

The Massachusetts Life Sciences Center



**Massachusetts League of
Community Health
Centers' Community
Health Institute
May 11, 2011**

Massachusetts: A Global Leader in Life Sciences

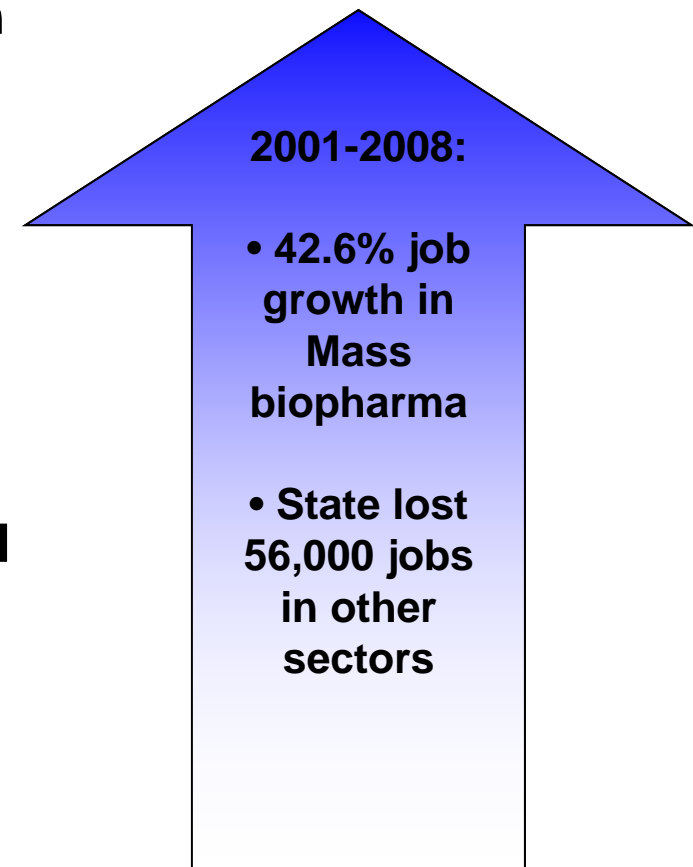
The Massachusetts Life Sciences Supercluster:

- The world's leading innovation pipeline: The Milken Institute's 2010 ratings rank Massachusetts #1 for technology innovation
- World-class academic and medical institutions leading the way in life sciences research
- A talented workforce
- All industry sectors -- biotechnology, pharmaceuticals, medical devices, diagnostics and bioinformatics
- Government leadership, through our state's 10-year, \$1 billion Life Sciences Initiative (enacted by the Massachusetts Legislature in June 2008)



Life Sciences: Critical to our Innovation Economy

- Over 80,000 Massachusetts employees work in the life sciences*
- Medical devices are Massachusetts' #1 export, representing 13% of exports in 2010
- Life sciences is a leading source of new company formation, and venture capital investment
- Massachusetts receives more per-capita in NIH research funding than any other state (\$2.4 billion total in FY '10), a key contributor to job creation and innovation
- Life sciences companies and research institutions are expanding and creating jobs across the Commonwealth even as other sectors are shrinking



*excludes health care delivery

The Challenge: Competition at Home and Abroad

Other states and nations are catching up:

- **California -- \$3 billion initiative focused on stem cell research**
- **North Carolina – Invested more than \$1.2 billion in life sciences over the past ten years**
- **China, India and Korea -- investing billions of dollars in bioparks, workforce development and R&D facilities**
- **Europe (e.g., Germany, Italy, Spain, Switzerland and the U.K.) -- active initiatives for life sciences expansion**

California Institute for Regenerative Medicine



Research Technology Park, North Carolina

Pegasus BioPark, Dalian, China



The Massachusetts Life Sciences Center: Who We Are and What We Do

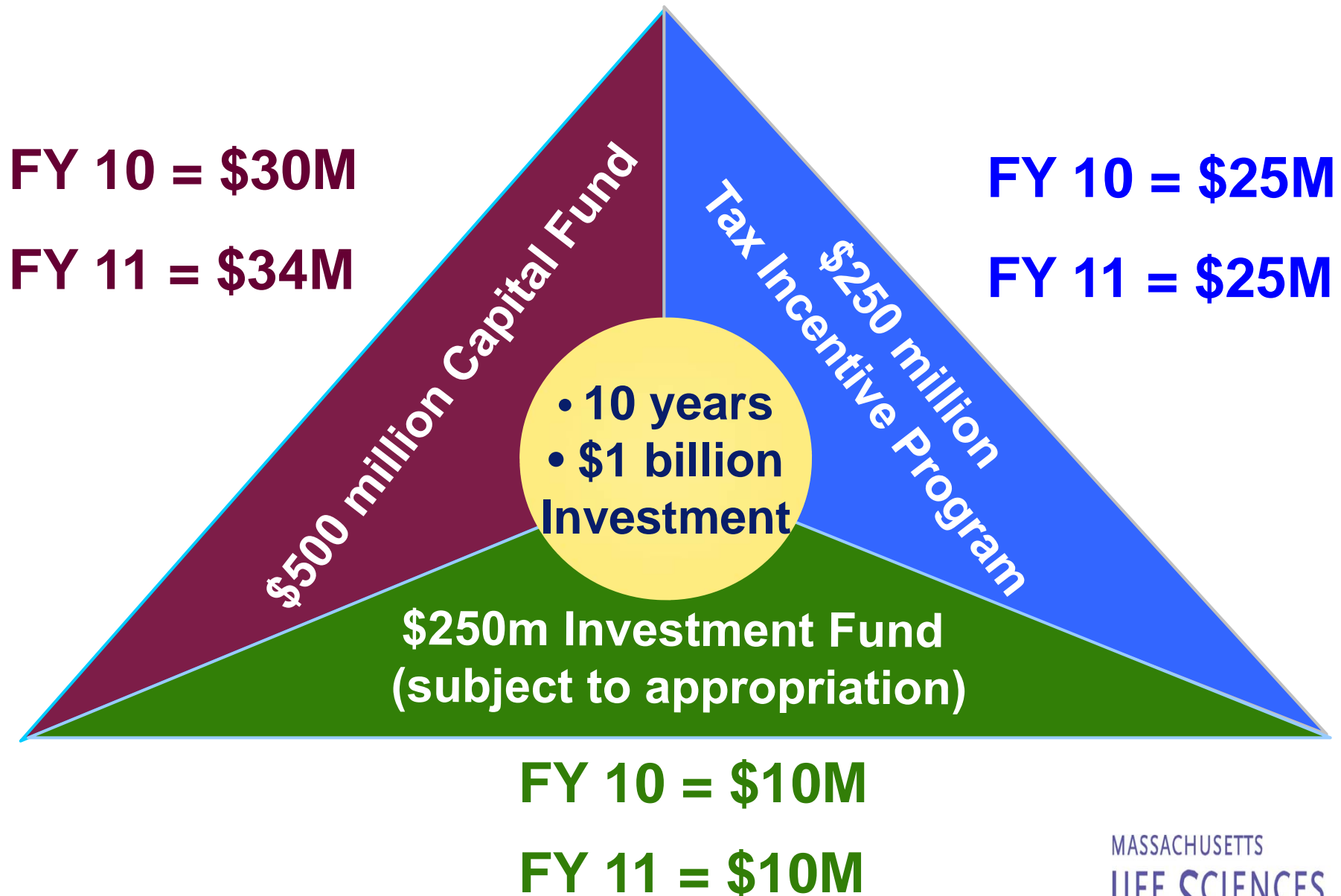
Vision:

- The Massachusetts Life Sciences Center administers the state's 10-year, \$1B life sciences initiative. We develop and offer “best practice” programs that fund innovative economic development initiatives in the Massachusetts life sciences Supercluster, but also may have relevance for other technology sectors

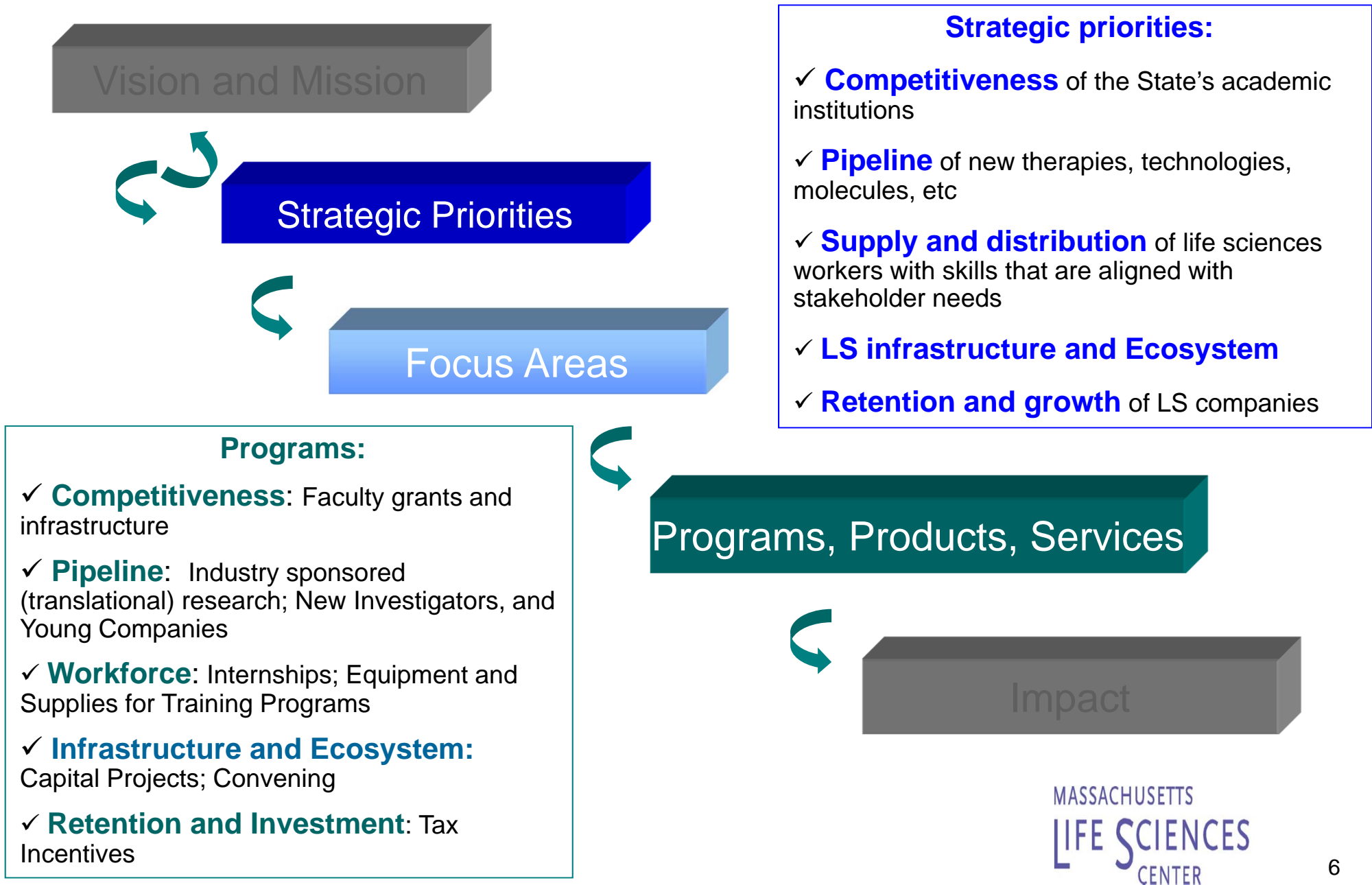
Mission:

- Serve as the “hub” of the Massachusetts life sciences Supercluster
- Create jobs and drive economic development
- Encourage innovation through investments in good science and good business
- Strengthen and protect Massachusetts' global leadership position in the life sciences by supporting our academic medical centers, research institutions and universities; contributing to workforce development, and creating an industry-friendly environment
- Accelerate the commercialization of promising treatments, therapies and cures

Life Sciences Initiative Investment Tools



MLSC Strategy Summary: Programs Tie Directly to Strategic Priorities



The Massachusetts Life Sciences Center – Board of Directors

- **Secretary of Housing and Economic Development**
 - Gregory Bialecki
- **Secretary of Administration and Finance**
 - Jay Gonzalez
- **President of the University of Massachusetts System**
 - Jack Wilson, Ph.D.
- **A CEO of a Massachusetts-based life sciences corporation**
 - Abbie Celniker, CEO, Taligen Therapeutics
- **A researcher involved in the commercialization of biotechnology, pharmaceuticals or medical diagnostic products**
 - Lydia Villa-Komaroff, Board Member and CSO, Cytonome/ST
- **A physician licensed to practice medicine in the Commonwealth and affiliated with an academic medical center**
 - OPEN
- **A person with financial expertise in the life sciences**
 - Joshua Boger, Ph.D., Former President & CEO, Vertex

Massachusetts Life Sciences Center Scientific Advisory Board

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Whitehead Institute, and Professor of Biology
and of Bioengineering, MIT

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Robinson Professor of Chemistry and Howard Hughes Medical Institute Professor at Tufts University School of Medicine
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Professor, Biochemistry and Molecular Pharmacology, UMass Medical School

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- **Doug Cole, M.D.,**
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- **Jonathan Fleming, M.P.A.,**
Managing General Partner, Oxford Bioscience Partners
- **Jean M. George, M.B.A.,** Partner, Advanced Technology Ventures
- **Jeffrey Leiden, M.D., Ph.D.,**
Managing Director, Clarus Ventures

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Former Vice President, Corporate Research and Advanced Technology Development, Boston Scientific
- **Rainer Fuchs, Ph.D.,**
Vice President, Executive Director, Biogen Idec Innovation Incubator
- **Alan E. Smith, Ph.D.,**
Chief Scientific Officer, Genzyme Corp.

The “Bottom Line”

Life Sciences Center’s Impact: June ‘08 – February ‘11

**Matching Investments
Attracted
= \$706 M**

**Job Potential
= 7,038**

**Public Dollars Invested
= \$213.8 M**

3 X multiplier



Making Massachusetts “Life Sciences Ready”

Life Sciences Center investments already have contributed to the creation of more than **one million square feet of new laboratory and manufacturing space.**

- **\$500 million in capital funding over ten years**
 - \$300 million in targeted investments (legislative earmarks)
 - \$200 million discretionary
- **\$131 million committed thus far to six job-creating capital projects**

Investment: [Dana-Farber/UMass Boston Center for Personalized Cancer Therapy](#)

The Center has awarded \$2 million for a joint Center for Personalized Cancer Therapy (CPCT) on the UMass Boston campus. The project is a joint program of UMass Boston and the Dana-Farber/Harvard Cancer Center. The CPCT will seek to reduce healthcare costs, and reduce cancer disparities among low-income, non-majority and other inadequately served, diverse populations.



Marine Biological Laboratory: Before and After



CENTER

Strengthening our World Class Academic Institutions

Life Sciences Center Research Matching Grant Program: accelerating the translation of treatments and therapies “from the research bench to the bedside”

- **Supporting promising scientific research (\$13.6 million - matched dollar for dollar)**
- **Funding 21 new investigators (\$5.1 million)**
- **Helping five universities and academic medical centers compete for top faculty (\$3.75 million)**
- **Funding research collaborations between eight industry and academic partners (\$4.8 million)**

**New Investigator Investment: Jesse Mager at UMass Amherst
Grant of \$98,666 per year for three years; supports Mager’s
functional assessment of epigenetic regulatory genes in vivo.**

**Investment: Raindance Technologies (Lexington) and Harvard
School of Engineering & Applied Sciences
Grant of \$250,000 per year for three years; supports development of
a functional fluorescent-activated cell sorter**

Supporting Workforce Development in Classrooms

Equipment & Supplies Program for Skills Training and Education

- **New MLSC program for:**
 - Vocational technical schools
 - Community colleges
 - Workforce training organizations
- **Awards grants of up to \$250,000 per institution for equipment and supplies that support life sciences training**
- **Industry match is required for funding above \$100,000**
- **First round of awards made on Feb 23rd 2011**
- **Awards made to 32 institutions across Massachusetts; \$3.4 million investment**
 - **Over \$600k in additional “matching” funds provided by industry sponsors**



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 recently announced Equipment and Supply Grant for LVTI.

Supporting Workforce Development in the Real World

Internship Challenge Program:

- Funds interns working at companies with fewer than 100 employees -- up to \$7,200 for twelve weeks of work
- 2009: 104 interns placed at 59 life sciences companies and research institutions across the state
- 2010: Over 900 applicants; 170 interns placed at 93 companies across the state
- Over 55 participating interns were offered full or part-time jobs at the conclusion of their internships



Matt Gethers, 2009 Life Sciences Internship Challenge participant and recent MIT graduate with a degree in biological engineering, at the lab space of Ginkgo BioWorks in Boston. Photo courtesy of Bay State Banner/Sandra Larson

Investment: Nuclea Biotechnologies (Pittsfield)

Nuclea hired three students as interns: Sean Donovan of Pittsfield, senior biology major at Mass College of Liberal Arts; Courtney Stanford of Pittsfield, recent graduate of RIT with a degree in chemistry; and Daniel Zuber of Lenox, a biology major at Clark University. Donovan has accepted a full-time job at the company.

Helping Life Sciences Companies Grow

Accelerator Program:

- Working capital for early-stage life sciences companies
- \$9 million in loans awarded to fifteen early-stage companies

SBMG Program:*

- Funding to match federal small business grants (SBIR & STTR)
- \$1.5 million awarded to three life sciences companies

Tax Incentive Program:

- Incentives for companies to locate and grow jobs in Massachusetts
- Center can commit up to \$25 million/year
- Companies commit to creating a certain number of jobs in the year following award
- 2010 awards made to 30 companies, promising to create more than 900 jobs in 2011



Investments:

Good Start Genetics (Boston)

\$500k Accelerator Loan in 2009. Leveraged by GSG to raised \$18 million in private financing. Repaid with interest in less than two years.

Sunovian (formerly Sepracor) (Marlborough)

\$750k Tax Incentive in 2009 based on commitment to create 25 jobs in 2010. Created more than 85 new jobs, and received a 2010 tax incentive of \$943,000.

*Second round of applications currently under review

Leveraged Impact – Corporate Consortium Program

The Center continues to highly leverage the public tax dollars that we invest by attracting matching dollars from the private and non-profit sectors.

- Johnson & Johnson agreed to participate in our Corporate Consortium Program for a second year
- In FY 10, **Sanofi** becomes the second member of the program



Johnson & Johnson

sanofi aventis
Because health matters

J&J and Sanofi each commit a minimum of \$250,000 per year for two years to match investments made by the Center in early-stage companies.

Attracting and Retaining Companies

Company officials cite Massachusetts' Life Sciences Initiative, talented workforce, and leading research institutions as important reasons for choosing the state.



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



Biocell Center®

Organogenesis inc.

LIVING TECHNOLOGY



INTEGRAGEN

 EvaluatePharma®
Helping you find value in the pharma & biotech sector

NeoStem®
YOUR CELLS • YOUR USE • YOUR LIFE™

 Systagenix
WOUND MANAGEMENT

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Shire

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Technologies

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