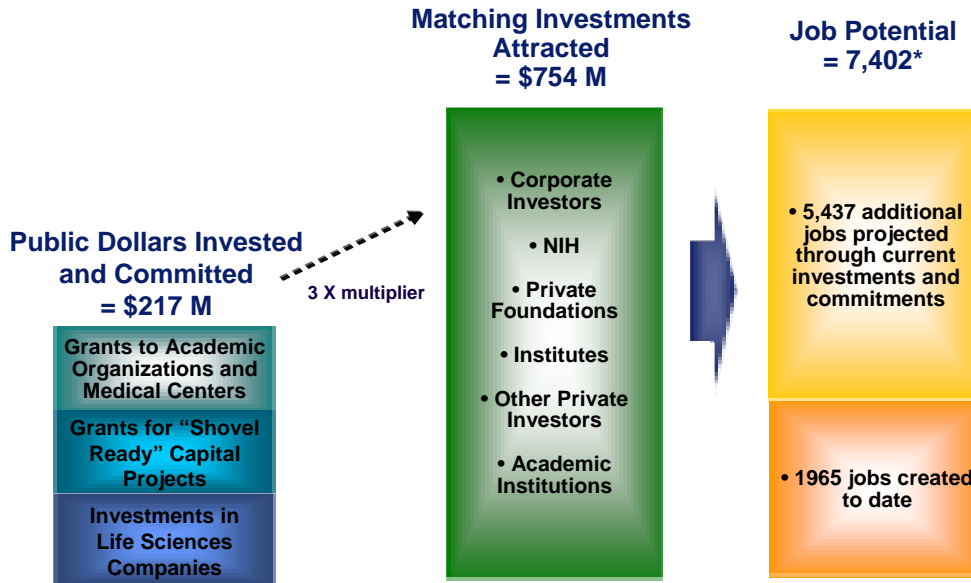
### **The Bottom Line:**

The Center uses a portfolio strategy to achieve its goals and objectives. To ensure that all investments are evaluated on the basis of merit and "relative best use" of the Commonwealth's funds, the Center makes its awards based on competitive solicitations and a rigorous, transparent review process that draws on input from experts from the life sciences sectors across the state.

As a result of the broad expertise that informs our decisions, the Center continues to make smart, strategic investments that attract matching investment capital and highly leverage the public dollars that have been entrusted to us. To date, we have committed \$217 million in public dollars and attracted \$754 million in matching investments, with 1,965 jobs created to date, and projects funded by the Center projected to create an additional 5,437 jobs across the Commonwealth. **This means that for every \$1 of taxpayer money that the Center has invested, we have attracted more than \$3 in additional outside investment – creating a public-private investment fund of more than \$900 million for the state's**

life sciences Supercluster that would not have existed without the Life Sciences Initiative.

## The “Bottom Line” Life Sciences Center’s Impact: June ‘08 – June ‘11



\* This figure incorporates projections by the Donahue Institute at the University of Massachusetts

During these challenging economic times we are proud to play such an important role in Massachusetts’ economic recovery.

## Investment Portfolio:

The Center's investments in FY 11 include a new capital project, grants or loans to eight (8) early stage companies, grants to thirty-two (32) community colleges and vocational technical high schools for the purchase of equipment and supplies for their life sciences training programs, two (2) cooperative research collaborations between industry and academia, and tax incentive awards to twenty-four (24) companies to encourage job creation.

FY 11 was the third year of the Life Sciences Internship Challenge, a program that invests in the next generation of talented life sciences workers in Massachusetts and supports the state's "Stay in Massachusetts" initiative. More than 1,300 students applied for the 2011 summer program and the Center placed 223 interns at 129 companies across Massachusetts.

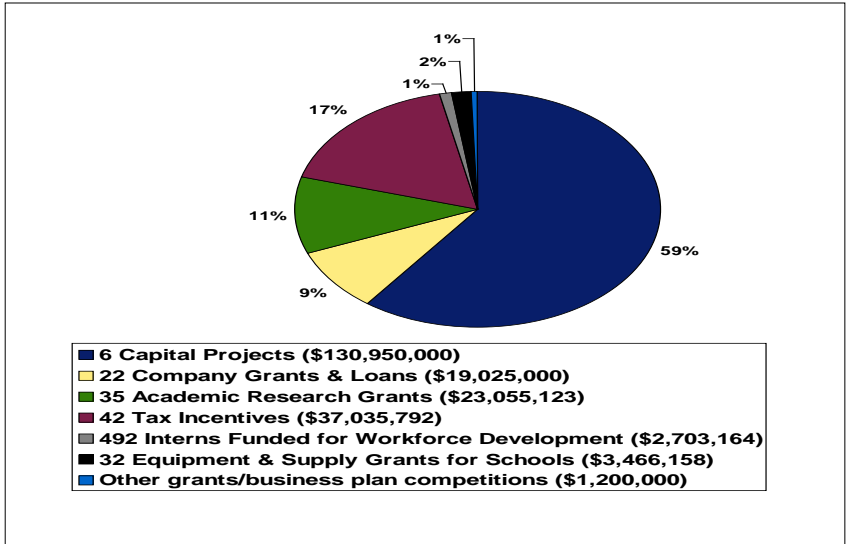
Company recruitment to Massachusetts also remained strong in FY 11. The Center extended a warm welcome to life sciences companies that were locating or expanding in Massachusetts, helping to organize (and participating in) their ribbon cuttings and collaborating on their press announcements. The Center again coordinated the state's presence at the 2011 BIO International Convention, which took place June 27th-30th in Washington, D.C. Massachusetts had a strong showing once again, with numerous leaders from government, academia and industry representing the Commonwealth, resulting in dozens of promising new business leads and generating significant interest in the 2012 BIO International Convention, which will take place in Boston next June.



*Shire has located its Human Genetic Therapies division in Lexington, Massachusetts, where the company is investing more than \$750 million and creating more than 750 new jobs. The Center's Life Sciences Tax Incentive Program has played an important role in Shire's decision to expand in Lexington.*

The Center currently is managing a portfolio of 137 grants, loans and tax incentives.

**Distribution of MLSC Investments and Commitments to Date by Dollar Amount (June '08 – June '11)**



**Investing in Infrastructure:**

Growth in Massachusetts’ life sciences Supercluster holds the promise of significant long-term job creation throughout the Commonwealth. The Center’s capital investments are designed to ensure that more institutions and regions of the state benefit from this job-creating engine by having the necessary infrastructure to be “life-sciences ready.” The Center’s investments in infrastructure are funded through our capital fund, which received \$34 million in bonding capacity in FY 11 as part of the state’s overall capital plan. Our capital project grants are available to municipalities and academic, research or other non-profit institutions. Grants from the Center support the creation of the cutting edge infrastructure needed for scientific advancement, but also basic infrastructure upgrades that often are needed for biomanufacturing and company expansion.



The Center’s Board of Directors approved one new infrastructure project in FY 11 -- a \$2 million capital grant to support the establishment of a joint Center for Personalized Cancer Therapy (CPCT) on the UMass Boston campus. The CPCT is a joint program of the University of Massachusetts Boston (UMass Boston) and Dana-Farber/Harvard Cancer Center (DF/HCC). The CPCT institutional partners share a determination to reduce cancer disparities and have been working together for more than five years on joint research, training and community outreach activities targeted

*A topping off ceremony was held for the Sherman Center for Advanced Therapeutics at the University of Massachusetts Medical School in Worcester in June, 2011*

at addressing cancer disparities among low-income, non-majority, and other inadequately served, diverse populations. The Life Sciences Center grant will supplement \$18 million in previously committed federal grant funding for the project.

The Center also launched its first competitive solicitation for infrastructure projects – the MLSC Capital Project Matching Grant Program. Up to \$25 million will be allocated from FY 13 – FY 15 Capital Program funds for the Capital Project Matching Grant Program, with awards to be made later this year. The Center received twenty-two (22) applications for infrastructure projects around the state, including some from municipalities. The solicitation process is shown below.

## FY '11 MLSC Capital Matching Grant Program

### Two-phased Approach:

- **Phase I: Canvass LS Community for Prospective Capital Projects**
  - MLSC conducted outreach to create awareness and solicit ideas
  - Interested project sponsors submitted 2-pp project summaries using MLSC template
- **Phase II: Competitive Solicitation and Award**
  - Short-listed project sponsors have been invited to submit fully developed proposals
  - Board approval at December meeting

Awards will be made in *calendar year 2011*;  
Projects will start in Q1 of *fiscal year 2013*

To date, the Center has committed \$131 million to six capital projects, which are projected to create more than 4,000 jobs in the building trades and more than 1,000 permanent jobs in the life sciences. The Center’s infrastructure investments have contributed to the creation of more than one million square feet of new life sciences research and manufacturing space across the Commonwealth.

## Making Massachusetts “Life Sciences Ready” Investments in Infrastructure

- **The Center has committed \$131M to six capital projects**

Project and Year of Award	Status at End of FY '11
<b>FY '09</b>	
Framingham Wastewater and Pumping Station - \$14.3 million	✓ <i>Phase 1 completed / Phase 2 near completion</i> ✓ <i>Genzyme construction complete – building undergoing regulatory review</i>
MBL in Woods Hole - \$10 million	✓ <i>Ribbon cut on new facility July 23, 2010</i>
Tufts/Cummings School of Veterinary Medicine, NE Regional Biosafety Lab Grafton- \$9.5 million	✓ <i>Project completed in FY '10</i>
<b>FY '10</b>	
Albert Sherman Center at UMass Medical School - \$90 million	✓ <i>Topping off ceremony held June, 2011</i>
Worcester Polytechnic Institute/Gateway Park - \$5.15 million	✓ <i>Construction has commenced</i>
<b>FY '11</b>	
UMass Boston/Dana Farber Center for Personalized Cancer Therapy - \$2 million	✓ <i>Construction to begin in FY '12</i>

## Accelerating the Growth of Early-Stage Companies:

**In FY 11 the Center committed accelerator loans to four (4) early stage companies totaling \$3M.** The Center's Accelerator Loan Program is designed to provide working capital to early-stage life sciences companies at a critical stage in their development. The program seeks to de-risk these companies for future investors (usually private) by funding their achievement of critical milestones. These companies may hold the promise of becoming the next Genzyme or Vertex.

In FY 11, the Center received thirty-seven (37) eligible Accelerator Loan applications. The Center's peer reviewers recommended twenty-one (21) of these applicants for review by the Center's Scientific Advisory Board. Four (4) companies were recommended by the Investment Subcommittee of the Center's Board of Directors, approved by the Board, and were designated by the Center as certified life sciences companies as required by the Life Sciences Act (for a complete listing of certified companies to date, see Appendix C).

## Accelerator Program – FY '11 Loans

Company	Location	Area of Development	Loan Amount
AesRx, Inc.	Newton	Developing drugs for the treatment of sickle cell disease	\$750,000
Grove Instruments	Worcester	Developing painless, non-invasive technology that accurately measures blood sugar at the point of care	\$750,000
MoMelan Technologies	Cambridge	Developing a point-of-care compact desktop device for epidermal skin grafting	\$750,000
Myomo, Inc.	Cambridge	Developing robotic technology to help people move again after a neuro-muscular impairment	\$750,000

**Since inception, a total of \$8.1M of accelerator loans have been funded or committed to by the Center under the program as of June 30, 2011**



*Good Start Genetics was the first company to repay an Accelerator loan from the Center*

**The young companies in the Center's Accelerator Loan Program are making progress.** Good Start Genetics, a 2009 Accelerator loan awardee, repaid its loan in full with interest in September 2010 after raising \$18 million in Series A financing. InVivo Therapeutics, another 2009 Accelerator loan awardee, repaid its loan in full with interest in October 2010 after raising \$13 million in private financing.



## Case Study: Good Start Genetics

- Good Start Genetics, a minority-founded company, received a \$500,000 Accelerator Loan from the Center in 2009.
- Good Start was the first company to repay their accelerator loan, with interest after raising \$18 million in private financing in 2010.
- The company recently leased a 15,000-square-foot facility in Cambridge, moving from incubator space at the BU Photonics Center.
- Good Start now has 23 employees, with plans to increase to 35 by the middle of next year.
- The company plans to launch its pre-pregnancy screening service for genetic diseases in the fourth quarter of this year.



### Support for Small Businesses:

**In FY 11 the Center awarded \$2 million in Small Business Matching Grants (SBMG) to four (4) life sciences companies in Massachusetts.** The SBMG Program builds on federal investments that have been made in Massachusetts companies through grants from the National Institutes of Health (NIH), the National Science Foundation (NSF) and the Department of Defense (DOD). One of the goals of the program includes the creation of jobs in Massachusetts based on the commercialization of products with high potential for market adoption and penetration. The SBMG program has generated interest by the federal Small Business Administration (SBA) and the Small Business Innovation Research (SBIR) program team at the National Institutes of Health (NIH) because it provides leverage on federal investments in new technologies being developed and commercialized by small companies.

During FY 11 a total of thirty-two (32) small businesses applied for the SBMG Program. The four (4) recipients were chosen to receive grants of \$500,000 after extensive review by the Center's peer review panel, Scientific Advisory Board and Board of Directors. Per statute, companies receiving an SBMG award are not required to be certified.

## Small Business Matching Grants – FY 11

Company	Location	Area of Development	Amount Awarded
Advantagene, Inc.	Newton	Biopharmaceutical company focused on the development of a novel biologic immunotherapy to fight the recurrence of cancer.	\$500,000
Hepregen, Inc.	Medford	Developing and commercializing HepatoPac, for use in drug discovery and development.	\$500,000
Immunitics, Inc.	Boston	Focused on development, manufacture and distribution of tests for infectious disease and pathogens, including for clinical diagnostic and blood screen applicants.	\$500,000
Reflectance Medical, Inc.	Westborough	A noninvasive physiologic sensor company that enables physicians, healthcare professionals, first responders, medics, patients, other care givers and consumers to quickly assess a patient's/user's metabolic status.	\$500,000

Since inception, the Center has awarded \$3.5 million to seven (7) companies through this program as of June 30, 2011.

### Incubating the Companies of the Future:

In October 2010 the Center awarded a \$50,000 grant to support the opening of the new Biotech InnoVenture Center (BIVC) at 100 Cummings Center in Beverly. In March 2011, BIVC moved into 4,500 square feet of newly built-out space that provides shared lab facilities and that has allowed the incubator to double the number of companies housed there from four to eight. In order to stimulate growth at BIVC, the Cummings Center is offering the space rent free for the first year.

North Shore InnoVentures (NSIV), which operates the BIVC, received a \$211,500 grant from the U.S. Economic Development Administration (EDA) in August 2011 to support the expansion of its startup entrepreneur mentoring program and the operations of its two incubators focused on biotechnology and clean energy. Recently NSIV also received a \$75,000 grant from the Massachusetts Department of Workforce Development.

The Center also supported entrepreneurship by co-sponsoring two (2) important business plan competitions in FY 11: a \$100,000 contribution to MassChallenge, and a \$10,000 contribution to the MIT \$100K Entrepreneurship Competition.

## From Bench to Bedside:

The promise offered by innovation begins with “discovery,” usually in an academic setting. Thus, the Center’s key objectives include preserving the strong competitive position of Massachusetts’ academic institutions and medical centers, supporting translational research in the life sciences, and accelerating the transfer of technology out of academic settings. To accomplish these objectives, the Center has created three matching grant programs: New Investigator Research Grants, New Faculty Startup Grants and Cooperative Research Matching Grants.

The New Investigator Grant is designed to spur innovative research and advance the careers of new investigators working in the life sciences at research institutions in the Commonwealth. The New Faculty Startup Grant was designed to increase the number of nationally prominent faculty working in the life sciences at Massachusetts colleges and universities. The Cooperative Research Grant is designed to encourage industry-sponsored research at research institutions and facilitate the commercialization of scientific discoveries and inventions with beneficial medical applications.

**During FY 11 the Center’s Board of Directors approved funding for two (2) Cooperative Research Matching Grants in a total amount of \$1 million.**

Since 2009, eight (8) industry-academic collaborative projects have been funded through this program, for a total of \$4.78 million in grant funding, matched dollar-for-dollar by industry sponsors.

## Cooperative Research Matching Grants – FY 11

Research Partners	Award Recipient	Award	Research
MGH/Philips Healthcare	Dr. Qianqian Fang	\$250,000 per year for two years	Combined optical and mammographic imaging device
UMass Medical School/RXi Pharmaceuticals	Dr. Robert Brown	\$250,000 per year for two years	ALS treatment using “selfdelivering rxRNA”

The case study below provides an illustrative example of the impact of these cooperative research partnerships and the importance of having the Center fund them.

## Case Study: Ipsen Biomeasure

**A \$750,000 Cooperative Research Matching Grant was awarded to Brigham & Women's Hospital (matched 1:1 by Ipsen/Biomeasure) in 2008 to develop a novel therapy for osteoarthritis utilizing the HB-IGF-1 Protein.**

### ■ 2009

- Protein production process was developed
- Protein structures were optimized

### ■ 2010

- Highly purified proteins were produced at Ipsen
- *In vitro*, *ex vivo* and *in vivo* testing was conducted at Ipsen and B&WH

### ■ 2011

- Lead proteins were identified
- Large-scale protein production was established
- Evaluation of lead proteins in osteoarthritis animal model is ongoing



## Developing the Next Generation of Life Sciences Leaders

**FY 11 was a banner year for the Center's Internship Challenge Program with over 1,300 applicants. The summer 2011 program placed 223 interns at 129 host companies, a substantial increase from last year's total of 170 interns placed at 94 companies. Students in the 2011 program represent a total of 64 colleges and universities with the majority of majors being engineering and biology.**

For many diseases that challenge us today, the promise of cures will be in the hands of future generations of scientists, engineers, and entrepreneurs. Chief among the Center's priorities is to invest in programs that strengthen our state's pipeline of workers who are entering "STEM" careers. The Internship Challenge is a workforce development program focused on enhancing the talent pipeline for life sciences companies in Massachusetts while providing interns 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 provides paid internships to sophomores, juniors and seniors, community college students, graduate students and recent college graduates.

Nearly all of the interns selected for the Internship Challenge were hired for a 12-week work period, with a maximum reimbursement from the Center of \$15 per hour up to \$7,200. Host companies commit to providing a dedicated mentor and a meaningful internship opportunity related to the academic focus of eligible students. The Center established a web-based interface where students post resumes and host companies can match skills with their needs. Host companies contacted and interviewed candidates, selected interns for their programs, and notified the Center of their desire to provide an internship to a qualified student.

Objectives of the Life Sciences Internship Challenge include expanding the pool of prospective employees who have practical experience, enhancing opportunities for mentoring, enabling more students to explore career opportunities despite the challenging economic environment, and providing to students interested in working in the life sciences a peer network through educational and informational exchange events. Because the Center's interns usually work in smaller and younger companies, they also receive exposure to the dynamic environment of entrepreneurship.

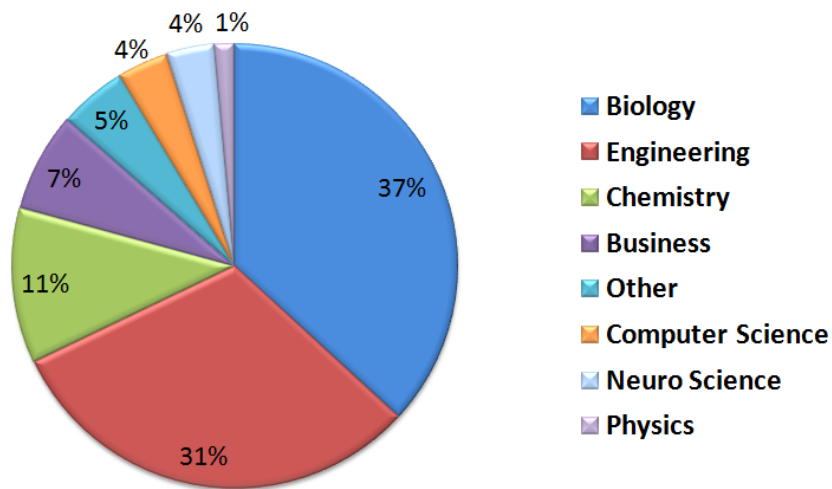
The Life Sciences Internship Challenge Program is also a human capital subsidy program for small and early-stage companies. The Center only reimburses student stipends for companies with 100 or fewer employees. Life sciences companies with more than 100 employees and research institutions are able to recruit students from the Center's database, but are not provided reimbursement for the interns that they hire. Companies hosting interns represent a broad spectrum of the life sciences industry, including pharmaceuticals, medical devices, biotechnology and contract research organizations.

Over the three-year life of the program 497 interns have been placed at 186 companies across the state, and 54 of the interns that participated in 2009 and 2010 have reported that they were offered employment directly following their internship.

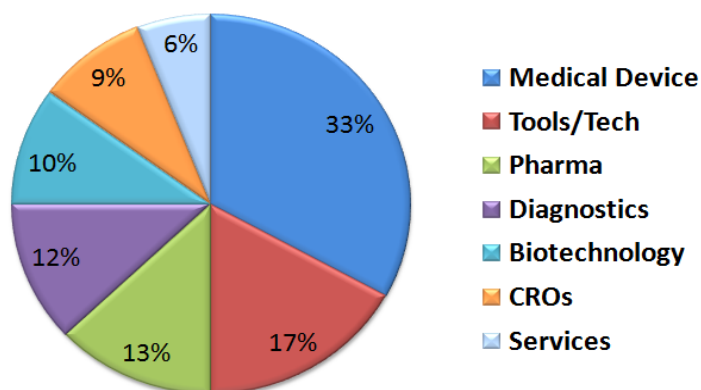
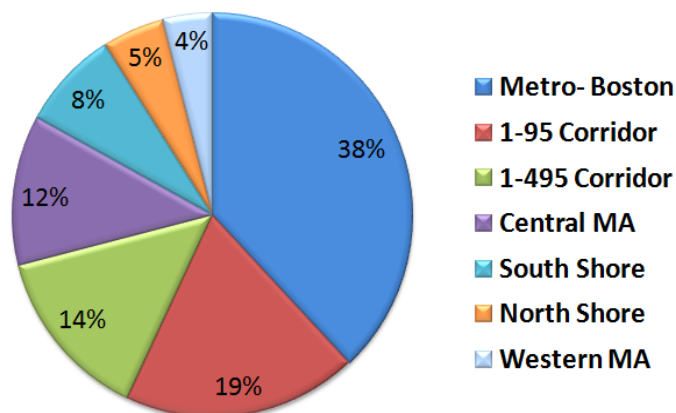
Based on the success of the program to date, the Center's Board of Directors has authorized the expansion of the Internship Challenge. The formerly summer-only program will now be available to students and companies year-round, starting in the fall 2011 semester.

The broad inclusiveness of the Center's Internship Challenge Program is illustrated by the data on participating interns and sponsor companies:

### Academic Majors of Participating Interns



## Distribution of Intern Sponsors (Companies) by Geography and Industry Sub-sector



## College and # Participating Interns

Amherst College (1)	Northeastern University (11)
Assumption College (1)	Northwestern University (2)
Bentley University (1)	Occidental College (1)
Babson College (4)	Princeton University (1)
Boston College (3)	Quinsigamond Community College (2)
Boston University (20)	Regis College (1)
Brandeis University (3)	Salem State University (1)
Bridgewater State University (2)	Simmons College (2)
Brown University (1)	Smith College (3)
Carnegie Mellon University (1)	Springfield Technical Community College (1)
Cornell University (1)	State University of New York at Albany (1)
College of the Holy Cross (1)	State University of New York, Upstate Medical University (1)
Dartmouth College, NH (1)	Syracuse University (1)
Davidson College, NC (1)	Trinity University (1)
Eckerd College, FL (1)	Tufts University (13)
Franklin W. Olin College of Engineering (1)	University of Connecticut (3)
Franklin Pierce University (1)	University of Delaware (1)

Harvard University (2)	University of Maine (1)
Indiana University (1)	University of Massachusetts Amherst (22)
Ithaca College (1)	University of Massachusetts Boston (3)
ITT Technical Institute (1)	University of Massachusetts Dartmouth (9)
Johns Hopkins University (2)	University of Massachusetts Lowell (16)
Lafayette College (1)	University of Michigan (1)
Lasell College (1)	University of New Hampshire (1)
Massachusetts Bay Community College (6)	University of Pennsylvania (2)
Massachusetts Institute of Technology (16)	University of Rhode Island (1)
Massachusetts Maritime Academy (1)	University of Virginia (1)
McGill University (1)	Virginia Polytechnic Institute and State University (1)
Merrimack College (1)	Washington University (1)
Miami University (1)	Wellesley College (2)
Middlesex Community College (2)	Wentworth Institute of Technology (2)
Mount Holyoke College (2)	Worcester Polytechnic Institute (29)
Mount Wachusett Community College (2)	

### Participating Intern Sponsors (Companies) and # Interns

5G Medical, LLC. (2)	North Andover
A Chemtek, Inc. (2)	Worcester
Abazyme, LLC (2)	Cambridge
AbPro Labs (1)	Cambridge
Actualiti, LLC (1)	Cambridge
AdvanDx (2)	Woburn
Advantagene, Inc. (2)	Auburndale
Agilux Laboratories (2)	Worcester
Agrivida, Inc. (2)	Medford
Albright Technologies (2)	Leominster
Alzheimers Disease Center (2)	Quincy
Antigen Targeting & Consulting Services, Inc. (1)	Worcester
Aphios Corporation (2)	Woburn
Arsenal Medical (2)	Watertown
Atanse, Inc. (1)	Belmont
Atlantic Lab Equipment, LLC (1)	Salem
Aushon BioSystems (2)	Billerica
Auxocell Laboratories, Inc.(1)	Boston
Avaxia Biologics, Inc. (1)	Wayland
Averica Discovery Services, Inc. (2)	Worcester
Bach Pharma, Inc. (2)	North Andover
BIND Biosciences (1)	Cambridge

Bio2 Technologies (2)	Woburn
Biomedical Research Models, Inc. (3)	Worcester
BioScale, Inc. (1)	Lexington
BioSensics, LLC (3)	Cambridge
BioSurfaces, Inc. (2)	Ashland
BioTechnic Products, Ltd (3)	Worcester
Blue Sky Biotech (2)	Worcester
Blue Stream Laboratories, Inc (1)	Cambridge
Boston Biomedical Associates (2)	Northboro
Boston MedTech Advisors (1)	Dedham
Boston Open Labs (2)	Fall River
Cambridge Biomedical, Inc. (1)	Boston
Cambridge Polymer Group, Inc. (1)	Boston
CBT Advisors (2)	Cambridge
Cellay, Inc. (2)	Cambridge
CellMosaic, LLC (1)	Worcester
Cephos Corp. (1)	Pepperell
CeQur Corporation (1)	Marlborough
Clover Medical, LLC (1)	Dover
CMB Science, Inc. (2)	Lowell
Concert Medical, LLC. (1)	Norwell
Constellation Pharmaceuticals (2)	Cambridge
Court Square Group, Inc. (1)	Springfield
Daktari Diagnostics, Inc. (2)	Cambridge
Dentovations, Inc. (1)	Boston
Differential Proteomics, Inc. (3)	Natick
Digilab, Inc. (1)	Holliston
DNA Medicine Institute (3)	Cambridge
DocBox, Inc. (2)	Waltham
ECI Biotech (4)	Worcester
Edimer Pharmaceuticals, Inc (2)	Cambridge
Ekam Imaging, Inc. (1)	Shrewsbury
EndoDynamix, Inc. (2)	Salem
Energesis Pharmaceuticals, Inc. (1)	Cambridge
EpigenDx, Inc. (1)	Worcester
Essential Life Solutions Ltd (1)	Stoughton
Eutropics Pharmaceuticals (1)	Cambridge
Excellims Corporation (3)	Acton



Eyegate Pharmaceuticals, Inc. (1)	Waltham
Firefly Bioworks, Inc. (2)	Cambridge
Five Star Manufacturing, Inc. (2)	New Bedford
Five Star Surgical, Inc. (2)	New Bedford
Flow Forward Medical, LLC (1)	Lowell
G&F Medical, Inc. (1)	Danvers
GI Dynamics, Inc. (2)	Lexington
Ginkgo BioWorks, Inc. (2)	Boston
Glycosyn, Inc. (1)	Medford
Grove Instruments, Inc (2)	Worcester
Harvard Apparatus (1)	Holliston
HydroCision, Inc. (3)	North Billerica
Imgen BioSciences, Inc. (2)	Fall River
Immunetics, Inc (1)	Boston
inviCRO (2)	Boston
InVivo Therapeutics Corporation (1)	Cambridge
IonSense (1)	Saugus
iQuartic, Inc (2)	Cambridge
IQuum, Inc. (1)	Marlboro
JEF Core, Inc. (3)	Weston
Lantos Technologies, Inc (1)	Cambridge
Ligon Discovery (3)	Cambridge
Massachusetts Medical Devices Journal, LLC (1)	Boston
Maxiom Consulting Group, Inc. (2)	Waltham
MC10, Inc. (1)	Somerville
Metis Manufacturing, LLC (1)	Beverly
Microbiotix, Inc. (2)	Worcester
Microtest Laboratories, Inc. (1)	Agawam
MSM Protein Technologies (2)	Medford
Myomo, Inc. (2)	Cambridge
New England Peptide, LLC (3)	Gardner
NKT Therapeutics, Inc. (1)	Waltham
NovoBiotic Pharmaceuticals, LLC (2)	Cambridge
NuOrtho Surgical, Inc. (1)	Fall River
On Demand Therapeutics, Inc. (2)	Tyngsborough
One Cell Systems, Inc. (2)	Cambridge
Oxford Immunotec, Inc. (2)	Marlborough
Paper Diagnostics (2)	Boston

PharmaHealth Clinical Research Services (2)	Fairhaven
Phosphorex, Inc. (2)	Fall River
Phylonix Pharmaceuticals, Inc. (1)	Cambridge
pION, INC (1)	Woburn
Pluromed, Inc (1)	Woburn
Pressure BioSciences, Inc. (2)	South Easton
QTEROS, Inc. (2)	Marlborough
Quanterix Corporation (2)	Cambridge
Ra Pharmaceuticals (2)	Cambridge
Respiratory Motion, Inc. (3)	Lexington
RXi Pharmaceuticals (1)	Worcester
Safe Food Scientific, LLC (1)	Boston
SemiNex Corporation (2)	Peabody
Sentien Biotechnologies, Inc. (2)	Medford
Seventh Sense Biosystems (3)	Cambridge
STC Biologics, Inc. (4)	Cambridge
T2 Biosystems, Inc. (1)	Lexington
TDC Medical, Inc. (1)	Marlborough
Tetraphase Pharmaceuticals, Inc. (2)	Watertown
Therapeutic Systems, LLC (2)	Amherst
TRA360 (1)	West Newton
Twin Lights Bioscience, Inc. (2)	Cambridge
Union Biometrica, Inc. (2)	Holliston
VasoTech, Inc. (2)	Lowell
Vista Scientific, LLC (1)	Andover
VivoPath, LLC (2)	Worcester
WaterSep Technology Corp. (1)	Marlborough
Welgen, Inc (1)	Worcester
Wolfe Laboratories, Inc. (4)	Watertown
WorldCare Clinical, LLC (2)	Boston
Xtal BioStructures, Inc. (2)	Natick

The Center conducts a survey of both interns and sponsors at the conclusion of the internship period. Feedback from the Internship Challenge participants themselves is the best evidence for the value and impact of this program.



### Feedback from the Participants in the Internship Challenge Program:

*“The MLSC-sponsored internship challenge has afforded me the invaluable experience to work at Edimer Pharmaceuticals, a small biopharmaceutical start-up with five full-time employees. This opportunity allowed me to thrive through regular contributions to several different projects and has introduced me to the intricacies of running a biopharmaceutical company. This experience has inspired me to pursue a career in the business sector of the biopharmaceutical industry.”* – **Renee McKell, Massachusetts Institute of Technology**

*“Diagnostics for All has greatly enjoyed participating in the Internship Challenge program. We have two interns working with us this summer, one from Massachusetts Institute of Technology and one from Worcester Polytechnic Institute. The interns bring enthusiasm and a fresh perspective to our research projects, and they have readily become valuable, contributing members of our team. We're grateful that the Massachusetts Life Sciences Center supports such a valuable program.”* – **Diagnostics for All, Cambridge**

*“The Internship Challenge Program has given me an excellent opportunity to work with the most welcoming, knowledgeable, and team-orientated group of scientists. I feel that I have been given a chance to be part of something bigger than myself and I appreciate every minute of it.”* – **Crystal Smith, Bridgewater State University**

*“We have been participating in the MLSC Internship program since last year, and both years we have been extremely pleased with the enthusiastic and motivated interns we were able to bring into our company. The program has opened a great opportunity for us to offer the interns some practical scientific experience while they make some significant contributions to our programs. I am very happy the program is achieving its goal to develop the Life Science resources of Massachusetts with these internship opportunities for our future scientists.”* – **VivoPath, LLC, Worcester**

*“Before interning at CBT Advisors in Cambridge, I had no business experience. After only the first two weeks, I felt like I had such a better grasp on how biotech companies operate and was able to integrate my science background with what I was learning about running a business. I am constantly learning new angles of the biotech industry and how these companies evolve, how they interact with each other, and how they are financed”* – **Stella Barth, Harvard University**

## Equipment and Supplies Matching Grant Program for Skills Training and Education

The Center awarded grants totaling more than \$3.4 million to thirty-two (32) vocational technical schools, community colleges and workforce training organizations to support their STEM education programs, as part of a new Equipment and Supplies Program that the Center launched in FY 11.

The life sciences Supercluster offers the promise of job creation for workers at all skill levels. Medical device companies, for example, rely heavily on mid-skilled workers and actively recruit staff from community colleges and vocational technical schools. The Equipment and Supplies Program provides funding for the purchase of equipment that enables vocational technical schools, community colleges and workforce training organizations in Massachusetts to prepare workers with the skills that employers need. To be eligible for an award of greater than \$100,000, applicants must have secured matching funds or in-kind donations from an industry partner that supports the training program for which the equipment and supplies are needed.



*Banafsheh Salamat, head of the Science Department at Lynn Vocational Technical Institute, after receiving a shipment of lab equipment and supplies from Vertex Pharmaceuticals. Vertex matched with an in-kind contribution the Center's Equipment and Supply Grant for LVTI. The Center awarded LVTI a grant of \$202,434 in February, 2011 through the new Equipment and Supplies Program for Skills Training and Education.*

The 32 grant recipients in FY 11 represented cities and towns all across the state:

School/Organization (Industry Sponsor)	City/Town	Award
Assabet Valley Regional Vocational	Marlborough	\$67,116
Berkshire Community College (Nuclea Biotechnologies)	Pittsfield	\$168,874
Blackstone Valley Regional Vocational Tech. (Dick Burnham Technical Sales)	Upton	\$120,000
Bristol Community College	Fall River	\$99,997
Bristol County Agricultural School	Dighton	\$80,110
Bristol Plymouth Regional Technical School Dist.	Taunton	\$100,000
BU CityLab Academy	Boston	\$81,720
Greater Lawrence Regional Vocational Tech.	Andover	\$99,990
Greater New Bedford Regional Vocational Tech.	New Bedford	\$99,994
Just-A-Start	Cambridge	\$53,746
Lynn Vocational Technical Institute (Vertex)	Lynn	\$202,434
Massasoit Community College	Brockton	\$99,947
MassBay Community College	Wellesley	\$100,000
MassBioEd Foundation (MassBio)	Cambridge	\$147,834
Middlesex Community College	Lowell	\$95,617
Minuteman Career and Technical High School	Lexington	\$100,000
Mt. Wachusett Comm. College (Bristol-Myers Squibb)	Devens	\$100,000
Norfolk Country Agricultural High School (MGH)	Walpole	\$163,975

Northern Berkshire Reg. Vocational	North Adams	\$97,300
North Shore Community College	Danvers/Lynn	\$93,362
North Shore Regional Vocational School District	Middleton	\$70,000
Old Colony Regional Vocational Technical High School	Rochester	\$99,479
Pittsfield Vocational Technical	Pittsfield	\$100,000
Quincy College	Quincy	\$45,017
Roxbury Community College (Merck)	Roxbury	\$250,000
Shawsheen Valley Regional Technical	Billerica	\$100,000
Smith Vocational & Agricultural School	Northampton	\$30,000
Springfield Technical Community College (Microtest)	Springfield	\$136,985
Upper Cape Cod Regional Technical High School	Bourne	\$26,832
Westfield Vocational Technical High School	Westfield	\$100,000
Worcester Vocational Technical High School	Worcester	\$85,829
WPI (2-year degree/certificate program) (Pall Corp.)	Worcester	\$250,000

## Supporting STEM Education

**The Center awarded grants totaling \$60,000 to four (4) STEM-related programs during FY 11.** The Center awarded four grants of \$15,000 each to programs that broaden young people’s knowledge of career opportunities in the life sciences and provide professional development for their teachers. The grants build upon the Patrick/Murray Administration’s strategy for enhancing STEM (Science, Technology, Engineering, and Math) educational opportunities across Massachusetts. Susan Windham-Bannister, President & CEO of the Massachusetts Life Sciences Center, serves on the Governor’s STEM Council.

The four organizations that received grants focus on different strategies for enhancing STEM education:

- **The DIGITS Project** places STEM professionals in sixth grade classrooms to increase student interest in math and science throughout the Commonwealth. The goal is to have children understand the importance of math and science and the positive impact those subjects can have on students’ careers and futures.
- **Citizen Schools** partners with middle schools to “*expand the learning day*” for low income children throughout Massachusetts. Citizens Schools incorporates college career connections, academic support, and apprenticeships which enable students to work with volunteers who bring work experience to life.
- **Science Club for Girls** was created for girls K-12 who belong to groups underrepresented in the sciences field. Girls work with a mentor in a free after-school science club that specializes in STEM education. The mentors create fun science activities that model and foster leadership goals to encourage the pursuit of higher education.
- **Leadership Initiative for Teaching and Technology (LIFT<sup>2</sup>)** offers middle and high school teachers professional learning programs that integrate math, science, and technology research into graduate coursework with authentic and relevant internships in life sciences companies throughout Massachusetts.

The Center will be looking for additional opportunities to expand access to STEM education in the year ahead.

## Investing in Industry and Job Creation -- The Life Sciences Tax Incentive Program:

In FY 11 the Center provided \$20.9 million in tax incentives to twenty-four (24) life sciences companies under the Center's 2010 Life Sciences Tax Incentive Program. The companies receiving tax incentive awards have committed to creating more than 850 new jobs in the Commonwealth during calendar year 2011.

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 the retention of those jobs for a five year period.



*Lieutenant Governor Timothy Murray, Representative Charles Murphy, Susan Windham-Bannister and MassMEDIC President Tom Sommer join leaders from InfraRedX to officially open the Burlington-based company's clean manufacturing space. The expansion was funded in part through tax incentives awarded by the Center in 2009 and 2010.*

The 2010 round of the program featured nine different incentives, which address the significant capital expenditures associated with the life sciences R&D cycle and the high costs of translating research into commercially viable products. A total of fifty-six (56) companies applied for tax incentives in 2010. The twenty-four (24) certified life sciences companies that received tax incentives from the Center, the awards they received, and the jobs they committed to creating are below:

### Companies Awarded FY 11 Life Sciences Tax Incentives

Company	Job creation commitment	Incentive award
Aileron Therapeutics, Inc. (Cambridge)	20	\$538,705
BIND Biosciences, Inc. (Cambridge)	10	\$269,353
Bluebird Bio (Cambridge)	10	\$269,353
Caliper Life Sciences, Inc. (Hopkinton)	11	\$270,000
Foundation Medicine, Inc. (Cambridge)	40	\$78,777
HighRes Biosolutions (Woburn)	10	\$125,000
InfraRedX, Inc. (Burlington)	32	\$861,928
Instrumentation Laboratory (Bedford)	30	\$808,058

Ironwood Pharmaceuticals (Cambridge)	37	\$996,605
LeMaitre Vascular, Inc. (Burlington)	19	\$115,000
Lightlab Imaging, Inc. (Westford)	14	\$75,148
Merrimack Pharmaceuticals, Inc. (Cambridge)	50	\$1,346,763
NormOxys, Inc. (Wellesley)	10	\$144,378
Nova Biomedical Corp. (Waltham)	10	\$55,000
NuOrtho Surgical, Inc. (Fall River)	25	\$573,000
NX Stage Medical, Inc. (Lawrence)	50	\$1,346,763
OPK Biotech (Cambridge)	52	\$110,000
Organogenesis, Inc. (Canton)	17	\$457,899
Sanofi-Aventis US, Inc. (Cambridge)	100	\$2,450,000
Shire HGT, Inc. (Lexington)	150	\$5,855,368
Still Rivers Systems, Inc. (Littleton)	11	\$296,288
Sunovion, Inc. (Marlborough)	35	\$942,734
Valeritas, Inc. (Shrewsbury)	18	\$480,000
Vertex Pharmaceuticals (Cambridge)	90	\$2,242,173

The Center takes its stewardship of these resources seriously and has built in strong accountability measures to ensure that the program has “teeth.” The Center is carefully monitoring the performance of companies that have received tax incentives to ensure compliance with the tax incentive agreements they are required to execute with the Center. Under those agreements, recipients of tax incentives from the program’s first round in 2009 were required to report job creation results to the Center by the end of 2010. Under the Life Sciences Act, the Department of Revenue has the authority to recover or “claw back” incentives from companies that the Center determines will not meet the minimum job creation threshold in their tax incentive agreement.

Twenty-six (26) companies were authorized by the Life Sciences Center to receive tax incentives totaling \$24.5 million in 2009. Eight (8) of these companies 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. The eighteen (18) remaining companies that claimed their awards for 2009 received a total of \$16.1 million in tax incentives and had collectively committed to create 535 jobs by the end of calendar year 2010. The actual aggregate net new job creation among these eighteen (18) companies was 642 jobs (120% of the job creation commitment).

Of the eighteen (18) companies that were provided awards for the 2009 round of the program, twelve (12) reached or exceeded their full job creation commitment by December 31, 2010. Five (5) companies (of those 18) did not achieve at least 70% of their job creation commitment. One (1) company did not achieve its full job creation commitment, but did exceed the 70% minimum statutory threshold. As required by statute, the Center investigated the five (5) companies that did not achieve 70% of the job creation targets to which they had committed. After the completion of these investigations, the Center decided

to defer revoking the certification of four (4) of these companies based on the likelihood that they would meet their minimum job creation threshold by the end of the second year (see report on deferments of revocation that is posted on the Center's web site, [www.masslifesciences.com/taxincentive.html](http://www.masslifesciences.com/taxincentive.html)).

The fifth company, Facet Solutions, Inc, ceased daily operations in 2011. The Center is working with the Department of Revenue to determine if any recovery of Facet's award is possible.

## Case Study: Vertex Pharmaceuticals

- Vertex Pharmaceuticals received \$2,242,173 in tax incentives from the Center in 2010, with a commitment of creating 90 new jobs, part of the company's plan to add 500 new jobs over the next several years.
- The company's 1.1 million square foot global headquarters being built at Fan Pier is the largest private construction project going on anywhere in the country. The project is projected to create more than 1,000 construction jobs.
- Vertex received approval this year from the FDA to start marketing Incivek as a groundbreaking new treatment for patients in the U.S. with hepatitis C.



### Attracting Companies to Massachusetts:

For companies around the globe, Massachusetts holds the promise of cutting edge research, a superior workforce, a vibrant investment community and a supportive environment for growth. The Center continues to welcome new companies to the state and supports their integration into our life sciences community. We helped organize grand openings and press announcements for several new or expanding life sciences companies in Massachusetts, including global companies such as Pfizer, which announced the opening of their new Center for Therapeutic Innovation (CTI) in Boston, along with plans to relocate two divisions to Massachusetts from Groton, Connecticut, bringing approximately 400 new jobs to Massachusetts. Israel-based EarlySense announced plans to locate their US headquarters in Waltham, Massachusetts, a direct return on investment for the Governor's trade mission to Israel, in which the Center participated. Other recent arrivals include France-based Integragen, and UK-based Evaluate Pharma, which opened their US headquarters in Cambridge and Boston respectively. In addition, UK-based Sagentia announced a significant



expansion in Cambridge, including the designation of Cambridge as their US headquarters. These companies continue to cite the Life Sciences Initiative, along with our talented workforce, world-class academic institutions and industry-leading companies, as their reasons for locating in Massachusetts. The Center is continuing to engage international companies in conversations regarding investing and locating in Massachusetts.

## Attracting and Retaining Companies

Management teams acknowledge the importance of the Life Sciences Initiative to their decisions to grow their companies and invest in the state.



Italian amniotic stem cell company Biocell Center opens its North American Headquarters in Medford, Massachusetts.



## International Partnerships:

Recognizing the importance of global partnering to Massachusetts' life sciences leadership, in FY 11 the Center built strong new relationships with companies and governments around the world. In addition to the trade mission to Israel, Center staff participated in visits to the United Kingdom and Finland, with solid returns for the Commonwealth. These relationships enable us to effectively market Massachusetts to a global audience. Already, the Center has provided a loan and funding through the Internship Challenge to Myomo, Inc., a company that applied for support after learning of the Center's competitive programs from Invest NI (Northern Ireland). In addition, several formal partnerships were announced over the past year that resulted directly from the trade missions, and life sciences companies from both Israel and the UK have since announced plans to locate or expand in Massachusetts.

At the 2011 BIO International Convention (see below for more about BIO), Governor Deval Patrick was joined by Israel's Office of the Chief Scientist (OCS), the U.S.-Israel Science and Technology Foundation (USISTF), and three Massachusetts economic development agencies, including the Center, to announce a formal collaboration between the State of Israel and the Commonwealth of Massachusetts to encourage and support innovation and entrepreneurship between Massachusetts' and Israel's life sciences, clean energy and technology sectors. This partnership, known as the Massachusetts-Israel Innovation Partnership ("MIIP"), launched in September 2011 with the issuance of a joint solicitation for Industrial Research and Development (R&D) collaborations between Massachusetts and Israeli companies.

The Industrial R&D collaborations are being funded by three participating Massachusetts agencies, the Massachusetts Life Sciences Center, the Massachusetts Technology Collaborative (MTC) and the Massachusetts Clean Energy Center (MassCEC). The three agencies are committing nearly \$1 million in collective funding, including \$300,000 from the Center, for Massachusetts companies that are engaged in cooperative industrial research and development projects with an identified Israeli partner company. The Israeli Office of the Chief Scientist will provide up to \$1 million in matching dollars for the corresponding Israeli partner companies. Massachusetts is the first U.S. state to enter into such an agreement with the State of Israel.

The Center also participated in the announcement at the 2011 BIO International Convention by Massachusetts Senate President Therese Murray of a strategic alliance that will focus on tissue engineering. An international contingent of higher education and economic development officials representing Northern Ireland, Finland and Massachusetts executed a Memorandum of Understanding to memorialize the alliance, which was witnessed by the Senate President and Susan Windham-Bannister. The alliance was initiated in discussions that took place during the Northern Ireland Massachusetts Connection (NIMAC) trade mission to Finland this past April led by Senate President Murray.

The strategic alliance will join the tissue engineering research efforts of the University of Massachusetts Dartmouth, University of Tampere (Finland), Tampere Institute of Biosciences and Medical Technology (Finland), VTT the Technical Research Center of Finland, University of Ulster (Northern Ireland) and Queens University of Belfast (Northern Ireland). The alliance allows the various institutions to develop international exchange and cooperative research projects that will include regenerative biology, biomaterials, tissue engineering, biomedical gels, and nanofibrous scaffolds. The agreement also lays the foundation to jointly pursue research funding from both U.S. and European funding sources as a way to advance research and discovery as well as move toward economic development opportunities.

## **Pursuing a Strategy for Biomanufacturing**

The Center's priorities include making investments that strengthen Massachusetts' ability to compete for biomanufacturing jobs. In April of 2010 the Center provided a \$50,000 grant to support a partnership between the Life Sciences Center and the Massachusetts Life Sciences Collaborative to launch and develop a formal Massachusetts Biomanufacturing Roundtable geared toward the development of a biomanufacturing initiative action plan during calendar year 2010. The mission of the Roundtable is to support and promote the retention and growth of biomanufacturing in Massachusetts by:

- Engaging companies that represent a broad spectrum of biomanufacturing; promoting innovation in biopharma manufacturing;
- Identifying gaps in the marketplace for particular aspects of manufacturing (contract analytical development, drug product manufacturing) where Massachusetts could compete; and
- Leveraging the resources in the region from industry, academia and the non-profit/public sectors to address priorities set by the roundtable.

The Roundtable is comprised of industry and academic biomanufacturing leaders and experts from across the state. It is co-chaired by Eleven Biotherapeutics, Inc. CEO Abbie Celniker, Acceleron Pharma Senior Vice President of Manufacturing Bob Steininger and former Pfizer Vice President Mickey Koplove. Current priority areas include biomanufacturing technology innovation, workforce development, and tax policy and business development. Since its inception, the Roundtable initiative has been led by the Massachusetts Life Sciences Collaborative within the Massachusetts Technology Collaborative (MTC). Given the strong

alignment between the missions of the Life Sciences Center and the Roundtable, the agencies agreed that it would be optimal for the formal leadership of the Roundtable to be transferred from the Collaborative to the Center. The Life Sciences Center took over operations of the Roundtable in June of 2011. Under the Center's new leadership role, one of the major goals will be to explore biomanufacturing-specific initiatives that the Center might fund to catalyze attraction, retention and development of biomanufacturing jobs across Massachusetts.

## Staying Connected:

The Center's communications program is designed to accomplish three objectives: 1) keep our stakeholders and the general public informed about the Center's investments of public dollars in order to facilitate engagement, 2) promote public accountability for the Center's progress in accomplishing our mission and 3) provide ongoing updates and information exchange with the life sciences community in order to encourage its involvement and input. Communication and outreach have been central to the Center's success in attracting a robust and diverse pool of applicants for Center programs during FY 11.

### Electronic Communications:

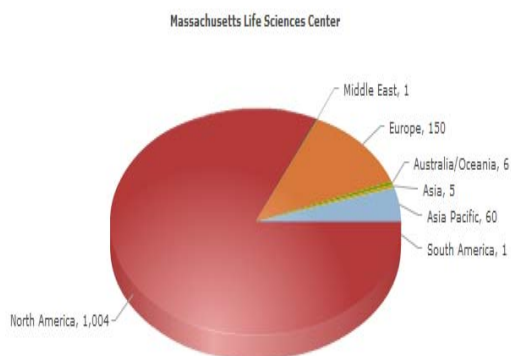
**Over the past year the Center's email list has grown from nearly 3,000 to over 3,900 contacts.** The Center's web site has been used as both a clearinghouse for information about the Center, and as a portal for applying to the Center's programs.

### Media Outreach:

**The Center had over 1,200 media mentions during FY 11.** Center activities were covered by publications across the nation and around the world. The chart below shows the distribution of the Center's media coverage during FY 11 by region. Periods of greater coverage tended to coincide with the announcement of new programs or investments.

## Geographic Distribution of MSLC Media Mentions (7/1/10-6/30/11)

### Staying Connected



- **The Center continued to be highly visible in FY '11:**
  - Over 1,200 media mentions
  - Participation in more than 60 events/conferences
  - Email list has grown from 3,000 to more than 3,900 recipients

**Public Appearances:**

**During FY 11, Center staff participated as presenters, speakers or panelists at more than 60 public events.**

**Massachusetts Took 2011 BIO International Convention by Storm:**

The 2011 BIO International Convention was a huge success for Massachusetts, both in advancing the Center's business development efforts, and in promoting attendance at next year's 2012 convention in Boston. The Massachusetts Pavilion experienced heavy traffic throughout the show. More than 30 business development meetings took place with international companies during our Global Connect sessions. The Massachusetts "Road to Revolution" Pavilion Reception, featuring Governor Deval Patrick, Mayor Thomas Menino and Senate President Therese Murray, was the best attended reception on the show floor, demonstrating that our global stakeholders continue to watch the Massachusetts Life Sciences initiative closely and with great interest.

**Conclusion:**

FY 11 was another year of strong results for the Life Sciences Center and the Massachusetts Life Sciences Act. The Center made enormous strides in fulfilling our mission and delivering on the promise of the Life Sciences Initiative to create jobs and advance good science. The year ahead will present major new opportunities for showcasing Massachusetts' leadership in the life sciences, with the two largest annual U.S.-based life sciences trade shows, BIO International and AdvaMed, being held in Boston in 2012.

The state budget calls for a Fiscal Year 2012 investment fund appropriation of \$10 million, contingent on the comptroller's declaration of a consolidated net surplus for FY 11. We are pleased with and appreciative of this vote of confidence by our legislature, under the leadership of the Senate President and Speaker of the House, and we look forward to delivering another productive and impactful year.

## Appendix A

### The Board of Directors of the Massachusetts Life Sciences Center as of June 30, 2011<sup>1</sup>

- **Gregory Bialecki, Co-Chair**  
Secretary, Executive Office of Housing and Economic Development
- **Jay Gonzalez, Co-Chair**  
Secretary, Executive Office for Administration and Finance
- **Jack Wilson, Ph.D.**  
President, University of Massachusetts
- **Abbie Celniker, Ph.D.**  
CEO, Eleven Biotherapeutics, Inc.
- **Josh Boger, Ph.D.**  
Founder & CEO (retired), Vertex Pharmaceuticals
- **Lydia Villa-Komaroff, Ph.D.**  
Board Member and Chief Scientific Officer, Cytonome/ST

### Massachusetts Life Sciences Center Scientific Advisory Board Members as of June 30, 2011

- **Harvey Lodish, Ph.D., Chair**  
Whitehead Institute, and Professor of Biology and of Bioengineering, MIT
- **James Barry, Ph.D.**  
Senior Vice President, Corporate Research and Advanced Technology Development, Boston Scientific Corporation
- **Gary Borisy, Ph.D.**  
Director and CEO, Marine Biological Laboratory
- **Doug Cole, M.D.**  
General Partner, Flagship Ventures
- **James J. Collins, Ph.D.**  
Professor of Biomedical Engineering, Boston University
- **George Q. Daley, M.D., Ph.D.**  
Children's Hospital Boston, Harvard Medical School, Harvard Stem Cell Institute
- **Jonathan Fleming, M.P.A.**  
Managing General Partner, Oxford Bioscience Partners
- **Rainer Fuchs, Ph.D.**  
Vice President, Executive Director, Biogen Idec Innovation Incubator
- **Jean M. George, M.B.A.**  
Partner, Advanced Technology Ventures
- **Lila Gierasch, Ph.D.**  
Professor, Biophysical Chemistry, Department of Biochemistry, University of Massachusetts Amherst

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<sup>1</sup> After June 30, 2011 incoming University of Massachusetts President Robert Caret assumed the seat that was vacated by outgoing UMass President Jack Wilson. In August of 2011 Governor Patrick appointed Dr. Edward Benz, President of the Dana-Farber Cancer Institute, to fill the seventh seat on the Board.

- **Richard A. Goldsby, Ph.D.**  
John Woodruff Simpson Lecturer and Professor of Biology, Amherst College
- **Jeffrey Leiden, M.D., Ph.D.**  
Managing Director, Clarus Ventures
- **Lita L. Nelsen**  
Director, Technology Licensing Office, Massachusetts Institute of Technology
- **Alan E. Smith, Ph.D.**  
Chief Scientific Officer, Genzyme Corp.
- **Allison Taunton-Rigby, Ph.D.**  
CEO and Director, RiboNovix, Inc.
- **David Walt, Ph.D.**  
Robinson Professor of Chemistry and Howard Hughes Medical Institute Professor at Tufts University School of Medicine
- **Philip Zamore, Ph.D.**  
Professor, Biochemistry and Molecular Pharmacology, UMass Medical School

**Appendix B – List of Active Certified Life Sciences Companies as of June 30, 2011**

<b>COMPANY</b>	<b>LOCATION</b>
4s3 Bioscience, Inc.	Medford
Aileron Therapeutics, Inc.	Cambridge
Alnylam Pharmaceuticals, Inc.	Cambridge
Aura Medsystems, Inc.	Duxbury
Avaxia Biologics, Inc.	Burlington
Bind Biosciences, Inc.	Cambridge
Biogen Idec MA, Inc.	Cambridge
Bluebird Bio, Inc.	Cambridge
Caliper Life Sciences, Inc.	Hopkinton
Constellation Pharmaceuticals, Inc.	Cambridge
Cubist Pharmaceuticals, Inc.	Lexington
Dyax Corporation	Cambridge
Eutropics Pharmaceuticals, Inc.	Dorchester
Facet Solutions, Inc.	Hopkinton
Foundation Medicine, Inc	Cambridge
Good Start Genetics, Inc.	Boston
HighRes Biosolutions, Inc.	Woburn
Hologic, Inc.	Marlborough
Infinity Pharmaceuticals, Inc.	Cambridge
InfraReDx, Inc.	Burlington
Instrumentation Laboratory Company	Bedford
InVivo Therapeutics, Inc.	Cambridge
Ironwood Pharmaceuticals, Inc	Cambridge
LeMaitre Vascular, Inc.	Burlington
Lightlab Imaging, Inc.	Westford
Merrimack Pharmaceuticals, Inc.	Cambridge
NormOxys, Inc.	Wellesley
Nova Biomedical Corporation	Waltham
NuOrtho Surgical, Inc.	Fall River
NxStage Medical, Inc.	Lawrence
OmniGuide, Inc.	Cambridge
OPK Biotech, LLC	Cambridge
Organogenesis, Inc.	Canton
Pluromed, Inc.	Woburn
Sanofi-Aventis, Inc.	Cambridge
Shire Human Genetic Therapies, Inc.	Lexington
STD Med, Inc.	Stoughton
Still River Systems, Inc.	Littleton
Sunovion, Inc.	Marlboro

ToleRx, Inc.	Cambridge
Wadsworth Medical Technologies, Inc	Westborough
Wolfe Laboratories, Inc.	Watertown
Valeritas, Inc.	Shrewsbury
Vertex Pharmaceuticals, Inc	Cambridge