Biotechnology Report

LITHUANIA

PREPARED BY EUROPABIO AND VENTURE VALUATION IN 2009

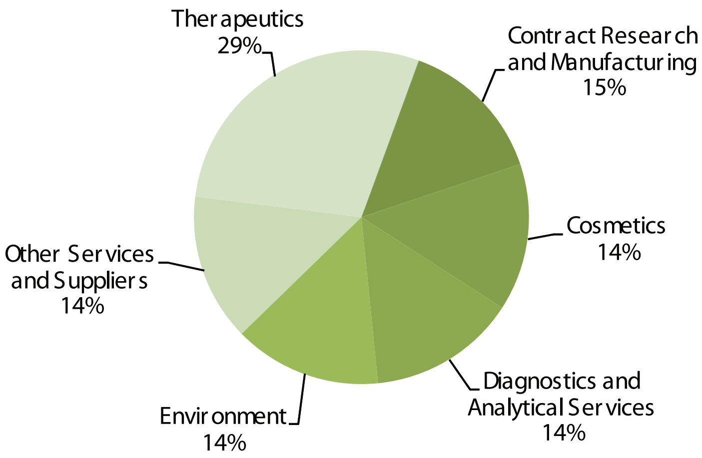
STATUS OF THE LITHUANIAN BIOTECHNOLOGY SECTOR

(Financial data in €)	
7	Total Biotech Companies
2	Biotech-Therapeutic
2	Biotech-Services
3	Biotech-Other
≥300	Employees
≥100	R&D employees
≥5M	R&D spending*
≥10M	Revenue*
NA	Equity Raised*
NA	Government grants
83%	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.

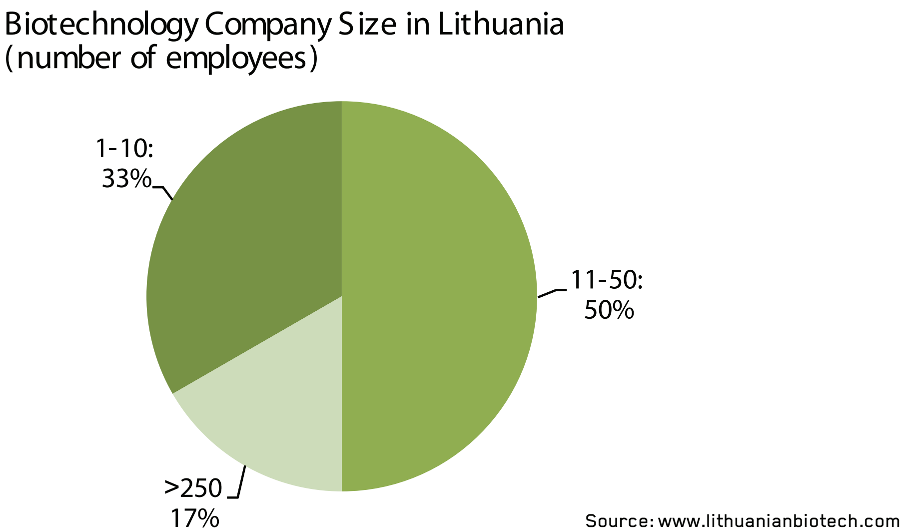
The main players in the biotechnology field in Lithuania are SICOR Biotechnology UAB which develops and manufactures recombinant biopharmaceuticals, including generics, and is a part of Teva Pharmaceutical Industries Ltd as of 2004; and Fermentas, a Canadian subsidiary that produces molecular biology products for research and diagnostics.

Biotechnology Companies in Lithuania
Breakdown by Subcategory based on 7 entries by 7 companies

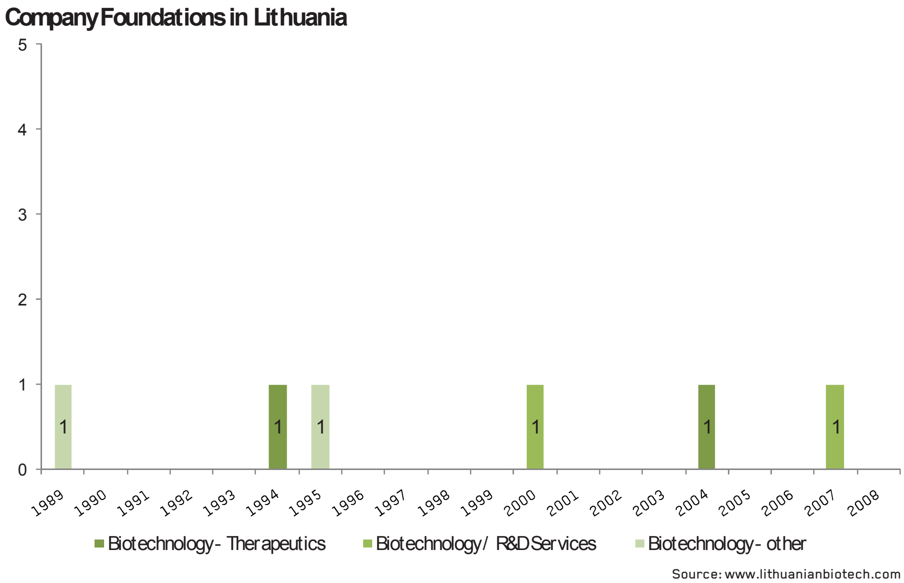


Source: www.lithuanianbiotech.com

Five of the seven companies employ less than 250 people and qualify as SMEs and a further 2 of these employ less than 10 people, qualifying as micro enterprises.



The newest, known addition to the Lithuanian biotechnology field is a CRO founded in 2007 as a spin-off from a public institute.



LITHUANIA – AN INDUSTRY OVERVIEW

There are several institutes and associations in charge of promoting and assisting research and development and innovation in Lithuania. The Ministry of Science and Education is responsible for R&D policy and The Lithuanian State Science and Studies Foundation implements state policy in the fields of science through various programmes. The Ministry of Economy is responsible for innovation and there is a Lithuanian Innovation Centre in Vilnius responsible for implementing Lithuanian innovation policy. The Science Council of Lithuania acts as a scientific advisor and consultant to the government.

There is also a Pharmaceutical Association of Lithuania, a Lithuanian Biotechnology Association and the Institute of Biotechnology that conducts research, works closely with companies and has created several successful spin-offs.

Lithuania

Political and Economic Environment

Lithuanian industry is dominated by low technology enterprises; however, the biotechnology industry has been present since the 1990s and, at one time, was regarded as one of the most developed among Central and Eastern Europe. An agreement was signed in 2002 by all political parties proposing that the standard of biotechnology research should be improved to match the average EU level as soon as possible. However, for now, Lithuania remains below the average level of other Member States in aspects of biotechnology.

The Lithuanian government has made the development of high tech industry a priority with the "Programme on the Development of High Technologies with identified Priority Areas of Research and Development" and the "Programme on the Development of Industrial Biotechnology". Conditions favourable for the biotechnology industry include low taxes on profits, low wages and low energy costs.

"An agreement was signed in 2002 by all political parties proposing that the standard of biotechnology research should be improved to match the average EU level as soon as possible"

R&D investment in Lithuania is well below the EU Member State average and is mostly publicly funded with around 20% coming from industry and the private sector. Very little project and R&D funding is available and most support is given in the form of ad hoc payments directly from the government to the institutes or universities conducting the research. Furthermore, public funding is often restricted to public research organizations.

Support Infrastructure

Most biotechnology is located in Vilnius. There are six science and technology parks in Lithuania and plans have been in place to build a biotechnology science park in Vilnius since 2000 whilst the project is still in the early stages of development. The KTU regional Science Park at the Kaunas University of Technology hosts both a business incubator and an innovation centre since 1998 and was established to improve the efficiency of research and development.

The workforce

"Publications in the health biotechnology sector are on the rise and Lithuania may be beginning to catch up in this area"

Despite the early uptake of the biotechnology industry in Lithuania, there is currently a low knowledge base and low availability of human resources. However, the Institute of Biotechnology has made the training of research and development specialists in this field a priority and conducted a feasibility study in this area in 2007. The Institute of Biotechnology has also experienced some success in attracting 17 highly qualified scientists living abroad back to Lithuania.

There are over 20 universities in Lithuania, several of them offering studies in biotechnology.

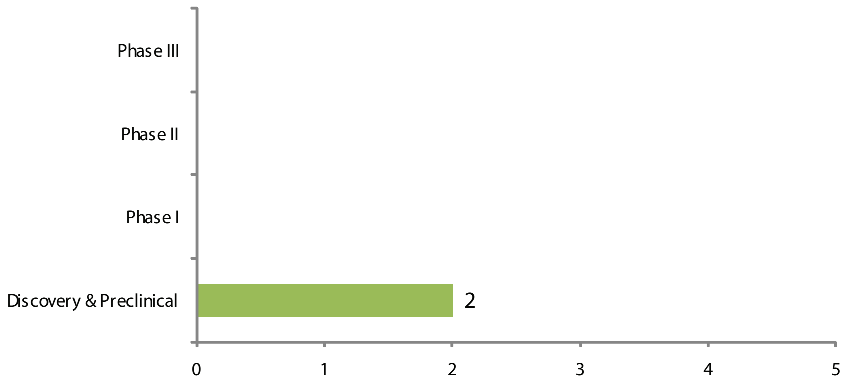
Technology and intellectual property

Lithuanian researchers publish much fewer papers per capita in the area of biotechnology than the EU Member State average and the number of patents per capita is also very low. However publications in the health biotechnology sector are on the rise and Lithuania may be beginning to catch up in this area.

Products in the Pipeline:

Currently there are two preclinical stage products under development in Lithuania.

Lithuanian Therapeutic Product Development Pipeline



Source: www.lithuanianbiotech.com

NOTE: Only therapeutic Biotechnology products are included in the pipeline graph. Furthermore, as some privately held companies do not wish to disclose their product pipeline this graph is based on available information.

DEVELOPMENT CAPACITY INDEXS

The development capacity index was calculated for Lithuania according to the description in Appendix A and can be used to compare the status of the Lithuanian biotechnology sector with that of the other new Member States and candidate countries. It consists of a qualitative factor of 31 and a quantitative factor of 59.

9 DCI

KEY FEATURES

3 positive key features:

- **Support incentives from the government and a developed education system contribute to a favourable environment for biotechnology**
- **The biotechnology association and biotechnology institute are well established and there have been a number of successful spin-offs**
- **Six science and technology parks have been developed**

3 negative key features:

- **The funding policy is rigid and favours public institutions**
- **The knowledge base and availability of human resources are limited**
- **R&D investment is limited**

The environment for biotechnology in Lithuania is rather positive but public funding policies need to be restructured. Support mechanisms need to be established, such as structural funds that can fund companies in their primary phase and help generate spin-offs.

SOURCES

The Lithuanian Biotechnology Database (www.lithuanianbiotech.com) part of the global Biotechgate database (www.biotechgate.com)

Survey from Lithuanian Biotechnology Association; 2008

BIOTECH GATE COMPANY DATABASE

Company interviews; 2008-2009

Lithuanian Biotechnology Association - Biotechnology in Lithuania 2008 Business & Research, 2008

Institute of Biotechnology – Feasibility Study: Training Highly Competent Specialists, Research and Development Activities and Promoting Research-Intensive Business in the Field of Biotechnology, 2007

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 Lithuania; March 2007

In collaboration with:

Institute of Biotechnology

LBTA

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
		Exceptional	4	8
Public Financial Support	3	Non-existent	0	0
		Minimal	1	3
		Average	2	6
		Good	3	9
		Exceptional	4	12
Private Financial Support	3	Non-existent	0	0
		Minimal	1	3
		Average	2	6
		Good	3	9
		Exceptional	4	12
Qualified Workforce	3	Non-existent	0	0
		Minimal	1	3
		Average	2	6
		Good	3	9
		Exceptional	4	12
Tech Transfer	4	Non-existent	0	0
		Minimal	1	4
		Average	2	8
		Good	3	12
		Exceptional	4	16

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

VENTURE VALUATION

www.venturevaluation.com

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

All company details and data are available on:

BIOTECH GATE COMPANY DATABASE

www.biotechgate.com