Life Sciences

- "Life Sciences" is defined as "advanced and applied sciences, including but not limited to, stem cell research, regenerative medicine, biotechnology and nanotechnology."[1]

Timeline

1. May 8, 2007: Governor Patrick outlines his 10-year, $1 billion Life Science Initiative at the BIO 2007 convention (A-2, speech A-5).
2. May 27, 2007: Organogenesis, the world's leading regenerative medicine company announces it will keep its headquarters in Massachusetts as a result of the Governor's Life Science Initiative as well as expand its facilities 250,000 square feet and ad 300 new highly skilled jobs (A-9).
3. July 19, 2007: Governor Patrick files legislation to implement his Life Science Initiative (A-11).
4. October 30, 2007: Governor Patrick testifies before the Joint Committee on Economic Development and Emerging Technologies on behalf of his life sciences legislation (A-13).
5. November 30, 2007-December 7, 2007: Governor Patrick travels to China on a trade mission focusing on strengthening collaboration and innovation around the life sciences (A-16).
6. April 16, 2008: Life sciences company EMD Serono, Inc., a leader in biopharmaceuticals focusing on fertility treatments and neurodegenerative diseases, and Merck Serono—both affiliates of Merck KGaA of Germany—announces plans to invest $50 million to expand its Billerica facility, creating at least 100 new jobs (A-21, speech A-23).
7. June 16, 2008: Governor Patrick signs "An Act Providing for the Investment in and Expansion of the Life Sciences Industry in the Commonwealth," his 10-year, $1 billion investment package in life sciences (A-25, speech A-28).
8. June 17, 2008: Governor Patrick receives the Biotechnology Industry Organization's (BIO) Governor of the Year Award in recognition of his leadership and support of the biosciences industry (A-30).
9. September 8, 2010: Cubist Pharmaceuticals begins construction on a 104,000 square foot expansion to its existing lab space made possible by a $1.7 million tax incentive provided by the Massachusetts Life Sciences Center. Additionally, the company committed to creating 58 new jobs (A-32).
10. March 7, 2011-March 17, 2011: Governor Patrick takes part in the Massachusetts Innovation Economy Partnership Mission 2011 to Israel and the United Kingdom and will explore growth opportunities within the Commonwealth's innovation-based industries—technology, life sciences and clean energy—and areas of common interest between the Commonwealth's partners in Israel and the UK.

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[1] Massachusetts General Laws Chapter 21I "The Massachusetts Life Sciences Center" (B-8).

11. March 10, 2011: Governor Patrick signs a Memorandum of Understanding (B-2) with Israel that will allow for further collaboration in research and development programs between Massachusetts and Israeli companies (A-35).
12. June 29, 2011: Massachusetts and Israel announce the creation of the Massachusetts-Israel Partnership (A-37).
13. October 27, 2011: Governor Patrick participates in the groundbreaking of the first building of the Alexandria Center science and technology campus at Kendall Square, the future home of Biogen Idec, a global, biopharmaceutical company moving its headquarters, along with its 530 employees, to Cambridge (A-40).
14. November 21, 2011: Governor Patrick participates in the groundbreaking of Pfizer's new facility in Kendall Square, which will allow the company to create 400 new jobs (A-43).
15. June 11, 2012: Governor Patrick celebrates the grand opening of Thermo Fisher Scientific's Center for Excellence for portable analytic instruments. The center will add an additional 100 jobs in research, development and manufacturing to Thermo Fisher's staff of 400 over the next five years (A-45).
16. June 18, 2012: The BIO International Convention opens at the Boston Convention and Exhibition Center, which brought more than 15,000 participants and 3,000 companies to Boston (A-51).
17. June 20, 2012: Governor Patrick joins seven global biopharmaceutical companies—Abbott, Biogen Idec, EMD Serono, Janssen Research & Development, LLC, Merck, Pfizer and Sunovion—to announce the formation of the Massachusetts Neuroscience Consortium, which will fund pre-clinical neuroscience and Massachusetts academic and research institutions (A-47).
18. August 15, 2012: Governor Patrick joins NxStage Medical, Inc., a leading manufacturer of innovative dialysis products to officially open the company's new 137,000 square foot facility in Lawrence (A-51).
19. October 2, 2012: Governor Patrick joins ARGO Medical Technologies at the AdvaMed 2012 conference today to announce that ARGO, an Israeli-founded exoskeleton technology leader, has selected Marlborough, Massachusetts to house its U.S. headquarters (A-53).
20. October 22, 2012: Governor Patrick joins Genzyme, the world's third-largest biotechnology company, to celebrate the opening of the company's new biomanufacturing facility in Framingham made possible by grant funding of $14.3 million to the town of Framingham by the Massachusetts Life Sciences Center (A-56).
21. January 30, 2013: Governor Patrick joins UMass leadership and state and local officials to celebrate the grand opening of the new Albert Sherman Center at the University of Massachusetts Medical School. The center was funded in part with a $90 million grant from the Massachusetts Life Sciences Center (A-58).
22. February 28, 2013: Governor Patrick and the Massachusetts Life Sciences Center announce more than $9 million in grants for life-sciences-related capital projects in Western Massachusetts, including $3.8 million to support the creation of a Center for Life Sciences at Holyoke Community College and $4.54 million that will allow the Massachusetts Green High Performance Computing Center in

Holyoke to expand its capacity for life-sciences-related research and data analysis (A-60).

23. March 26, 2013: The Boston Foundation releases a report showing that the Patrick-Murray Administration's investments in the life sciences sector are making a measurable impact on job creation and spurring economic growth across the Commonwealth (A-63, report C-274).

Results

An Act Providing for the Investment in and Expansion of the Life Sciences Industry in the Commonwealth (June 16, 2013)

- Provides $500 million in Capital funding to be spent over a 10 year period; $299.5 million for targeted infrastructure projects and the balance and $200 million in unrestricted funds for investment in public infrastructure projects at the discretion of the Massachusetts Life Sciences Center (MLSC).[2]
- Provides $25 million each year for 10 years for the Massachusetts Life Sciences Investment Fund, held at the MLSC, for loans, grants, fellowships, and investments to stimulate increased research and development in the life sciences sector.[3]
- Provides $25 million each year for 10 years in tax incentives to be awarded to certified life sciences projects.[4]
- Creates the MLSC Life Sciences Investment Program to expand employment in the life sciences sector in Massachusetts and to promote health-related innovations by supporting research and development, manufacturing and commercializing in life sciences.[5]
- Creates five Region Technology and Innovation Centers to be identified from among existing science regional centers.[6]
- Creates four additional funds to be administered by the MLSC:[7]
    - Dr. Craig C. Mello Small Business Equity Investment Fund;
    - Judah Folkman Higher Education Grant Fund for grants to graduate school students;
    - Massachusetts Small Business Matching Grant Fund; and the
    - Massachusetts Life Sciences Education Fund for Vocational and technical school equipment purchases.
- Adds an 18 member advisory board to be appointed by the Governor, including 10 members of the Massachusetts Life Sciences Collaborative, five chancellors of the UMass system, and three patient advocates. The Secretary of Labor & Workforce Development and five directors of Regional Technology Innovation Centers are non-voting members.[8]

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[2] Governor Patrick Signs Groundbreaking Life Sciences Legislation (A-26).
[3] Ibid.
[4] Ibid.
[5] Ibid.
[6] Ibid.
[7] Ibid.
[8] Governor Patrick Signs Groundbreaking Life Sciences Legislation (A-26).

Because of the Massachusetts Life Sciences Center's investments

Massachusetts Life Sciences Center (MLSC)

- As of 2012, more than half of the 1,198 life sciences companies operating in New England are located in Massachusetts—514 in medical device companies; 232 are drug development firms; 147 are contract research and manufacturing enterprises and 146 produce research produces and instrumentation for the life sciences.[9]
- Between 2001 and 2011 Massachusetts life sciences employment growth outperformed the nation by a factor of better than 2-to-1—growing by 27.3 percent vs. 11.9 percent for the nation.[10]
    - After the passage of Governor Patrick's life science initiative in 2008, the Commonwealth overtook its main competitors in the life sciences (California, New Jersey, New York, Florida and Texas) in terms of the 2001-2011 employment growth rate.[11]
    - As of 2011, the Massachusetts life science cluster has risen to #1 in terms of per-capita life sciences employment with nearly 14,300 life sciences jobs for every 1 million residents.[12]
- In Jones Lang LaSalle's analyses of the established life sciences clusters worldwide, Boston was ranked the #1 region for life science in both its 2011 and 2012.[13] The 2011 report lists Governor Patrick's Life Sciences Initiative as one of the main reasons for the vitality of Massachusetts' life sciences super cluster.[14]
- *Programs*
    - Accelerator Program:
        - The Primary objective of the Accelerator Loan Program is to provide working capital to early stage life sciences companies with a high potential for technology commercialization, rapid growth, and private equity financing.[15]
        - The Accelerator Loan Program has awarded $17.2 million in loans to 26 companies. Six of these companies, Avaxia Biologics, Good Start Genetics, InVivo Therapeutics, 4s3 Biosciene, MoMelan, and Pluromed, have paid back their loans early with interest after generating more than $100 million in equity or acquisition proceeds.[16]

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[9] Life Sciences Innovation as a Catalyst for Economic Development: The Role of the Massachusetts Life Sciences Center (C-284).
[10] Ibid (C-285).
[11] Ibid.
[12] Ibid.
[13] Life Sciences Cluster Report Global 2011 (C-79), Life Sciences Cluster Report Global 2012 (C-162).
[14] Life Sciences Cluster Report Global 2011 (C-80).
[15] http://www.masslifesciences.com/accelerator.html.
[16] Ibid.

        - Examples of Accelerator loans awarded in FY2012 include:[17]
            - $750,000 to Allurion of Wellesley for developing a novel medical device for inducing weight loss in obese patients.
            - $750,000 to Alcyone Lifesciences, Inc. for the development of a micro-catheter for treating neurological conditions.
            - $245,000 to Strohl Medical for the creation of a medical device for accelerating the treatment of stroke victims.
    - Massachusetts-Israel Innovation Partnership
        - The Massachusetts-Israel Innovation Partnership is a $2 million partnership between the MSLC, the Massachusetts Technology Collaborative, and the Massachusetts Clean Energy Center, and Israel's Office of the Chief Scientist. The program commits funding for Massachusetts and Israeli companies that are engaged in cooperative industrial research and development projects.[18]
    - Life Sciences Tax-Incentive Program
        - The Life Sciences Tax-Incentive Program, created directly by Governor Patrick's life sciences act,[19] issues a combination of 10 competitively awarded tax incentives available to companies that meet specified hiring goals.[20] The program is authorized to award up to $25 million in these incentives each year.
        - As of June 30, 2012, the MLSC has provided 56 active awards across all three program (2009, 2010, 2011) years to 44 different companies[21] for a total of $56,595,093 in tax incentives to Massachusetts businesses.[22]
            - To date, the program has resulted in the creation of 2,537 jobs—1,843 in pharmacology, 481 in medical devices, and 213 in scientific research. These jobs, at an average salary of $105,000, will generate more than $93 million in state personal income and sales taxes. All things remaining equal, every dollar of tax incentive will repay $1.66 to the Commonwealth over the next five years.[23]
            - Because more than one in five jobs in life sciences firms require no more than a two-year associate's degree and another 48% require no more than a bachelor's degree, the

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[17] Life Sciences Innovation as a Catalyst for Economic Development: The Role of the Massachusetts Life Sciences Center (C-305).
[18] Massachusetts and Israel Unveil $2 million agreement to finance joint R&D Projects that Foster Economic Development (A-39).
[19] Governor Patrick Signs Groundbreaking Life Sciences Legislation (A-26).
[20] Life Sciences Innovation as a Catalyst for Economic Development: The Role of the Massachusetts Life Sciences Center (C-304).
[21] Fiscal Year (FY) 2012 Annual Report "Outpacing the Competition" (C-25).
[22] Life Sciences Innovation as a Catalyst for Economic Development: The Role of the Massachusetts Life Sciences Center (C-304).
[23] Ibid (C-282).

program's benefits are shared by a broad array of workers not just those with advanced degrees.[24]

- Massachusetts Neuroscience Consortium
  - Brings together the MLSC with seven global biopharmaceutical companies—Abbott, Biogen Idec, EMD Serono, Janssen Research & Development, LLC, Merck, Pfizer and Sunovion Pharmaceuticals Inc.—to jointly fund pre-clinical neuroscience research at Massachusetts academic and research institutions.[25]
    - Each company pledged to contribute $250,000 to the Consortium, for total initial funding of $1.75 million.[26]
  - Projects will be short-term and results-oriented. These industry sponsors will identify common standards and work in collaboration with principal investigators and their teams. Additionally, they will contribute tools, data and other resources to the project teams to expedite their work. Results are shared with all participants; companies and academic researchers will have access to the use of any tools developed by each project.[27]

[24] Ibid.
[25] Governor Deval Patrick and Seven Global Biopharma Companies Announce Formation of Neuroscience Consortium (A-47).
[26] Ibid (A-48).
[27] Ibid (A-47, A-48).