

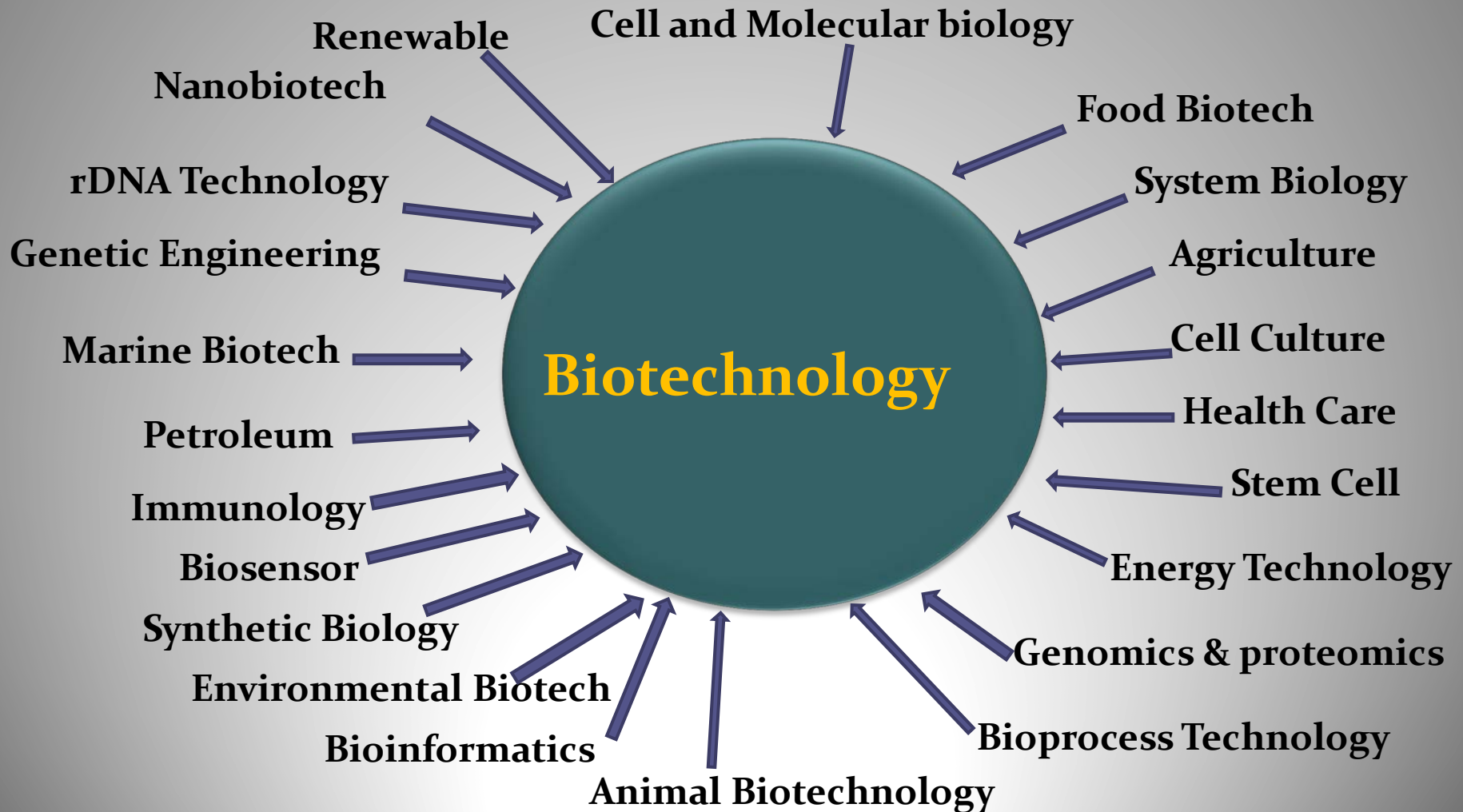


Biotechnology development Council(BDC)

BIOTECH DEVELOPMENT IN IRAN

- Past View
- Present view
- Future view

BIOTECH DEVELOPMENT IN IRAN



History of biotechnology development council Islamic republic of iran

Planning and attention to biotechnology in Iran started in 1375 and by formed the Supreme Council for Biotechnology continued. Biotech national document targeted to develop the technology in the country in 1383 was approved by the government.

In 1378, with the aim of developing and synergies, particularly with regard to the importance of new technologies and strategic location of biotech, *biotech development staff was established under the vice presidency of Science and Technology* and all activities of the former Supreme Council was held at the headquarters.

According to the Supreme Leader emphasis on special attention to the development of biotechnology and biotech presenting to emphasize the development of a five-year program of economic, social and cultural, , *biotech development committee according to Act 705 dated 27/10/1390 Session Supreme Council of the Cultural Revolution as The main reference of Policy, planning, strategy implementation, coordination and monitoring in the field of biotechnology was determined.*

Structure of biotechnology development council

The extent of the field of biotechnology has led to the construction of expert groups and working groups with Specialists be organized in this way:

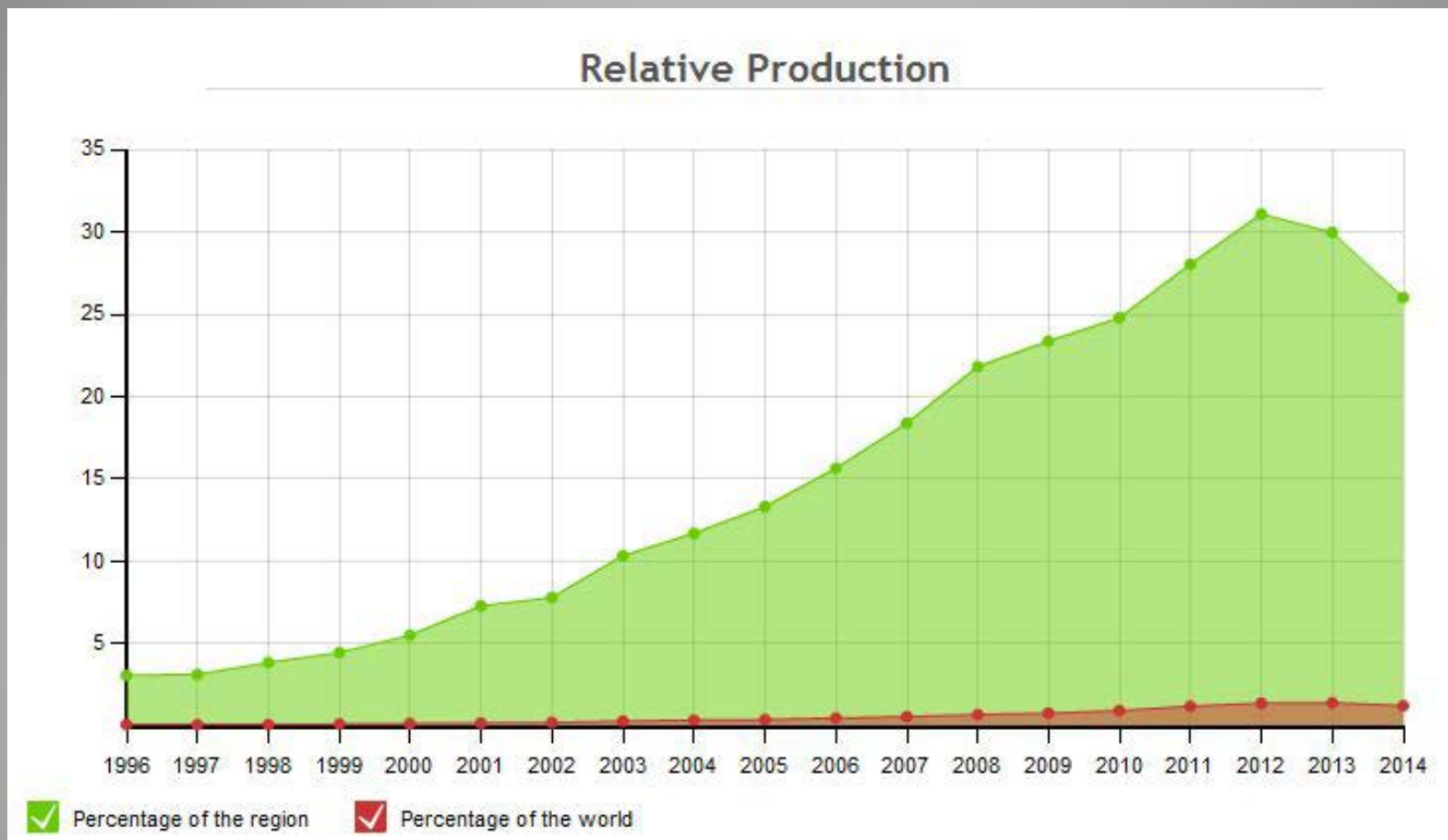
- Group of Production and commercialization and market**
- Group of research and development**
- Group of human capital and promoting education**
- Group of biological and genetic resources**

Wide range of biotech crops led to 8 working group be organized :

- 1. Industry Equipment**
- 2. Medical reform**
- 3. Medical**
- 4. Agriculture**
- 5. Oil Biotechnology**
- 6. Vaccine**
- 7. The environment**
- 8. Fermentation industry**

Iran contribution in scientific productions in

Biochemistry, genetics and molecular biology field



SCIMAGO
LAB

www.scimagojr.com

Iran contribution in region countries biotechnology papers 19.6%

Iran contribution in the world countries biotechnology papers 0.5%

Iranian ranking in the number of biotechnology papers (2011-2014)

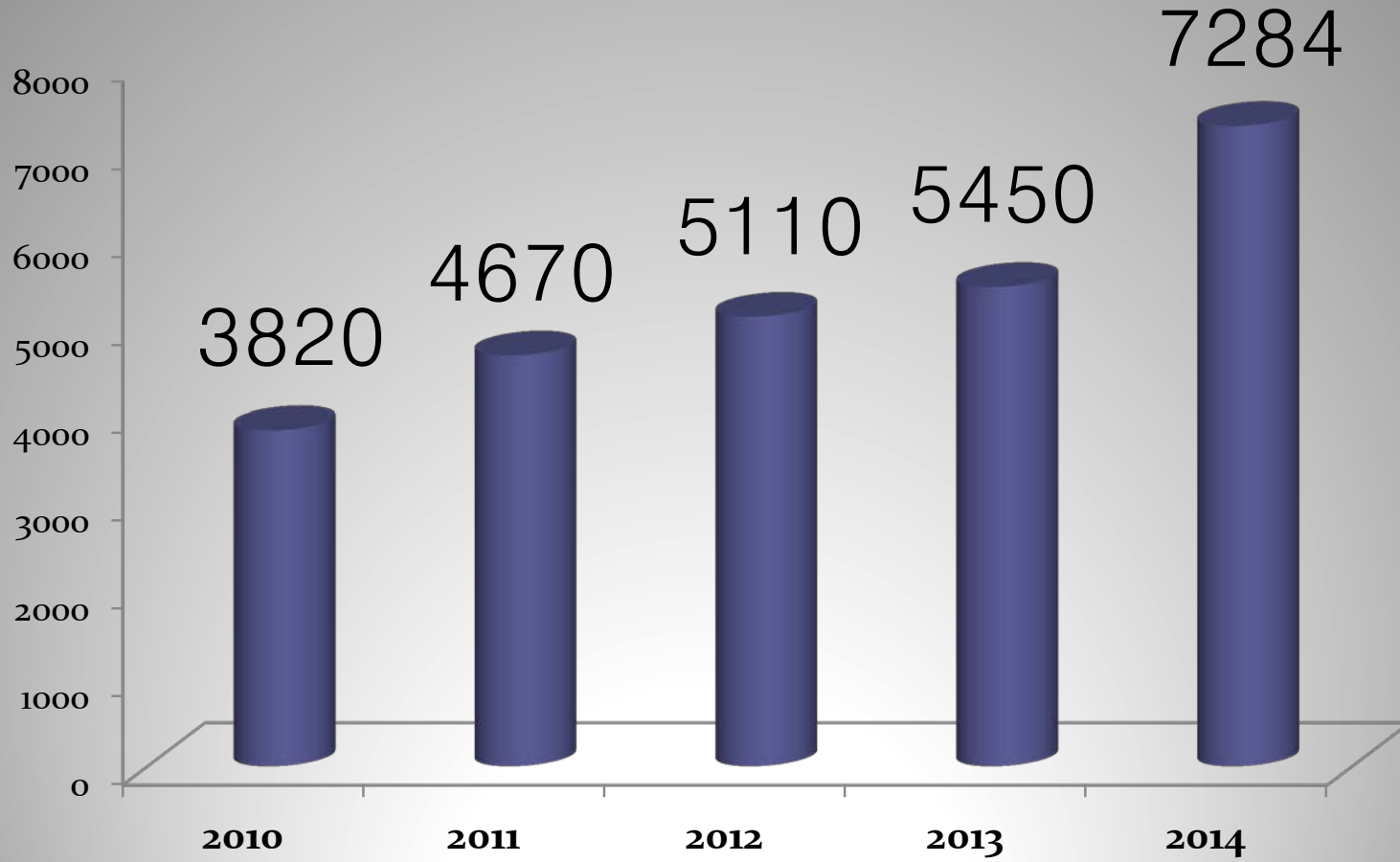
2011		2012		2013		2014	
Rank	Country	Rank	Country	Rank	Country	Rank	Country
1	United States	1	United States	1	United States	1	China
2	China	2	China	2	China	2	United States
3	India	3	India	3	India	3	India
4	Japan	4	Japan	4	Japan	4	Germany
5	Germany	5	Germany	5	Germany	5	South Korea
6	South Korea	6	South Korea	6	South Korea	6	Japan
7	United Kingdom	7	United Kingdom	7	United Kingdom	7	United Kingdom
8	Spain	8	Spain	8	Spain	8	Spain
9	France	9	France	9	France	9	Canada
10	Italy	10	Canada	10	Canada	10	France
11	Canada	11	Italy	11	Italy	11	Italy
12	Brazil	12	Brazil	12	Brazil	12	Australia
13	Iran	13	Australia	13	Australia	13	Brazil
14	Australia	14	Netherlands	14	Netherlands	14	Iran
15	Netherlands	15	Iran	15	Iran	15	Netherlands
16	Turkey	16	Taiwan	16	Taiwan	16	Switzerland
17	Taiwan	17	Switzerland	17	Switzerland	17	Turkey
18	Switzerland	18	Belgium	18	Poland	18	Belgium
19	Malaysia	19	Sweden	19	Belgium	19	Taiwan
20	Belgium	20	Turkey	20	Sweden	20	Poland

In 2000:

Courses in universities : 20

Students in MS and Ph.D degree : 1500

Biotech Post Graduate Students



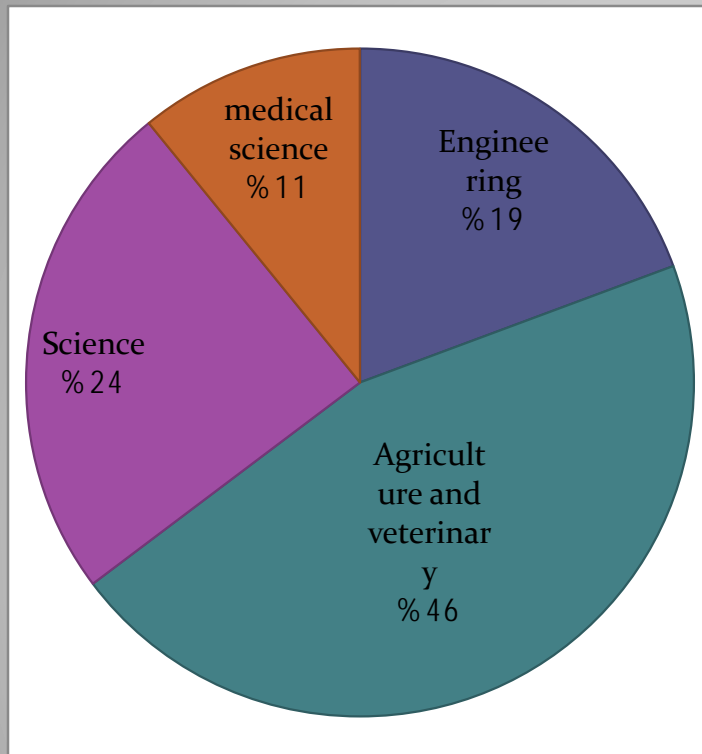
BIOTECH DEVELOPMENT IN IRAN

In 2015(active center)

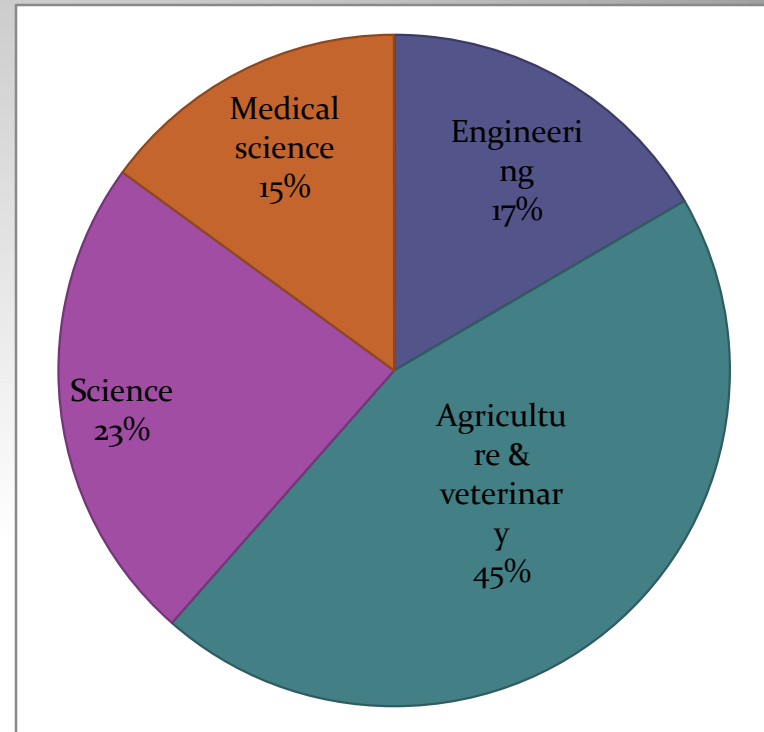
title	number
University	80
Number of university courses in M.s degree	22
Number of university courses in ph.D degree	12
Graduated from Biotechnology related fields,2014	15050

Frequency of Graduated from Biotechnology, and biotechnology students related fields (2014)

Biotech post graduate students



Biotech students



BIOTECH DEVELOPMENT IN IRAN

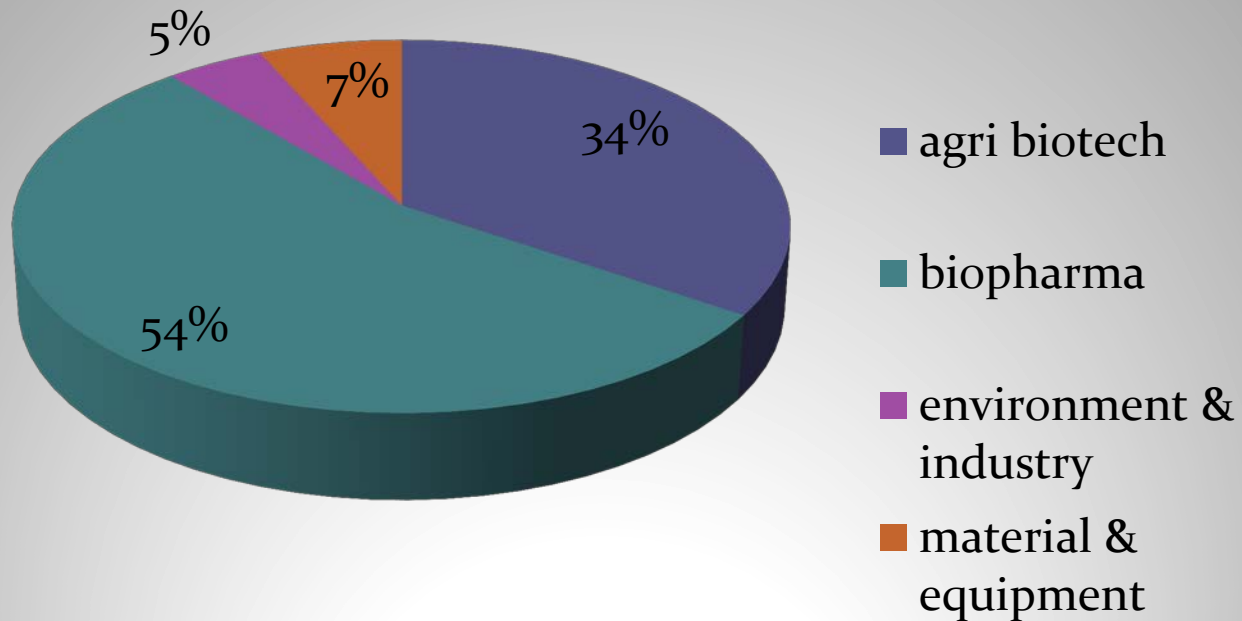
In 2015(active center)

title	Number 2000	Number 2015
Incubator & Science and technology park	—	15
Research center	5	12
company	80	420
products	105	141

Focus area of biotechnology

Field	Number of companies
Agricultural biotech (Agri-feed biotech)	148
Biopharmaceuticals (medical-food biotech)	221
Environment and industrial biotechnology	21
Biotechnology materials & equipment	30
Total	420

Frequency of biotechnology companies



*Frequency of facility
(Innovation and Development Fund)*

field	number	percent	Amount Million Rial
Biotechnology	63	20%	316,230
Biomedical Engineering	51	19%	304,425
Electronic	81	18%	28,413
Advanced equipment	63	12%	190,658
information technology	52	9%	136,638
Advanced Materials	25	8%	82,200
Nanotechnology	13	3%	45,391
Optics	7	1%	21,500
new energies	6	1%	8,450

Variety of products

Title	number	Title	number
Tissue culture products	13	Drug recombinant	18
Biofertilizers	10	Diagnostic kit	15
biopesticide	5	equipment	80

Export



Recombinant human
FVIIa



Interferon β 1 a



QF PCR Kit for prenatal
diagnosis of chromosomes 21, 18,
13, X



recombinant
Erythropoietin alfa



recombinant methionyl human
granulocyte colony stimulating
factor (r-met-HuG-CSF)



probiotic supplement

Export



Nitrogen fixing biofertilizer



Date palm



Phosphate
-Biofertilizer

Future (Prospects)- 2020 or 2025

- ✓ To Achieve to the first place in the region
- ✓ To reach to appropriate position between the world's top ten countries.
- ✓ To reach to 3% of global biotechnology market
- ✓ To reach to 10% of GDP

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Policies:

Support Export

Promote SMEs

VC investment

Facilitate rules

Promote international collaboration

Standard Laboratories development

Place the maximum number of graduated and post graduated students in this program





Razi vaccine and Serum Reaserch Institute

www.p-sepidar.ir سپیدار گستر

Razi vaccine and serum research institute

Date of establishment	1925
Missions	Research & Production of Veterinary and Poultry Vaccines Research and Diagnosis of Zoonotic Diseases Biotechnology Research Education & Training Research & Production of Medical Vaccines and Antisera
Achievements	<u>Human Vaccines</u> <u>Veterinary Vaccines _poultry</u> Veterinary Vaccines _Animals Diagnostic Products



**National institute of genetic engineering
and biotechnology (NIGEB)**

National institute of genetic engineering and biotechnology

Date of establishment	1989
Departments	Institute of Agricultural Biotechnology Institute of Animal Biotechnology Institute of Industrial and Environmental Biotechnology Institute of Medical Biotechnology
Achievements	developing stress-tolerant strategic crops and production of biological products like Canola (Fungal resistance & Herbicide tolerance), Citrus Canker Disease, Olive, Pistachio, Wheat, Sugar Beet in the area of cancer, genetics of multiple sclerosis (MS), stem cell and various research projects achievements in Bioprocess engineering



**Agriculture biotechnology research
institute of Iran(ABRII)**

Agriculture biotechnology research institute of Iran(ABRII)

Date of establishment	2000
Departments	Molecular physiology Tissue culture & gene transformation Agriculture Nanotechnology Microbial biotechnology & biosafety Genomics
Achievements	Producing healthy and virus-free potato mini and microtubers, Pistachio, apple, olive, roses and cumins Production of the first transgenic cotton with resistance to boll worm (<i>Heliothis virescens</i>) and verticilium wilt in Iran Production of the first Iranian transgenic rice variety (<i>Oryza sativa</i>) with stable resistance to stem and leaf borers Identification and isolation of candidate genes for Fusarium Head Blight resistance



پژوهشگاه رویان



Royan institute

Royan institute

Date of establishment	1991
Objectives	<i>Generation of high producing cell lines Production of pharmaceutical proteins Generation different kind of transgenic animals Purification of recombinant proteins Transgenic animals core facility</i>
Achievements	<i>The first IVF birth in Tehran The second ICSI birth in Iran The first ICSI birth by frozen sperm of a gonadectomized man The first human embryonic Stem Cell line establishment in Iran and the region The first PGD child born in Iran Production of Insulin Producing Cells from Human Embryonic Stem Cells Culture of Human Limbal Stem Cells on Chorionic Membrane and use them for corneal injuries The first IVM-IVF sheep in Iran & The first cloned sheep in Iran The first cloned goat The first calves The first healthy child birth Birth of eight cloned goats</i>



*Iranian Research
Organization for Science
and Technology(IROST)*

Iranian Research Organization for Science and Technology(IROST)

Date of establishment	1980
Departments	Biotechnology(PTCC - Persian Type Culture Collection)
Achievements	<p>Deposit of microorganisms for public access and distribution of microbial strains</p> <p>Offering safe deposit for the long-term preservation of microorganisms where the distribution of the strains is restricted at the discretion of the depositor</p> <p>Identification and characterization of microbial strains</p> <p>Contract services to support research projects in the field of applied microbiology</p> <p>Providing training courses, workshops on different aspects of microbiology including microbial diversity and preserving and storing microorganisms</p>



**Iranian biological research
center (IBRC)**

Iraninan biological research center(IBRC)

Date of establishment	2008
Departments	Human and Animal Cells bank Microorganisms bank plant bank
Achievements	Launching human and animal cell bank Designing and setting up the Iranian biological resource network Membership in World Federation for Culture Collections (WFCC) Holding the first national congress on biological and genetic resources Establishing ISO 9001-2008 Quality Management System Negotiating and reclaiming about 7200 Iranian seed samples Setting up the first Iranian bank of essential oils and extracts Detecting and recording 30 taxa as indigenous microorganisms of Iran



Pasteur institute if Iran

Pasteur institute if Iran

Date of establishment	1919
Achievements	Hepatitis B Vaccine Streptokinase Interferon alfa-2b Erythropoietin Rabies vaccine for veterinary uses
Departments	Bacteriology Research Group virology Research Group Genetics and Metabolism Research Group New Technologies Research Group Parasitology and Mycology Research Group



ریاست جمهوری
معاونت علمی و فناوری

