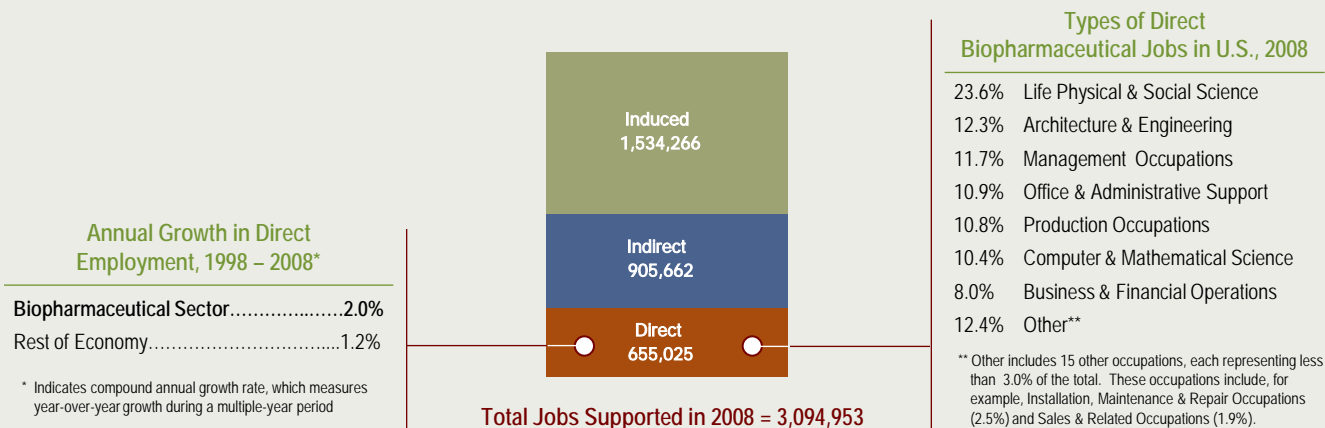


**• UNDERSTANDING ECONOMIC IMPACT •** This fact sheet presents an analysis of the impact of the biopharmaceutical sector on the economy of the United States in 2008, including data on employment, contribution to Gross Domestic Product (GDP), and research and development activity. The biopharmaceutical sector's economic impact includes not only the direct impact of its companies, but also the ripple effects that the sector has throughout the rest of the economy. These ripple effects include both the indirect impact, the economic value of the goods or services used to support biopharmaceutical companies, and the induced impact, the value of economic activity supported by the spending of direct and indirect employees of the biopharmaceutical sector.

**• SUPPORTING HIGH QUALITY JOBS •**

**Employment** – In 2008, every direct job in the biopharmaceutical sector supported 3.7 jobs in other sectors; the sector supported a total of 3.1 million jobs across the economy.



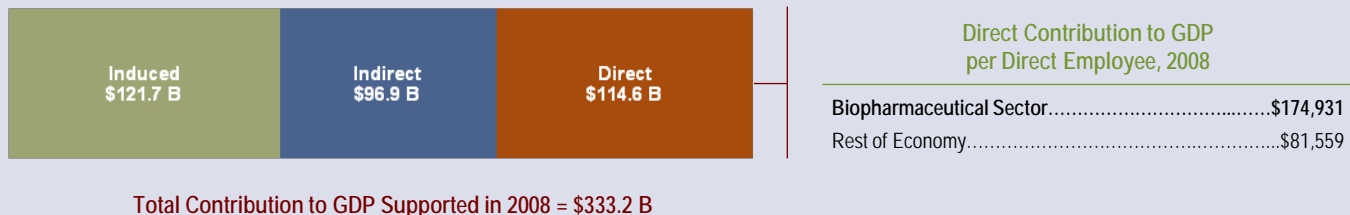
**Wages and Personal Taxes** – On average, U.S. biopharmaceutical employees earned \$96,563 in wages and paid approximately three times as much in federal and state taxes as employees in the rest of the economy.

**Personal Taxes Paid per Direct Employee, 2008**

	Federal	State
Biopharmaceutical Sector.....	\$24,033.....	\$3,653
Rest of Economy.....	\$8,052.....	\$1,018

Note: Federal taxes include both income and Social Security taxes; state taxes include income taxes only.

**• CONTRIBUTING TO THE ECONOMY •** The biopharmaceutical sector's direct contribution to GDP in 2008, \$114.6 billion, was approximately three and a half times the average contribution per sector in the rest of the U.S. economy. Each job in the biopharmaceutical sector contributed more than double the average contribution from jobs in the rest of the economy.



• **GLOBAL REACH, INCREASING COMPETITION** • The U.S. biopharmaceutical sector is the global leader in drug discovery and development, but faces increasing competition from other countries as they seek to attract biopharmaceutical investment.

– Biopharmaceutical exports rose by nearly 60% from 2005 to 2009, to \$46 billion, or 5% of total U.S. exports.

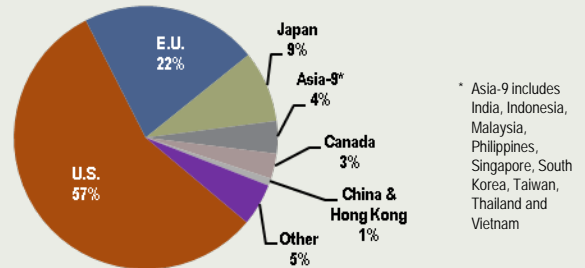
US Biopharmaceutical Exports<sup>1</sup> (Billions)



– In 2009, the U.S. ranked 3rd in the dollar amount of exports for biopharmaceuticals, behind Germany and Switzerland.<sup>2</sup>

– The U.S. leads in producing biopharmaceutical intellectual property, with nearly 60% of the patents issued in 2008.

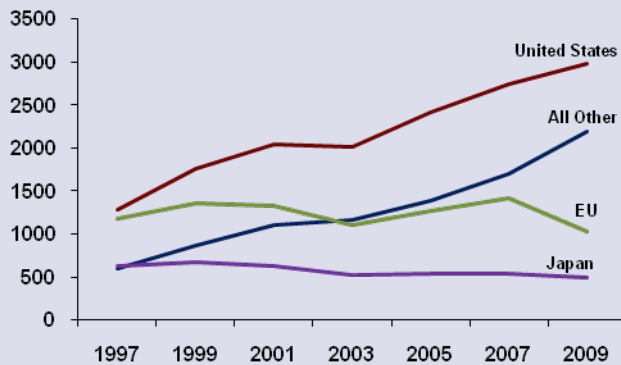
U.S. Biopharmaceutical Patents by Location of Inventor, 2008<sup>3</sup>



– The share of U.S. biopharmaceutical patents granted to inventors in China and the Asia-9 increased significantly (from 1% to 5%) between 1998 and 2008.

• **DEVELOPING TOMORROW'S MEDICINES** • In 2008, U.S. biopharmaceutical companies invested \$63.7 billion in research and development, of which about \$51.0 billion was for research conducted in the U.S.<sup>4</sup> Additionally, in 2008 the National Institutes of Health awarded an estimated \$23.2 billion in grants for medical research at universities and other research institutions across the nation.<sup>5</sup> In 2010, a total of 2,994 medicines<sup>6</sup> were in development in the U.S., the most in any region worldwide, to treat a wide range of conditions.

Medicines in Development, by Region, 1997–2009<sup>7</sup>



Medicines in Development by Selected Condition, 2010<sup>6</sup>

Selected Conditions	Number of Medicines
Alzheimer's and Other Dementias	98
Cancers	878
Cardiovascular Diseases	242
Diabetes Mellitus	193
HIV / AIDS	81
Mental and Behavioral Disorders	252
Rare Diseases (2007)**	303
Respiratory Disorders	334

\*\* Data Rare Diseases are from 2007, the latest year for which a total was summarized and published. Rare diseases are those that affect 200,000 or fewer people in the U.S.

**Methodology**

Unless otherwise noted, the data presented in this fact sheet is based on original analyses conducted by Archstone Consulting. The analyses measured the absolute impact of the biopharmaceutical sector rather than its marginal impact. An absolute approach considers all economic activity (i.e., direct, indirect, and induced) that is attributable to a sector's presence; by contrast, a marginal approach acknowledges that a certain portion of this economic activity would still exist in the absence of that sector, and thus only measures the additional economic activity that is unique to the sector's presence in a given area.

Estimates of number of jobs and economic output were based on a multiplier effect analysis using Minnesota IMPLAN Group (MIG) software and 2008 data. 2008 was the most recent year for which the most complete set of data was available at the time analyses were completed. Number of jobs was used as a proxy for number of employees. Data on types of direct biopharmaceutical jobs was obtained from the U.S. Bureau of Labor Statistics (BLS) (2008 Occupational Employment Statistics for NAICS codes 3254 and 54171), and is based on participating company reported data. Employment growth was calculated using MIG employment data, and employment for 1998 was calculated based on the compound annual growth rate of employment in the sector from 1996-2006. When comparing the "biopharmaceutical sector" to "rest of economy," the latter is defined as all sectors combined less the biopharmaceutical sector. Total wages were calculated from BLS employment and. Federal and state tax estimates were generated using BLS employment and wages data, MIG employment data, and National Bureau of Economic Research software (TAXSIM 9.0 Simulator). State tax figures were estimated using only the number of direct employees in states for which income taxes apply. Please note that totals may not be equal to the sum of individual components due to rounding. For more detailed methodology and complete source citations, see the full methodology that accompanies this fact sheet.

**Endnotes**

<sup>1</sup> Data obtained from The U.S. International Trade Commission Trade Data database. Exports refer to domestic exports and do not include commodities that originated in countries outside the U.S. Data obtained for NAICS 3254.

<sup>2</sup> Data obtained from the United Nations Commodity Trade Statistics Database. International Merchandise Trade Statistics for Medicinal and Pharmaceutical products retrieved.

<sup>3</sup> National Science Foundation. Division of Science Resource Statistics. (2010). Science and Engineering Indicators 2010. USPTO Patents Granted, by Technology Area.

<sup>4</sup> National industrial research and development investment based on Burrill & Company and PhRMA data (2008 R&D expenditures from PhRMA 2008 Pharmaceutical Industry Profile).

<sup>5</sup> United States Department of Health & Human Services (National Institutes of Health). Office of Extramural Research. (2008). NIH Extramural Awards by State and Foreign Site, 2008 Award Data.

<sup>6</sup> Except where noted, data obtained from Adis R&D Insight Database, Wolters Kluwer Health, October 19, 2010. Data for Alzheimer's and Other Dementias is from PhRMA, "Medicines in Development for Alzheimer's Disease," November 2010. Data for Rare Diseases is from PhRMA, Medicines in Development for Rare Diseases, January 2007.

<sup>7</sup> Adis R&D Insight Database, Wolters Kluwer Health, customized runs, February 2009 and January 2010.