



Years		
2001	2002	2003
actual	actual	estimate

## Survey for measuring research and development in biotechnology

### Statistical definition of biotechnology

The provisional **single definition** of biotechnology is as follows: "The application of S&T to living organisms as well as parts, products and models thereof, to alter living or non-living materials for the production of knowledge, goods and services".

The (indicative, not exhaustive) **list-based definition** is:

- DNA (the coding): genomics, pharmaco-genetics, gene probes, DNA sequencing/synthesis/amplification, genetic engineering.
- Proteins and molecules (the functional blocks): protein/peptide sequencing/synthesis, lipid/protein glyco-engineering, proteomics, hormones, and growth factors, cell receptors/signalling/pheromones.
- Cell and tissue culture and engineering : cell/tissue culture, tissue engineering, hybridisation, cellular fusion, vaccine/immune stimulants, embryo manipulation.
- Process biotechnologies: Bioreactors, fermentation, bioprocessing, bioleaching, bio-pulping, bio-bleaching, biodesulphurization, bioremediation, and biofiltration.
- Sub-cellular organisms: gene therapy, viral vectors

### General information:

In 1999 the R&D expenditures for biotech was about 3,4 billion ISK. Performed in all sectors of the economy  
 Number of man-years for R&D in biotech in 1999 are 374, in all sectors of the economy  
 Turnover of biotech firms in 2001 is 11 billion ISK, only in business enterprise sector  
 Number of employees in 2001 in biotech firms 919, only in business enterprise sector

Does the answers to the survey include more than one company:  Yes,  No } Next question!

If yes,  
 this survey is for the group of companies related to: \_\_\_\_\_  
 Other companies included with the mother company are: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

		In Thous ISK each year			
<b>Turnover</b>	<b>Turnover of the organisation in 2001, 2002 and 2003</b> (Turnover can be <u>total cost</u> if more than sales)	2001	actual		
		2002	estimate		
		2003	estimate		
<b>Cost of R&amp;D in biotech</b>	<b>Cost of biotechnology R&amp;D in 2001, 2002 and 2003</b> (Only regarding R&D in biotechnology as in definition above)	2001	actual		
		2002	estimate		
		2003	estimate		
<b>Financing of R&amp;D in biotech</b>	<b>Financing of the cost of R&amp;D in biotechnology</b>	<b>Sources of funds</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
		from the own firm (only firms)			
		from the Business enterprise sector			
		from the Government			
		from other national sources			
		from abroad			
<b>Total sources of funds for R&amp;D</b>	0	0	0		
<b>Manpower</b>	<b>Number of employees in the company (head count)</b> →	<b>2001</b>	<b>2002</b>	<b>2003</b>	
		Full time equivalent for R&D in biotech in the organisation	Men		
		Women			
		Total	0	0	0
		Head count personnel for R&D in biotech in the organisation	Men		
		Women			
Total	0	0	0		

**Which fields of research within biotech are performed?**

**XX for main field and X for other fields**

<b>Human health:</b>	<b>XX or X</b>
1 Diagnostics (e.g. immunodiagnosics, gene probes, biosensors)	
2 Therapeutics (e.g. vaccines, immune stimulants, Biopharmaceuticals, rational drug design, drug delivery,	
3 Genomics and Molecular Modelling (e.g. DNA/RNA/protein sequencing & databases for humans, plants, animals)	
<b>Agriculture:</b>	
4 Plant Biotechnology (e.g. tissue culture, embryogenesis, genetic markers, genetic engineering)	
5 Animal Biotechnology (e.g. diagnostics, therapeutics, embryo transplantation, genetic markers, genetic	
6 Biofertilizers/Biopesticides/Bioherbicides/Biological Feed Additives/Microbial pest control (e.g. bacteria, fungi,	
7 Fish health (e.g. diagnostics, therapeutics)	
8 Broodstock genetics (e.g. Tracking superior traits, genetic modification/ engineering)	
9 Bioextraction (e.g. karageenan from seaweed, antifreeze proteins from fish, flavours)	
10 Silviculture (e.g. ectomycorrhizae, tissue culture, somatic embryogenesis, genetic markers, genetic engineering)	
<b>Industry:</b>	
11 Bioprocessing (e.g. using enzymes and bacteria culture)	
12 Functional Foods/Nutriceuticals (e.g. probiotics, unsaturated fatty acids)	
<b>Environment</b>	
13 Environment	
<b>Other</b>	
14 Other fields of biotechnology, which	

How many organisations has the company established cooperation for R&D projects in biotech?	For what fields, services or branches are R&D in biotech performed?	If possible	XX for main field and X for other fields
Number	Field, service or branch	%	XX or X
	Agriculture		
Domestic companies	Fisheries		
Foreign companies	Aquaculture		
Domestic institutions	Fish processing		
Foreign institutions	Food processing		
Domestic higher educat.	General industry		
Foreign higher educat	Environm. prot. pollution.		
Total	Health care		
	Others what		

<b>Results</b>	<b>Which are the main results of R&amp;D activities related to biotechnology?</b>	
	Number of patents	{ granted patents _____ { applications _____
	Number of publications are	_____
	Number of spin-offs from the organisation	_____ _____ _____

<b>New Research projects</b>	<b>Has the organisation started new projects in R&amp;D related to biotechnology, in last 2 years?</b>
	Please indicate in what fields, <u>in your own</u> words: (i.e. Nanotechnology, bioinformatics, etc.)
	_____
	_____
	_____

