

RESEARCH & DEVELOPMENT

Biopharmaceutical Sector, A Driver of Innovation

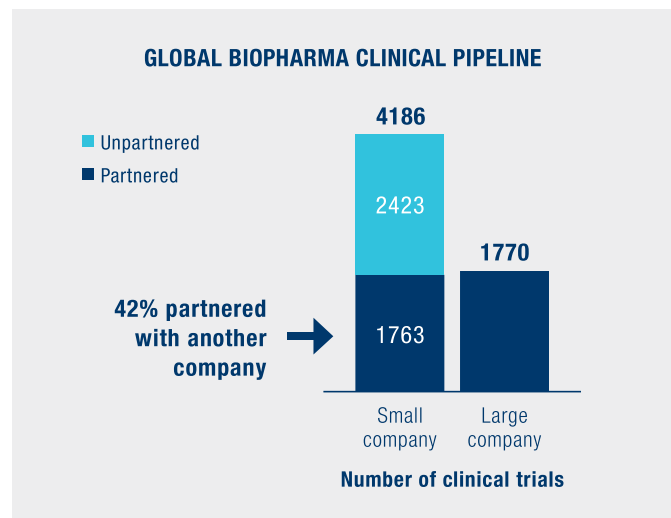
The biopharmaceutical industry has the highest percentage of R&D reinvestment of any U.S. industry. Small, emerging companies are at the forefront of the search for new cures and therapies, conducting 70 percent of clinical trials. Many of these innovative companies have no products yet on the market. They rely on private investment, not sales, to fund research and development. Given the research-intensive nature of drug development, more than 90 percent of biopharmaceutical companies are not profitable.

R&D reinvestment as a percentage of revenue.

Rank	U.S. Industry	R&D Spend
1	Biopharmaceuticals	21.3%
2	Semiconductors	18.4%
3	Electronic Production Equipment	17.6%
4	Internet Software/Services	17.4%
5	Packaged Software	14.3%
6	Computer Communications	13.7%
7	Computer Peripherals	11.7%
8	Internet Retail	10.4%
9	Electronic Equipment/Instruments	9.8%
10	Medical Specialties	7.0%

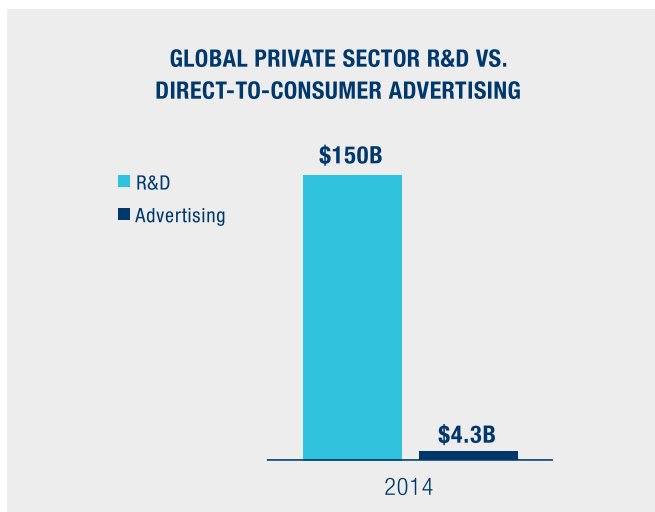
Source: Factset, BIO Industry Analysis based on CY 2016 data

70% of clinical trials are conducted by small biotechnology companies.



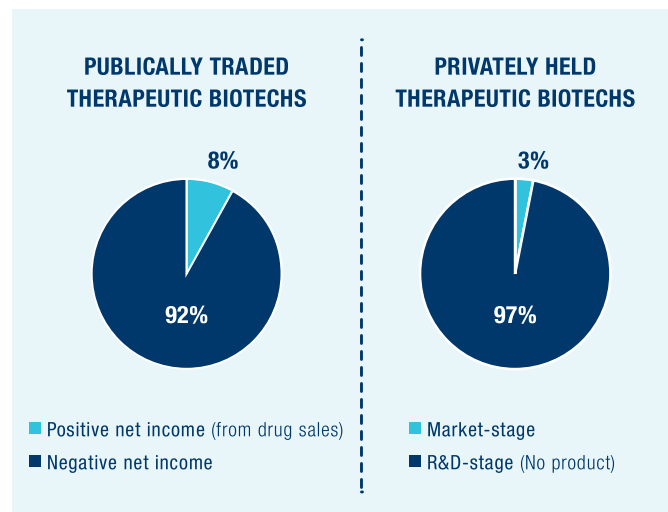
Source: BIO Industry Analysis, BioMedTracker, 2017

Biopharmaceutical companies spend nearly 35 times more on R&D than advertising.



Source: EvaluatePharma; Nielsen

More than 90% of biopharmaceutical companies are not profitable.



Source: Factset, BIO Industry Analysis, 2016