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Biotechnology on the North Shore

Prepared for the North Shore Workforce Investment Board
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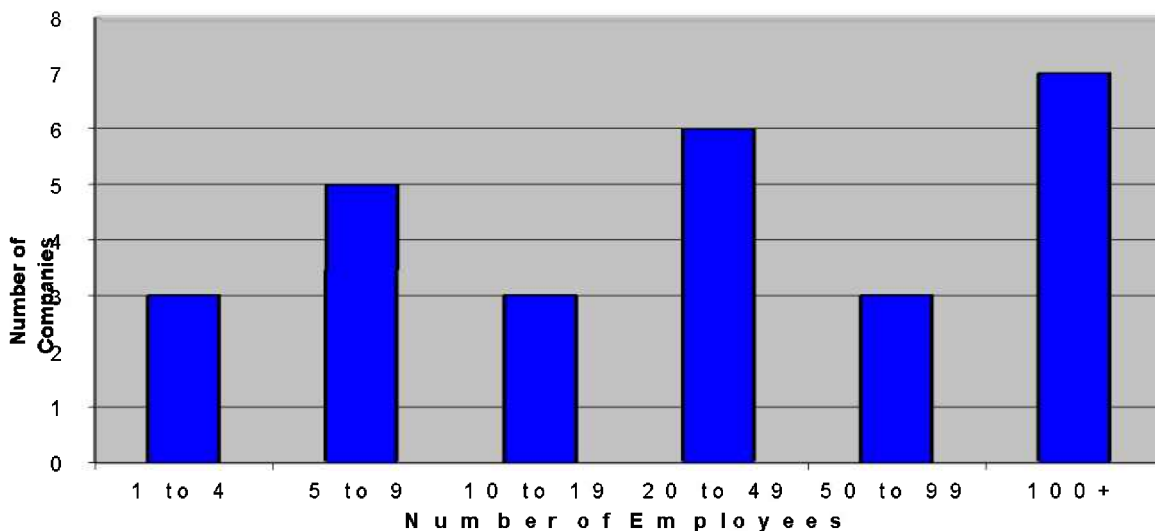
The Biotechnology Sector Of The North Shore

The following provides current labor market information on the Biotechnology Industry for the North Shore Work Force Investment Board (NSWIB). The information provided expands upon the “*Southern Essex Regional Labor Market: Blueprint Update 2002.*”

The Biotechnology sector is one of the newest and fastest growing industries in America. However, Biotech does not have its own NAICS (North American Industrial Classification System) classification. Federal and State governments use the NAICS coding when compiling its wage and employment data. Currently Biotech cuts across 60 different NAICS sectors. This makes quantifying data difficult as there has yet to be any standardization in the Biotech sector. This also makes long-term data unavailable as none exists. The Mass Biotech Council, experts in the Biotechnology Industry, concurred in this assessment. In this report the term biotechnology is defined as: The industrial use of living organisms or biological techniques developed through basic research.

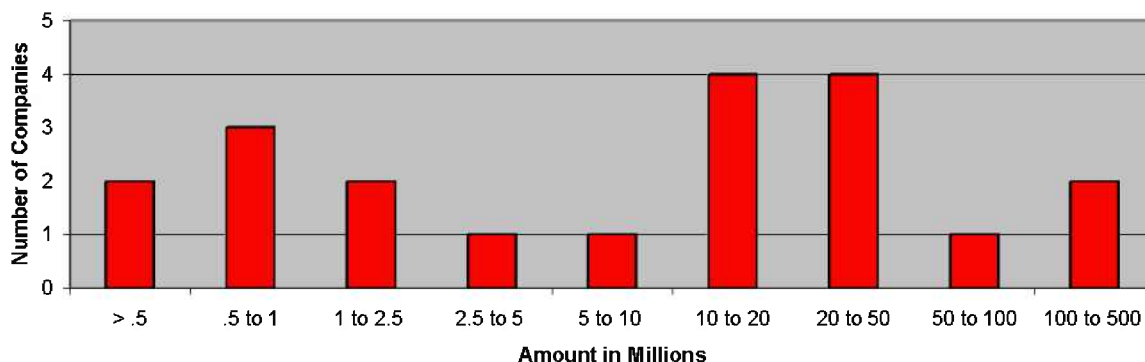
NORTH SHORE EMPLOYERS

The following graph breaks down companies by number of employees. The graph below represents the 27 Biotechnology companies on the North Shore. Since there is no NAICS coding for Biotech, exact employment data is not available for the biotechnology industry. However, estimated employment data is available through ALMIS (America’s Labor Market Information System). The estimated number of biotechnology employees on the North Shore is between 2,661 and 3,625. The estimate is based upon ALMIS’s employment groupings for 18 of the biotech companies, along with exact employment numbers for 9 of the biotech companies.



North Shore Annual Sales

The following graph shows the annual sales (in millions) figures for 20 of the Biotechnology companies on the North Shore. The data is based upon ALMIS's annual sales groupings for 17 of the biotech companies, along with exact sales numbers for 3 of the biotech companies. Annual sales information was unavailable for 7 companies. The two companies with the largest sales figures are Analogic Corp (\$335,557,000) and Cardinal Health (\$100 to 500 Million)



North Shore Employers With Over 100 Employees

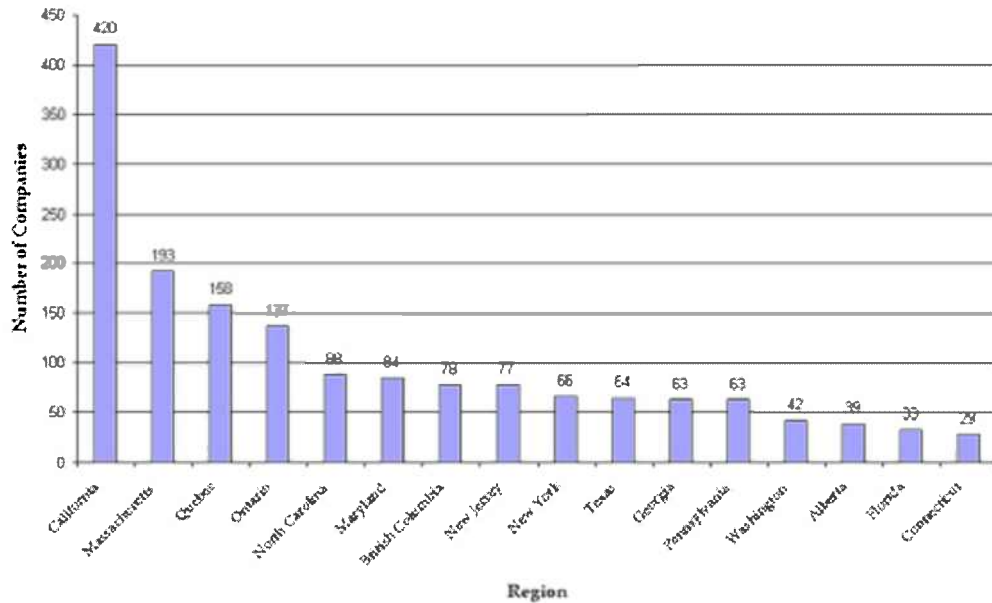
Name	Address	Town	Employees
Abiomed	22 Cherry Hill DR	Danvers	100 TO 249
New England Biolabs	32 Tozer RD	Beverly	100 TO 249
Cell Signaling Technology INC	100 Cummings CTR # 166 B	Beverly	100 TO 249
Cardinal Health	11 Centennial DR	Peabody	250 TO 499
Medtronic Vascular	37 Cherry Hill Drive	Danvers	250 TO 499
Analogic Corp	22 Cherry Hill Drive	Danvers	1029
Thermo Electron Water Analysis	166 Cummings CTR	Beverly	100 TO 249

Biotechnology in Massachusetts and North America¹

The following graph compares the number of North America biotech companies by State and Province. California has the largest number of biotech companies with 420. Followed by Massachusetts with 193 companies, while Quebec (158) and Ontario (137) come in at 3rd and 4th. North Carolina rounds out the top 5 with 88 biotech companies.

¹ www.bio.org

North American Biotech Companies by State and Province



Common Positions in Biotechnology²

Lab Assistant

Requirements: High school diploma, preferably a biotechnology certificate. A minimum work experience of 1-2 years' related laboratory experience

Description: Performs a variety of research/laboratory tasks and experiments under general supervision. Works on assignments that are moderately complex and where judgment is required in resolving problems and making routine recommendations. Maintains laboratory equipment and inventory levels of laboratory supplies. May make detailed observations, analyze data and interpret results, write experimental reports, summaries and protocols. May be responsible for limited troubleshooting and calibration of instruments and assisting in training of entry-level employees. Salary Range: \$24,000 - \$33,000

Advancement: A Lab Assistant needs to further their education in order to advance in Biotech. By obtaining a four-year degree a Lab Assistant can become a Research Associate.

Research Associate

² Information gathered from <http://www.massbio.org/directory>, 12/1/04

Requirements: BS in a scientific discipline and a minimum of 2-5 years' related laboratory experience, or MS with 0-2 years' experience.

Description: Responsible for performing research and development experiments for projects and products, in collaboration with others. Regularly exercises technical discretion in the design, execution and interpretation of experiments that contribute to project goals. Contributes to project process within scientific discipline through innovative research. Prepares technical reports, summaries, protocols and quantitative analyses. May participate in external seminars and scientific conferences. May interact with other sections/divisions on routine matters. Salary Range: \$38,000 - \$50,000

Advancement: As they gain experience, Research Associates take on more responsibility and carry out assignments under only general supervision, and some eventually become supervisors. Research Associates who obtain a PhD may become Head Researcher.

Shipper/Receiver

Requirements: Requires a high school diploma or equivalent. Previous experience and knowledge of shipping and couriers is a plus. A valid driver's license may be required for some positions.

Description: Responsible for loading or unloading, checking, storing, moving and recording the movement of supplies, raw materials, equipment and products to and from internal departments, external suppliers and/or customers. Other responsibilities include preparing bills of lading, invoices, requisitions and other documents, routing shipments, reviewing receipt of all materials and verifying quantities, and ensuring outgoing shipments are packaged according to specification. Salary Range: \$25,000 - \$40,000

Advancement: Advancement for Shippers/Receivers usually comes in the form of higher pay after gaining on the job experience. Some Shippers/Receivers with leadership ability may become their Department Head.

Environmental Technician

Requirements: Requires a high school diploma with some specialized or technical training in an environmental science. A two or three year community college program in environmental technology is preferred. Working knowledge in sampling, data collection and analysis, pollution complaint investigations, instrument calibration, environmental law or experience in assessing environmental conditions is desirable.

Description: Responsible for water and air sampling and monitoring, processing permits, calibration and maintenance of scientific monitoring, data collection, and routine analysis. Records and maintains periodic data logs and information files. Typically works from drawings, specifications, diagrams, schematics and specific verbal and written instructions. Salary Range: \$29,000-\$50,000

Advancement: With experience and a four-year degree in a related field an Environmental Technician can become an Environmental Engineer.

Validation Specialist

Requirements: Requires BS in a scientific, engineering or other related technical field with a minimum of 3 years experience in a regulated industry. Knowledge of current industry practices and cGMP requirements related to validation tasks is required.

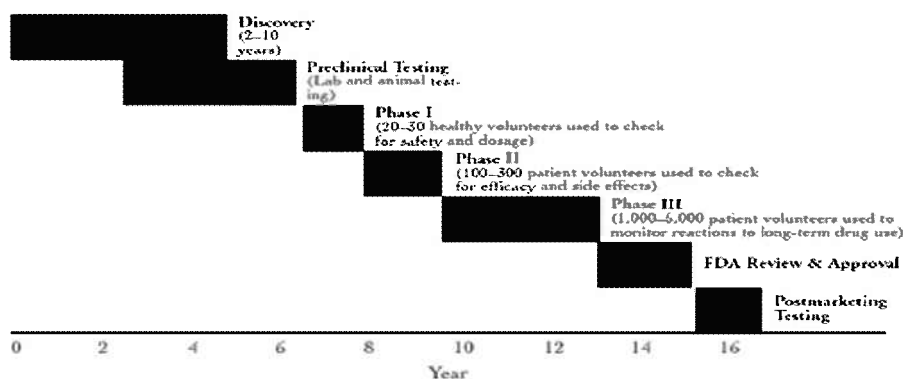
Description: Responsible for developing and recommending validation strategies and designing studies for the purpose of providing documented evidence that a system, equipment, method, or process has been validated. Conducts and processes qualifications programs, writes detailed protocols and reports to document the validation of systems/equipment. Develops and implements solutions to validation issues. Salary Range: \$45,000 - \$60,000

Advancement: With several years experience and a master degree, a Validation Specialist can advance to become a Validation Manager.

Growth In Biotechnology

The biotechnology industry's greatest growth areas are in research and development (pre-clinical and clinical) and manufacturing. As companies search for new products, the need for research staff expands. It typically takes 10 to 15 years to bring a biotech product through clinical trials and into the marketplace. (see graph below) Many biotech companies formed in late 1980s and early 1990s now have products that are nearing clinical and/or commercial manufacturing. Some of the largest companies are expanding their product base, and therefore, their manufacturing capacity. Over the next two years, the demand for qualified manufacturing personnel will continue to increase³.

Biotech Drug Discovery Process



Source: Ernst & Young LLP, *Biotechnology Industry Report: Convergence, 2000*

³ <http://www.massbio.org/>

⁴ <http://www.bio.org/>

Career Advancement in Biotech

The Biotechnology industry has highest educational requirements than most industrial sectors. Advancement in biotechnology usually requires advance degrees in the life sciences. Nearly all positions, except financial, legal, and administrative ones, require bachelor's degree in biology. Middle and upper level positions require at least a Masters degree, if not a Doctorate. The biotech industry is poised for continued growth, through the release and patenting of new drugs/technologies, and this will lead to increased number of hiring's.

Venture Capital

As relatively new and developing industry, venture capital is important to biotechnology. Venture capitalist provide capital to small start up companies or occasional to established companies looking to expand, in return for equity in that company. The majority of biotech companies have received investments from venture capitalist in order to start their operations. The capital provided is important to companies because many biotech companies do not turn a profit until they are able to market a product, which can take over ten years. Since 1990, venture capitalists have invested over 5.8 billion dollars in the United States. According to Kathy Behrens, chairman of the National Venture Capital Association, "...without patient investment from venture capitalists, this industry (Biotechnology) literally would not exist."⁵

Biotechnology Companies On The North Shore

Name	Address	Town
Abiomed	22 Cherry Hill DR	Danvers
Agencourt Bioscience Corporation	500 Cummings CTR # 245 0	Beverly
Cell Signaling Technology	166B Cummings CTR	Beverly
Hamilton Thorne Bioscience	100 Cummings CTR # 102 C	Beverly
Inotek Corporation	100 Cummings CTR #419 E	Beverly
Zyme Quest	100 Cummings CTR # 436 H	Beverly
Meiogen Biotech Corp	100 Cummings CTR	Beverly
New England Biolabs	32 Tozer RD	Beverly
New England Biolabs Organic	114 Cummings CTR # Q	Beverly
Northeast Biomedical Research	100 Cummings CTR # 439C	Beverly
Biochemics INC	3 Electronics AVE	Danvers
Biochemics INC	99 Rosewood DR # 260	Danvers
Rowley Biochemical Institute	10 Electronics AVE	Danvers
Ancora Pharmaceutical	100 Cummings CTR	Beverly
Cell Signaling Technology INC	100 Cummings CTR # 166 B	Beverly
Cutispharma INC	100 Cummings CTR # 421C	Beverly
Eliza CORP	100 Cummings CTR	Beverly
Microstealth Technologies Corp	100 Cummings CTR	Beverly
Cardinal Health	11 Centennial DR	Peabody

⁵ Kathy Behrens, Speech, September 29, 1999, www.nvca.org/testimony.html

Advanced Protein Technologies	178 Granite ST	Rockport
Medtronic Vascular	37 Cherry Hill Drive	Danvers
Collagenesis INC	500 Cummings CTR	Beverly
Natural Pharmaceuticals	100 Cummings CTR	Beverly
MR3 Systems	100 Cummings CTR	Beverly
Incyte Corp	100 Cummings CTR	Beverly

Biotech Support Companies at the Cummings Center

The Cummings Center in Beverly has the highest concentration of Biotechnology companies on the North Shore. The following is a list of Companies, in the Cummings Center, that support the Biotech Industry. These companies support biotech through the goods and/or services they produce, whether it is supplying equipment, consulting biotech companies, or being contracted to perform research

Name	Business Type	Phone	Employees
Filter Sense	Equipment Suppliers	(978) 927-4304	N/A
Thermo Water Analysis Instruments	Equipment Suppliers	(978) 232-6000	100 to 249
Axya Medical	Equipment Suppliers	(978) 232-9997	20 to 49
Micro Line	Equipment Suppliers	(978) 922-9810	100 to 249
Sensitech	Equipment Suppliers	(978) 927-7033	50 to 99
Soltec Ventures	Consulting Services	(978) 922-9446	1 to 4
Neurological Models	Contract Research	(866) 922-3160	N/A