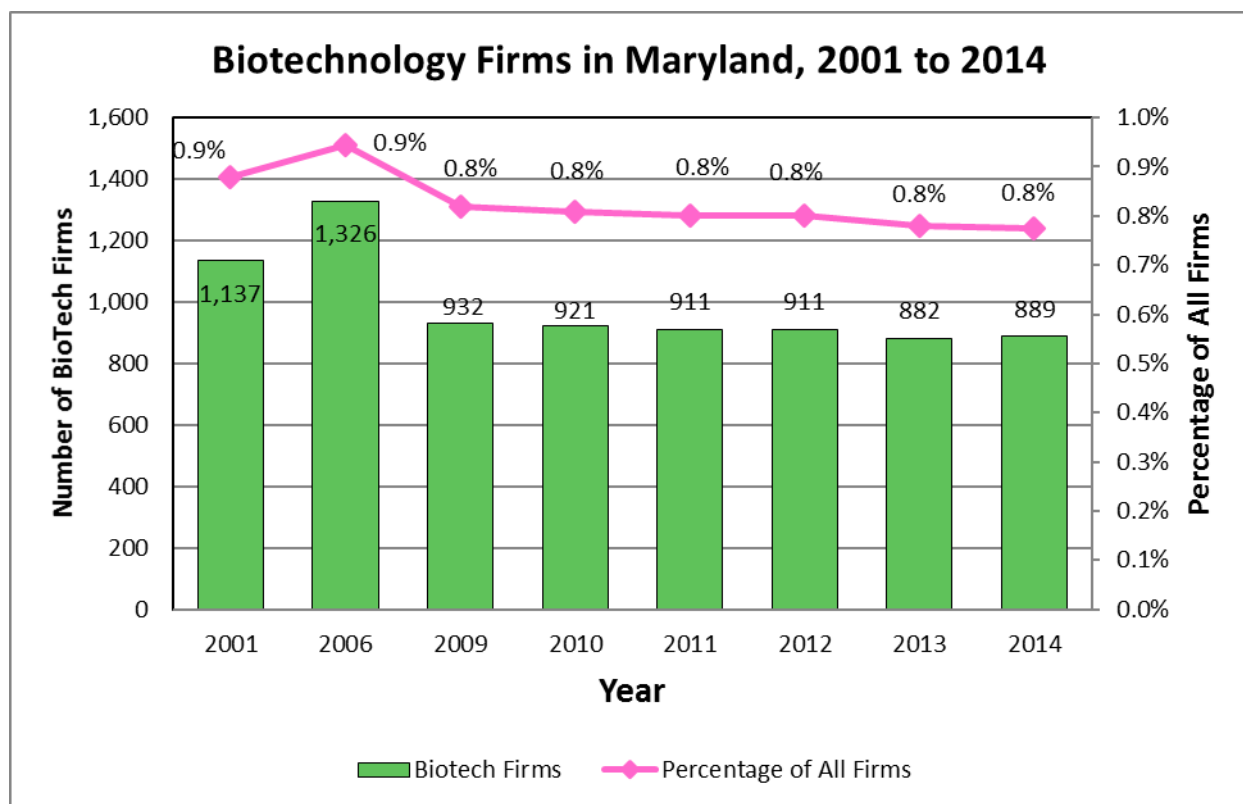


Biotechnology Establishments in Maryland – 2014

There were 889 biotechnology establishments in Maryland in 2014, representing 0.8 percent of all Maryland establishments, according to an analysis of NAICS¹ codes in the 2014 U.S. Census Bureau's Zip Code Business Patterns by the Maryland Department of Planning. The total number of Biotech establishments decreased from 1,326 in 2006 to 889 in 2014, a drop of 33.0%. However, this decline is due to the reclassification of NAICS sectors in 2007 which moved previously classified biotech establishments to non-biotech sectors². The number of biotechnology firms decreased by 43 since 2009.

Chart 1



Source: 2001, 2006, 2009 to 2014 County Business Patterns, U.S. Census Bureau

¹ NAICS stands for North American Industrial Classification System. It is the replacement for the Standard Industrial Classification (SIC) system.

² For example, in 2006 NAICS sector 541710, with 636 establishments, was classified as biotech. In the 2007 reclassifications this NAICS sector was split into 541711 and 541712, with 541712 no longer classified as biotech. In 2014 NAICS sector 541712 had 430 establishments.

Biotechnology Sectors Highly Concentrated

Nationally, there are 33 six-digit NAICS sectors that are considered to represent biotech industries. For ease of analysis, these categories were collapsed into 5 four-digit NAICS sectors and 8 six-digit sectors. Though Maryland contained a great variety of biotech firms, the overwhelming majority of establishments were found in just a few of these sectors, with the top five NAICS sectors accounting for 808 of the State's 889 biotech firms (90.9%).

Top Five Biotechnology Sectors in Maryland – 2014

NAICS Code	Sector Description	Number of Firms	Percent of Total	Cumulative Percent of Total
6215	Medical Equipment and Supplies Manufacturing	308	34.6%	34.6%
541711	Research and Development in Biotechnology	190	21.4%	56.0%
3391	Medical and Diagnostic Laboratories	150	16.9%	72.9%
541380	Testing Laboratories	112	12.6%	85.5%
3254	Pharmaceutical and Medicine Manufacturing	48	5.4%	90.9%

Source: 2014 County Business Patterns, U.S. Census Bureau

A complete list of biotech firms by NAICS code and size range can be found in [Table 1](#)

Change Since 2006

Growth in establishments since 2006 was highest in the Testing Laboratories sector which grew by 19, or about 18.4 percent, and the Medical and Diagnostic Laboratories sector increased by 25 or 8.8 percent. The largest decline in establishments since 2006 occurred in Medical Equipment and Supplies Manufacturing (-25 or -14.3%), and the Soap, Cleaning Compound, and Toilet Preparation Manufacturing (-5 or -20.0%) sectors.

Five Largest Numeric Gains for Biotechnology Sectors in Maryland, 2006 – 2014

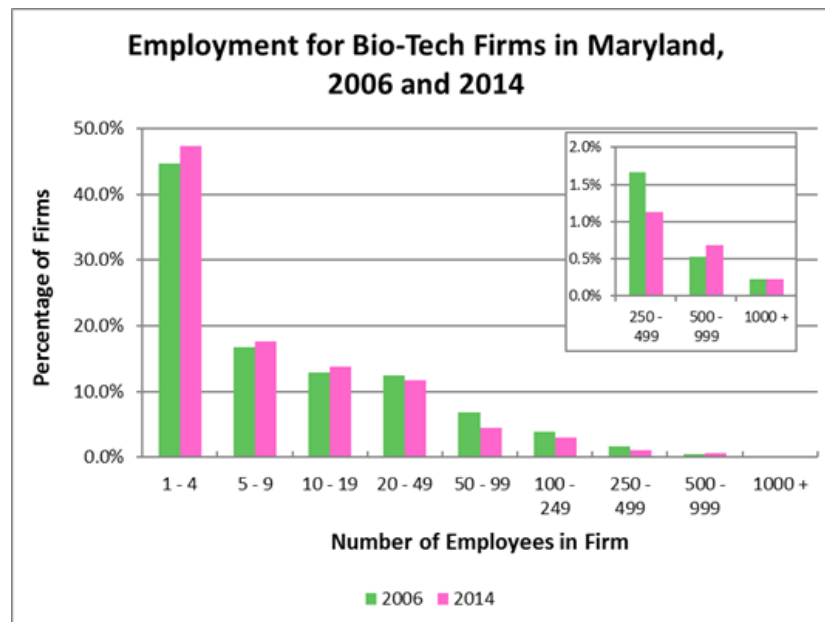
NAICS Code	Sector Description	Number of Firms 2014	Number of Firms 2006	Change	Percent Change
6215	Medical and Diagnostic Laboratories	308	283	25	8.8%
541380	Testing Laboratories	112	103	9	8.7%
334516	Analytical Laboratory Instrument Manufacturing	21	15	6	40.0%
334510	Electromedical and Electrotherapeutic Apparatus Manufacturing	13	10	3	30.0%
3254	Pharmaceutical and Medicine Manufacturing	48	46	2	4.3%

Source: 2006 & 2014 County Business Patterns, U.S. Census Bureau

Most Establishments are Small

Overwhelmingly, biotech establishments in 2014 were small, with 48.4% having less than five employees and an additional 17.0% having between five and nine employees (See [Table 2](#) and [Table 3](#)). At the other end of the scale, 9.1% of all total biotech establishments have 50 or more employees. Compared to 2006, biotech industries have become smaller, as the percentage of firms employing less than five employees grew by 3.7%. Additionally, growth in firms occurred only in establishments that employ less than 20 persons, as there has been a steady decline in establishments that employ more than 50 people (See [Chart 2](#))³.

Chart 2

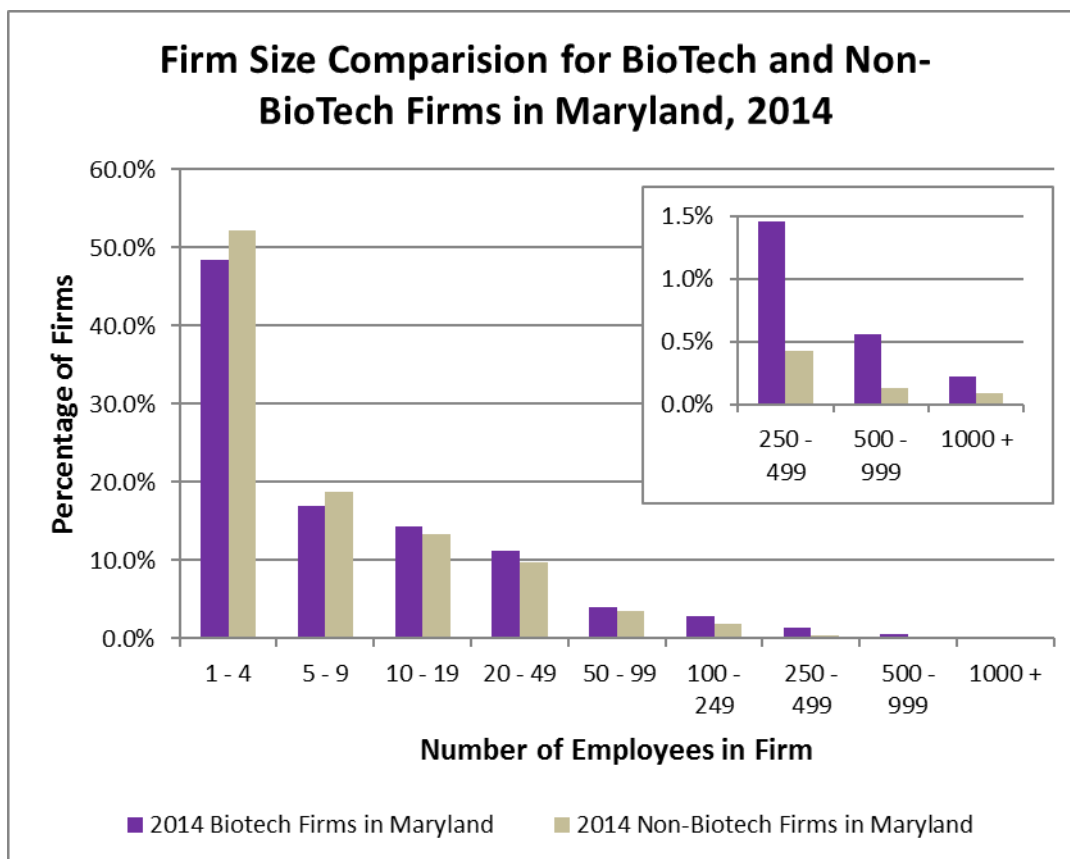


Source: 2014 U.S. Census Bureau, ZIP Code Business Patterns

³ Again, some of this change could be the result of NAICS industry reclassifications in 2007.

A majority of the firms in the top five sectors are small, employing less than five people. For example, in the Medical Equipment and Supplies Manufacturing sector 64.0% of firms have less than five employees, while 49.7% of the firms in the Medical and Diagnostic Laboratories sector have less than five employees. Only the All Other Basic Organic Chemical Manufacturing sector in the top ten biotech establishments has less than 15 percent of firms who employ less than five people.

Chart 3



Source: 2014 U.S. Census Bureau, ZIP Code Business Patterns

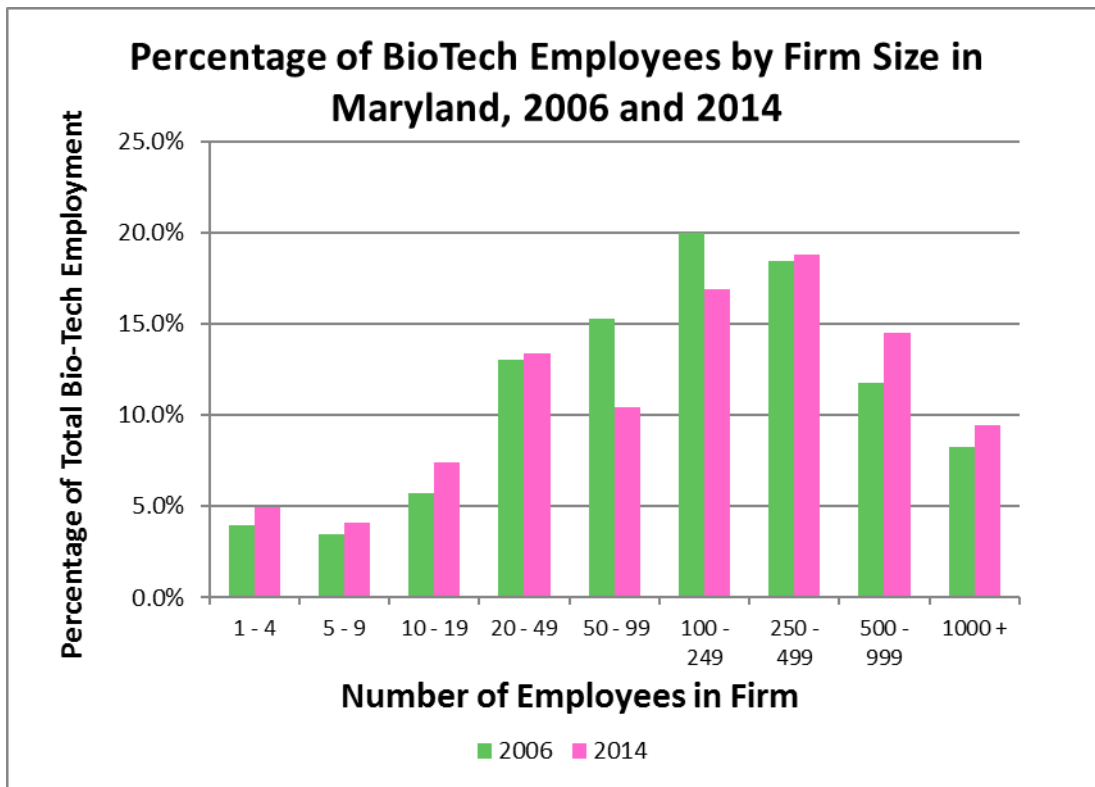
There is a greater concentration of large biotech firms in the economy than there is of all biotech firms. For instance, in 2014, biotech firms of 500 or more employees made up 2.8 percent⁴ of all establishments with employment of 500 or more, well over three times the overall share (0.8%)⁵ of biotech firms of all firms (see Chart 3).

⁴ $\frac{\text{Biotech Firms (500 or more Employees)}}{\text{All Firms (500 or more Employees)}} = 2.8\%$

⁵ $\frac{\text{All Biotech Firms}}{\text{All Firms}} = 0.8\%$

In 2014 there were more employees in firms who employ more than 500 people compared to year 2006 (see Chart 4)⁶. Even though the majority (79.8%) of the biotech firms are small employing less than twenty persons (see Chart 3), more than three quarters (83.5%) of the employees in the biotech sector work in firms that employ 20 or more people (see Chart 5).

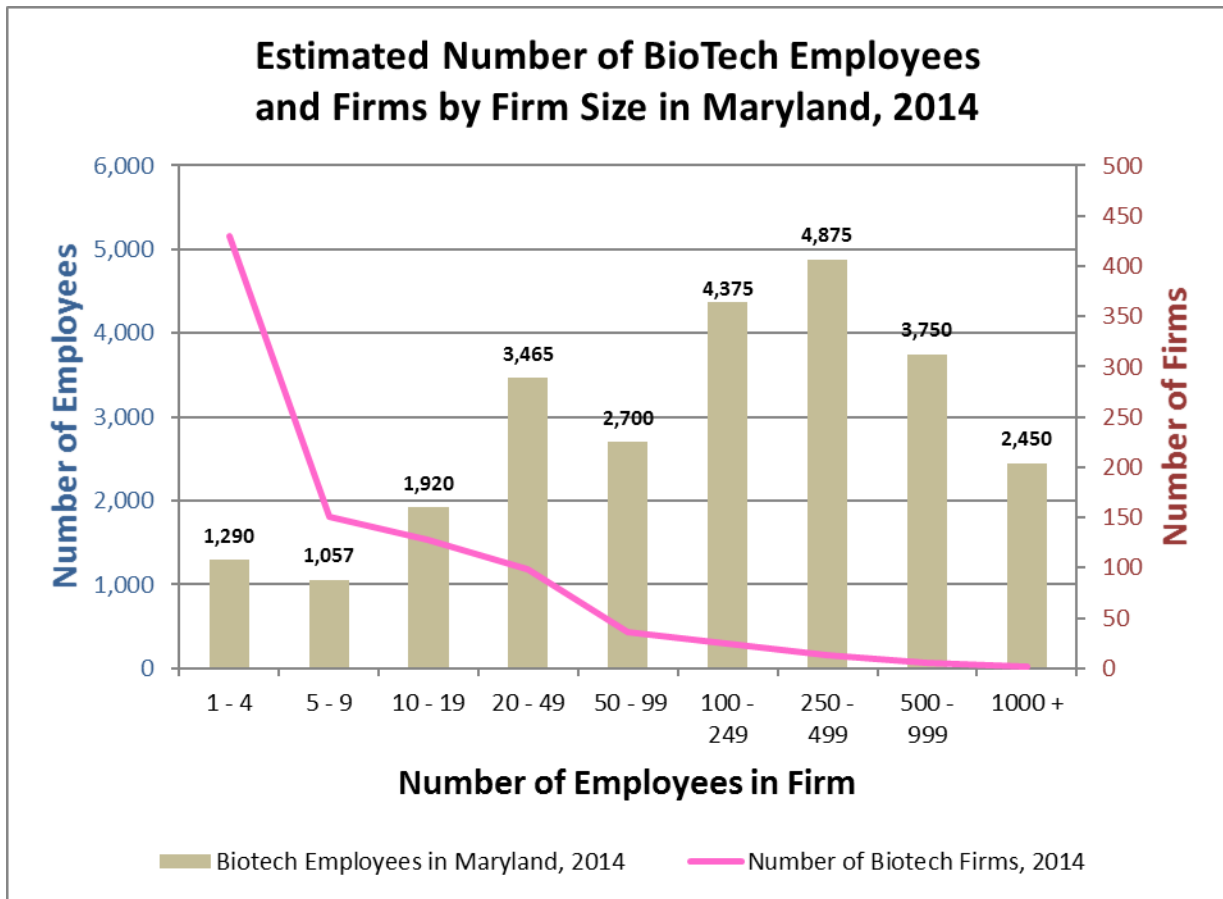
Chart 4



Source: 2014 U.S. Census Bureau, ZIP Code Business Patterns

⁶ Employment by firm size was estimated by taking the midpoint of the range (e.g., 75 employees for the 50 to 99 range). As the highest employment range has no upper limit (1,000 or more employees), establishments in this range were estimated to contain 1,250 employees.

Chart 5



Source: 2014 U.S. Census Bureau, ZIP Code Business Patterns

Montgomery County has the most BioTech Firms

Montgomery County had by far the largest number of biotechnology firms in Maryland in 2014 (253), comprising of over one-quarter (28.5%) of statewide totals. Baltimore County was second (132 firms, or 14.8% of the state total) and Howard County (77 firms each, 8.7%) was third (See [Map 1](#) and [Table 4](#)).

With the largest overall number of firms, Montgomery County also had top three ZIP codes with biotech establishments in 2014 (See [Table 5](#)). Concentrations were particularly heavy in the Rockville-Gaithersburg area along the I-270 corridor that runs from the Capital Beltway (I-495) to Frederick County (See [Map 2](#)). Within this corridor, ZIP code 20850 (Rockville) had the largest number of biotech establishments (68). Other large concentrations in Montgomery County are in Bethesda, inside the Capital Beltway.

Outside of Montgomery County, large concentrations also exist in Howard County, particularly in Columbia, and in Anne Arundel County, predominantly in Annapolis. In Baltimore County, the highest number of biotech establishments is in Owings Mills outside the Baltimore Beltway (See [Map 3](#)).

Definition of Biotechnology Industries

There have been numerous studies on, and various listings of, what constitutes a “biotechnology” industry. The definition of biotechnology sectors for this report were taken from three separate sources to ensure that all relevant industries were included. Industry definitions from the Maryland Department of Labor, Licensing and Regulation,⁷ the Biotech Work Portal of the San Diego Workforce Partnership,⁸ and the Milken Institute (*America’s Biotech and Life Science Clusters*)⁹ were combined into a list of NAICS codes for study.

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⁷ <http://www.dllr.state.md.us/lmi/industryclusters/bioscience.pdf>

⁸ <http://www.biotechwork.org/~d-content.aspx?ecid=154>

⁹ http://www.milkeninstitute.org/pdf/biotech_clusters.pdf