

Statistics on Biotechnology Use
Year 2016. *Final results*

Main results

- Expenditure on internal R&D activities in Biotechnology increased by 2.6% in 2016, standing at 1,580 million euros. This figure accounted for 11.9% of total internal expenditure on R&D activities.
- The total number of people dedicated to internal R&D activities in Biotechnology, on a full-time equivalent, increased by 2.3% standing at 24,830.2. This figure represented 12.1% of the total employed persons in internal R&D activities and 1.4 per thousand of the employed population.
- The Autonomous Communities with the highest expenditure on internal R&D activities in Biotechnology were Cataluña (30% of the total), Comunidad de Madrid (26.1%) and Andalucía (11.5%).

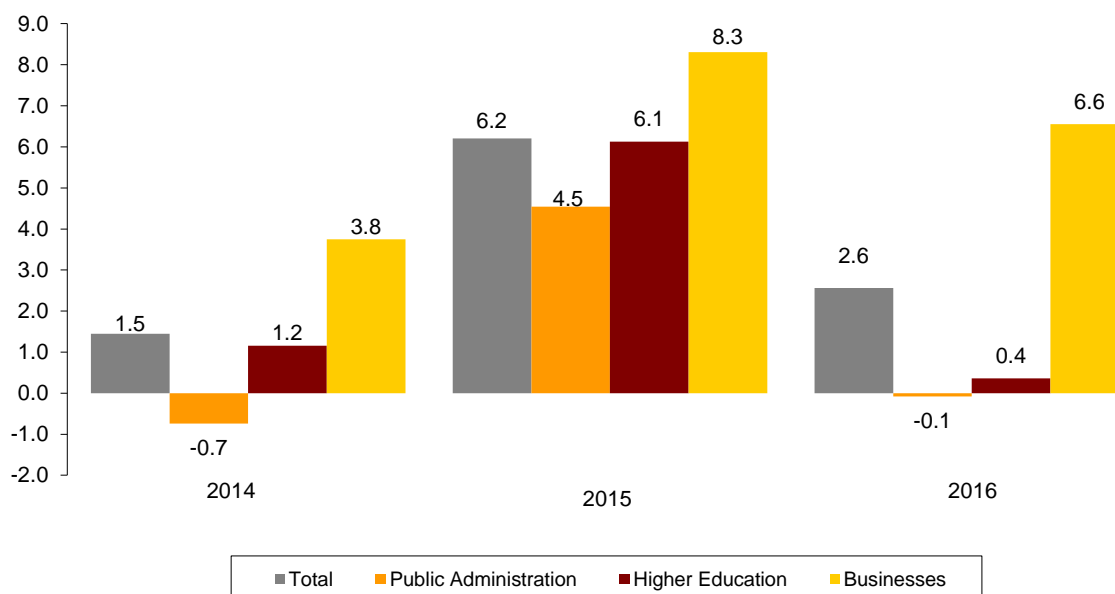
Internal expenditure on Biotechnology-related R&D activities

Internal expenditure on Biotechnology-related R&D activities reached 1,580 million euros in 2016, with an increase of 2.6% with respect to 2015. This expenditure represented 11.9% of total internal expenditure on R&D activities.

By sector of performance, the Business sector presented the highest percentage of total internal expenditure on R&D in Biotechnology (39%), followed by Public Administration (36.6%) and Higher Education (24.1%).

The Business sector increased its internal expenditure on Biotechnology-related R&D activities by 6.6% in 2016 and Higher Education by 0.4%. In turn, the Public Administration reduced it by 0.1%.

Variation of internal expenditure on Biotechnology R&D (%)



Internal R&D activities related to Biotechnology in 2016 were mainly financed by the Public Administration (48.7%) and the Business sector (31.7%). The rest was financed by funds from Foreign sources (12.4%), Higher Education (4.0%) and Private Non-Profit Institutions (PNPI), with 3.1%.

Internal expenditure on Biotechnology R&D by sector and source of funds. Year 2016

Thousands of euros

Sector	Total	Source of funds (%)				
		Public Adm.	Higher Education	Businesses	PNPI	Abroad
TOTAL	1,579,928	48.7	4.0	31.7	3.1	12.4
Public Administration	578,188	79.5	0.3	7.4	5.0	7.8
Higher Education	380,311	62.1	16.1	7.8	1.6	12.3
Businesses	616,053	11.8	0.1	69.4	1.9	16.9
PNPI	5,376	16.4	1.9	31.1	44.0	6.6

Employment in internal Biotechnology-related R&D activities

The total number of people dedicated to internal R&D activities in Biotechnology, on a full-time equivalent, increased by 2.3% in 2016, reaching 24,830.2. This figure represented 12.1% of the total employed persons in R&D activities and 1.4 per thousand of the employed population.

56.5% of the personnel employed in internal R&D activities in Biotechnology were women. The highest percentages of female participation were found in PNPI (67.6%) and in the Public Administration (60.9%).

The group of researchers in internal R&D activities in Biotechnology reached the figure of 15,765.2 people on a full-time equivalent (0.8 per thousand of the employed population), 4.6% more than in 2015.

Personnel employed in internal Biotechnology R&D activities, by sector, according to occupation and sex. Year 2016

On a full-time equivalent

Sector	Total			Researchers		
	Total	Variation rate	% Women	Total	Variation rate	% Women
TOTAL	24,830.2	2.3	56.5	15,765.2	4.6	53.1
Public Administration	9,470.2	-1.7	60.9	5,358.9	5.8	57.4
Higher Education	7,544.3	2.3	51.7	5,744.2	1.2	48.8
Businesses	7,716.4	7.3	55.6	4,603.1	7.6	53.1
PNPI	99.3	20.1	67.6	59.0	3.7	67.8

Data by Autonomous Community

The Autonomous Communities with the highest expenditure on internal R&D activities in Biotechnology in 2016 were Cataluña (30% of the total), Comunidad de Madrid (26.1%) and Andalucía (11.5%).

Total internal expenditure on Biotechnology R&D, by Autonomous Community and sector of operation. Year 2016

Thousands of euros

	TOTAL	%	Businesses	%	Rest of sectors *	%
TOTAL	1,579,928	100.0	616,053	100.0	963,875	100.0
Andalucía	181,311	11.5	69,345	11.3	111,966	11.6
Aragón	27,146	1.7	14,394	2.3	12,752	1.3
Asturias, Principado de	15,653	1.0	6,045	1.0	9,608	1.0
Balears, Illes	15,619	1.0	4,629	0.8	10,990	1.1
Canarias	12,685	0.8	2,296	0.4	10,389	1.1
Cantabria	7,368	0.5
Castilla y León	53,233	3.4	18,153	2.9	35,080	3.6
Castilla-La Mancha	13,986	0.9	3,334	0.5	10,652	1.1
Cataluña	473,791	30.0	201,689	32.7	272,102	28.2
Comunitat Valenciana	129,565	8.2	42,860	7.0	86,706	9.0
Extremadura	2,451	0.2	1,230	0.2	1,220	0.1
Galicia	74,272	4.7	16,513	2.7	57,759	6.0
Madrid, Comunidad de	412,085	26.1	142,894	23.2	269,191	27.9
Murcia, Región de	31,237	2.0	11,659	1.9	19,578	2.0
Navarra, Comunidad Foral de	33,890	2.1	17,338	2.8	16,552	1.7
Pais Vasco	88,339	5.6	59,286	9.6	29,053	3.0
Rioja, La	7,297	0.5
Ceuta	-	-	-	-	-	-
Melilla	-	-	-	-	-	-

(*) Rest of sectors: Public Administration, PNPI and Higher Education

(..) Not available to protect statistical confidentiality

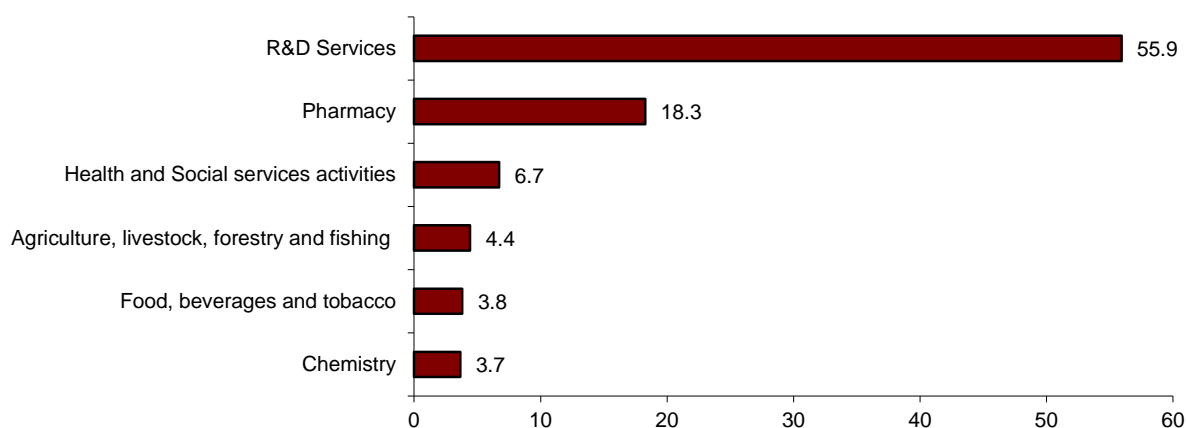
(-) Numerical data equal to zero not resulting from rounding

Data by sector and branch of activity

Taking into account only the Business sector, the *Services* sector accounted for 68.1% of internal R&D expenditure in Biotechnology, *Industry* for 27.5% and *Agriculture* for the remaining 4.4%.

By branch of activity, noteworthy were *R&D Services* (with 55.9% of total expenditure) and *Pharmacy* (18.3%).

Distribution of internal expenditure on Biotechnology R&D, by branch of activity. Year 2016 (%)



External expenditure on Biotechnology R&D activities

The purchase of R&D in Biotechnology reached 167.6 million euros in 2016. 45.0% of this expenditure was made outside Spain.

By sector, the Business sector registered the highest percentage of total expenditure in external R&D activities, with 86.1%.

Total sectors. Purchases of Biotechnology R&D services

Unit: thousands of euros

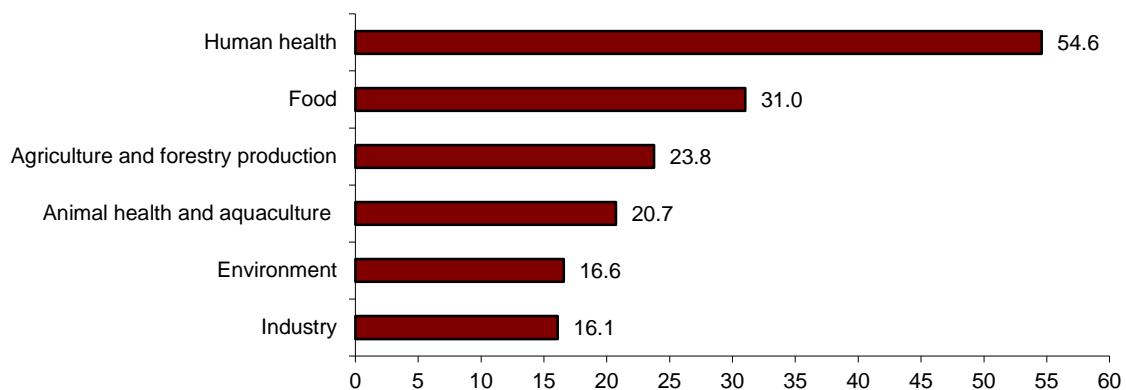
	Total 2016	Business	Rest of sectors *
Purchases of Biotechnology R&D services	167,608	144,342	23,266
- In Spain	92,199	70,458	21,741
- Abroad	75,409	73,885	1,524

(*) Rest of sectors: Public Administration, PNPI and Higher Education

Areas of Biotechnology application

Among the areas of final application of the products obtained from the use of the different types of biotechnology, worth noting were *Human health* and *Food*, with 54.6% and 31.0% of the total units, respectively.

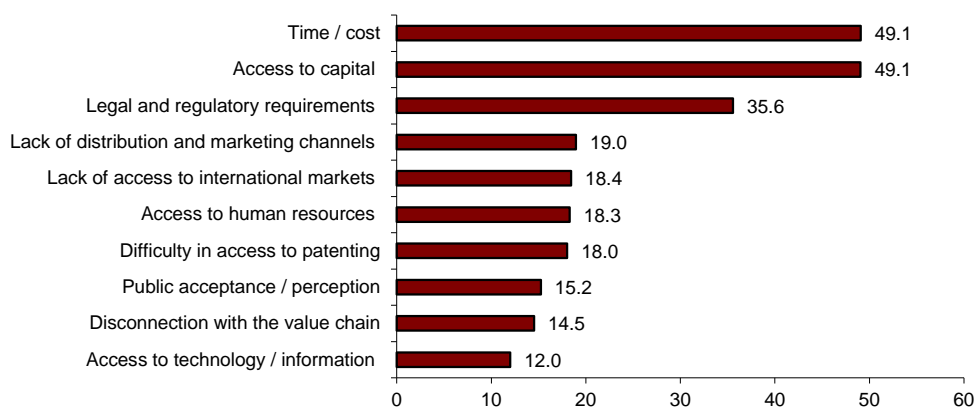
Percentage of units with biotechnological activities, according to the areas of final Biotechnology application. Year 2016 (%)



Impediments to the development of Biotechnology

The impediments that, with a high valuation*, prevented or hindered the progress of development and commercialization activities of biotechnological products and processes were *Time / cost* and *Access to capital* (both with 49.1%).

Impediments to the development of Biotechnologies. Year 2016 (%)



* The scale is: High, Medium, Low and Doesn't Know

Methodological note

The Statistics on Biotechnology Use were prepared following the methodological guidelines of the OECD.

The information was collected, in the case of companies, through an additional module annexed to the Technological Innovation in Companies Survey, and intended for all those units that were potentially linked to Biotechnology. In the case of the Public Sector, the information is collected through a module annexed to the Statistics on R&D Activities, and is aimed at all those units that carry out the R&D statistics, be they Higher education centres, Public Administration or PNPI.

The evolution of the Statistics on Biotechnology Use in recent years has been as follows:

- In 2006, the type of biotechnology activity and area of final application of the products obtained from it were introduced as a study target.
- In 2007, the internationalisation of biotechnology-related activities was introduced.
- In 2008, expenditure on external R&D activities in Biotechnology was included.

As of the year 2010, part of the companies researched for the publication of the Statistics on Biotechnology Use was obtained through a random sample. Up until that point, the units involved in the compilation of the statistics were processed by census.