

The Massachusetts Life Sciences Center



Massachusetts: A Global Leader in Life Sciences

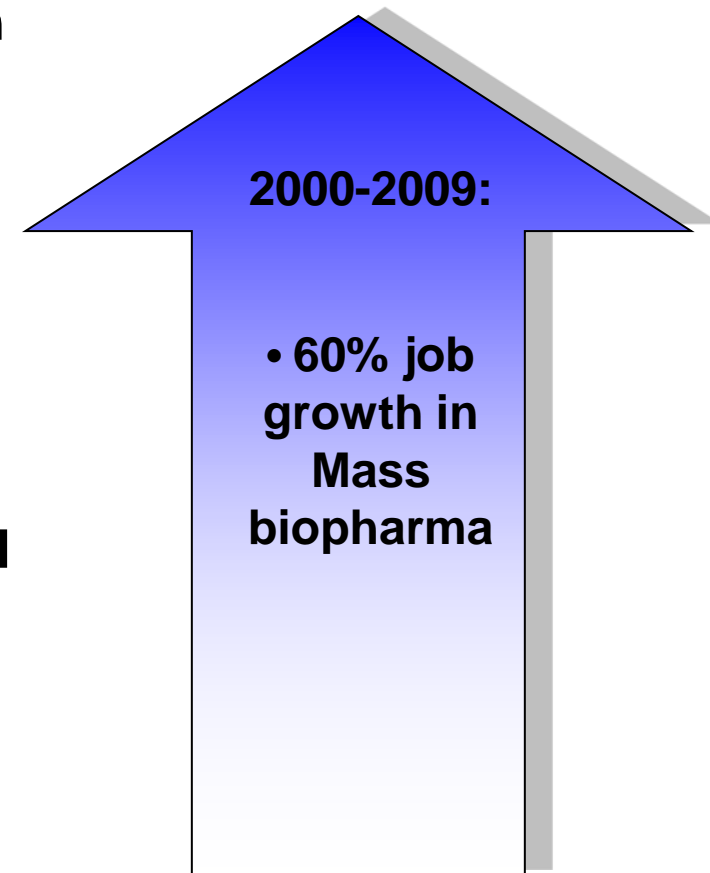
The Massachusetts Life Sciences Supercluster:

- 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
- Business-friendly Infrastructure (International airport with 40 airlines, regional rail service, mass transit and five deepwater ports)
- 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 Massachusetts Life Sciences Center: Who We Are and What We Do

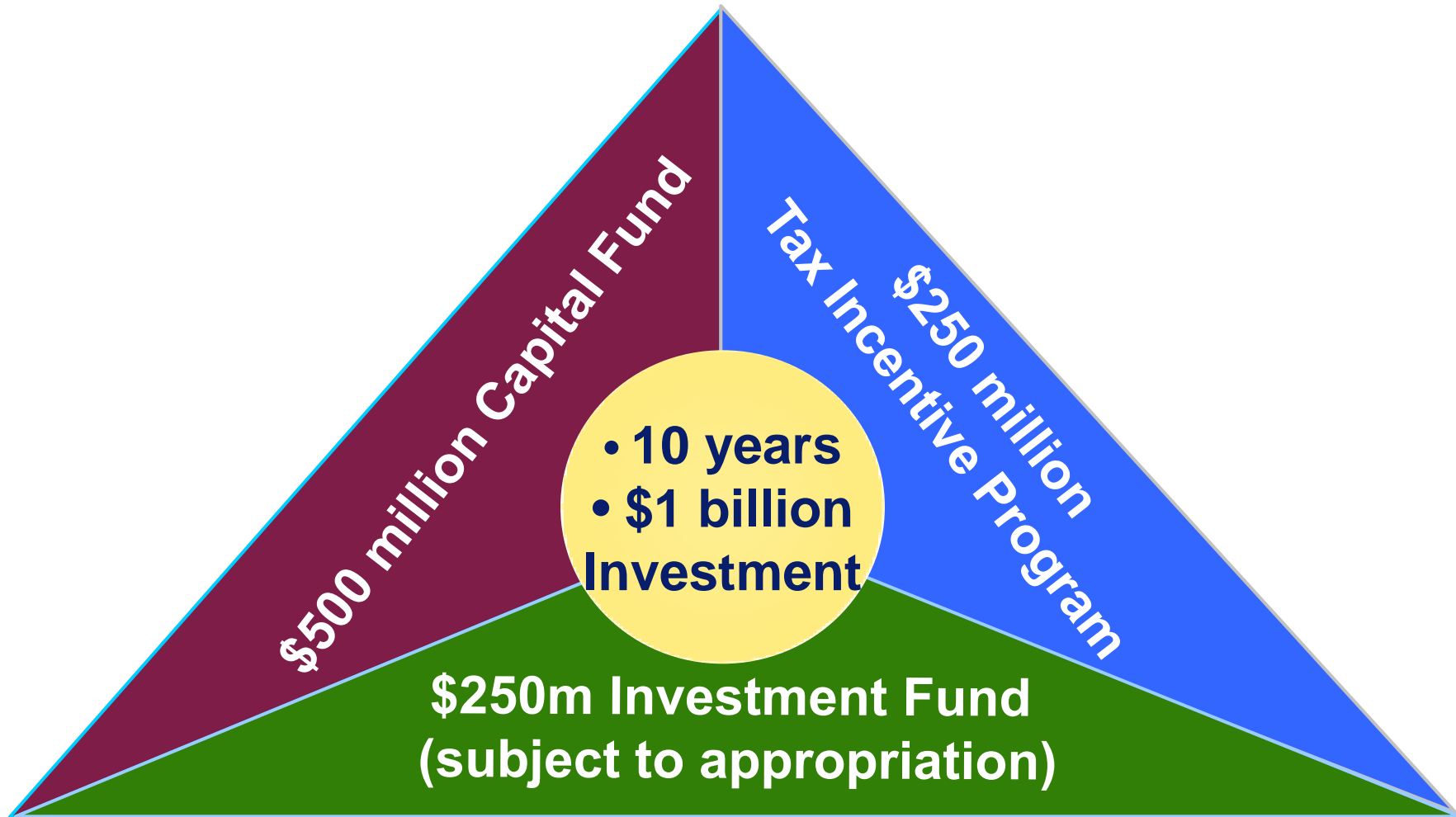
Vision:

- 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



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**
 - Robert Caret, Ph.D.
- **A CEO of a Massachusetts-based life sciences corporation**
 - Abbie Celniker, Ph.D., CEO, Eleven Biotherapeutics
- **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**
 - Edward Benz, M.D., President & CEO, Dana-Farber Cancer Institute
- **A person with financial expertise in the life sciences**
 - Joshua Boger, Ph.D., Founder & CEO (Retired), Vertex

Massachusetts Life Sciences Center Scientific Advisory Board

CHAIR: Harvey Lodish, Ph.D.,

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

Academia

- **Gary Borisy, Ph.D.,**
Director and CEO, Marine Biological Laboratory
- **James J. Collins, Ph.D.,**
Professor of Biomedical Engineering, Boston University
- **Richard A. Goldsby, Ph.D.,**
John Woodruff Simpson Lecturer and Professor of Biology, Amherst College
- **Lita L. Nelsen,**
Director, Technology Licensing Office, Massachusetts Institute of Technology

- **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

Venture Capital

- **T. (Teo) Dagi, M.D., M.B.A.**
Partner, HLM Venture Partners
- **Jonathan Fleming, M.P.A.,** Managing General Partner, Oxford Bioscience Partners
- **Carmichael Roberts, Ph.D., M.B.A.**
Partner, North Bridge Venture Partners

Entrepreneurs

- **Allison Taunton-Rigby, Ph.D.,**
CEO, RiboNovix, Inc.

Industry

- **James Barry, Ph.D.,**
Former Vice President, Corporate Research and Advanced Technology Development, Boston Scientific
- **Dalia Cohen, Ph.D.,**
Chief Scientific Officer, Asterand Inc.

- **Rainer Fuchs, Ph.D.,**
Vice President, Executive Director, Biogen Idec Innovation Incubator
- **Alan Smith, Ph.D.**
Chief Scientific Officer, Genzyme a Sanofi Company

The “Bottom Line”

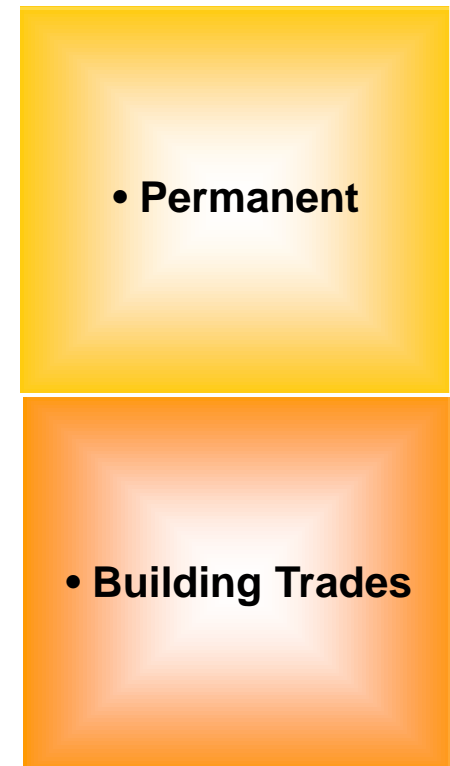
Life Sciences Center’s Impact: June ‘08 – Jan ‘12

**Matching Investments
Attracted
= \$754M**

**Job Potential
= 7,402***

**Public Dollars Invested
= \$219 M**

3 X multiplier



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

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)**

Cooperative Research Grants

The Cooperative Research Grants encourage industry-sponsored research at Massachusetts academic institutions and accelerate “bench to bedside.” **The Center has awarded 8 grants totaling \$4.76 million.**

Research Partners	Award Recipient	Award	Research
UMass Lowell/ Boston Scientific	Dr. Rudolf Faust	\$199,596 per year for three years	Novel polymer biomaterials
Immune Disease Institute/ Epic Therapeutics	Dr. Judy Lieberman	\$250,000 per year for three years	An siRNA-based microbicide
Harvard School of Engineering and Applied Sciences/ Rain Dance Technologies	Dr. David Weitz	\$250,000 per year for three years	Development of a functional fluorescent- activated cell sorter
Massachusetts General Hospital/ Idera Pharmaceuticals	Dr. Andrew Luster	\$63,100 per year for three years	Targeting of toll-like receptors in A.I.D.
Brigham & Women’s Hospital/ Biomeasure	Dr. Richard Lee Dr. Prath Patwari	\$250,000 per year for three years	Design and testing of a new regenerative protein for delivery
UMass Medical School/ Rxi Pharmeceuticals	Dr. Michael Czech Dr. Gary Ostroff	\$249,593 per year for three years	Development of orally-delivered RNAi therapeutics

Cooperative Research Grants

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”

Helping Life Sciences Companies Grow

Accelerator Program:

- Working capital for early-stage life sciences companies
- \$10.3 million in loans awarded to seventeen early-stage companies

SBMG Program:

- Funding to match federal small business grants (SBIR & STTR)
- \$3.5 million awarded to seven life sciences companies

Business Plan Competitions:

- Mass Challenge - \$100,000 sponsor
- MIT \$100K Competition - \$10,000 sponsor
- Boston University - \$5,000 sponsor
- Worcester Polytechnic Institute - \$5,000 sponsor

Tax Incentive Program:

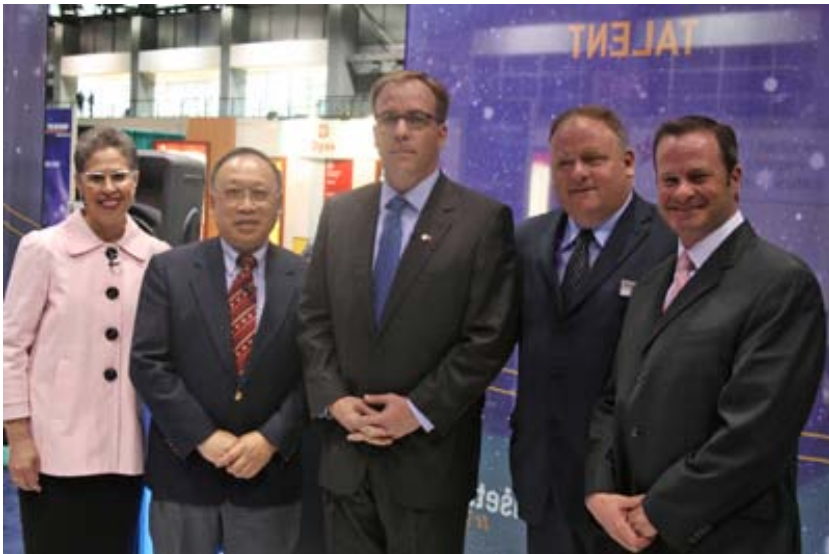
- Incentives for companies to locate and grow jobs in Massachusetts
- Center can commit up to \$25 million/year
- Companies commit to creating a certain number of jobs in the year following award
- Overall, awards have been made to 33 companies promising to create more than 1,350 jobs



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 was the charter member of the Center's Corporate Consortium Program
- In 2010, **Sanofi** became 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.

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
- Over the past three years 542 interns have been placed at 200 companies across the state.
- More than 100 participating interns have been offered full or part-time jobs at the conclusion of their internships
- Starting in the Fall of 2011, the program is now operating on a year-round basis



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

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.

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.**

- **\$131 million committed thus far to six job-creating capital projects**
 - **Wastewater Project at Framingham Technology park**
 - **Renovation of the Loeb Lab at the Marine Biological Laboratory**
 - **New England Regional Biosafety Laboratory at Tufts’ Cummings School of Veterinary Medicine**
 - **The Albert Sherman Center at the University of Massachusetts Medical School**
 - **Gateway Park in Worcester**
 - **Joint Center for Personalized Cancer Therapy at UMass Boston**



What is the Massachusetts-Israeli Innovation Partnership (MIIP)?

- *An initiative to promote greater collaboration among companies in the Israeli and Massachusetts innovation sectors of life sciences, clean energy, and information technology.*
- Three Massachusetts agencies dedicated to economic development within the life sciences, clean energy, and information technology sectors have committed grant funding for the Massachusetts partner company. These agencies are: the MA Life Sciences Center (MLSC), the MA Clean Energy Center (MACEC) and the MA Technology Collaborative (MTC).
- Israel's Office of the Chief Scientist (OCS) within the Ministry of Industry, Trade and Labor has committed grant funding for the Israeli partner company.

What is the Massachusetts-Israeli Industrial R&D Grant Program?

- *MA and Israeli companies will partner on an R&D project that aims to develop a new or significantly improved product or process in one of the three innovation sectors for commercialization in global markets.*
- The R&D Grant Program will use a competitive solicitation to select the most promising R&D project(s) proposed by a MA-Israeli company partnership.
- Each of the MA agencies will provide funding to MA-Israeli company partnership of up to \$300K per sector. Each MA partner company also is expected to provide matching funds of up to \$300k for their proposed project.
- Contributions by the Israeli companies will be matched by Israeli's OCS in accordance with its program requirements.

Who are the Governmental Funding Partners?

MIIP FUNDING PARTNERS

Massachusetts Life Sciences Center (MLSC)

- Dedicated to implementing the MA Life Sciences Act, a ten-year, \$1 billion initiative enacted in 2008. MLSC invests in public and private institutions to advance life sciences R&D and commercialization and promote good science, good business and a better quality of life for patients.

www.masslifesciences.com

Massachusetts Technology Collaborative (MTC)

- Dedicated to promoting new economic opportunity and fostering a more favorable environment for the formation, retention and expansion of technology-related enterprise in MA. MTC serves as a catalyst in growing technology-based industries.

www.masstech.org

Massachusetts Clean Energy Center (MACEC)

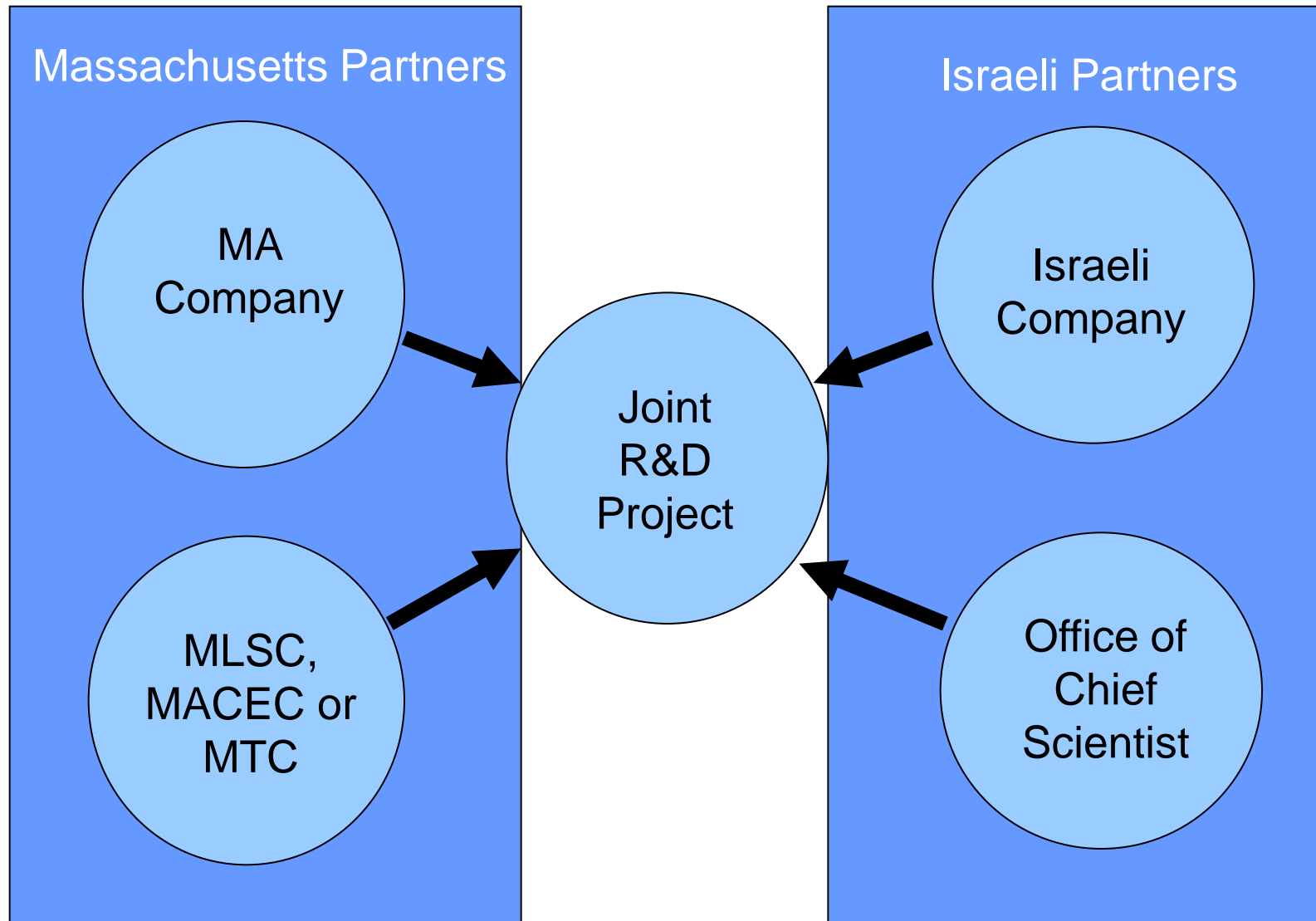
- Dedicated to accelerating the success of clean energy technologies, companies and projects in MA. MACEC makes direct investments; helps companies access capital; builds workforce pipeline; and catalyzes partnerships with investors, academia and government.

www.masscec.com

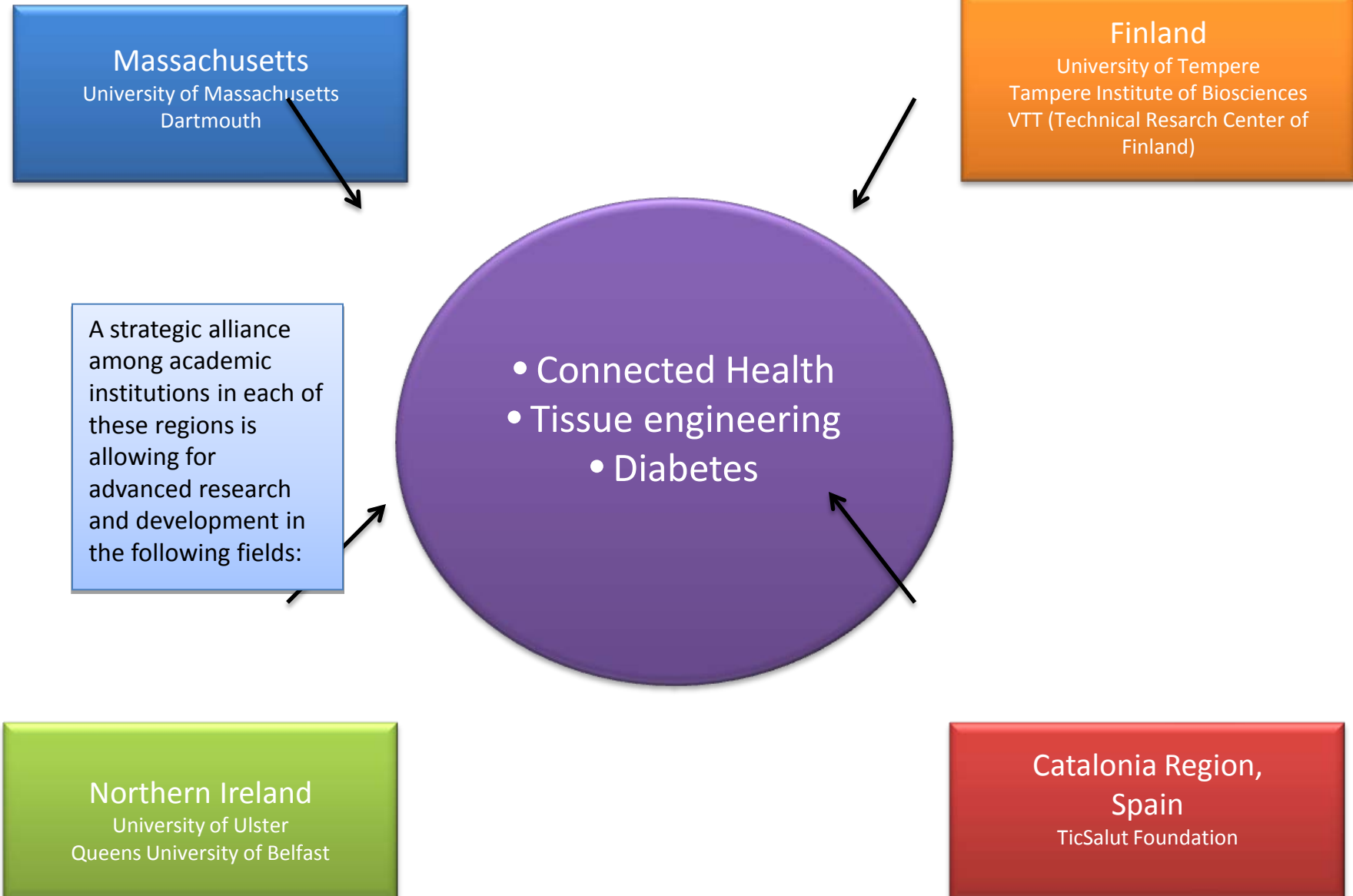
Office of the Chief Scientist of Israel (OCS)

Within the Israeli Ministry of Industry, Trade and Labor, OCS is responsible for executing government policy to support industrial R&D. OCS' objectives are to encourage entrepreneurs in high-tech start-up companies, leverage Israel's highly capable scientific and technological labor force, facilitate the academic industrial interface for the transfer of scientific know-how and technology, and stimulate cooperation at national and international levels. www.moit.gov

How Does the Industrial R&D Collaboration Work?



NIMAC Collaboration



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 company Biocell Center opens its North American Headquarters in Medford, Massachusetts.



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