

Central New York



Resource Profile for Attracting Biotech-Life Sciences Companies

- Research & Development
 - Laboratory / Testing
 - Process Technology
 - Manufacturing
 - Pharmaceuticals
-

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Greater Syracuse Economic Growth Council

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Table of Contents

Topic	Page
• Overview on the Biotech / Life Sciences Industry in Central New York	1
• Listing of Biotech / Life Sciences Companies in the Region	2
• Map Noting Locations of Biotech / Life Sciences Companies	3
• Employer Interviews With Supplementary Information	4
• Cost of Labor Comparison for Select Positions	5
• Education Resources	6
• Map Noting Colleges and Universities Within the Region	7
• Business Development Resources	8
• Research Environment	9
• Comparison of Real Estate Costs	10
• Infrastructure Overview	11
• Incentive Opportunities	12
Appendix	
• Overview on the U.S. Biotech / Life Sciences Industry	

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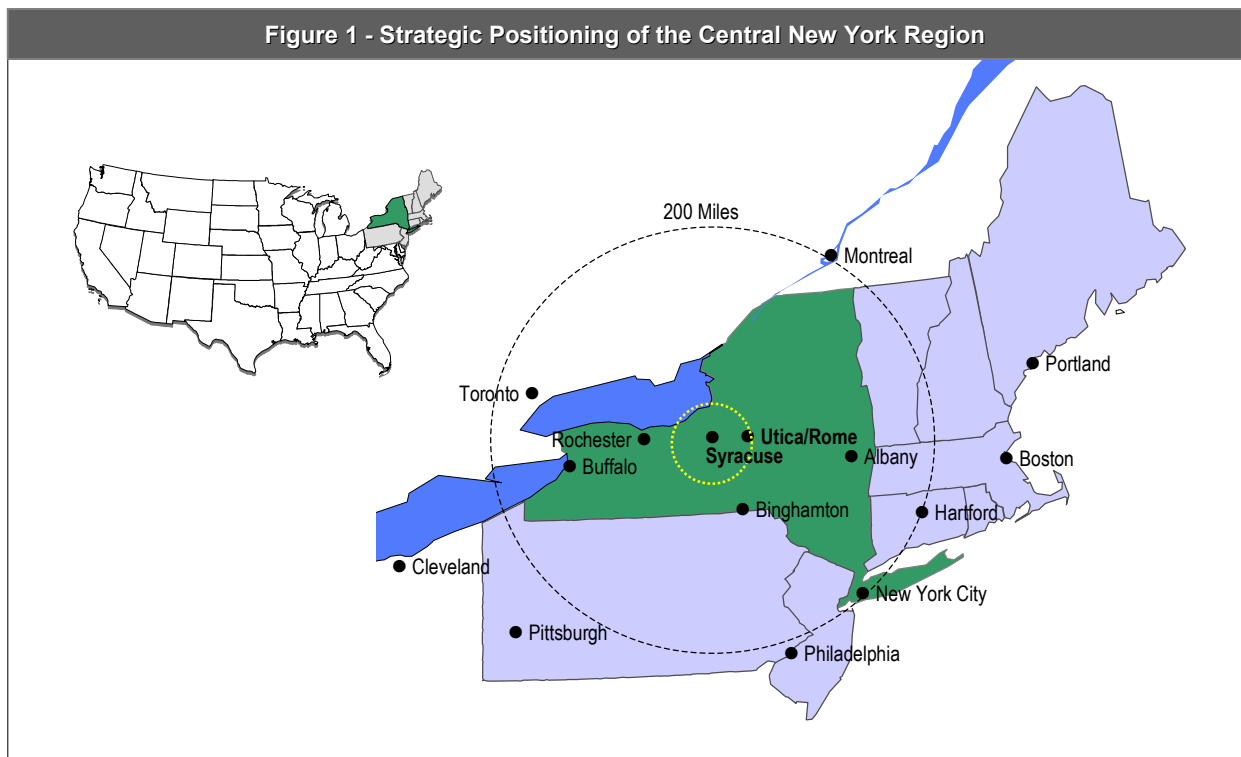
The purpose of this report is to provide objective information concerning the biotech / life sciences industry within Central New York State to support companies in making decisions concerning the establishment of operations in the region. Information is provided on a best-effort basis and has been compiled by Moran, Stahl & Boyer, a recognized national site selection and economic development consultant. It is recommended that a prospective company thoroughly review the community and determine their ability to be successful prior to making a final location decision.

Overview on the Biotech-Life Sciences Industry in Central New York

The Central New York region is taking steps to capitalize on the area’s valuable talent and research activity to propel itself into one of the nation’s top centers in biotechnology and life sciences. The area is already home to sizable operations by companies such as Bristol-Myers (which recently launched a Biologics Center to capitalize on its local technology and talent base) and medical device manufacturers Conmed and Welch Allyn.

Research institutions are the linchpin of the region’s biotech industry. Cornell University, Syracuse University, SUNY – Upstate Medical University and SUNY – College of Environmental Science and Forestry are just a few of 12 plus institutions helping to propel the area into one of the top biotech research centers in the nation. In addition, Central New York ranks in the top 2% in annual graduates in related fields.

While research activity is a critical component to fostering biotechnology growth, the region is moving forward to provide more targeted support services to emerging and existing companies. One of the highlights is the new Central New York Biotechnology Research Center, which recently received Phase I funding. The center will focus on bioprocess engineering research and provide incubator, lab space and support services for emerging biotech companies. The Department of Entrepreneurship and Emerging Enterprises at Syracuse University, the Center for Advanced Technology in Biotechnology at Cornell are additional resources that will be critical in the future growth of the industry.

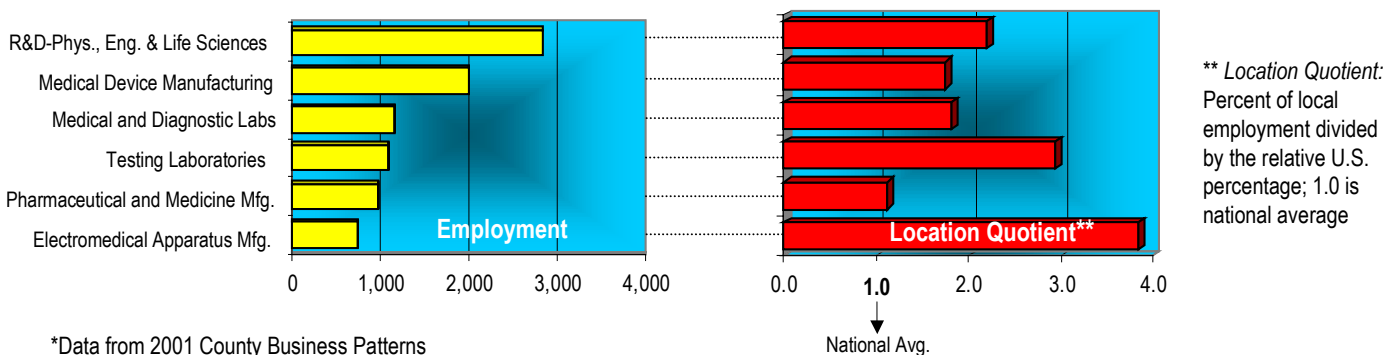


Biotech-Life Sciences Companies in Central New York

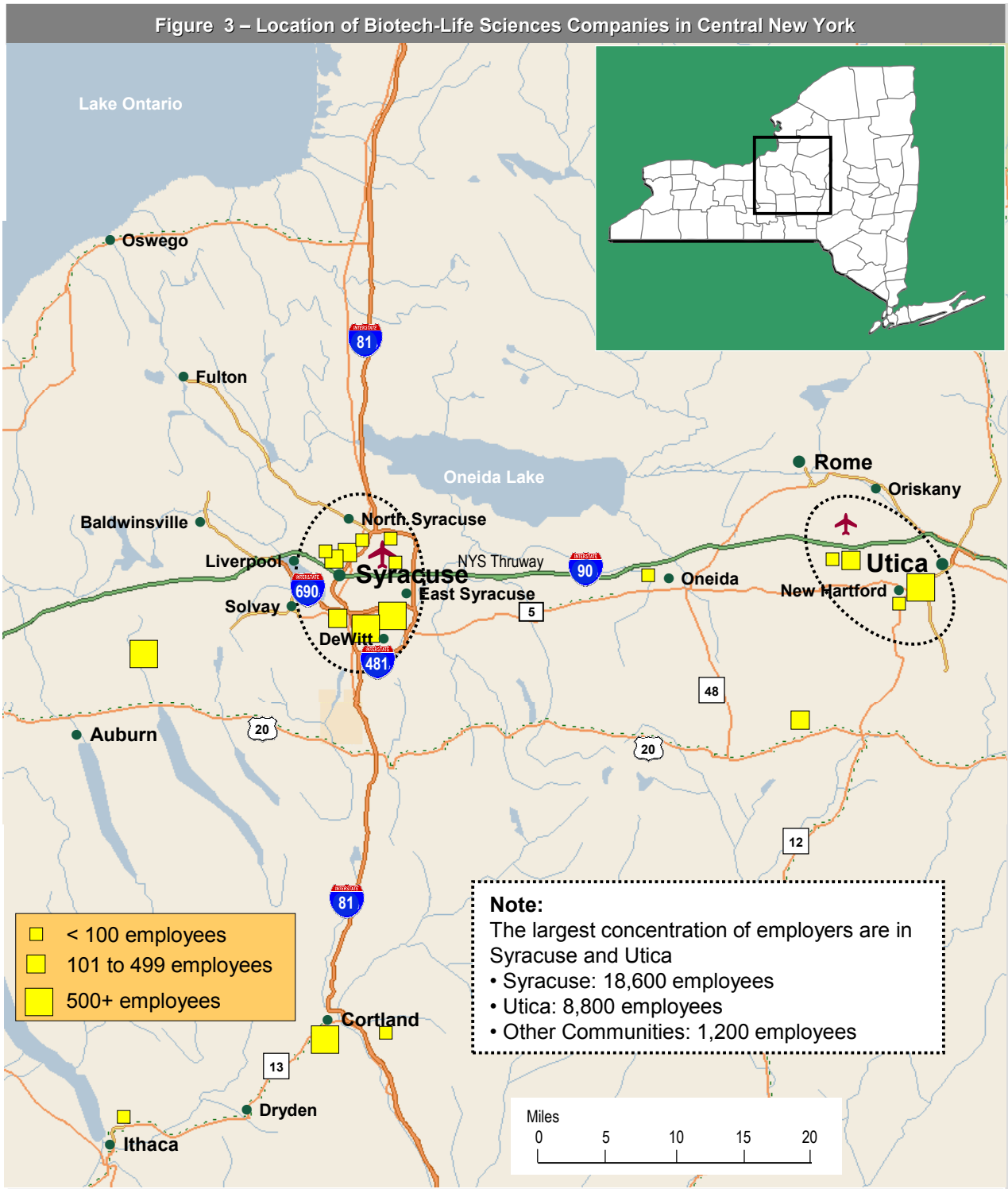
Table 1 – Bio-Life Sciences Companies in Central New York Area With 50+ Employees			
Company	Scope of Operations	Location	Employment
Advion Biosciences Inc	Pharmaceutical Laboratory Services	Ithaca	90
Albany Molecular Research, Inc.	Chemical Process R&D	North Syracuse	55
B G Sulzle Inc	Medical Device Manufacturing	North Syracuse	375
Bristol-Myers Squibb Co.	Pharmaceutical Mfg. & Research	East Syracuse	775
Centrex Clinical Laboratories	Clinical Laboratory	New Hartford	50
Conmed Corp.	Medical Device Manufacturing	Utica	1,100
DHD Healthcare Corp.	Medical Device Manufacturing	Wampsville	100
Hanford Pharmaceuticals	Pharmaceutical Manufacturing	Syracuse	300
Higgins Supply Company, Inc.	Medical Supply Manufacturing	McGraw	65
Infimed, Inc.	Medical Device Manufacturing	Liverpool	60
Laboratory Alliance of Central NY	Clinical Laboratory	Liverpool	135
Oneida Research Services, Inc.	Laboratory Testing Services	Whitesboro	120
Pall Corp.	Medical Supply Manufacturing	Cortland	700
Prevalere Life Sciences	Bio-Pharma. Analytical/Consulting	Whitesboro	85
Quest Diagnostic	Clinical Laboratory	North Syracuse	80
State Univ. of NY Health Science Ctr.	Academic/Research Medical Center	Syracuse	6,000
Tyco Healthcare Group LP	Medical Device Manufacturing	Oriskany Falls	230
Upstate Labs, Inc.	Analytical Chemistry Testing	East Syracuse	60
Welch Allyn, Inc.	Medical Device Manufacturing	Skaneateles Falls	1,300

Central New York exhibits very strong concentrations of employment in major industry sectors (as measured by location quotient). Strongest concentrations of employment are in the electromedical device manufacturing and testing laboratories sectors.

Figure 2 – Key Biotechnology Employment Segments*



Biotech-Life Sciences Companies in Central New York



Employer Interviews With Supplementary Information

Interviews with representatives from area biotech and life sciences companies were conducted through a series of structured questions along with a general discussion.

Overall Situation and Impressions of the Local Labor Market

The employers interviewed rated the overall quality of the labor force as very good to excellent. Quality of graduates from regional universities was noted as generally very good. General availability of candidates with basic biology or chemistry backgrounds is considered good. Quality and overall supply of labor in the Syracuse area from good to excellent and superior.

Work ethic is noted as very strong in the region with low turnover reported by most employers. Recruiting employees from outside the area can be challenging. However, once employees relocate to the area, employers generally find a high level of satisfaction with the region's quality of life.

- **Length of Time in Central New York** – while the region has a grown presence of smaller biotech / life sciences firms, most large employers have a relatively long history within the area.
- **Unionization** – unionization at area biotech / life sciences employers is not common.
- **Average Absentee Rate and Attrition** – interviewees noted generally very low turnover (compared to other markets MS&B has studied)
- **Average Commute Time** – average time is about 20 minutes with higher-level managers, researchers and other professional staff traveling up to 45 minutes
- **Mode of Transportation** – most employees in this industry drive to work. No interviewees noted the use of public transportation by employees.
- **Number of Weather-Related Days Impacting Operations** – Severe weather in Central New York is a result of significant snow fall. However, employers note that the number of days snow impacts their facility operations is only 1 or 2 each year. The region offers efficient snow removal services and interviewees note that their employees are accustomed to driving in inclement weather.
- **Skills Easiest to Recruit** – agricultural researchers, recent biology/biomedical graduates, recent chemistry/biochemistry graduates (particularly those with family ties to the region), entry-level machine operators.
- **Skills Hardest to Recruit** – specialists such as: cell biologists, pharmaceutical chemists, histotechnologists and bioprocess manufacturing, along with masters and PhD chemists, and biochemists. Several employers report hiring 2/4 degree biology and chemistry graduates and providing required specialized training. High-level research specialists and executives are challenging to find within the region.

Challenges to recruiting employees from outside the region include: misperceptions of quality of life, concerns over weather conditions, perceptions that NY State has a high cost of living (even though cost of living in Syracuse area is considered very attractive), lack of amenities for younger college graduates (area is noted as a very good place for families).

Employer Interviews With Supplementary Information (cont'd)

- **Skills Hardest to Retain** – higher-level biotech / life sciences staff can be challenging to retain due to national competition for such talent. Entrepreneurs in the industry are also sometimes lured from outside the region due to venture capital availability and support. Other types and levels of employees generally stay with their local employer as job-hopping is not as prevalent in the area compared to other parts of the country.
- **Business Environment** – overall, employers confirm there is a growing list of resources to support the industry in the region. The Department of Entrepreneurship and Emerging Enterprises at Syracuse University, the Center for Advanced Technology in Biotechnology at Cornell and the new Central New York Biotechnology Research Center (recently secured \$35m in funding to kick-off the center) are all noted by employers as valuable tools in fostering growth within the industry.
- **Cost of Labor** – overall wages for biotech / life sciences related labor in Central New York State are considered very competitive with other major cities in the Northeast and with other large biotech centers in the U.S.



Central NY Biotech Research Center
Partnership between multiple Universities, private industries and local, state and federal governments. Early rendering of the Center.

Table 2 - Comparison of Labor Cost Index and Mean Annual Salary for Selected Positions

Location	Labor Cost Index ¹	Biochemist ²	Biomedical Engineering Technician ²	Chemical Engineer ²	Micro-biologist ²	Pharma-cologist ²	Process Engineer-Manuf. ²	Statistician ²
U.S. Average	100	65,620	38,250	75,010	55,700	66,200	63,590	60,000
Capital Region	101.4	66,910	39,542	76,320	58,735	68,980	64,320	62,543
Boston	110.5	70,430	42,720	81,580	66,050	72,830	69,000	61,190
Buffalo	101.7	67,806	39,670	72,940	53,540	70,780	65,498	60,450
Hartford	110.1	71,827	39,160	76,950	60,998	69,820	69,228	61,920
New York City	116.2	76,051	43,466	85,780	65,306	76,636	73,177	70,762
Philadelphia	109.0	70,580	40,369	79,528	59,743	70,545	66,162	61,880
Rochester	103.3	69,043	39,394	84,450	58,440	69,740	66,197	61,939
Central New York	101.2	66,728	38,632	73,880	57,315	68,388	64,935	60,900

Data Sources:

1. Economic Research Institute (10/03)
Based on salary level of \$50,000
2. U.S. Bureau of Labor Statistics (2002),
Economic Research Institute (2004)



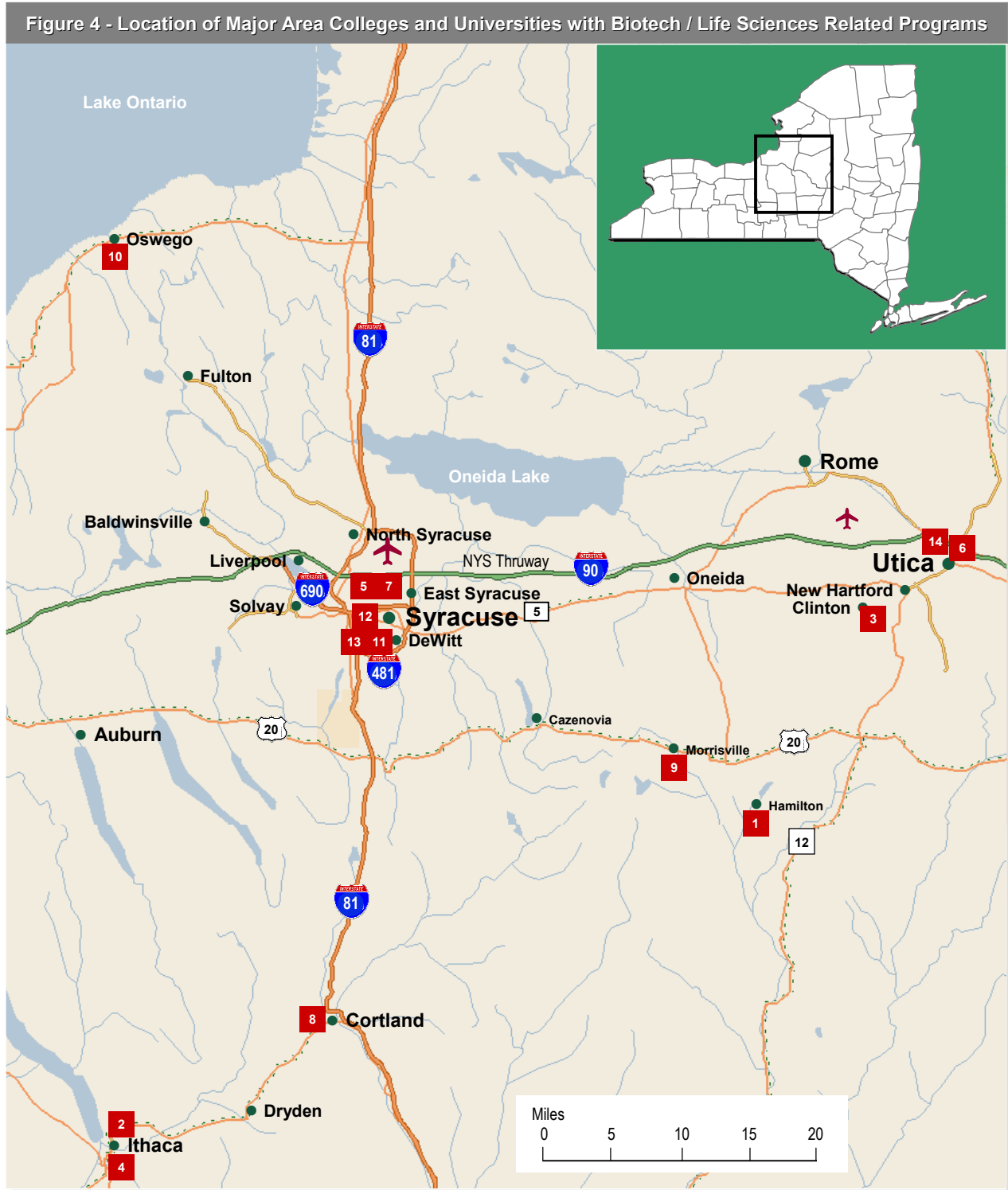
Education Resources

Central New York has a variety of education resources available for biotech / life sciences operations.

Table 3 - Colleges/Universities Within the Region With 500+ Full-Time Students				
No.	College/University	Location	Students	Applicable Programs
1	Colgate University	Hamilton	2,800	> Biology, Molecular Biology > Chemistry > Ecology > Neuroscience
2	Cornell University	Ithaca	14,000	> Agribusiness, Agricultural Engineering > Biology, Biomedical Science, Biometrics, Biochemistry, Plant Biology > Chemical Engineering, Chemistry > Entomology > Genetics > Neuroscience > Nutrition Science > Toxicology
3	Hamilton College	Clinton	1,700	> Biology, Biochemistry > Chemistry > Neuroscience
4	Ithaca College	Ithaca	6,100	> Biology, Biochemistry > Chemistry
5	LeMoyne College	Syracuse	2,150	> Biology > Chemistry
6	Mohawk Valley Community College*	Utica	5,300	> Chemical Technician
7	Onondaga Community College (OCC)*	Syracuse	8,000	> Surgical Technologist
8	SUNY – Cortland	Cortland	5,600	> Biology
9	SUNY – Morrisville*	Morrisville	2,800	> Agribusiness > Laboratory Technician
10	SUNY – Oswego	Oswego	6,400	> Biology, Animal Biology > Chemistry
11	SUNY College of Environmental Science and Forestry			> Biotechnology (<i>new</i>) > Chemistry
12	SUNY – Upstate Medical University			> Microbiology > Pharmacology > Neuroscience
13	Syracuse University	Syracuse	17,000	> Biology, Biomedical Engineering, Biochemistry, Biophysics > Chemistry, Chemical Engineering > Neuroscience
14	Utica College of Syracuse University	Utica	1,800	> Biology > Chemistry

* Two-year college programs

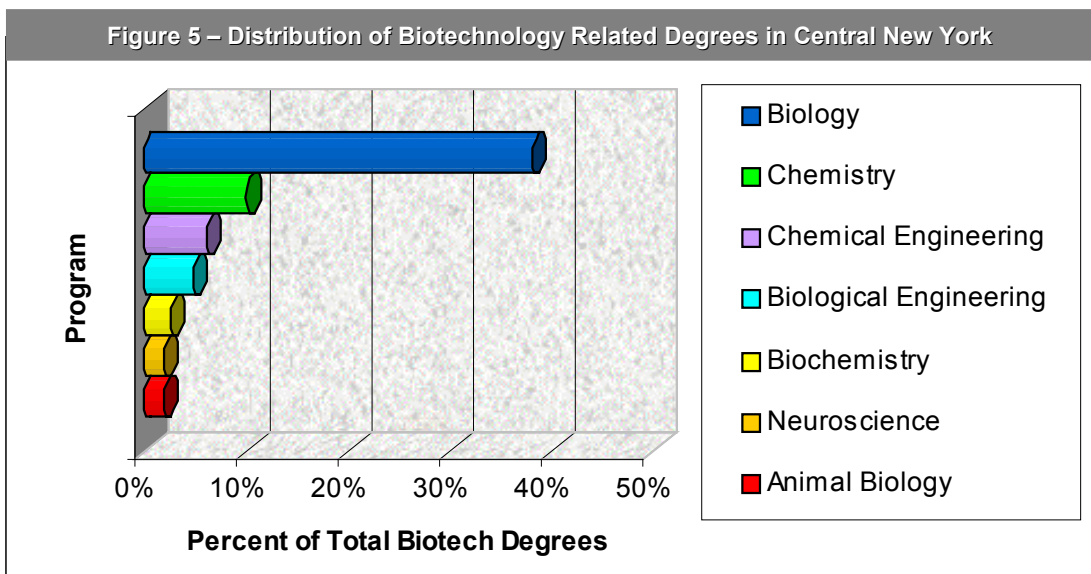
Colleges and Universities in Central New York



Education Resources

Over 70,000 students attend both public and private colleges and universities (see list in Table 3 on page 6) within the region with a wide range of biotech / life science programs. Approximately 1,600 people graduate annually with biotechnology and life sciences related degrees.

Central New York ranks in the top 2% nationally in annual biotech related graduates



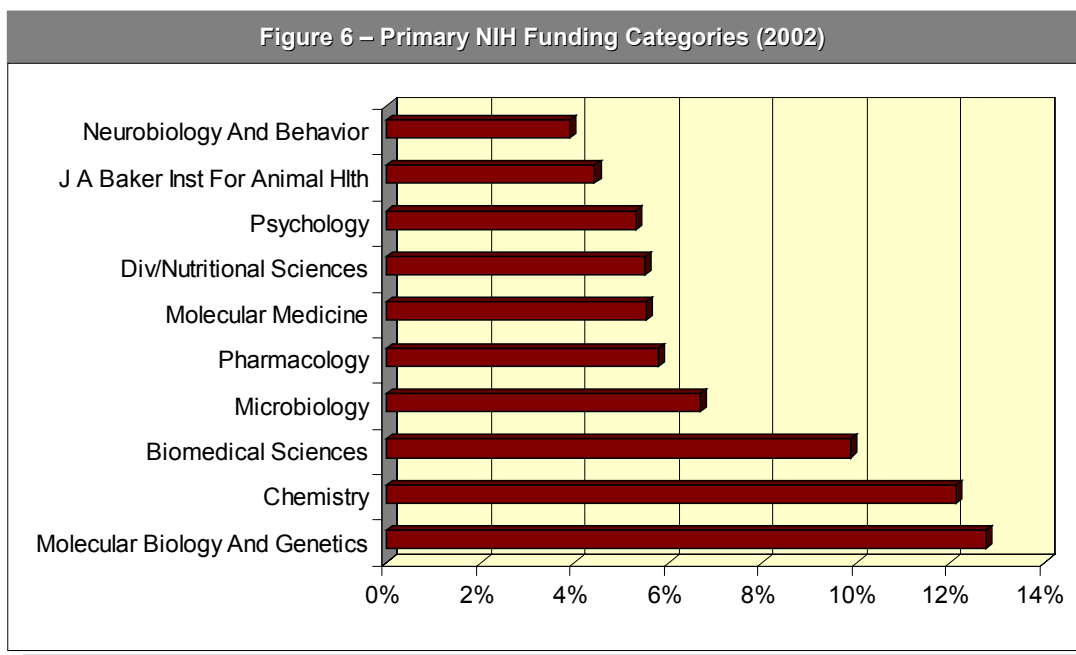
Business Development Resources

- **Cornell University:** Center for Advanced Technology in Biotechnology, in conjunction with the Center for Technology, Enterprise & Commercialization, can provide employee training, provide experts to advise existing or start-up operations and assistance in moving research out into the marketplace.
- **Syracuse University:** The Department of Entrepreneurship and Emerging Enterprises (one of the top rated programs in the nation) offers entrepreneurship courses, a research center and emphasizes technology commercialization in the form of new business ventures.
- **Central New York Biotechnology Research Center:** New center to be located in the heart of Syracuse’s medical and higher education corridor will focus exclusively on the development of new biotechnology ventures.

Research Environment

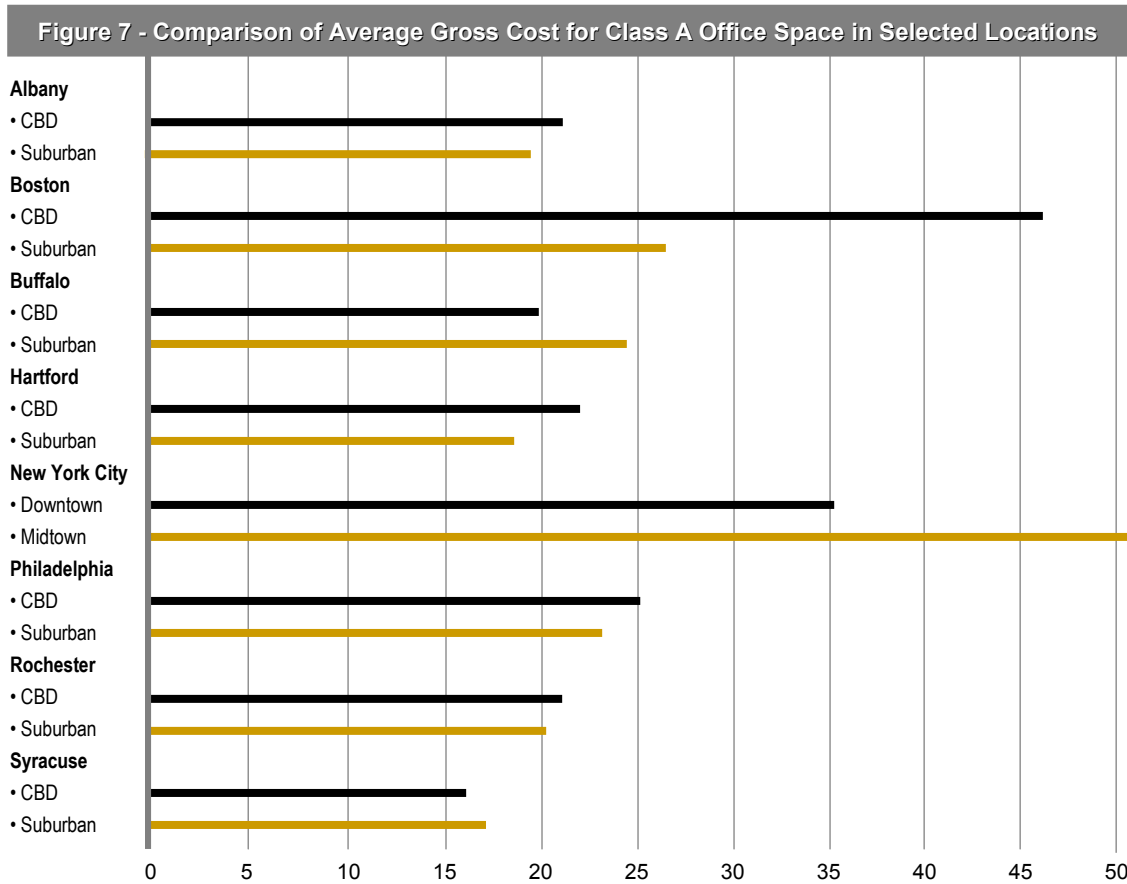
The region generates impressive numbers in terms of research and development and biotech / life sciences funding, on par with other major biotech research centers such as St. Louis, Washington, DC, Pittsburgh, Ann Arbor, MI, and San Diego.

Table 4 – Biotechnology and Life Sciences Research Funding in Central New York		
Location	Amount	Comments
Total Research & Development Funding (2001)	\$302,329,000	Ranks in the top 15% nationally (Cornell and SUNY – Upstate Medical are local leaders in R&D funding)
Total National Science Foundation Funding (2003)	\$119,553,000	14% of NSF funding is in bio sciences (compared to 11% nationally)
National Science Foundation Funding – Bio Sciences (2003)	\$16,408,000	Annual funding in Bio Sciences has grown by 30% since 1998 (compared to 39% growth throughout the U.S.)
National Institutes of Health Grant Value (2002)	\$81,379,244	Growth in annual grants as grown by 44% since 1998 (compared to 72% growth throughout the U.S.)
Venture Capital Funding (2003)	\$16,500,000	No major funding in biotech / life sciences during 2003
Total Technology Transfer Value (2001)	\$13,113,344	Ranks in the top 15% nationally



Comparison of Real Estate Cost

- Real estate costs were compared based on gross operating cost for Class A space in each location in both the central business district (CBD) and suburban locations with the exception of New York City that was based on Midtown and Downtown locations.
- Syracuse compared very favorably, in fact, has the lowest average rates (\$16/SF CBD and \$17/SF in suburban areas).



Data Sources: published rates from CB Richard Ellis, CRESA Partners and Pyramid Realty

Selected List of Potential Locations for Biotech / Life Sciences Operations

A selected list of potential properties for biotechnology and life sciences operations is provided below. There are potentially other sites available depending on the size requirements and location desired.

Table 5 – Available Real Estate for Major Financial Services Operations			
Description	Location	Size	Comments
Syracuse Research Park	South Syracuse; adjacent to Syracuse University	99 Acres	Direct access to all research and academic resources at Syracuse University. Accessibility to nearby institutions, including SUNY Health Science Center, SUNY College of Environmental Science and Forestry and Syracuse Veterans Administration Medical Center. All utilities, including fiber are in place. Easy access to I-81 and I-481.
Hancock Airpark	Cicero; adjacent to Hancock International Airport	425 Acres	Former U.S. Air Force facility. Land is available for light manufacturing, research, office space and distribution. The Airpark is located in a New York State Empire Zone and Federal Empowerment Zone.
Radisson Corporate Park	Baldwinsville; 12 miles Northwest of downtown Syracuse	950 Acres; available sites from 2 to 100 acres	Mixed use development including residential (up to 3,500 homes), educational options and a business park. Approximately 20 corporate operations are currently housed within the business park. Nearly 1 million square feet of retail space is located nearby.
Central New York Biotechnology Research Center	Syracuse	240,000sf	Planned biotechnology center, which recently received phase one funding, to be located near SUNY Upstate Medical and the SUNY College of Environmental Science and Forestry (ESF). The facility will provide space for biotech researchers to collaborate from a variety of public and private institutions, along with laboratories, incubator facilities and high-tech training space for regional life sciences firms.
Syracuse Technology Garden	Syracuse	32,000sf	New technology incubator, under construction downtown, is targeted towards start-up firms seeking to develop and manufacture their products.

Additional Infrastructure Resources

Water: Local employers consider the abundant availability of clean water to be a mater asset to those manufacturing operations requiring large amounts of this natural resource.

Electricity: Electric rates, in general, appear competitive compared to other locations in the Northeast and somewhat more expensive than national averages.

Air Access: Direct, non-stop flights to most major cities in the Northeast and to major hub airports in Atlanta, Chicago, Charlotte and Cincinnati.

Incentive Opportunities

Biotechnology Specific Incentives

Empire State Development can offers the following incentives targeted to biotech / life sciences operations:

- **Biotechnology Industry Growth Fund:** Aimed at start-up companies, the fund provides capital for research and manufacturing facilities, including commercialization of products from laboratories
- **Biotechnology Investment Refundable Tax Credit:** Expands the general investment tax credit program to apply to a broader range of biotech related companies
- **Qualified Emerging Technology Employment Credit:** A credit of \$1,000 per employee for a three year period after meeting minimum employment levels. Unused credits can be carried forward indefinitely and new businesses can be eligible to receive a refund of the credits.
- **Qualified Emerging Technology Company Capital Tax Credit:** Credit (between 10% and 20%) based on a percentage of a particular investment's value. Details are available at www.nylovesbiz.com.

NYS Empire Zone and Federal Empowerment Zone Benefits

Selected locations within the region qualify as **New York State Empire Zones**. Empire Zones offer access to tax credits and incentives to qualified zone businesses and can significantly reduce or eliminate business taxes through credits for real property taxes paid, sales tax exemptions for all goods and services used by certain businesses and state tax credits for new job creation. It also provides up to 10% Investment Tax Credit to manufacturers that acquire, construct, reconstruct or erect property within the Empire Zone. Potential incentives available to qualified employers are:

- **Real Property Tax:** building owners can receive a refundable credit for property taxes paid against business tax equivalent
- **Sales Tax Exemption:** on the purchase of goods and services for up to ten years. In downtown Syracuse, this amounts to 7% (4.25% State and 3% local . . . varies slightly throughout the region)
- **Tax Reduction Credit:** an income tax credit that can reduce or eliminate all New York State tax liability generated by Empire Zone operations. This credit is available for up to 15 years and is reduced by 20% per year for the last five years
- **Wage Tax Credits:** New York State tax liability credit for a five year period, this credit is \$1,500 per eligible employee and \$3,000 per targeted low/moderate income employee
- **Utility Rate Reduction:** Niagara Mohawk – A National Grid Company – offers marginal cost based electric delivery via an Empire Zone Rider and discounts on delivery of natural gas. Details are available on the web at: www.shovelready.com/growing/lowcost.asp#anchor3

New businesses coming into New York State may pay NO TAXES for as long as 10 years and existing businesses that are projecting job growth can qualify for these benefits as well. Complete information on Empire Zone benefits can be found on the following web site: www.syracusecentral.com/

Downtown Syracuse locations also have received **Federal Empowerment Zone (EZ)** designation. The primary benefit to the new EZ is a federal tax incentive package for businesses to locate and expand within these areas. These incentives include wage credits, tax deductions, tax exempt bond financing and capital gains exclusions. Each incentive is tailored to meet the particular needs of a business and offers a significant inducement for companies to locate within the EZ and hire workers that reside in the EZ. Additional Information on Syracuse's Federal EZ can be found at: www.syracuse.ny.us/empowermentzone.asp

Appendix

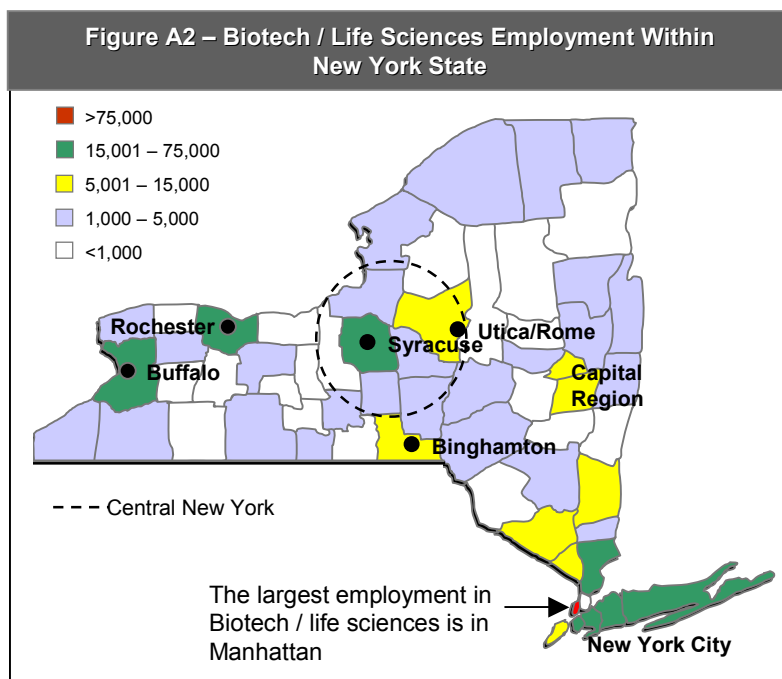
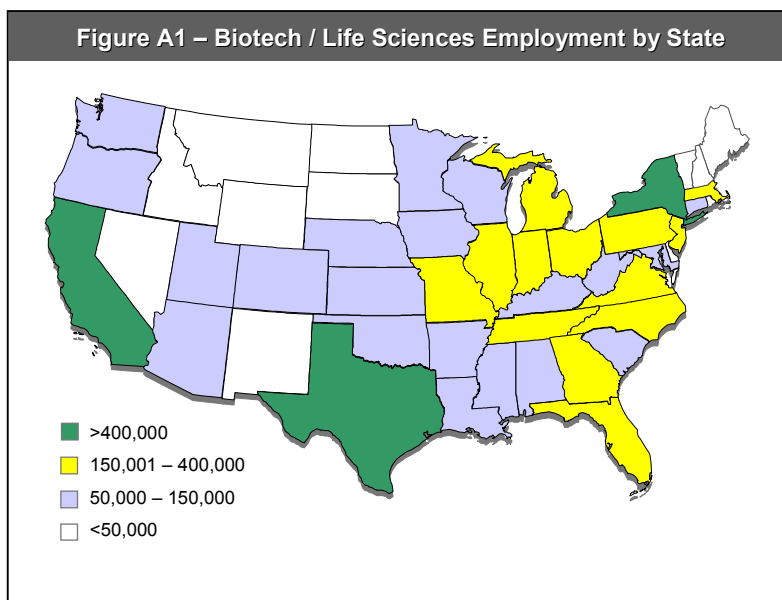
Overview on the Biotechnology / Life Sciences Industry

Employment within the industry is based on the following NAICS Codes:

- 325199 – Organic Chemical Manufacturing
- 3253 – Agricultural Chemical Manufacturing
- 3254 – Pharmaceutical and Medicine Mfg.
- 334510 – Electromedical and Electrotherapeutic Mfg.
- 334516 – Analytical Laboratory Instrument Mfg.
- 334517 – Irradiation Apparatus Manufacturing
- 3391 – Medical Equipment and Supplies Mfg.
- 54138 – Testing Laboratories
- 54171 – R&D Physical, Engineering, and Life Sci.
- 54194 – Veterinary Services
- 6215 – Medical and Diagnostic Laboratories
- 622 – Hospitals

Table A1 - Top 20 Metro Areas for Biotech / Life Sciences Employment	
Greater New York City	475,378
Greater Los Angeles	240,241
Greater Chicago	210,900
Boston	172,216
Philadelphia	154,025
Houston	100,439
San Francisco	100,254
Detroit	96,130
Dallas-Ft. Worth	85,593
Atlanta	79,543
San Diego	74,515
Minneapolis-St. Paul	73,904
Pittsburgh	73,812
San Jose	72,115
Washington, DC	70,480
Seattle	66,799
Baltimore	65,721
Tampa-St. Petersburg	59,759
St. Louis	69,600
Miami-Fort Lauderdale	57,998
Central New York	28,606

Data Source: U.S. Census, Bureau of Labor Statistics



Overview on Biotech / Life Sciences Industry: Trends

- **Overall Growth** – The industry has seen rapid growth in recent years which has led to restructurings and an increasing focus on cost containment. In less than 10 years, biotechnology related revenues increased from \$8 billion in 1992 to nearly \$35 billion in 2001 and U.S. employment in the industry more than doubled in the same period. Biotech related patents have grown from around 2,500 per year in the early '90s to nearly 7,700 per year since 1998. While the industry does not necessarily generate the largest number of new jobs, it does generate some of the highest paying jobs in the country. The industry is expected to post very strong growth statistics into the future. At the same time, pharmaceutical companies are increasingly focused on raising productivity and lowering costs, while spiraling consumer costs threaten to slow demand for future products across industry sectors.
- **Outsourcing** – Growing signs of job outsourcing are present within the industry. Production of pharmaceuticals was the first key sector to outsource operations and the practice has begun to spread to the biotechnology sector as well. Hundreds of late-stage experimental drugs have the potential to come to the marketplace during the next several years but lower operating costs in overseas locations (taxes, labor, real estate) will be a source of competition for U.S. municipalities and states. The first wave of biotech outsourcing has involved drug testing and clinical trials. However, strong regulation of biotech development and manufacturing processes in the U.S. and strong collaborations between researchers may slow outsourcing within this sector.
- **National / International Competition** – Dramatic increase of biotech related research parks and business centers and very generous incentive packages, both domestically and internationally, is likely to continue into the near future. In the U.S. firms largely continue to cluster in particular locations to take advantage of such items as research facilities and personnel, collaboration opportunities and venture capital.
- **Industry Restructuring** – The biotech industry continues to be in flux with growing signs of corporate consolidations, restructurings and mergers. While large bio/pharma companies, such as Amgen, Bristol-Myers, GlaxoSmithKline, Genentech and Pfizer continue to dominate the landscape, the formation of numerous smaller to mid-sized firms continues, with firms increasingly forming R&D alliances. Today's environment affords companies the opportunity to focus on what each firm does best, similar to the previous progression of the computer and software industries.
- **Innovations** – Advancements in bio-agriculture, bioprocess technology, cellular culture and cloning, protein engineering, biosensors, genomics and the emergence of bio-nanotechnology will continue to propel the industry into the future.