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Biotechnology on the North Shore

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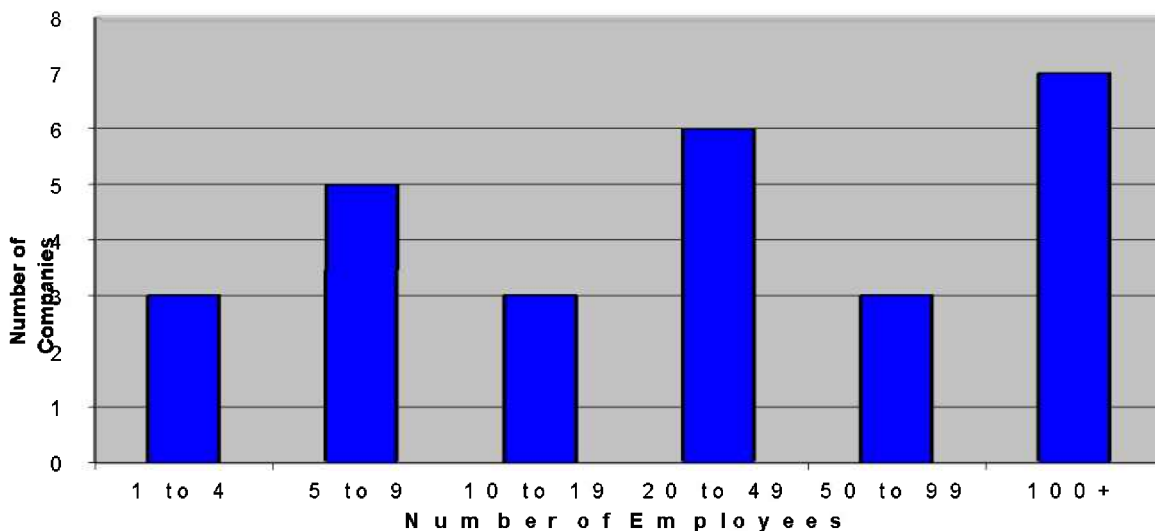
The Biotechnology Sector Of The North Shore

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.

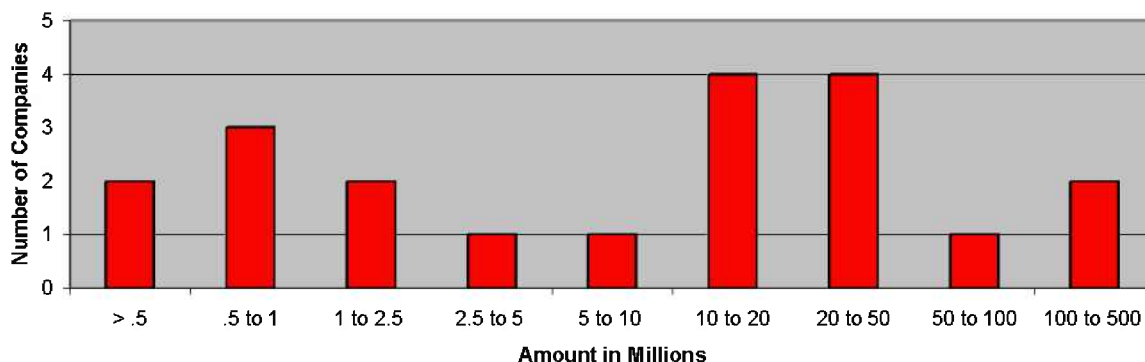
NORTH SHORE EMPLOYERS

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

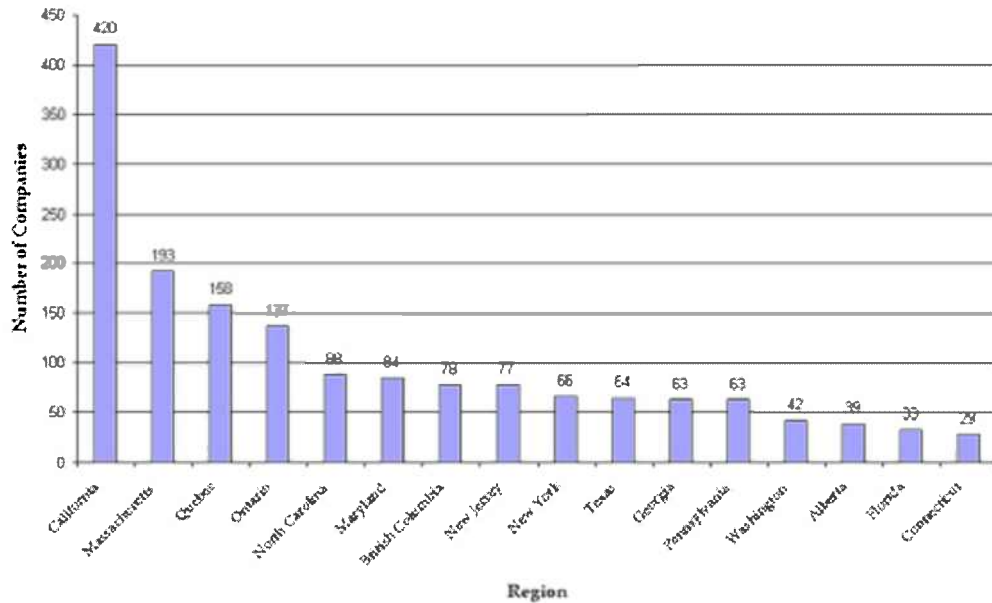
Name	Address	Town	Employees
Abiomed	22 Cherry Hill DR	Danvers	100 TO 249
New England Biolabs	32 Tozer RD	Beverly	100 TO 249
Cell Signaling Technology INC	100 Cummings CTR # 166 B	Beverly	100 TO 249
Cardinal Health	11 Centennial DR	Peabody	250 TO 499
Medtronic Vascular	37 Cherry Hill Drive	Danvers	250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

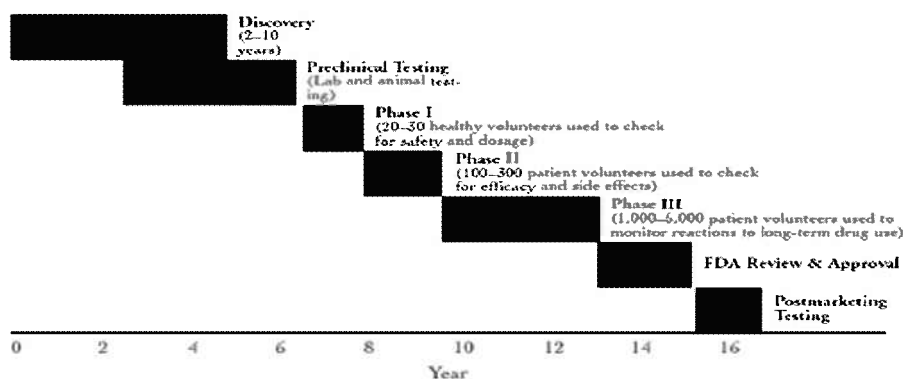
Description: Responsible for developing and recommending validation strategies and designing studies for the purpose of providing documented evidence that a system, equipment, method, or process has been validated. Conducts and processes qualifications programs, writes detailed protocols and reports 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*

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³ <http://www.massbio.org/>

⁴ <http://www.bio.org/>

