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
- 95,000 workers in life sciences; 50% biopharma job growth in past decade
- 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)
The Massachusetts Life Sciences Center: Who We Are and What We Do

The Massachusetts Life Sciences Center develops and offers creative programs that fund innovation-driven economic development initiatives in the Massachusetts life sciences cluster, but also may have relevance for other “innovation” sectors.

Mission:

- Serve as the “hub” of the Massachusetts life sciences Supercluster
- Encourage innovation through investments in good science and good business
- Strengthen and protect Massachusetts’ global leadership position in the life sciences
- Accelerate the commercialization of promising treatments, therapies and cures
- Create jobs and drive economic development

MLSC Investment Tools and Programming Budget

- $1 billion Investment
- 10 years
- $500 million Capital Fund
- $250 million Tax Incentive Program
- $250m Investment Fund (subject to appropriation)
Gaining Leverage: Public-Private Partnership
Life Sciences Center’s Impact: June ‘08 – May ‘13

Public Dollars Invested/Committed
= $461 M

- Grants to Academic Organizations and Medical Centers
- Grants for “Shovel Ready” Capital Projects
- Investments in Life Sciences Companies

Matching Investments Attracted
= $1.2 B

Corporate Investors
NIH
Private Foundations
Institutes
Other Private Investors
Academic Institutions

Massachusetts Life Sciences Center roles

- A funding agency
- The state’s marketing arm toward life sciences companies
- A convener
### Supporting Promising Early-Stage Companies

**InVivo Therapeutics**

- Developing groundbreaking technology to treat paralyzed individuals with spinal cord injuries and restore motor function
  - Through the use of biomaterials containing a combination of polymers and stem cells
- Received a $500,000 Accelerator loan from the MLSC in 2009
- Repaid loan to MLSC in 2011, company has raised more than $30M in private capital, and now has more than 50 employees
- In April, FDA approved InVivo to begin human trials

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**Myomo**

- Myomo®, Inc. is a medical technology company leading the way in extending Myoelectric Prosthetic Technology to powered bracing devices that restore an individual’s mobility.
  - Mission is to improve mobility and restore independence for individuals who suffer from debilitating muscle weakness due to conditions such as stroke and other neuro-muscular conditions.
- Won MassTLC’s Product of the Year Award in 2011
- Accelerator Program winner, MLSC loan of $750,000 helped fund creation of revolutionary product
A funding agency
The state’s marketing arm toward life sciences companies
A convenor

Recruiting Promising Companies to Massachusetts

ARGO Medical technologies

- ReWalk technology
  - Exoskeleton suit that enables people with lower limb disabilities to stand and walk independently
- Founded in Israel, US headquarters in MA
- ReWalk has the potential to help millions of people with neurodegenerative diseases and spinal cord injuries
- Available in rehabilitation centers, awaiting FDA clearance for personal use

Demonstration of ReWalk at Advamed 2012
Recruiting Promising Companies to Massachusetts

**BioAxone**

- Cethrin
  - Developing a protein therapeutic drug to improve patient recovery from spinal cord injury.
- Founded in Florida, opened clinical headquarters in Cambridge, MA in 2012.
- Selected by Windhover conferences as one of the “Top Ten” Neuroscience Companies for Partnership.

**BioAxone welcoming ceremony at the Cambridge Innovation Center**

**A funding agency**

**The state’s marketing arm toward life sciences companies**

**A convener**
Public-Private Partnerships

Collaborations that are:

- Focused on *shared challenges* that are critical for progress...
- ...and are *increasingly difficult for a single sector to tackle, and/or finance alone*...
- …where solutions can benefit *both the public and private sector* (and the broader economy)

Pre-competitive Consortia

Collaborations that are:

- Focused on *shared challenges* that are critical for progress...
- ...and are *increasingly difficult for a single organization to tackle alone*...
- …but *cannot be exploited as a standalone profit-making opportunity* for any individual participant
MLSC Neuroscience Consortium (launched June 2012)

Objective: Create a pioneering new model of collaboration designed to leverage Massachusetts' rich neuroscience environment to:

- Accelerate pre-clinical research available to the pharmaceutical industry
- Introduce academic researchers to targeted research
- Facilitate new models of industry-academic partnership

Massachusetts' basic neuroscience, translational, and clinical research distributed across more than a dozen world-renowned institutions amounts to what may be the highest density of neuroscience research in the world.

Neuroscience Consortium Charter members:

- Abbott
- Biogen-Idec
- EMD Serono
- Janssen Research (Johnson and Johnson)
- Merck
- Pfizer
- Sunovion (Dainippon Sumitomo)

First Solicitation for Proposals was Released September 24, 2012. Nearly 100 proposals received!!

What is the MLSC Neuroscience Consortium?

- A pioneering new model for accelerating pre-clinical research available to the pharmaceutical industry, introducing academic researchers to the challenges of targeted research, and facilitating industry-academic partnerships.

- A one-stop shop approach (a “virtual Center”) for identifying and evaluating the best pre-clinical targets for development by industry, drawing from participating research institutions across Massachusetts. Projects funded through the ‘Center’ will follow commonly – accepted industry standards for preclinical validation of these targets to test all possible applications and indications.

- Accelerated access by the pharmaceutical industry to new knowledge, data and tools that are emerging from the Massachusetts academic neuroscience community

- Sponsored research funding that enables academic research teams to follow their discoveries further down the path toward commercial application
MLSC Neuroscience Consortium – Value Proposition to Industry

- Benefits to industry include reduced costs, and greater efficiency, speed and access

**Risk Reduction**
- Effectively derisks decision making regarding internal allocation of resources for target prosecution and target validation

**Leverage**
- Allows industry to influence and leverage work by high quality scientists in a way that no single company currently can achieve
- Minimizes the need for individual efforts to approach Massachusetts institutions

**Access**
- Accelerates access to new knowledge, data and tools that are specific to targets and pathways of interest
- Participating companies examine ideas through a very thorough, coordinated and merged process
- Shared knowledge and tools
- Access to breadth of capabilities in MA

MLSC Neuroscience Consortium – Value Proposition for Academia

- Benefits to academia include funding, access and prestige

**Funding**
- Industry funded projects to translate academic research into a high probability of commercialization
- Sole source projects

**Leverage**
- Means for moving projects forward more quickly
- Generation of publications
- Advances the fundamental mission of academic institutions

**Access**
- Industry resources:
  - Skills
  - Reagents
  - Tools
  - Equipment
- Removes barriers and hurdles for PIs
- Project management support
- Training opportunities in translational research for Post Docs
- Data and tools from all projects
MLSC and SCI Awareness Day

- The Massachusetts Life Sciences Center co-sponsors SCI Awareness day at the State House every year.
- Brings awareness to the developments in the spinal cord injury field and promotes a sense of community.