



Biotechnology Report

CZECH REPUBLIC

PREPARED BY EUROPABIO AND VENTURE VALUATION IN 2009

STATUS OF THE CZECH BIOTECHNOLOGY SECTOR

(Financial data in €)

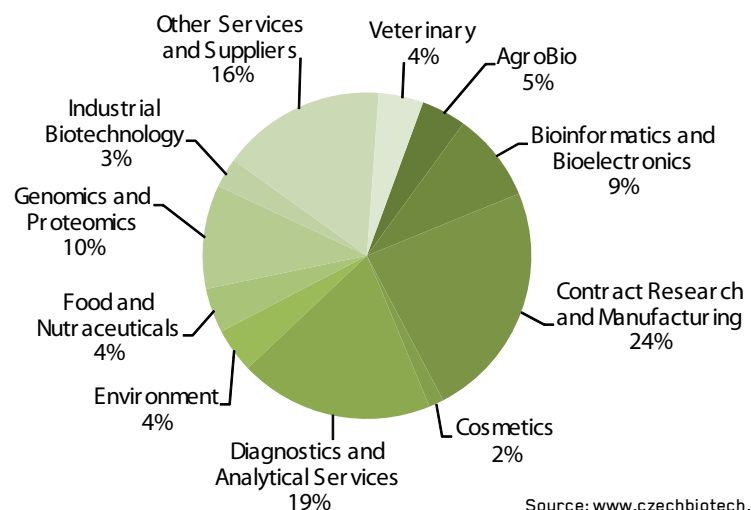
39	Total Biotech Companies
0	Biotech-Therapeutic
29	Biotech-Services
10	Biotech-Other
≥1000	Employees
≥200	R&D employees
≥3m	R&D spending*
≥25m	Revenue*
NA	Equity Raised
Some	Government grants*
95%	Percentage of SMEs
0	Percentage of companies publicly owned

* As some private companies do not disclose financial figures the above is based on available information only.

The biotechnology industry in the Czech Republic is comprised of a large services sector with over a quarter of the firms specializing in contract research and manufacturing. Other service companies engage in the production of monoclonal antibodies, reagents, diagnostic kits, analytical tools, recombinant proteins and environment protection products. The Czech Republic also participates in genome projects and engages in cutting edge research in the bioinformatics field.

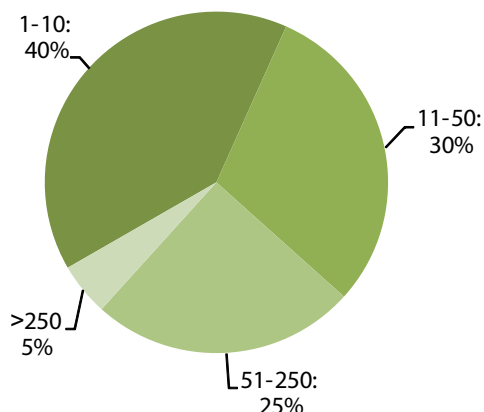
Biotechnology Companies in the Czech Republic

Breakdown by Subcategory based on 68 entries by 39 companies



95% of Czech companies are small and medium sized enterprises with less than 250 employees and almost half of these qualify as micro enterprises employing less than 10 people.

Biotechnology Company Size in the Czech Republic (number of employees)

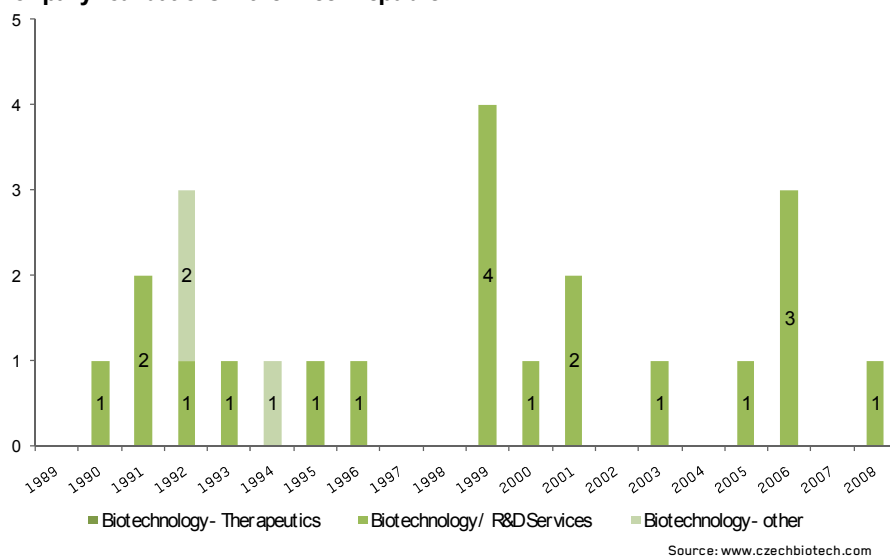


Source: www.czechbiotech.com

There are also at least 10 large pharmaceutical companies and subsidiaries of well known foreign companies, operating in the Czech Republic and making a large contribution to the life sciences sector.

New biotechnology companies in the Czech Republic have been established quite regularly since the early 1990s.

Company Foundations in the Czech Republic



Source: www.czechbiotech.com

NOTE: Not all companies reported their year of foundation.

CZECH REPUBLIC – AN INDUSTRY OVERVIEW

The Czech Republic has a strong tradition in the area of fermentation which is transforming into a growing industrial biotechnology industry. Historically, the country was also a pioneer in antibiotic production, particularly penicillin. The notable scientific figure, Gregor Mendel, who established the principles of heredity in the 19th century, also originates from what is now known as the Czech Republic.

There is a Czech pharmaceutical association and the biotechnology association, CzechBio, was established in December 2008.

Political and Economic Environment

The political climate in the Czech Republic is very stable and biotechnology development is widely supported by the government. Molecular biology, biomedicine and biotechnology were identified as one of seven areas of priority in the national Research and Development Policy of 2004.

Around 40-50% of R&D funding comes from the government with close to 50% from industry and only a very small portion from private sources. In 2004, the Czech Republic was second only to Slovenia among the new Member States with regards to the percentage of GDP dedicated to R&D.

More than 20 ministries are responsible for research support in the Czech Republic making R&D funding complex. There are no biotechnology specific programmes but many of the general programmes can be applied to biotechnology research such as the Innovation Programme and the Prosperity Programme from the Ministry of Industry and Trade. Programmes are intended to encourage technology transfer, stimulate interdisciplinary research and education and promote firm creation.

There is an almost complete lack of venture capital and angel investment in the Czech Republic. In general, investors are aware of the possible returns of investing in biotechnology but do not have extensive experience in the industry.

Research normally has to be taken to clinical stage by industry funds as public financing is not developed at this stage.

"More than 20 ministries are responsible for research support in the Czech Republic making R&D funding complex"

Support Infrastructure

The main pharmaceutical and biotechnology centres are in Prague, Brno, Olomouc, Hradec Kralové, Opava and České Budejovice. The majority of R&D takes place at universities although the Academy of Sciences of the Czech Republic and the Ministry of Health also have their own research facilities.

Premises and business advice are readily available. There are at least 10 established technology parks and clusters around the country which form the Science and Technology Parks Association. Among these, the Biotechnology Complex in Vestec houses five biotechnology start-ups established by the Institute of Molecular Genetics of Academy of Sciences of the Czech Republic. The Science and Technology Parks offer services such as consultation on innovation, project management support, and IP support and business advice.

Other organizations designed to promote and develop the biotechnology industry include the web-based Gate2Biotech established with the support of CzechInvest; and Biotrin, a non-profit, academic community organization for increasing communication and enhancing knowledge sharing.

Public opinion in the Czech Republic is open to new biotechnologies and the country is one of the few Member States currently producing GM crops for feed manufacturing.

The workforce

The entire spectrum of life sciences courses is available to students in the Czech Republic at all levels but economic disciplines are currently more attractive to

students than technical subjects. Nonetheless the Czech Republic still ranks high among new member countries when considering the number of science and engineering graduates.

Students receive high quality training and laboratory experience but lack training in an industry setting as the universities have poor links with industry.

Technology and intellectual property

Technology transfer offices with some experience exist but do not have extensive links with other groups and can be inefficient.

There are over three hundred research institutes in the Czech Republic including the Institute of Biotechnology, established in 2008, which focuses on diagnostics for reproductive medicine, autoimmune disease, molecular therapies and gene expression amongst other topics.

The publication and citation rate in the Czech Republic fluctuates and is below the EU Member State average. The patenting rate is also comparatively low. The state funded Technology Centre of Czech Academy of Sciences exists to advise on IP and technology transfer issues.

Products in the Pipeline:

There are no known biotechnology companies whose primary focus is the production of human therapeutics currently operating in the Czech Republic therefore there is no therapeutic pipeline information available.

DEVELOPMENT CAPACITY INDEX

The development capacity index was calculated for the Czech Republic according to the description in Appendix A and can be used to compare the status of the Czech biotechnology sector with that of the other new Member States and candidate countries. It consists of a qualitative factor of 59 and a quantitative factor of 217.



KEY FEATURES

3 positive key features:

- **Investment in R&D is high and there is a high level of education and training in science & engineering**
- **Government support for biotechnology development is strong and a well established biotechnology industry is present**
- **Support structures for biotechnology companies as well as infrastructure such as clusters and technology parks are well developed**

3 negative key features:

- **There is a lack of venture capital and business angel funding**
- **No known healthcare biotechnology products have been commercialised**
- **Cooperation between academia and industry is limited**

Taking into account the very good knowledge base in the Czech Republic and its strong focus on contract research and manufacturing, the country should be encouraged to produce its own therapeutic products.

"The entire spectrum of life sciences courses is available to students in the Czech Republic at all levels but economic disciplines are currently more attractive to students"



SOURCES

The Czech Biotechnology Database (www.czechbiotech.com) part of the global Biotechgate database (www.biotechgate.com)

Survey from CzechInvest - Investment and Business Development Agency; 2008

Company interviews; 2008-2009

CZECHINVEST - Life Sciences in the Czech Republic; 2009

BioPolis - Inventory and analysis of national public policies that stimulate research in biotechnology, its exploitation and commercialisation by industry in Europe in the period 2002-2005 - National Report of Czech Republic; March 2007

In collaboration with:



APPENDIX A: CALCULATION OF THE DCI

The Development Capacity Index (DCI) was developed as a means of representing the development status of a country in a format that allows comparison with other countries and regions. The resulting value indicates the respective countries' relative rank among their peers and considers both the existing state of affairs (represented by the quantitative factor) as well as the potential for development (represented by the qualitative factor). A higher DCI indicates the presence of a more advanced biotechnology industry and a more favourable environment for future growth.

Evaluation of the Qualitative Factor:

The qualitative factor was used to evaluate the framework available for the development of the biotechnology sector. Factors considered were existence of a pharmaceutical industry, level of government support, availability of public and private financial support, existence of a qualified workforce, establishment of technology transfer offices and technology parks, and general awareness of patenting and the IP protection processes.

As shown in the following table, each factor was assigned a weight based on the subjective assessment of its relative importance for the evaluation of a country's development potential. Each factor was then evaluated for each country based on information gathered from literature, and interviews with local stakeholders and companies. A rating was assigned for each factor ranging from 0 (non-existent) to 4 (excellent) and individual ratings were summed to give the total qualitative factor for that country.

QUALITATIVE FACTOR	WEIGHTING	RATING	POINTS	WEIGHTED POINTS
Pharma Industry (existing know-how)	2	Non-existent	0	0
		Minimal	1	2
		Average	2	4
		Good	3	6
		Exceptional	4	8
Government Support	2	Non-existent	0	0
		Minimal	1	2
		Average	2	4
		Good	3	6
Public Financial Support	3	Exceptional	4	8
		Non-existent	0	0
		Minimal	1	3
		Average	2	6
		Good	3	9
Private Financial Support	3	Exceptional	4	12
		Good	3	9
		Average	2	6
		Minimal	1	3
Qualified Workforce	3	Exceptional	4	12
		Good	3	9
		Average	2	6
		Minimal	1	3
		Non-existent	0	0
Tech Transfer	4	Exceptional	4	16
		Good	3	12
		Average	2	8
		Minimal	1	4

Tech Parks or Clusters	4	Non-existent	0	0
		Minimal	1	4
		Average	2	8
		Good	3	12
		Exceptional	4	16
IP Protection Awareness	4	Non-existent	0	0
		Minimal	1	4
		Average	2	8
		Good	3	12
		Exceptional	4	16

Evaluation of the Quantitative Development Factor:

The quantitative factor was calculated based on the number of biotechnology companies present, their category of activity (therapeutics, services and other biotechnology sectors), and the number of products under development. Parameters were all individually measured with emphasis placed on smaller and medium sized companies conducting research on human therapeutics, as these are considered to be the drivers of innovation for the industry.

Within each country, points were assigned per company depending on the type of company, number of employees, products on the market and products in development, as shown in the following table. Fewer points were attributed to products on the market as this is an indication of existing industry and know-how, whereas the development of new products indicates the potential for growth.

It is to be noted that few companies chose to disclose their product information therefore these parameters have only a small impact on the overall DCI. It was assumed that all biotechnology companies developing therapeutics had at least one product in the pipeline.

Factor	Points
Biotechnology therapeutics company	5
Biotechnology services company	1
Other biotechnology company	3
< 10 employees	5
10-100 employees	4
100-500 employees	3
500-1000 employees	2
> 1000 employees	1
no data or 1 product in development	1
2 products in development	2
3 products development	3
4 products development	4
5 or more products development	5
1-2 products on the market	0.25
3-5 products on the market	0.5
5-10 products on the market	0.75
10-20 products on the market	1
more than 20 products on the market	1.25

Points calculated for all companies in the country were then summed to give the total quantitative factor for that country.

Prepared by:



The European Association for Bioindustries

www.europabio.org



www.venturevaluation.com

Information about the project can be found at www.14allbio.eu

All company details and data are available on:



www.biotechgate.com