

1. Biotechnology R&D ^{c)}

Types of used biotechnology techniques ^{a)}		Were biotechnology methods used in the unit in 2022 to conduct			
		basic research	applied research ^{b)}	experimental development	Is the unit going to use biotechnology methods in the next 3 years?
0		1	2	3	4
DNA/RNA- genomics, pharmacogenomics, gene probes, genetic engineering, DNA/RNA sequencing/synthesis/amplification, gene expression profiling, the use of antisense technology, large-scale DNA synthesis, genome- and gene-editing, gene drive	01	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proteins and other molecules - sequencing/synthesis/engineering of proteins and peptides, improved delivery methods for large molecule drugs, proteomics, protein isolation and purification, signalling, identification of cell receptors	02	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cell and tissue culture and engineering - cell/tissue culture, tissue engineering, cellular fusion, vaccine/immune stimulants, embryo manipulation, marker assisted breeding technologies, metabolic engineering	03	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Process biotechnology techniques - fermentation using bioreactors, biorefining, bioengineering, biocatalysis, bioprocessing, bioleaching, biopulping, biobleaching, biodesulphurisation, bioremediation, biosensing, biofiltration and phytoremediation, molecular aquaculture	04	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gene and RNA vectors - gene therapy, phage therapy, viral vectors	05	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bioinformatics - construction of databases on genomes, protein sequences, modelling complex biological processes, including systems biology	06	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nanobiotechnology – application of the tools and processes of nano/microfabrication to build devices for studying biosystems and applications in drug delivery, diagnostics, etc.	07	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other^{d)} (please specify techniques not mentioned in rows 01-07): <input type="text"/>	08	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Explanation: Please mark X in boxes in appropriate rows.

If X is marked in at least one row in columns 1, 2 or 3 → please go to section 2.

If X is not marked in any row in column 1, 2 or 3 → please go to section 10.

^{a)} See Annex 1.

^{b)} Term defined in Article 4 on the Act of 20 July 2018 the Law on Higher Education and Science (Journal of Laws of 2018 item 1668).

^{c)} Biotechnology is a process, not a product or an industry, therefore, it cannot be easily singled out on the basis of existing classifications, currently it is treated interdisciplinary.

^{d)} Specify only if biotechnology techniques have never been previously used in the world.

2. Conducted R&D by areas of biotechnology application

Area of biotechnology application		R&D	Pre-clinical trials /trial production
0		1	2
Human health – large molecule therapeutics and monoclonal antibodies produced using rDNA technology	01	<input type="checkbox"/>	<input type="checkbox"/>
Human health – other therapeutics, artificial substrates, diagnostics and drug delivery technologies, etc.	02	<input type="checkbox"/>	<input type="checkbox"/>
Veterinary health – as in rows 01 and 02 applied to veterinary health	03	<input type="checkbox"/>	<input type="checkbox"/>
Genetically modified agricultural biotechnology – new varieties of genetically modified (GM) plants, animals and microorganisms	04	<input type="checkbox"/>	<input type="checkbox"/>
Non-genetically modified agricultural biotechnology – new varieties of non-GM plants, animals and microorganisms developed using biotechnology techniques, bio-pest controls, etc.	05	<input type="checkbox"/>	<input type="checkbox"/>
Natural resource extraction and forestry products –energy, mining, forestry products, etc.	06	<input type="checkbox"/>	<input type="checkbox"/>
Environment – diagnostics, bioremediation, waste disposal, clean production, etc.	07	<input type="checkbox"/>	<input type="checkbox"/>
Industrial processing – food, cosmetics, fuels, chemicals (e.g. enzymes), plastics, etc.	08	<input type="checkbox"/>	<input type="checkbox"/>
Bioinformatics – construction of genome / protein sequence databases, modelling complex biological processes, systems biology, etc.	09	<input type="checkbox"/>	<input type="checkbox"/>
Non-specific applications – research tools, etc.	10	<input type="checkbox"/>	<input type="checkbox"/>
Other (please specify): <input type="text"/>	11	<input type="checkbox"/>	<input type="checkbox"/>

Explanation: Please mark X in boxes in appropriate boxes.

3. Financing biotechnology R&D conducted in a reporting unit in 2022 (intramural expenditures)

Specification			in thousand PLN to one decimal place
Intramural expenditures actually incurred (without depreciation of fixed assets) (row 1 = row 1.1+1.2; row 1=row 2+3) – total expenditures			1
Of which expenditures	capital		1.1
	current		1.2
	Of which	labour costs	1.2.1
Out of intramural expenditures (row 1) on funds (rows 2 + 3 = row 1)			
Internal funds ^{a)}			2
External funds (rows 4 + 5 = row 3) ^{b)}			3
Of which from:	domestic entities (rows 4.1 + 4.2 + 4.3 + 4.4 = row 4)		4
	of which from:	government sector	4.1
		business enterprise sector	4.2
		higher education sector	4.3
		private non-profit sector	4.4
	of which (out of row 4)	scientific institutes on the Polish Academy of Sciences	4.5
		research institutes	4.6
	foreign entities (rows 5.1 + 5.2 + 5.3 + 5.4 + 5.5 + 5.6 = row 5)		5
	of which from:	the European Commission	5.1
		international organisations and foreign institutions	5.2
		government sector (e.g. within the European Economic Area Financial Mechanism)	5.3
		business enterprise sector	5.4
		higher education sector	5.5
private non-profit sector		5.6	
Out of current expenditures (row 1.2) on	scientific research	basic	6
		applied ^{c)}	7
	experimental development		8
Out of total expenditures (row 1) on areas of biotechnology applications	human health		9
	veterinary health		10
	agricultural biotechnology		11
	natural resource extraction and forestry products		12
	environment		13
	industrial processing		14
	bioinformatics		15
	non-specific applications		16
other		17	

^{a)} E.g. own funds, funds from credits and received from tax reliefs ^{b)} Funds received from domestic and foreign entities. ^{c)} Term defined in Article 4 on the Act of 20 July 2018 the Law on Higher Education and Science (Journal of Laws of 2018 item 1668).

4. Sales of biotechnology R&D results (knowledge, products and services) in 2022

Specification			in thousand PLN to one decimal place
Revenue from sales of biotechnology R&D results		1	
Expenditures on creating sold results of biotechnology R&D (row 2 = rows 2.1+2.2+2.3+2.4+2.5+2.6+2.7+2.8+2.9)		2	
Out of total expenditures incurred on creating sold results of biotechnology R&D (row 2) on funds	internal	2.1	
	budgetary	2.2	
	the European Union, including structural funds and EU framework programmes	2.3	
	international organisations and foreign institutions	2.4	
	business enterprises	2.5	
	scientific institutes on the Polish Academy of Sciences	2.6	
	research institutes	2.7	
	higher education institutions	2.8	
	private non-profit institutions	2.9	

5. Internal personnel engaged in biotechnology R&D by R&D function ^{a)} in 2022

Specification			Total	Of which		
				researchers ^{b)}	technicians and equivalent staff ^{c)}	other supporting staff ^{d)}
0			1	2	3	4
Number of persons	total	1				
	of which women	1.1				
Number of full-time equivalents (FTE) (To one decimal place ^{e)})	total	2				
	of which women	2.1				

a) According to classification of R&D personnel by R&D function developed by the OECD. ^{b)} Professionals conducting research and improving or developing concepts, theories, models, techniques, instrumentation, software or operational methods. ^{c)} Persons participating in R&D performing scientific and technical tasks related to the application of concepts and operational methods and using research equipment, normally under the supervision of researchers. ^{d)} Skilled and unskilled craftsmen, and administrative, secretarial and clerical staff participating in R&D projects or directly associated with such works. ^{e)} FTE – time dedicated by an employee to R&D during a reporting year, FTE for one person cannot exceed 1.

6. Internal personnel engaged in biotechnology R&D by level of education in 2022

Specification		Number of persons	
		total	of which women
0		1	2
Total (rows 2+3+4+5+6)		01	
With title of professor		02	
With academic degree of	doctor	03	
	habilitated doctor	04	
With other tertiary education (with other university degrees below PhD level)		05	
With other level of education		06	

7. Submitted patent applications and granted patents in biotechnology in 2022

Specification		Number
0		1
Number of patent applications submitted to the Patent Office of the Republic of Poland in 2022	01	
How many patent applications, out of patent applications provided in row 01, is the unit going to submit to foreign patent institutions?	02	
Number of patent applications submitted to foreign patent institutions in 2022	03	
Number of patents granted by the Patent Office of the Republic of Poland in 2022	04	
Number of patents granted by foreign institutions in 2022	05	

8. The number of publications in journals included in ISI Master Journal List in biotechnology

The number of publications in biotechnology in journals included in ISI Master Journal List	
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9. Research (partner) co-operation in biotechnology R&D by areas of biotechnology application

Specification		Partner institutions from sectors:				
		business enterprise	government	higher education	private non-profit	abroad
0		1	2	3	4	5
Human health	01					
Veterinary health	02					
Genetically modified agricultural biotechnology	03					
Non-genetically modified agricultural biotechnology	04					

Natural resource extraction and forestry products	05					
Environment	06					
Industrial processing	07					
Bioinformatics	08					
Non-specific applications	09					
Other	10					

Explanation: please provide the number of partner institutions in appropriate rows and columns

10. Financing (from internal funds) biotechnology R&D conducted outside a reporting unit in 2022

Specification			in thousand PLN to one decimal place
Total funds transferred (rows 02+03+04+05+06+07+08)		01	
of which funds transferred to	scientific units of the Polish Academy of Sciences	02	
	research institutes	03	
	higher education institutions	04	
	business enterprises	05	
	private non-profit institutions	06	
	other domestic entities	07	
	foreign entities	08	

11. Purchases of biotechnology patents and licences in 2022

Specification			Number
Total patents and licences		01	
of which	domestic suppliers	02	
	foreign suppliers	03	

12. Did your unit undertake in 2022 any activities aimed at:

Specification		YES	NO
0		1	2
Development of COVID-19 vaccine	01		

Development of medication for COVID-19	02		
Development of device used in COVID-19 diagnostics	03		
Development of serological tests to detect SARS-CoV-2 antibodies	04		
Development of molecular tests	05		
Sequencing virus RNA	06		
Other activities ^{a)}	07		
If 'yes' to question 07 (other activities), please specify undertaken activities.	08		

^{a)} E.g. developing products used during fight against COVID-19, collecting samples for testing, transport.

13. Comment

Thank you for filling in the questionnaire. You can provide us with feedback related to filled in questionnaire or suggestions for its modification below.

Please provide estimated time (in minutes) dedicated to collecting data needed for filling in the questionnaire	1	
Please provide estimated time (in minutes) dedicated to filling in the questionnaire	2	

14. Data of a person responsible for filling in the questionnaire

E-mail	
Telephone	

