

Report on Survey of Domestic Bioindustry based on 2013

2015. 2.

MINISTRY OF TRADE, INDUSTRY & ENERGY
Korea Biotechnology Industry Organization



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I. Survey Overview

1 Survey Overview

A. Data Sources

- Division of Bio-nano, Ministry of Trade, Industry and Energy (www.motie.go.kr)
- Statistical Sources : Korea Biotechnology Industry Organization (www.koreabio.org)

B. Type of Statistics and Authorized Number

- Type of Statistics : General·Survey Statistics
- Authorized Number: No. 11515
- Authorized Date : October 30th, 2003

C. Survey Period

- Survey Baseline Date: December 31, 2013
- Targeted Survey Period : January 1, 2013 ~ December 31, 2013
- Conducting Survey Period : April 14, 2014 ~ November 20, 2014

D. Scope

- Based on ‘classification scheme of bioindustry (KS J 1009, recognized by Korean Agency for Technology and Standards, Ministry of Trade, Industry and Energy on January 2008)’ which established the scope and definition of the domestic biotechnology and bioindustry in the survey baseline year, the scope of the survey refers to domestic businesses engaged in the activities related to biotechnology. The activities related to biotechnology refers to the following.
 - Using biotechnology as the main technology in the research and development phases, although it uses non-biotechnology in the production phase
 - Using biotechnology in the manufacturing, production and service (including research and development) phases
 - Producing machine, equipment, or plant that are used in the biotechnological process of the research and development phase or

- the production phase
- Selling the above products after importing
- ※ The survey includes companies resulted in sales through the activities stated above as well as companies pushing forward the research development in the survey baseline year.

E. Survey Targets

- The survey primarily selected bioindustry's fact-finding companies of 2012 among domestic companies falling into the range of the survey as survey targets. The survey then selected corresponding companies using the bio cluster-related companies per geography of December, 2013, other registered company data of Korea Biotechnology Industry Organization, and company yearbooks.

F. Survey Units

- The survey units refers to companies that sell products or services which went through the production process of value-adding after the assembled capital equipment or raw materials were bought under the control of the entrepreneur.
- The survey units include public enterprises (state-owned enterprises, public enterprises), public - private companies, the private companies (private enterprises, collective enterprises, partnership, joint venture, anonymous company, Co., Ltd., Co., Ltd., co-operatives).
- In case the company has more than two businesses, the survey unit included the sum of the corresponding business' results and received the responses based on the bioindustry results among the overall industrial activities.

G. Methodology and Approach

- Survey Methodology : Via mail, fax, e-mail, telephone, face-to-face interview
- Survey Approach : Researcher → Research Company → Korea

Biotechnology Industry Organization → Ministry of Trade, Industry and Energy

H. Announcement of Results

- Announcement Period : Once a year
- Form of Announcement : Publication of the Report on Fact Finding Survey of Domestic Bioindustry

2 Background and Purpose

- Ministry of Trade, Industry and Energy and Korea Biotechnology Industry Organization have been conducting fact finding survey of domestic bioindustry since 2003 to build groundwork for economic analysis, international comparison and establishment of related nurturing policies through analyzing overall status of bioindustry and its actual condition.
- The 'Report on Fact Finding Survey of Domestic Bioindustry' that started its survey conduct from April, 2014 aims to increase the successful rate as complete enumeration survey and to grasp more accurate status of domestic bioindustry.
- This survey aims to analyze bioindustry's economic feasibility through grasping sales and financial status and to establish bio-related nurturing policies through studying accurate actual condition of domestic bioindustry.
- Ministry of Trade, Industry and Energy and Korea Biotechnology Industry Organization aims to contribute to the development of domestic bioindustry through the results of this survey.

3 Methodology

Target	Company representatives or managers in Bioindustry such as Biopharmaceutical· Biochemical· Biofood· Bioenvironmental· Bioelectronics
Area	Nation-wide(17 areas including Seoul and 6 Metropolitan cities)
Methodology	Research was conducted via mail, fax, e-mail, telephone, face-to-face interview by researcher
Data-mining tool	Structured Questionnaire
Size of population	1,026 Companies (Among primarily selected 1,037 companies, 11 closed-down)
Size of valid sample	971 Companies(94.6% of the population)

4

Contents

Category	Main Contents of the Survey
Company Information	<ul style="list-style-type: none"> - Name of Company, Name of Representative - Business Registration Number, Corporate-parent (Group) Name - Phone, Establishment Date - Address - Respondent Information
General Status	<ul style="list-style-type: none"> - Capital, Capital Ratio of Net Worth - Number of Workers - Existence of exclusive business, type of company, place of business - Items in the income statement (sales, cost of goods sold, selling expenses & administrative expenses, tax, etc)
Status of Bio Industry	<ul style="list-style-type: none"> - Core business - Manpower status - R&D cost and Facility Investment cost - Cooperation with Other Organizations - Phase of Growth - Period Resulted in Sales - Product, Service, Commerce Technology (Resulted in Sales, Export·Import)

5 Terminology

A. General Status

- Selected Companies
 - ① Venture Company : Refers to companies that are selected for meeting the requirements of the venture capital investment, investment in research and development, and companies developing new technologies and technology assessment companies according to 'Act on Special Measures for the Promotion of Venture Businesses'.
 - ② INNO-BIZ : Refers to companies that are selected for Small and Medium Business Administration's 'Fostering Business for technology-innovative (INNO-BIZ) Small and Medium Businesses'.
 - ③ Listed Company : Refers to companies that meet the listing requirements which are being able to sell the issued stocks in the Kosdaq market or the stock market.
- Capital : Refers to the current amount of capital that is paid by the corporation (headquarter) until December 31, 2013.
- Capital Ratio of Net Worth : Refers to the ratio of equity capital (total amount of capital-liabilities) on the total capital (=total amount of capital+liabilities=total assets).

B. Manpower Status

- Received responses from three groups among bioindustry workers: research, production, and others including sales/administrative.
 - ① Research : Refers to research and development manpower in bioindustry.
 - ② Production : Refers to manpower engaged in production, facilities and quality management in bioindustry. (excluding manpower

in research center)

- ③ Others including sales/administrative : Refers to all manpower except research and production manpower in bioindustry.

C. R&D and Sales

- R&D Cost : Refers to company's total cost spent in research activities to develop new products or new technology for the past year of 2013. It refers to sales cost in income statement and manufacturing statement, ordinary development expense and investment cost for management, land and equipment acquisition cost related to R&D in balance sheet.
 - ① R&D Cost : Includes self R&D cost (labor costs, material costs and other expenses), commissioned research and development costs, cost for technology implementation
 - ② Facility Investment Cost related to R&D : Includes machinery, land and building acquisition cost related to R&D

- Resulting in Sales
 - ① Selling complete product that was produced in the business
 - ② Selling complete product which was outsourced by other businesses using raw material or half-finished products
 - ③ Refers to providing services and sales resulting from transfer of technology. It includes all the results of domestic sales and export activities.

D. Classification Scheme of Bioindustry and Biotechnology

1) Classification Scheme of Bioindustry

- In case of classification scheme of bioindustry, the Korean Agency for Technology and Standards established national standard KS J 1009(Bioindustry Classification Code) on January 31, 2008 by reflecting

the business results of Ministry of Trade, Industry and Energy's 'Building groundwork for standardization of biotechnology and industrial products' and the second detail topic 'Building standard classification scheme of bioindustry/biotechnology and analyzing structure of the bioindustry'.

<Overview of Bioindustry's Classification Scheme>

■ Purpose of Classification

- To clarify the scope of bioindustry
 - Defined companies that uses biotechnology in the research and development, manufacturing, production, and service phases
- To propose standardized evidences that can be used for bioindustry-related statistics and institutions without confusion
 - Creating industrial statistics such as company profits created from using biotechnology
- To build groundwork for analysis such as economic structure, industrial structure, and correlation with other industries
- To secure the connectivity with the classification scheme of international bioindustry
 - Creating groundwork for comparing and analyzing the statistical data of the international bioindustry

■ Target and Standard of Classification

- Industrial activities conducted by companies using biotechnology
- Characteristics of products (produced goods or provided service) which use biotechnology in the research and development, production and service phases
 - The function and the market of the products

■ Classification Scheme

- Consisted of 9 upper classifications and 51 middle classifications
 - The upper classifications are categorized by KS J 1009(Bioindustry Classification Code)
 - The middle classifications are categorized by goods sold using biotechnology or provided service using biotechnology. These are categorized according to their correlation with industrial activities of corresponding upper classification.

>> <Table 1-1> Classification Scheme of Bioindustry

Code	Name of Industrial Classification
1	Biopharmaceutical Industry
1010	Antibiotics
1020	Anticancer medications
1030	Vaccines
1040	Hormones
1050	Immunotherapeutics
1060	Hemotherapeutics
1070	Growth factors
1080	New therapeutics(ex. gene therapeutics, cell therapy, cloned organs, etc)
1090	Diagnostic kits
1100	Animal medications
1000	Other biopharmaceuticals
2	Biochemical Industry
2010	Biopolymers
2020	Industrial enzymes and reagents
2030	Enzymes and reagents for research
2040	Biocosmetics and home & personal care chemicals
2050	Biological agrochemicals and fertilizers
2000	Other biochemicals
3	Biofood Industry
3010	Functional health foods
3020	Amino acids
3030	Food additives
3040	Fermented foods
3050	Feed additives
3000	Other biofoods
4	Bioenvironmental Industry
4010	Microbial treatment agents
4020	Microbe-immobilized materials and equipments
4030	Bioenvironmental agents and systems
4040	Measuring apparatus for environmental pollution(service for pollution assessment)
4000	Other bioenvironmental productions and services

>> <Table 1-1> Classification Scheme of Bioindustry(Cont'd)

Code	Name of Industrial Classification
5	Bioelectronics Industry
5010	DNA chips
5020	Protein chips
5030	Cell chips
5040	Biosensors
5050	BioMEMS
5000	Other bioelectronics
6	Biochemical Industry
6010	Bioreactors
6020	Biomedical and diagnostic apparatuses
6030	Bioprocess and analysis equipments
6040	Plant and process design
6000	Other Bioprocesses and equipments
7	Bioenergy and bioresource Industry
7010	Biofuel
7020	Artificial seeds and seedlings
7030	Experimental animals
7040	Transgenic animals and plants
7000	Other bioenergy and bioresources
8	Bioassay, bioinformatics and R&D service Industry
8010	Bioinformatics services
8020	Gene analysis services
8030	Protein analysis services
8040	R&D services (ex. drug development services, etc)
8050	Biosafety and efficacy evaluation services
8060	Diagnosis and preservation services
8000	Other bioassays, bioinformatics services

※ Refer to <Appendix 1> for the explanation on classification scheme

2) Classification Scheme of Biotechnology

- In case of the classification scheme of biotechnology, it provides 13 sectors biotechnology classification code according to KS J 1009(Bioindustry Classification Code) which is recognized as national standard by the Korean Agency for Technology and Standards in January 31, 2008. This reflected the business results of Ministry of Trade, Industry and Energy's 'Building groundwork for standardization of biotechnology and industrial products' and the second detail topic 'Building standard classification scheme of bioindustry/biotechnology and analyzing structure of the bioindustry'.

<Overview of Biotechnology's Classification Scheme>

■ Purpose of Classification

- To define the scope of the domestic bioindustry
- To analyze the usage condition of biotechnology in the domestic industry

■ Target and Standard of Classification

- To establish the classification scheme of biotechnology used in industries
- To emphasize the technology used in the current bioindustry and the research development field
- To reflect the development vision of the future bioindustry and biotechnology

■ Classification Scheme

- Consisted of 2 classifications (Upper · Middle). There are 13 upper classifications and 68 middle classifications.
- The upper classification includes the technological scope of the corresponding middle classifications. It is consisted of items that can easily implement and respond to specific details of technology.
- The middle classification limits the technological scope of the upper classification. It is consisted of items that can encompass related new technologies into the list-based definitions.
- Each of the 68 middle classification has corresponding list-based definition which explains the definition and the scope of the middle classification's technology. This list-based definition is consisted of items that allows duplication among middle classifications and focuses on technological names used in industry and the research and development field.

>> <Table 1-2> Classification Scheme of Biotechnology

Code	Name of Technological Classification
A	Genetic engineering
A1	Gene manipulation
A2	Gene expression and regulation
A3	Gene application
A4	Gene therapy
A0	Genetic engineering, n.e.s.
B	Protein engineering
B1	Protein structure analysis
B2	Protein function analysis
B3	Complex protein engineering
B4	Peptide engineering
B5	Protein application
B0	Protein engineering, n.e.s.
C	Other macromolecule engineering
C1	Lipid engineering
C2	Carbohydrate engineering
C0	Macromolecule engineering, n.e.s.
D	Cell and tissue engineering
D1	Stem cell therapy
D2	Bioenvironment regulation
D3	Functional biomaterial development
D4	Cell engineering
D5	Tissue engineering
D0	Cell and tissue engineering, n.e.s.
E	Systems biology and bioinformatics
E1	Gene sequence analysis
E2	Functional genomics
E3	Proteomics
E4	Bioinformatics
E0	Systems biology and bioinformatics, n.e.s.
F	Metabolic engineering
F1	Metabolite production
F2	Applications of metabolic engineering
F3	Understanding the metabolism and metabolic pathways
F0	Metabolic engineering, n.e.s.
G	Bioprocess
G1.	Fermentation engineering
G2.	Cell culture engineering
G3.	Biotransformation
G4.	Bioseparation engineering
G5.	Industrialization
G0.	Bioprocess, n.e.s.


>> <Table 1-2> Classification Scheme of Biotechnology(Cont'd)

Code	Name of Technological Classification
H	Bioresource production and utilization
H1	Plant resource utilization technology
H2	Animal resource utilization technology
H3	Microbial resource utilization technology
H4	Insect resource utilization technology
H5	Marine/fresh water organism technology
H6	Food engineering
H7	Biomaterializing technology
H8	Biodiversity conservation
H0	Bioresource production and utilization, n.e.s.
I	Environmental biotechnology and bioenergy technology
I1	Clean technology
I2	Environmental pollution control and management technology
I3	Bioenergy technology
I0	Environmental biotechnology and bioenergy technology, n.e.s.
J	Nanobiotechnology
J1	Nano-biodevice fabrication
J2	Nanobiomaterial technology
J3	Nano drug delivery system
J4	BioNEMS(Nanoelectromechanical systems, nano-LOC(lab-on-a-chip)
J0	Nanobiotechnology, n.e.s.
K	Bioelectronics
K1	Biosensor fabrication
K2	Bioelectronic device fabrication
K3	Biochip fabrication
K4	Microfluidics
K0	Bioelectronics, n.e.s.
L	Biosafety and efficacy evaluation
L1	Safety evaluation
L2	Safety management
L3	Environmental assessment
L4	Biohazard management
L5	Efficacy evaluation
L0	Biosafety and efficacy evaluation, n.e.s.
M	Other biotechnology
M1	Combinatorial biology
M2	Drug delivery
M3	Immunotherapy technology
M0	Biotechnology, n.e.s.

※ Refer to <Appendix 1> for the explanation on classification scheme

【Special Notes on Statistical Data】

- 1) The missing values (no response, unsureness and none of the above) were excluded from the statistical calculation. (Statistical analysis was conducted based on 100% data with the missing value excluded.)
- 2) The sum of detail items and the total sum may not be identical as all the statistical values are rounded values.
- 3) This report calculates down to one place of decimals and related symbols are as the following:
「-」 : none of the above
「0.0」 : less than the unit
- 4) Any inquiries on this report should be contacted to the Industry Policy Office of the Korea Biotechnology Industry Organization.
(Phone : 031)628-0026, 0040)



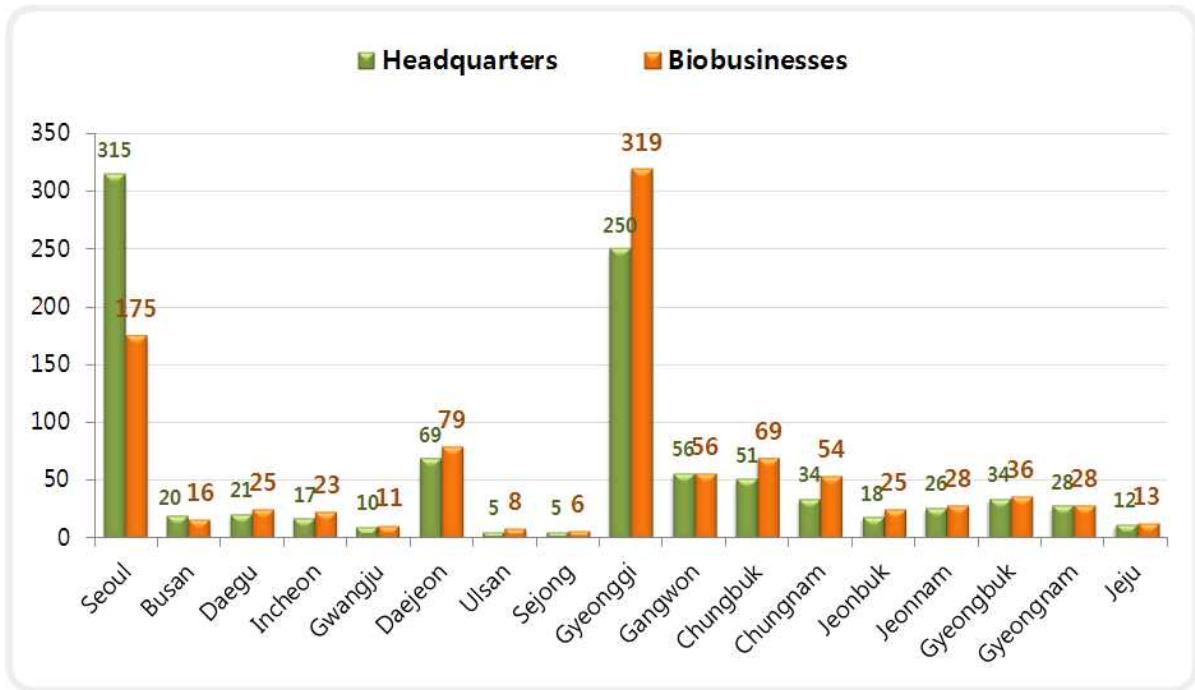
II. Key Findings

1 General Status of Bioindustry

A. Bioindustry's Distribution per Place

- Headquarters and biobusinesses of domestic bioindustry are mostly located in Seoul and Gyeonggi province. There are 315 headquarters in Seoul, and 319 biobusinesses in Gyeonggi.

<Figure 2-1> Bioindustry's Distribution per Place (Unit : number of companies)



* Place of biobusinesses were analyzed according to the following order: factory > research center > headquarter.

<Table 2-1> Bioindustry's Distribution per Place

(Unit : number of companies)

Industrial Category	Total	Seoul	Busan	Daegu	Incheon	Gwangju	Daejeon	Ulsan	Sejong
Total	971	175	16	25	23	11	79	8	6
Biopharmaceutical industry	317	77	3	8	9	1	18	1	1
Biochemical industry	203	22	3	4	3	2	33	2	4
Biofood industry	199	17	8	5	5	3	5	-	1
Bioenvironmental industry	76	5	1	5	3	2	5	3	-
Bioelectronics industry	26	8	-	1	1	1	3	-	-
Bioprocess and equipment industry	70	20	-	2	1	1	6	-	-
Bioenergy and bioresource industry	27	1	1	-	1	-	3	2	-
Bioassay, bioinformatics and R&D service industry	53	25	-	-	-	1	6	-	-

Industrial Category	Gyeonggi	Gangwon	Chungbuk	Chungnam	Jeonbuk	Jeonnam	Gyeongbuk	Gyeongnam	Jeju
Total	319	56	69	54	25	28	36	28	13
Biopharmaceutical industry	135	9	27	15	5	1	2	4	1
Biochemical industry	48	13	13	14	5	11	16	5	5
Biofood industry	50	19	20	19	8	9	11	13	6
Bioenvironmental industry	26	8	4	1	4	2	2	5	-
Bioelectronics industry	5	5	-	1	-	-	1	-	-
Bioprocess and equipment industry	31	1	1	4	-	1	2	-	-
Bioenergy and bioresource industry	9	-	2	-	2	3	1	1	1
Bioassay, bioinformatics and R&D service industry	15	1	2	-	1	1	1	-	-

* The result analyzed the results of 1 core business that was selected for each company.

○ TOP3 provinces for domestic bioindustry's businesses are as the following:

Biopharmaceutical Industry: Gyeonggi 42.6% > Seoul 24.3% > Chungbuk 8.5%

Biochemical Industry : Gyeonggi 23.6% > Daejeon 16.3% > Seoul 10.8%

Biofood Industry : Gyeonggi 25.1% > Chungbuk 10.1% > Kangwon,

Chungnam 9.5%

Bioenvironmental Industry : Gyeonggi 34.2% > Kangwon 10.5% > Seoul,
Daejeon, Gyeongnam 6.6%

Bioelectronics Industry : Seoul 30.8% > Gyeonggi, Kangwon > 19.2%

Bioprocess and equipment industry : Gyeonggi 44.3% > Seoul 28.6% >
Dajeon 8.6%

Bioenergy and bioresource Industry : Gyeonggi 33.3% > Daejeon,
Jeonnam 11.1%

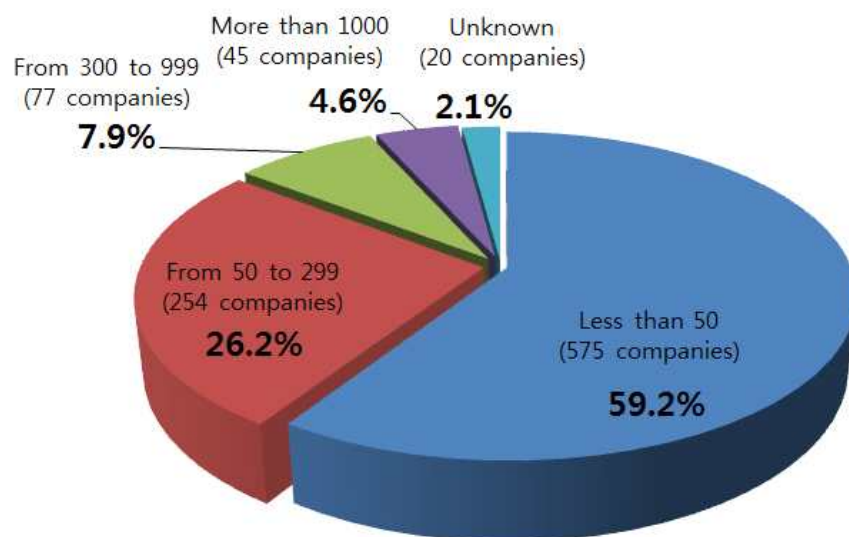
Bioassay, bioinformatics and R&D service Industry : Seoul 47.2% > Gyeonggi
28.3% > Daejeon 11.3%

B. Bioindustry's Distribution per Size of Workers

○ There are 575 companies (59.2%) that belongs to 'less than 1~50 workers' among total size of workers.

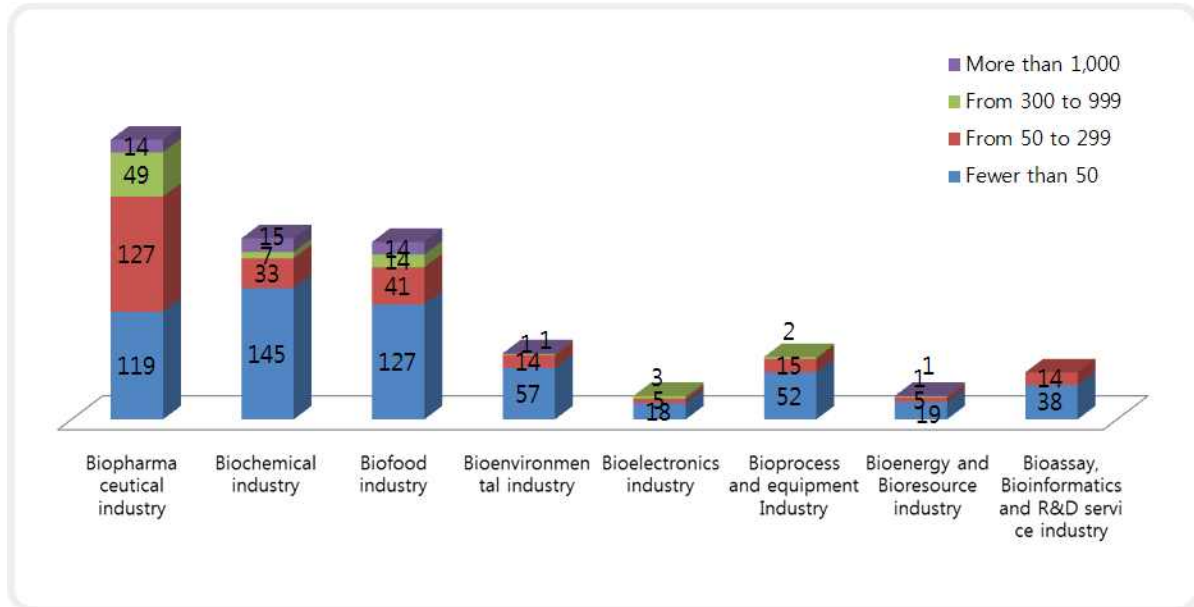
○ There are 45 companies (4.6%) that have more than 1,000 workers.

<Figure 2-2> Bioindustry's Distribution per Size of Workers



<Figure 2-3> Bioindustry's Size of Workers

(Unit : number of companies)



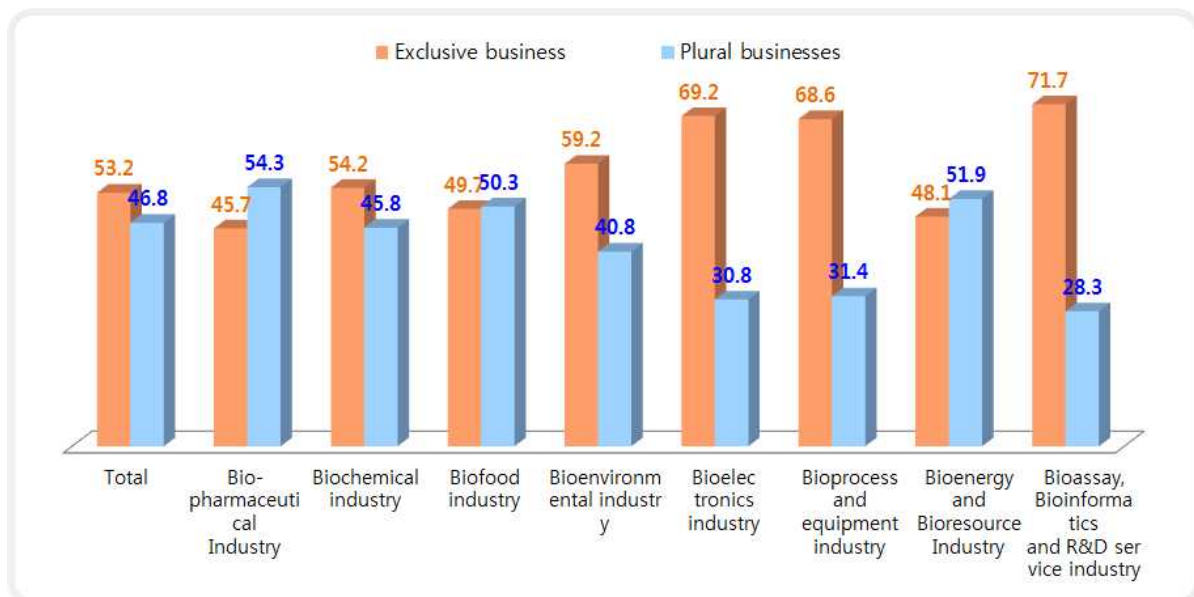
* Companies that did not have information on the size of workers were excluded from the statistical data.

C. Bioindustry's Distribution on the Existence of Other Businesses

- Bioindustry's existence of other businesses refers to the existence of factories, research centers or stores in other location.
- Companies that do not have factories, research center or stores in other location are categorized as 'exclusive business'. Companies that have factories, research centers or stores in other location are categorized as 'plural businesses'.
- Among 967 bioindustry companies, 514 companies (53.2%) are 'exclusive business' and 453 companies (46.8%) are 'plural businesses' according to the survey.

<Figure 2-4> Bioindustry's Existence of Other Businesses

(Unit : %)



D. Bioindustry's Financial Analysis

- The total capital of bioindustry is surveyed as 15.1 billion won and the ratio of net worth is 50%.
- Companies in biochemical industry had higher average amount of capital reaching 35.4 billion won. Companies in bioenvironmental, biofood, biopharmaceutical and bioprocess and equipment industry had higher value compared to other bioindustries with ratio of net worth reaching 50%.

<Table 2-2> Biotechnology Industry's Financial Standing Analysis by Category

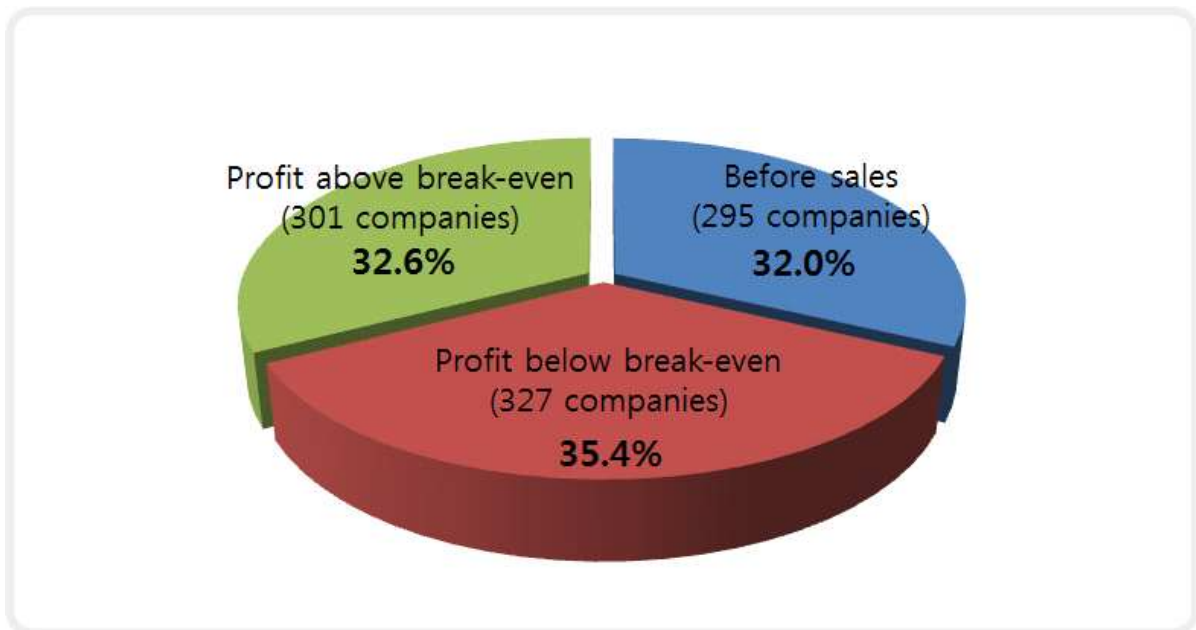
(Unit : %, million Won)

Industrial Category	No. of companies	Capital			Ratio of Net worth		
		Minimum	Maximum	Average	Minimum	Maximum	Average
Total	971	1	1,488,993	15,103	-191	102	50
Bio pharmaceutical industry	317	1	707,036	14,411	-140	100	51
Biochemical industry	203	30	1,488,993	35,382	-58	99	49
Biofood industry	199	10	481,729	11,845	0	100	53
Bioenvironmental industry	76	50	10,846	1,337	17	96	54
Bioelectronics industry	26	10	6,958	2,135	-81	92	46
Bioprocess and equipment industry	70	40	32,694	2,309	-191	102	50
Bioenergy and bioresource industry	27	3	167,456	10,867	-74	100	36
Bioassay, bioinformatics and R&D service industry	53	5	13,888	1,747	-120	95	42

E. Type of Biobusiness Being Promoted in Bioindustry

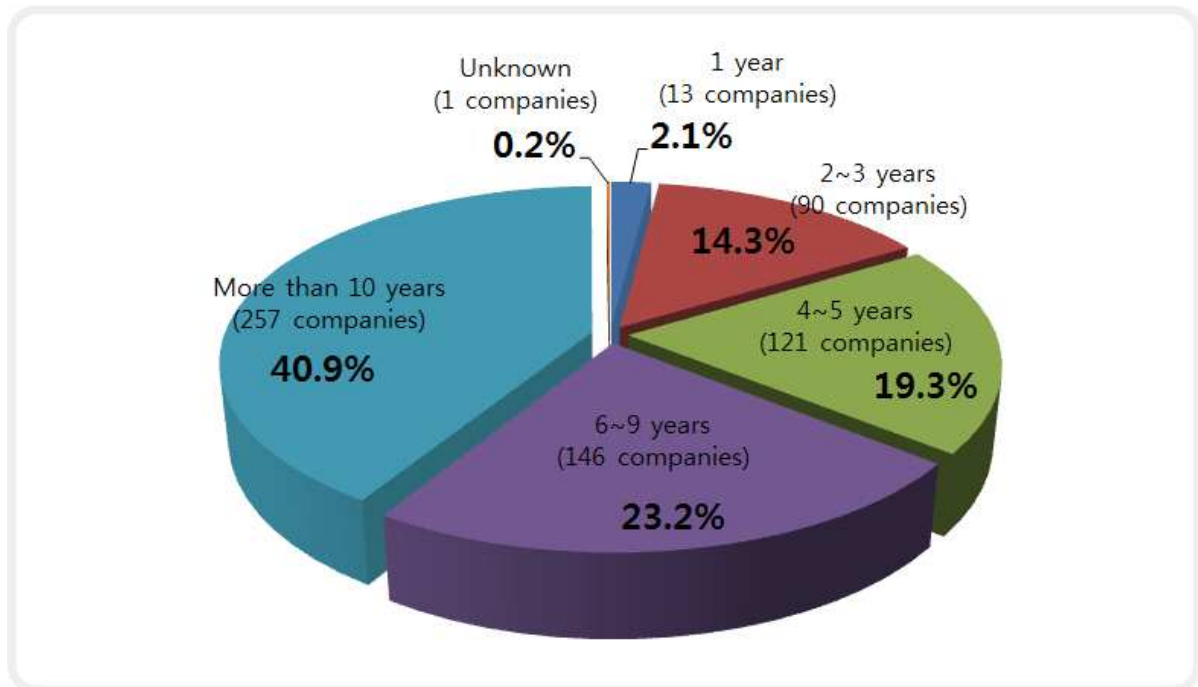
- The result for type of forwarded biobusiness includes responses from 923 companies out of 971 total participants, of which 48 were non-responses.
- Among 923 companies, 295 companies (32.0%) belonged to the phase of 'before sales' in 2013, and among 628 companies that resulted in sales, 327 companies which are almost half the number belonged to 'below BEP'.

<Figure 2-5> Type of Biobusiness Being Promoted in Bioindustry



- Among 628 companies that resulted in sales in 2013, 13 companies (2.1%) had their first sales in 2013.
- There are 257 companies (40.9%) that resulted in sales for more than 10 years.

<Figure 2-6> Bioindustry's Sales Period



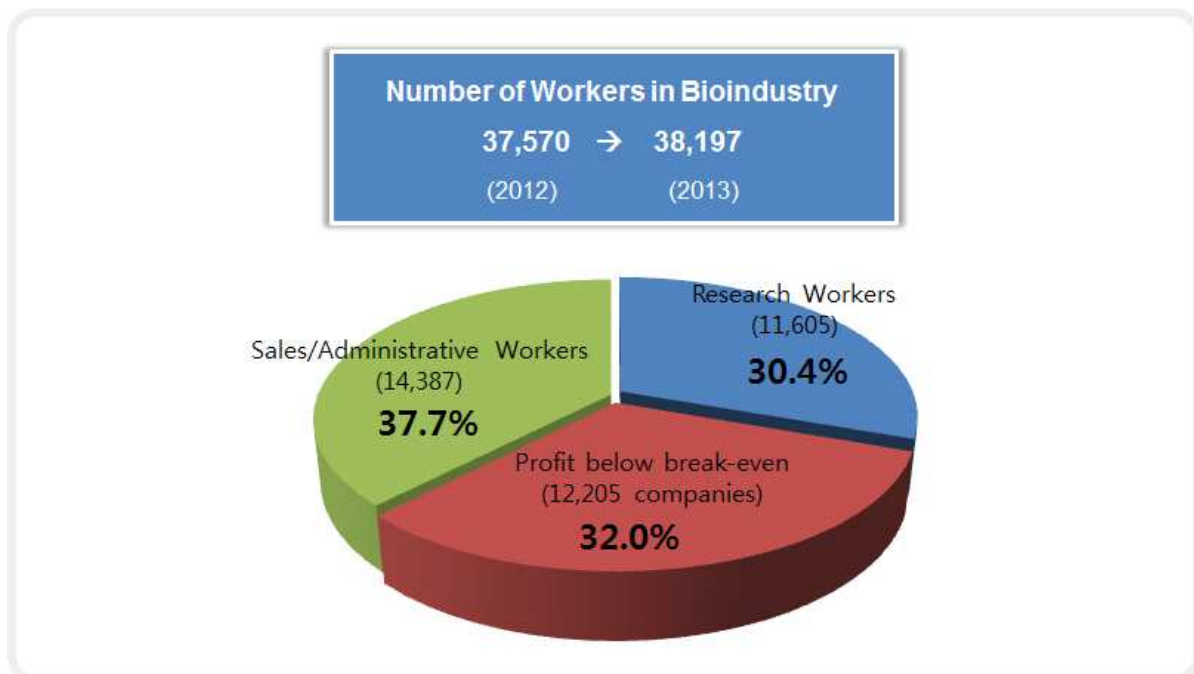
2 Manpower Status of Bioindustry

A. Manpower Status of 2013

1) Manpower Status per Category

- Among 971 domestic bioindustry companies in 2013, there was an increase of 627 workers compared to 2012, reaching 38,197 and there are average of 39.3 workers per company.
- Manpower of bioindustry is consisted of 11,605 research workers (30.4%), 12,205 production workers (32.0%), 14,387 sales/administrative workers (37.7%).

<Figure 2-7> 2013 Bioindustry's Distribution of Manpower



<Table 2-3> 2013 Bioindustry's Manpower Distribution

(Unit : number of companies, workers, %)

Industrial Category		No. of Companies	Research workers	Production workers	Sales/Administrative workers	Total	Distribution Ratio
Total	No. of Employees	971	11,605	12,205	14,387	38,197	100.0
	Distribution Ratio	100.0	30.4	32.0	37.7	100.0	
Biopharmaceutical industry		317	4,906	5,545	8,018	18,469	48.4
Biochemical industry		203	2,137	1,520	1,279	4,936	12.9
Biofood industry		199	1,849	3,361	2,860	8,070	21.1
Bioenvironmental industry		76	400	388	542	1,330	3.5
Bioelectronics industry		26	343	574	252	1,169	3.1
Bioprocess and equipment industry		70	397	404	458	1,259	3.3
Bioenergy and bioresource industry		27	424	275	346	1,045	2.7
Bioassay, bioinformatics and R&D service industry		53	1,149	138	632	1,919	5.0

<Figure 2-8> Bioindustry's Manpower Proportion of 2013

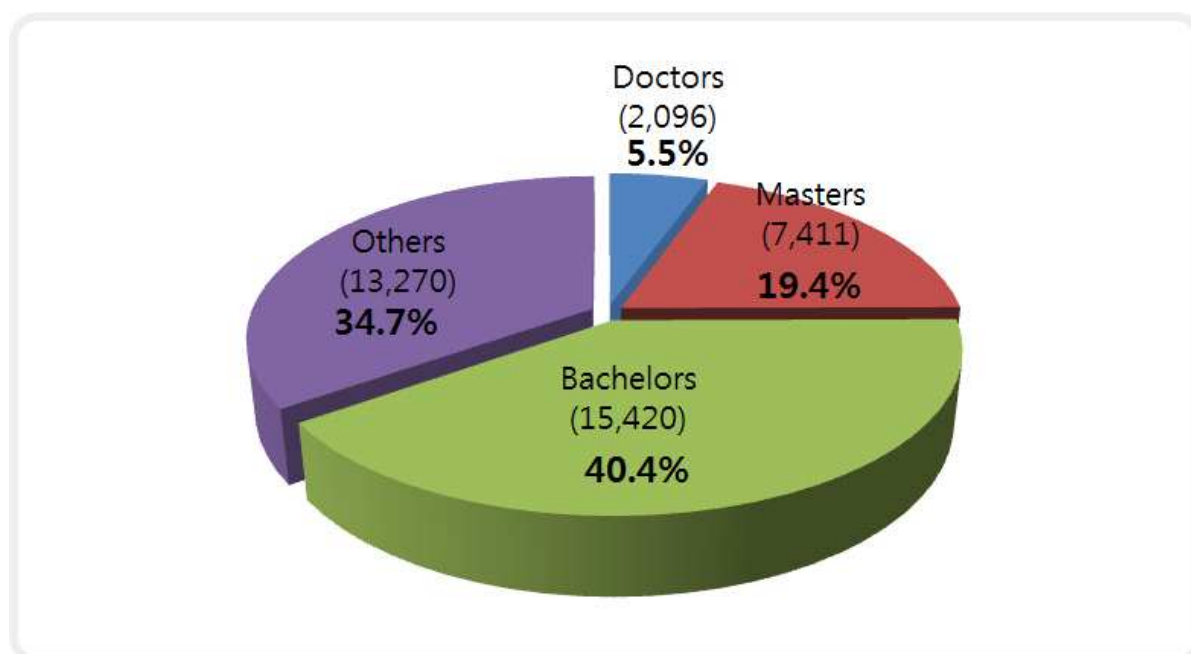
(Unit : %)



2) Manpower Status per Academic Degree

- Among bioindustry manpower in 2013, workers with bachelor's degree were the largest in number, reaching 15,420 people (40.4%). Workers with master's degree ranked second with 7,411 workers (19.4%), and workers with doctor's degree the last with 2,096 workers (5.5%).

<Figure 2-9> Bioindustry's Academic Degree Proportion of Workers of 2013

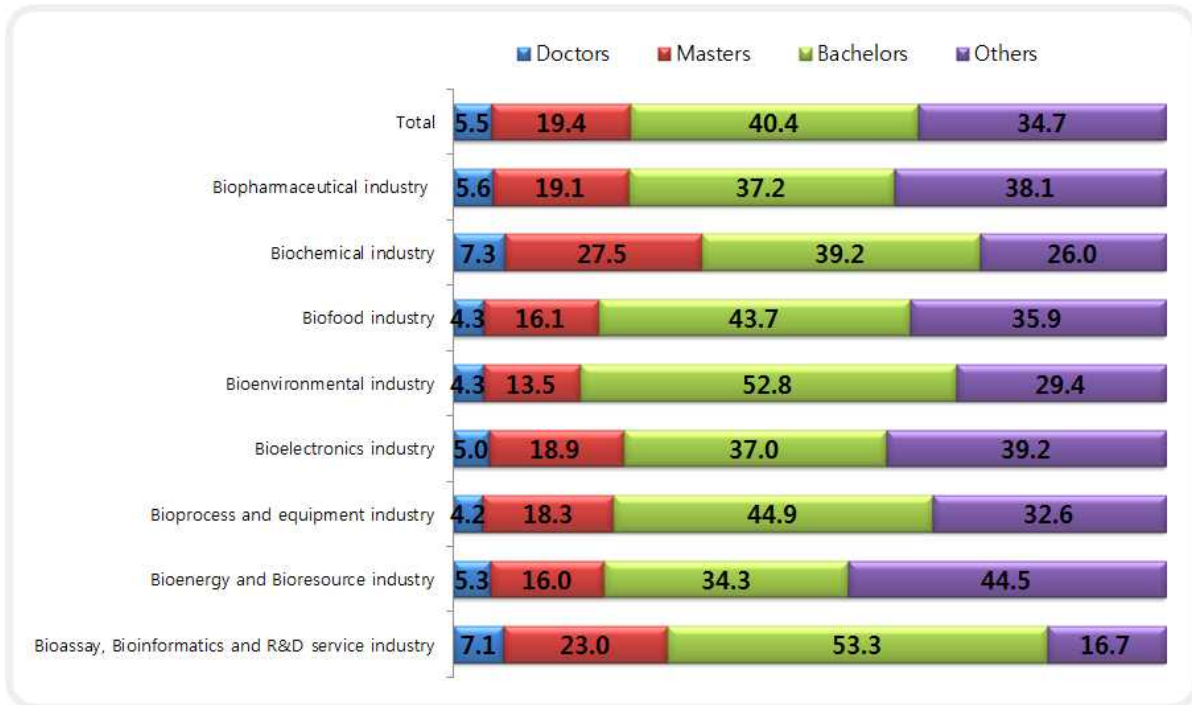


<Table 2-4> 2013 Bioindustry's Distribution of Academic Degree

(Unit : number of people, %)

Industrial Category		Doctor	Master	Bachelor	Others	Total	Distribution Ratio
Total	No. of Employees	2,096	7,411	15,420	13,270	38,197	100.0
	Distribution Ratio	5.5	19.4	40.4	34.7	100.0	
Biopharmaceutical industry	N.O.E	1,030	3,519	6,877	7,043	18,469	48.4
Biochemical industry	N.O.E	362	1,355	1,937	1,282	4,936	12.9
Biofood industry	N.O.E	345	1,298	3,527	2,900	8,070	21.1
Bioenvironmental industry	N.O.E	57	180	702	391	1,330	3.5
Bioelectronics industry	N.O.E	58	221	432	458	1,169	3.1
Bioprocess and equipment industry	N.O.E	53	230	565	411	1,259	3.3
Bioenergy and bioresource industry	N.O.E	55	167	358	465	1,045	2.7
Bioassay, bioinformatics and R&D service industry	N.O.E	136	441	1,022	320	1,919	5.0

<Figure 2-10> Bioindustry's Academic Degree Proportion of 2013 (Unit : %)



B. Recent Trend of Bioindustry Manpower Status

1) 2011~2013 Bioindustry's trend of academic degree of research·production manpower

① Bioindustry's Trend of research·production manpower

- The research and production manpower of bioindustry in 2013 had an increase of 652 workers(2.8%) compared to 2012, reaching 23,810 workers.

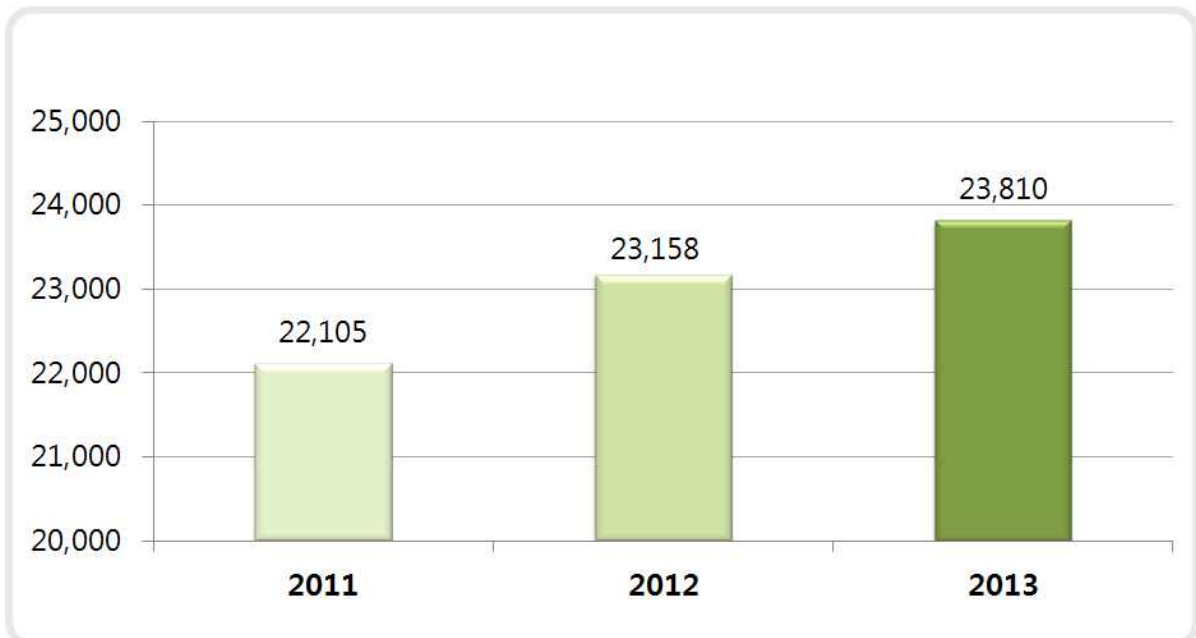
<Table 2-5> 2011~2013 Bioindustry's Change in Research·Production Manpower

(Unit : number of people, %)

Classification	2011	2012	2013	Annual Average Rate of change
No. of Employees	22,105	23,158	23,810	3.8
Rate of Change	4.4	4.8	2.8	

<Figure 2-11> 2011~2013 Bioindustry's Trend of Research·Production Manpower

(Unit : number of people)



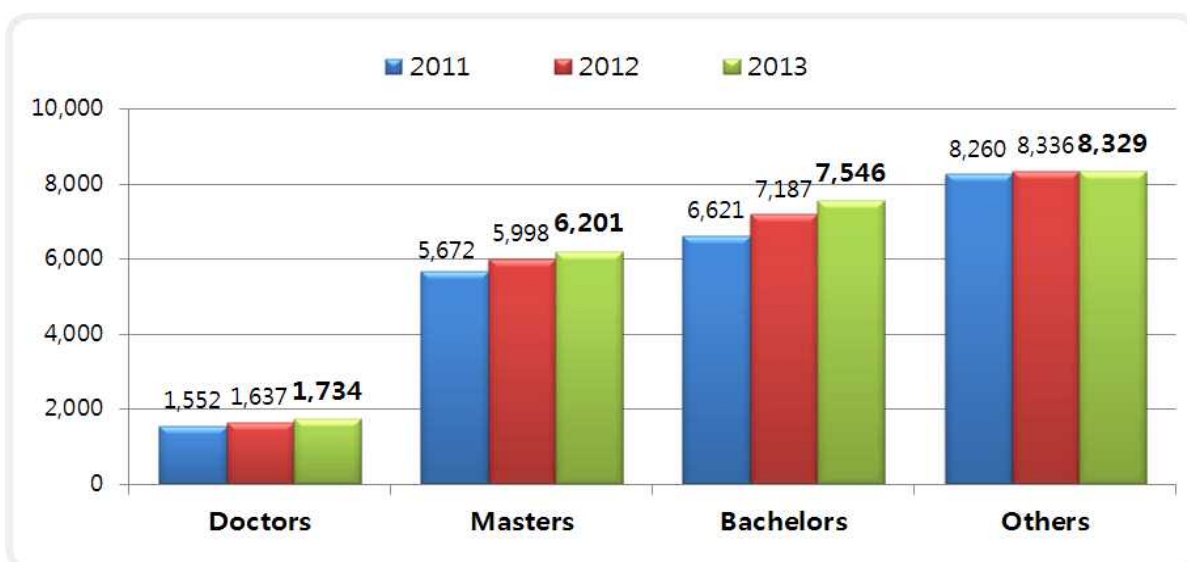
② Bioindustry's Trend in Academic Degree of Research·Production Manpower

- Compared to 2012, the proportion of bioindustry workers with bachelor's degree in 2013 increased slightly from 31.0% to 31.7% (0.7%p) and other workers' proportion decreased by -1.0%p.
- There is no significant difference between the proportion of workers with master's and doctor's degree in 2012 and 2013.

<Table 2-6> 2011~2013 Bioindustry's Trend in Academic Degree of Research·Production Manpower (Unit : number of people, %)

Degree	2011		2012		2013		Variation from the year before	
	No. of Employees	Distribution Ratio	No. of Employees	Distribution Ratio	No. of Employees	Distribution Ratio	No. of Employees	Rate of Change
Total	22,105	100.0	23,158	100.0	23,810	100.0	652	2.8
Doctor	1,552	7.0	1,637	7.1	1,734	7.3	97	5.9
Master	5,672	25.7	5,998	25.9	6,201	26.0	203	3.4
Bachelor	6,621	30.0	7,187	31.0	7,546	31.7	359	5.0
Others	8,260	37.4	8,336	36.0	8,329	35.0	-7	-0.1

<Figure 2-12> 2011~2013 Bioindustry's Trend in Academic Degree of Research·Production Manpower (Unit : number of people)



2) 2009~2013 Bioindustry's Trend in Academic Degree of Research·Production Manpower

① Bioindustry's Trend of Research·Production Manpower

- The degree of research and production manpower increase was large between 2008 and 2009. It then slowed down in 2010 and again picked up an upward trend in 2011.

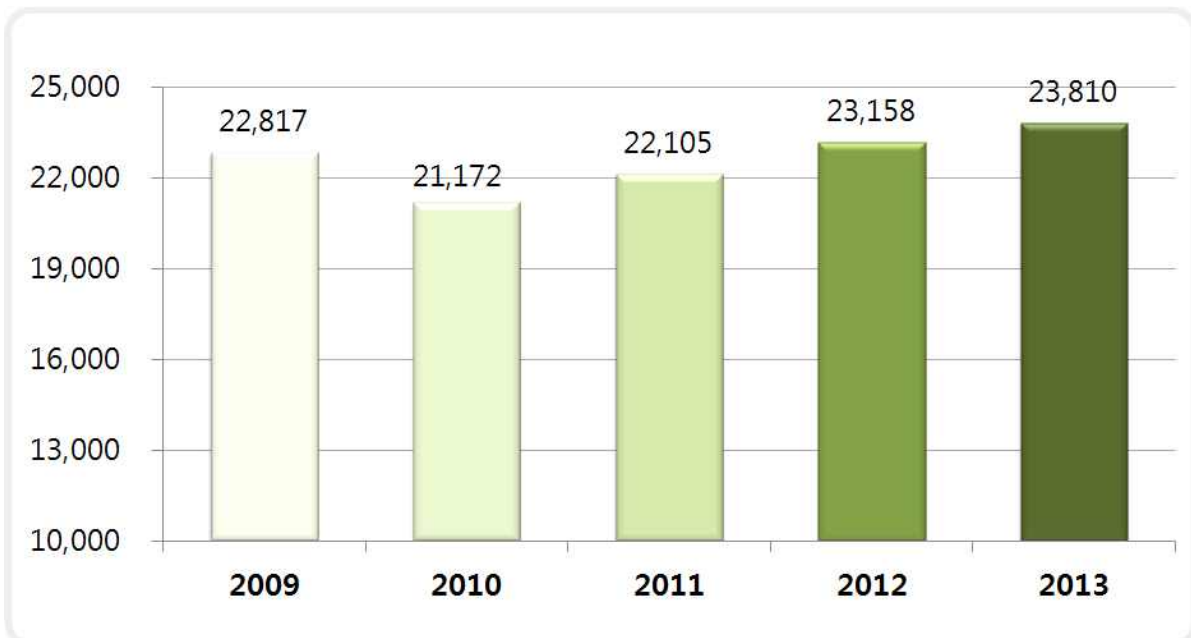
<Table 2-7> 2009~2013 Bioindustry's Change in Research·Production Manpower (%)

(Unit : number of people, %)

Classification	2009	2010	2011	2012	2013	Annual Average Rate of Change
No. of Employees	22,817	21,172	22,105	23,158	23,810	1.1
Rate of Change	11.0	-7.2	4.4	4.8	2.8	

<Figure 2-13> 2009~2013 Bioindustry's Trend of Research·Production Manpower

(Unit : number of people)



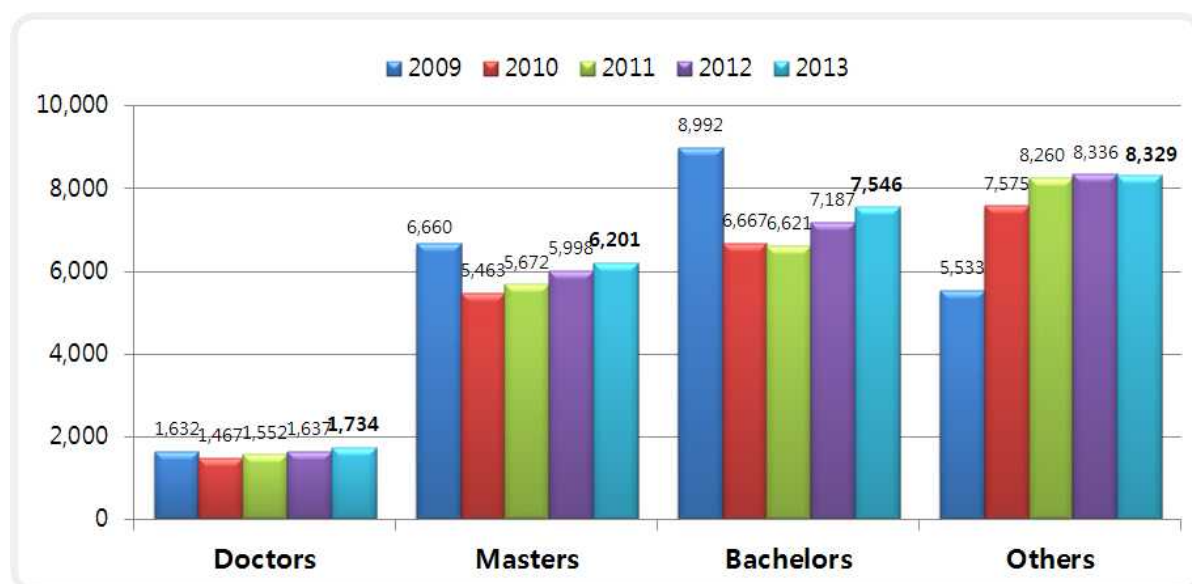
② Bioindustry's Trend in Academic Degree of Research·Production Manpower

- As for changes in academic degrees of research and production manpower between 2009 and 2013, those with doctorate and master's degrees increased slightly from 2010. Manpower with bachelor's degrees increased continuously until 2009, displayed a trend of decrease from 2010 and then picked up an upward trend in 2012.

<Table 2-8> 2009~2013 Bioindustry's Trend in Academic Degree of Research·Production Manpower (Unit : number of people, %)

Degree	2009		2010		2011		2012		2013		Variation from the year before	
	No. of Employees	Distribution Ratio	No. of Employees	Distribution Ratio	No. of Employees	Distribution Ratio	No. of Employees	Distribution Ratio	No. of Employees	Distribution Ratio	No. of Employees	Rate of Change
Total	22,817	100.0	21,172	100.0	22,105	100.0	23,158	100.0	23,810	100.0	652	2.8
Doctor	1,632	7.2	1,467	6.9	1,552	7.0	1,637	7.1	1,734	7.3	97	5.9
Master	6,660	29.2	5,463	25.8	5,672	25.7	5,998	25.9	6,201	26.0	203	3.4
Bachelor	8,992	39.4	6,667	31.5	6,621	30.0	7,187	31.0	7,546	31.7	359	5.0
Others	5,533	24.2	7,575	35.8	8,260	37.4	8,336	36.0	8,329	35.0	-7	-0.1

<Figure 2-14> 2009~2013 Bioindustry's Trend in Academic Degree of Research·Production Manpower (Unit : number of people)



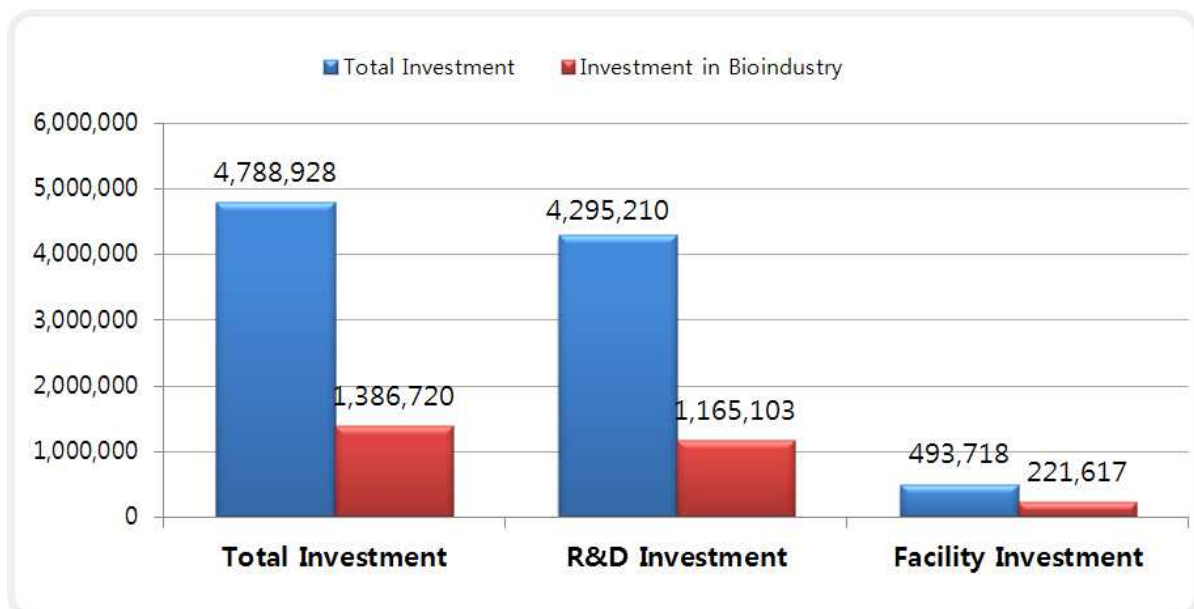
3 Investment Status of Bioindustry

A. Bioindustry's Investment Status of 2013

- The total amount of investment bioindustry companies made for the past year of 2013 reached 4 trillion and 788.9 billion won, and the investment cost on bioindustry turned out to be 29.0% of the total investment fee reaching 1 trillion and 386.7 billion won.
- The R&D cost in bioindustry turned out to be 27.1% of the total R&D cost reaching 1 trillion and 165.1 billion won, and the facility investment cost in bioindustry took 44.9% of the total facility investment cost reaching 221.6 billion won.

<Figure 2-15> 2013 Total Investment cost and Investment in Bioindustry

(Unit: million Won)



- Among bioindustries, the total investment was highest in biopharmaceutical industry reaching 1 trillion and 30.7 billion won(74.3%) and then the following highest industries were biofood industry reaching 123.6 billion won(8.9%) and biochemical industry reaching 111.0 billion won(8.0%). These three core bioindustries took 91.2% of bioindustry's the total investment cost.
- Among bioindustries, the total R&D cost was highest in biopharmaceutical industry reaching 857.3 billion won(73.6%) and then the following highest industries were biofood industry reaching 108.2 billion won(9.3%) and biochemical industry reaching 95.8 billion won(8.2%). These three core bioindustries took 91.1% of bioindustry's the total R&D cost.
- Among bioindustry companies, the average amount of R&D cost was highest in biopharmaceutical industry reaching 2.7 billion won and then the following highest industries were bioelectronics industry with 0.8 billion won, bioenergy and bioresource industry with 0.8 billion won, bioassay, bioinformatics and R&D service industry with 0.6 billion won.
- Among bioindustries, the total facility investment cost was highest in biopharmaceutical industry reaching 173.4 billion won(78.2%) and then the following highest industries were biofood industry reaching 15.4 billion won(7.0%) and biochemical industry reaching 15.2 billion won(6.8%). These three bioindustries took 92.1% of bioindustry's the total facility investment cost.
- Among bioindustry companies, the average amount of facility investment cost was highest in biopharmaceutical industry reaching 0.5 billion won and then the following highest industries were bioassay, bioinformatics and R&D service industry with 0.2 billion won, biochemical industry with 0.08 billion won.

<Table 2-9> 2013 Bioindustry's Size of Investment (Unit : number of companies, million Won)

Industrial Category	No. of companies	R&D Investment		Facility Investment		Total Investment	
		Total	Average	Total	Average	Total	Average
Total	971	1,165,103	1,199.9	221,617	228.2	1,386,720	1,428.1
Biopharmaceutical industry	317	857,255	2,704.3	173,412	547.0	1,030,667	3,251.3
Biochemical industry	203	95,835	472.1	15,169	74.7	111,004	546.8
Biofood industry	199	108,190	543.7	15,431	77.5	123,621	621.2
Bioenvironmental industry	76	10,717	141.0	1,879	24.7	12,596	165.7
Bioelectronics industry	26	20,769	798.8	1,810	69.6	22,579	868.4
Bioprocess and equipment industry	70	18,584	265.5	1,454	20.8	20,038	286.3
Bioenergy and bioresource industry	27	20,798	770.3	2,140	79.3	22,938	849.6
Bioassay, bioinformatics and R&D service industry	53	32,955	621.8	10,322	194.8	43,277	816.5

B. Recent Trend of Investment Status

1) 2011~2013 Bioindustry's Trend of Investment

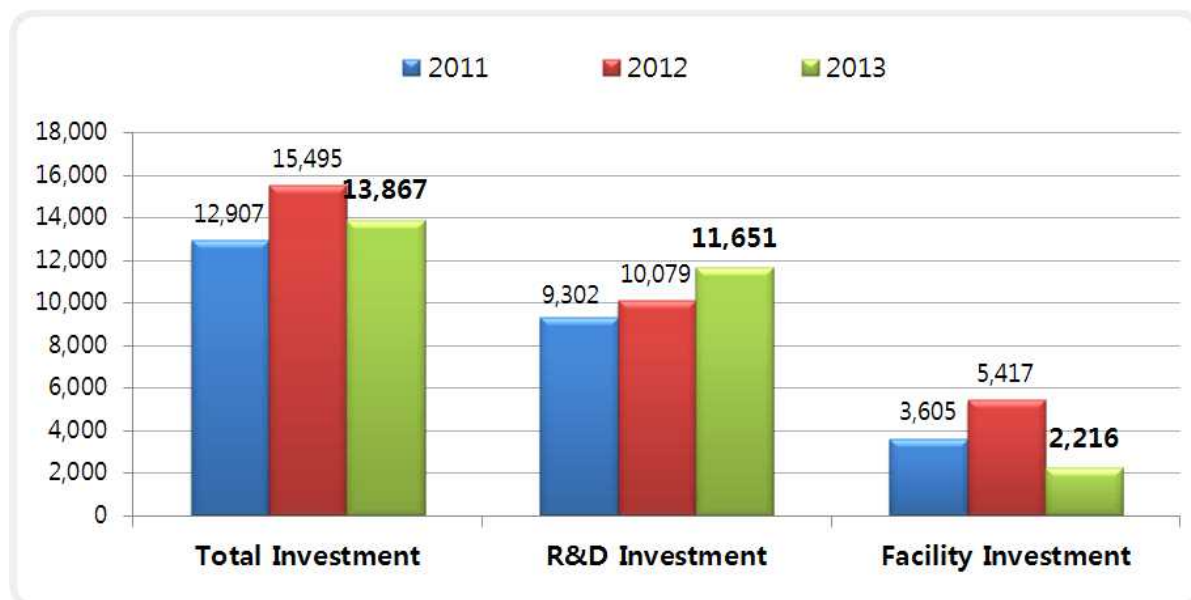
- The total investment cost in bioindustry increased from 1 trillion and 290.7 billion won in 2011 to 1 trillion and 549.5 billion won in 2012, but decreased by 162.8 billion won(10.5%) in 2013 compared to 2012, reaching 1 trillion and 386.7 billion won.

<Table 2-10> 2011~2013 Bioindustry's Trend of Investment

(Unit : one hundred million Won, %)

Classification		2011	2012	2013	Annual Average Rate of Change
Total Investment	Amount	12,907	15,495	13,867	3.7
	Rate of Change	27.4	20.0	-10.5	
R&D Investment	Amount	9,302	10,079	11,651	11.9
	Rate of Change	21.0	8.3	15.6	
Facility Investment	Amount	3,605	5,417	2,216	-21.6
	Rate of Change	47.2	50.3	-59.1	

<Figure 2-16> 2011~2013 Bioindustry Investment Trend (Unit : one hundred million Won)



- Bioenergy and bioresource industry showed the highest increase with 14.5% in the 2013 according to bioindustry's total size of the investment variation compared to 2012.

<Table 2-11> 2011~2013 Bioindustry's Trend in Overall Size of Investment

(Unit : million Won, %)

Industrial Category	2011		2012		2013		Variation from the year before	Annual Average Rate of Change
	Investment Amount	Distribution Ratio	Investment Amount	Distribution Ratio	Investment Amount	Distribution Ratio		
Total	1,290,750	100.0	1,549,548	100.0	1,386,720	100.0	-10.5	3.7
Bio pharmaceutical industry	903,350	70.0	1,142,819	73.8	1,030,667	74.3	-9.8	6.8
Biochemical industry	120,875	9.4	134,810	8.7	111,004	8.0	-17.7	-4.2
Biofood industry	144,887	11.2	139,888	9.0	123,621	8.9	-11.6	-7.6
Bioenvironmental industry	14,358	1.1	15,197	1.0	12,596	0.9	-17.1	-6.3
Bioelectronics industry	20,298	1.6	22,563	1.5	22,579	1.6	0.1	5.5
Bioprocess and equipment industry	22,634	1.8	23,210	1.5	20,038	1.4	-13.7	-5.9
Bioenergy and bioresource industry	26,666	2.1	20,037	1.3	22,938	1.7	14.5	-7.3
Bioassay, bioinformatics and R&D service industry	37,682	2.9	51,024	3.3	43,277	3.1	-15.2	7.2

- In comparison to 2012, R&D cost for 2013 increased by 28.5% in biopharmaceutical industry, 12.8% in bioenergy and bioresource industry, 4.9% in bioassay, bioinformatics and R&D service industry.
- Bioenergy and bioresource industry showed the highest increase in the facility investment cost of 2013 compared to 2012, reaching 33.6%. bioelectronics industry also showed a high rate with 11.9% increase. However, 6 industries among the total 8 bioindustries had a decrease in the investment cost compared to last year.

<Table 2-12> 2011~2013 Bioindustry's Trend of R&D and Facility Investment Cost

(Unit : million Won, %)

Industrial Category	2011		2012		2013		Variation from the year before		Annual Average Rate of Change	
	R&D	Facility	R&D	Facility	R&D	Facility	R&D	Facility	R&D	Facility
Total	930,245	360,505	1,007,862	541,686	1,165,103	221,617	15.6	-59.1	11.9	-21.6
Biopharmaceutical industry	629,244	274,106	667,038	475,781	857,255	173,412	28.5	-63.6	16.7	-20.5
Biochemical industry	96,615	24,260	113,746	21,064	95,835	15,169	-15.7	-28.0	-0.4	-20.9
Biofood industry	113,589	31,299	123,052	16,836	108,190	15,431	-12.1	-8.3	-2.4	-29.8
Bioenvironmental industry	11,396	2,962	12,024	3,173	10,717	1,879	-10.9	-40.8	-3.0	-20.4
Bioelectronics industry	18,163	2,135	20,945	1,618	20,769	1,810	-0.8	11.9	6.9	-7.9
Bioprocess and equipment industry	19,961	2,673	21,214	1,996	18,584	1,454	-12.4	-27.2	-3.5	-26.2
Bioenergy and bioresource industry	17,964	8,702	18,435	1,602	20,798	2,140	12.8	33.6	7.6	-50.4
Bioassay, bioinformatics and R&D service industry	23,314	14,368	31,408	19,616	32,955	10,322	4.9	-47.4	18.9	-15.2

2) 2009~2013 Bioindustry's Trend of Investment

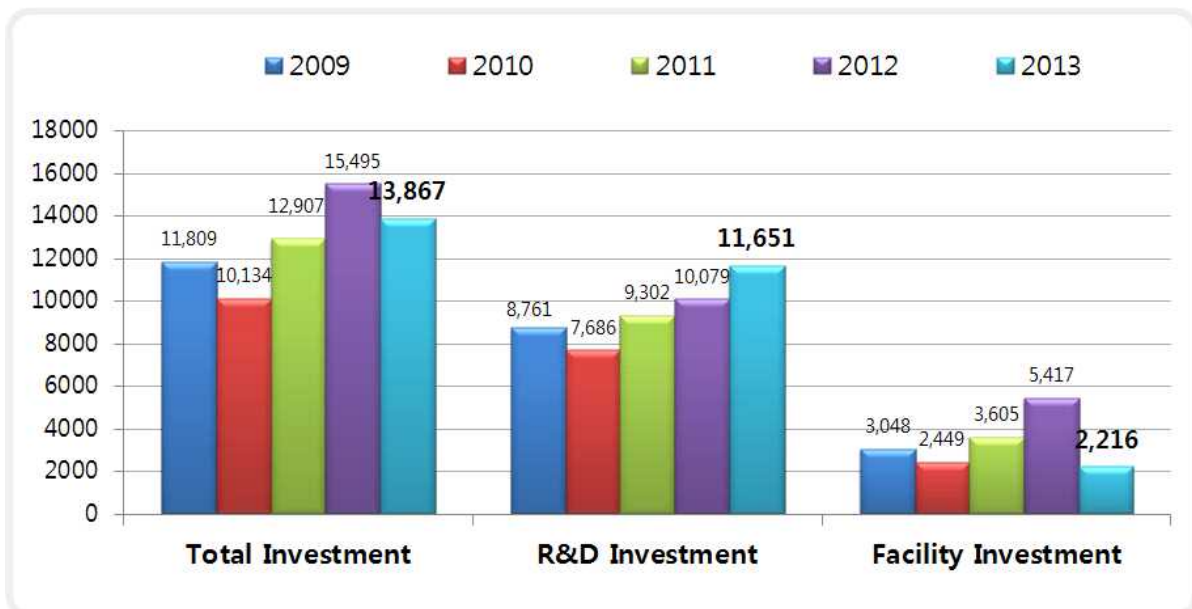
- 'The total investment cost of bioindustry showed an increase since 2011, but decreased with 1 trillion and 386.7 billion won in 2013.

<Table 2-13> 2009~2013 Bioindustry's Trend of Investment

(Unit : one hundred million Won, %)

Classification		2009	2010	2011	2011	2013	Annual Average Rate of Change
Total Investment	Amount	11,809	10,134	12,907	15,495	13,867	4.1
	Rate of Change	-1.4	-14.2	27.4	20.1	-10.5	
R&D Investment	Amount	8,761	7,686	9,302	10,079	11,651	7.4
	Rate of Change	20.1	-12.3	21.0	8.3	15.6	
Facility Investment	Amount	3,048	2,449	3,605	5,417	2,216	-7.7
	Rate of Change	-34.8	-19.7	47.2	50.3	-59.1	

<Figure 2-17> 2009~2013 Bioindustry Investment Trend (Unit : one hundred million Won)



- For investment in bioindustry since 2009, the investment in biopharmaceutical industry accounts for approx. 50% or more of total investment and the proportion has been increasing gradually to 74.3% as of 2013.

<Table 2-14> 2009~2013 Bioindustry's Trend in Overall Size of Investment

(Unit : million Won, %)

Industrial Category	2009		2010		2011		2012		2013		Variation from the year before	Annual Average Rate of Change
	Investment Amount	Distribution Ratio	Investment Amount	Distribution Ratio	Investment Amount	Distribution Ratio	Investment Amount	Distribution Ratio	Investment Amount	Distribution Ratio		
Total	1,180,945	100	1,013,429	100	1,290,750	100	1,549,548	100	1,386,720	100	-10.5	4.1
Biopharmaceutical industry	692,914	58.7	648,689	64.0	903,350	70.0	1,142,819	73.8	1,030,667	74.3	-9.8	10.4
Biochemical industry	137,092	11.6	115,764	11.4	120,875	9.4	134,810	8.7	111,004	8.0	-17.7	-5.1
Biofood industry	156,840	13.3	122,913	12.1	144,887	11.2	139,888	9.0	123,621	8.9	-11.6	-5.8
Bioenvironmental industry	57,094	4.8	15,966	1.6	14,358	1.1	15,197	1.0	12,596	0.9	-17.1	-31.5
Bioelectronics industry	15,074	1.3	18,249	1.8	20,298	1.6	22,563	1.5	22,579	1.6	0.1	10.6
Bioprocess and equipment industry	32,045	2.7	17,675	1.7	22,634	1.8	23,210	1.5	20,038	1.4	-13.7	-11.1
Bioenergy and bioresource industry	33,568	2.8	25,799	2.5	26,666	2.1	20,037	1.3	22,938	1.7	14.5	-9.1
Bioassay, bioinformatics and R&D service industry	56,318	4.8	48,374	4.8	37,682	2.9	51,024	3.3	43,277	3.1	-15.2	-6.4

- Biopharmaceutical industry showed the highest increase in the R&D cost of 2013 compared to 2012, reaching 28.5%. On the other hand, Biochemical industry decreased with 15.7%.
- Bioenergy and bioresource industry showed the highest increase in the facility investment cost of 2013 compared to 2012, reaching 33.6%, but biopharmaceutical industry, bioassay, bioinformatics and R&D service industry, Bioenvironmental industry, Biochemical industry, bioprocess and equipment industry, biofood industry had a decrease in the investment cost compared to the previous year.

<Table 2-15> 2009~2013 Bioindustry's Trend of R&D and Facility Investment Cost

(Unit : one hundred million Won, %)

Industrial Category	2009		2010		2011		2012		2013		Variation from the year before		Annual Average Rate of Change	
	R&D	Facility	R&D	Facility	R&D	Facility	R&D	Facility	R&D	Facility	R&D	Facility	R&D	Facility
Total	8,761	3,049	7,686	2,449	9,302	3,605	10,079	5,417	11,651	2,216	15.6	-59.1	7.4	-7.7
Biopharmaceutical industry	5,435	1,494	4,931	1,556	6,292	2,741	6,670	4,758	8,573	1,734	28.5	-63.6	12.1	3.8
Biochemical industry	1,010	361	864	294	966	243	1,137	211	958	152	-15.7	-28.0	-1.3	-19.5
Biofood industry	1,095	473	952	278	1,136	313	1,231	168	1,082	154	-12.1	-8.3	-0.3	-24.4
Bioenvironmental industry	397	174	125	34	114	30	120	32	107	19	-10.9	-40.8	-27.9	-42.7
Bioelectronics industry	103	47	145	37	182	21	209	16	208	18	-0.8	11.9	19.2	-21.2
Bioprocess and equipment industry	203	118	158	19	200	27	212	20	186	15	-12.4	-27.2	-2.2	-40.8
Bioenergy and bioresource industry	218	118	173	85	180	87	184	16	208	21	12.8	33.6	-1.2	-34.7
Bioassay, bioinformatics and R&D service industry	300	263	338	146	233	144	314	196	330	103	4.9	-47.4	2.4	-20.8

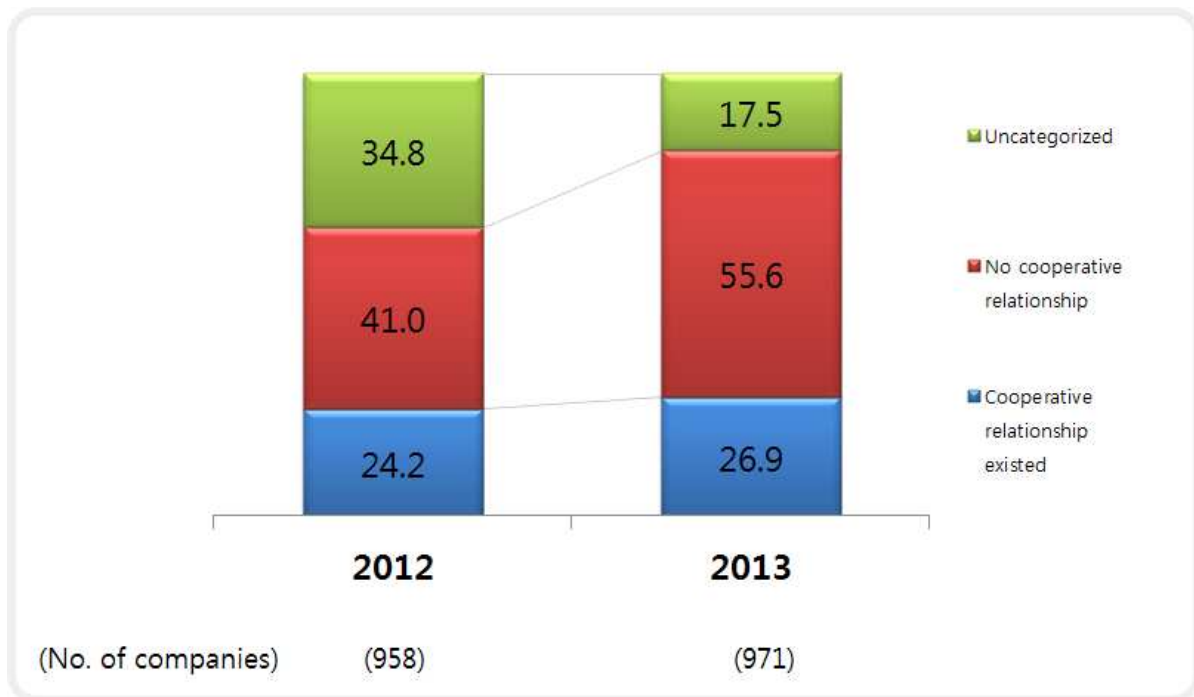
4 Cooperation with Other Organizations

A. Cooperation Types

1) Cooperative Relationship with Other Organizations

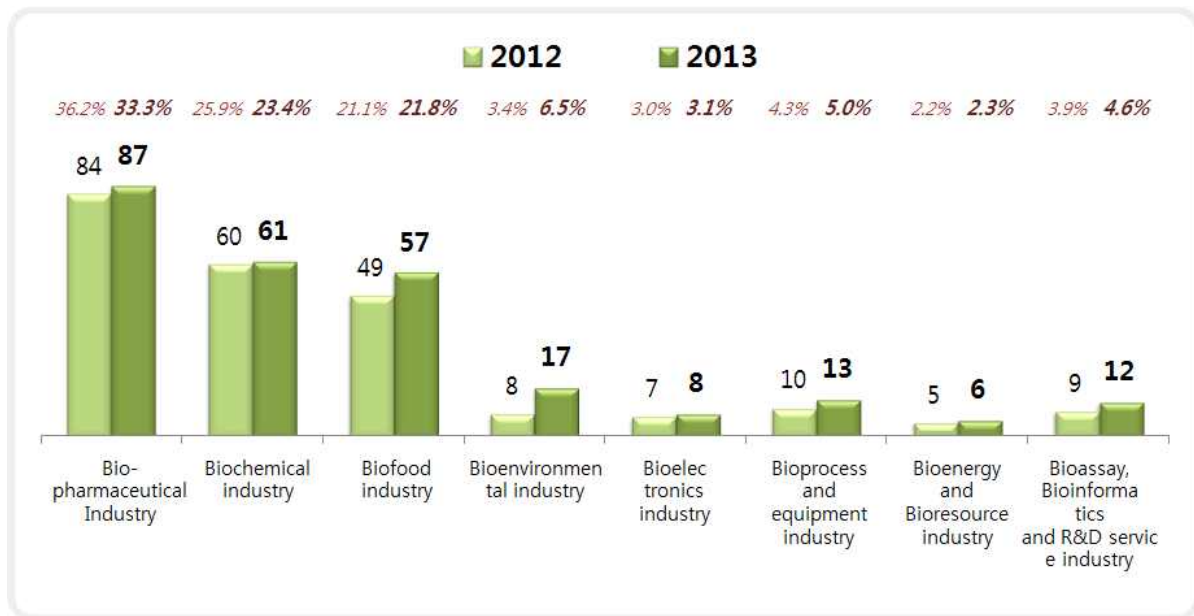
- Of 971 companies in total, 261 companies, 26.9%, have cooperative relationships with other organizations as of 2013.

< Figure 2-18 > Cooperative Relationship with Other Organizations



- By bioindustrial categories, cooperative relationship was established in larger numbers in the order of biopharmaceutical, biochemical and biofood industries. The total number of cooperative relationships in the three industrial categories put together is 205, which is 78.5% of 261 companies holding cooperative relationships.

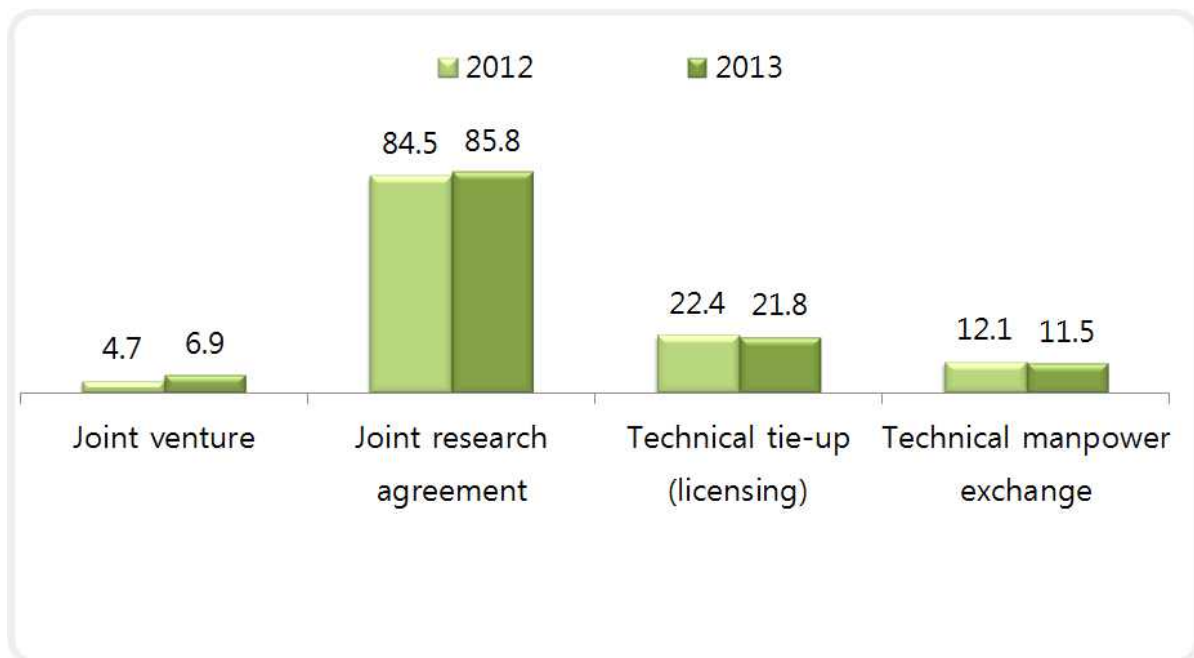
< Figure 2-19 > No. of Companies Holding Cooperative Relationships by Bioindustrial Category



2) Types of Cooperative Relationship with Other Organizations

- Based on 287 responses from 261 companies, the most frequently found type of cooperative relationship was joint R&D contract at 85.8%. It was followed by technical tie-up and licensing (21.8%), domestic and international technical manpower exchange (11.5%) and joint investment (6.9%).

< Figure 2-20 > Types of Cooperative Relationship with Other Organizations

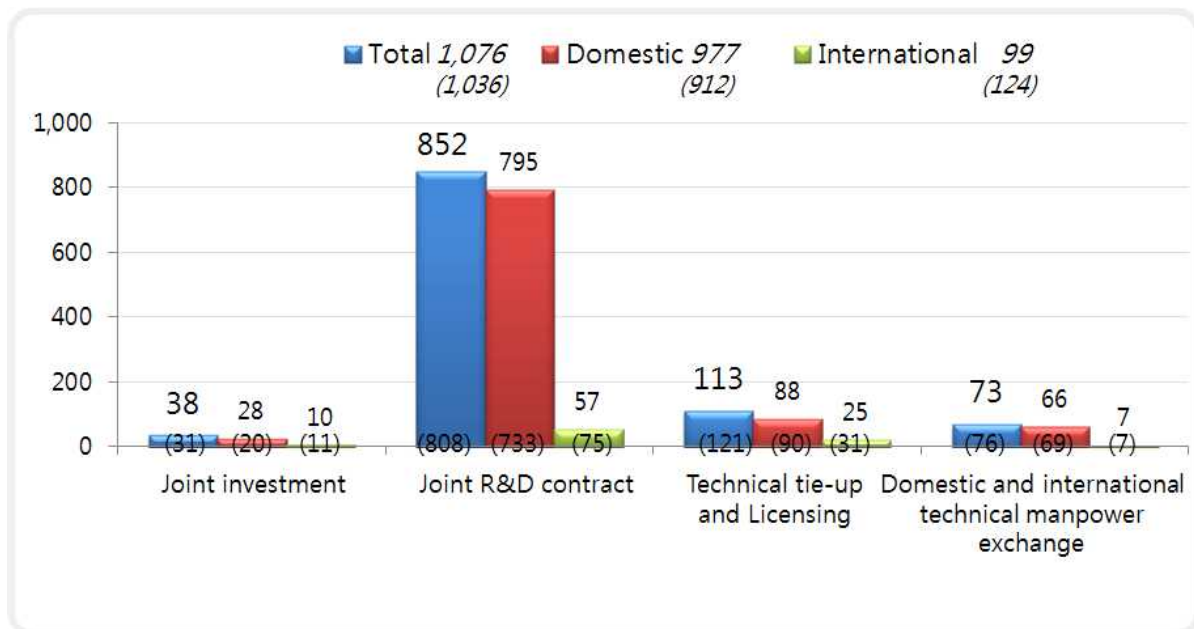


* Based on 287 responses from 261 companies with cooperative relationships. Multiple responses accepted.

3) Number of Cooperation Cases by Cooperative Relationship Type

- The total number of cooperative relationships of 261 companies is 1,076, which is broken down into 977 cooperative relationships in Korea (90.8%) and 99 abroad (9.2%).
- The number of joint R&D contracts is 795 in Korea and 57 in abroad (852 in total). This is the most frequently found cooperative relationship type.

< Figure 2-21 > No. of Cooperation Cases by Cooperative Relationship Type
(Unit : Cases)



* Based on 287 responses from 261 companies with cooperative relationships.
Multiple responses accepted.

- The number of cooperation cases by bioindustrial category and cooperation type is 425 in biopharmaceutical industry. This accounts for 39.5% of 1,076 cases in total.
- The number of cooperation cases in biofood and biochemical industries are 244 (22.7%) and 191 (17.8%) respectively.

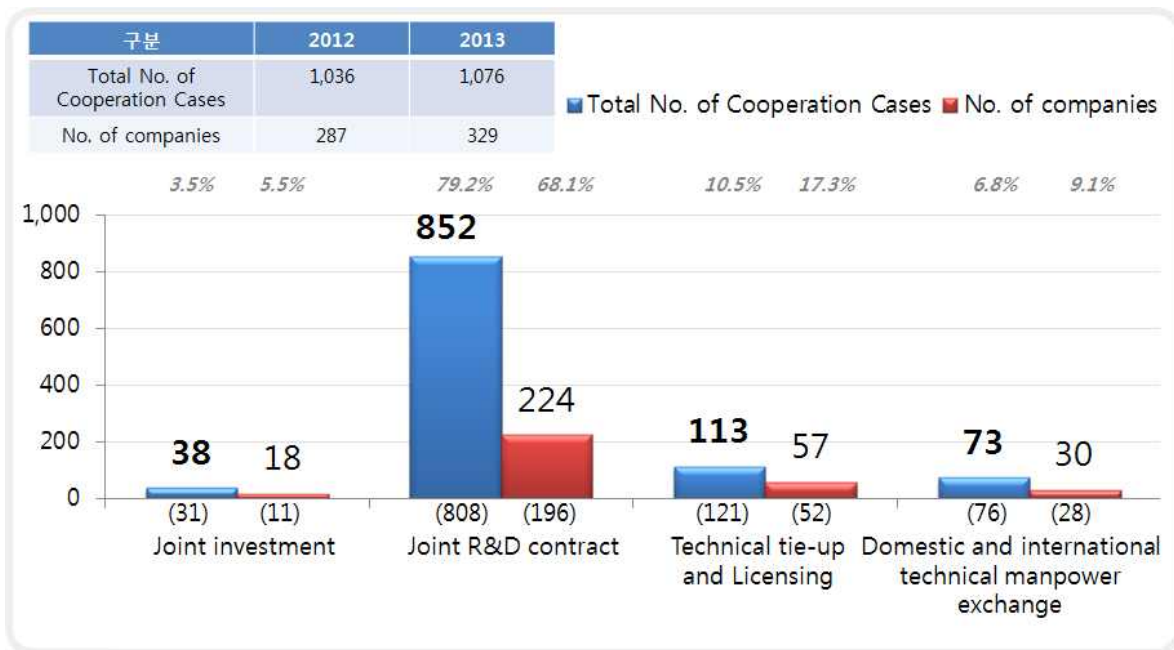
< Table 2-16 > No. of Cooperation Cases by Bioindustrial Category and Cooperation Type
(Unit : Cases)

Industrial Category	2012		2013		Cooperation Type			
	Total	%	Total	%	Joint Investment	Joint R&D Contract	Technical Tie-up and Licensing	Technical Manpower Exchange
Total	1,036	100.0%	1,076	100.0%	38	852	113	73
Biopharmaceutical industry	441	42.6%	425	39.5%	29	319	59	18
Biochemical industry	196	18.9%	191	17.8%	6	154	20	11
Biofood industry	226	21.8%	244	22.7%	2	215	20	7
Bioenvironmental industry	17	1.6%	32	3.0%	1	25	5	1
Bioelectronics industry	73	7.0%	79	7.3%	-	49	2	28
Bioprocess and equipment industry	26	2.5%	32	3.0%	-	25	2	5
Bioenergy and bioresource industry	19	1.8%	22	2.0%	-	21	-	1
Bioassay, bioinformatics and R&D service industry	38	3.7%	51	4.7%	-	44	5	2

4) Number of Partners by Cooperative Relationship Type

○ As for cooperation types, 224 companies have established joint R&D contract relationships and the count of cooperation was found to be 852. It is identified that a company holding a joint R&D contract relationship has conducted an average of 3.8 cooperation cases arithmetically.

< Figure 2-22 > No. of Partners by Cooperative Relationship Type (Unit : Cases, Count)



* Based on 287 responses from 261 companies with cooperative relationships. Multiple responses accepted.

- The number of companies holding cooperative relationships was the largest at 125 in biopharmaceutical industry. It was followed by biochemical and biofood industries.

< Table 2-17 > No. of Partners by Bioindustrial Category and Cooperation Type
(Unit: Count)

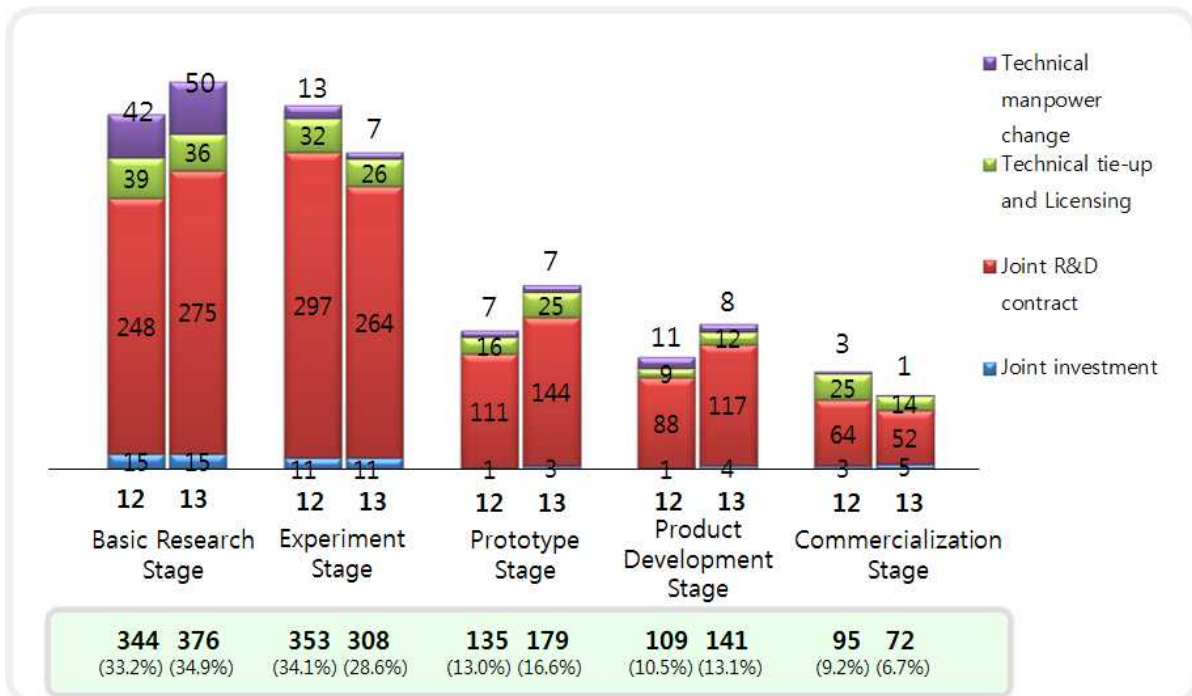
Industrial Category	2012		2013		Cooperation Type			
	Companies in Total	%	Companies in Total	%	Joint Investment	Joint R&D Contract	Technical Tie-up and Licensing	Technical Manpower Exchange
Total	287	100.0%	329	100.0%	18	224	57	30
Biopharmaceutical industry	116	40.4%	125	38.0%	13	75	30	7
Biochemical industry	73	25.4%	73	22.2%	2	52	12	7
Biofood industry	53	18.5%	62	18.8%	2	49	5	6
Bioenvironmental industry	10	3.5%	19	5.8%	1	13	4	1
Bioelectronics industry	8	2.8%	10	3.0%	-	8	1	1
Bioprocess and equipment industry	10	3.5%	16	4.9%	-	10	2	4
Bioenergy and bioresource industry	5	1.7%	6	1.8%	-	5	-	1
Bioassay, bioinformatics and R&D service industry	12	4.2%	18	5.5%	-	12	3	3

B. Cooperation Stages

1) Number of Cooperation Cases by Cooperation Stage

- As per cooperation stage, 376 cooperation cases, the largest, were completed in the stage of basic research, which is 34.9% of 1,076 cases in total. It was followed by 308 cases in experiment stage (28.6%).
- In commercialization stage, the final stage, 72 cases (6.7%) were completed, which is a relatively smaller number. This indicates that the companies cooperate frequently with other organizations in basic research and experiment stages, the initial stages.
- The number of cooperation cases in basic research stage, prototype stage and product development stage showed an increase compared to 2012 except experiment stage and commercialization stage.

< Figure 2-23 > No. of Cooperation Cases by Cooperation Stage (Unit : Cases)



* Based on 261 companies with cooperative relationships.
Multiple responses accepted.

< Table 2-18 > No. of Cooperation Cases by Cooperation Stage (Unit : Cases)

Classification	Cooperative Relationships in Total	Domestic					Overseas				
		Total	Joint Investment	Joint R&D	Technical Tie-up	Technical Manpower Exchange	Total	Joint Investment	Joint R&D	Technical Tie-up	Technical Manpower Exchange
Total of 2012	1,036	912	20	733	90	69	124	11	75	31	7
Total of 2013	1,076	977	28	795	88	66	99	10	57	25	7
Basic Research Stage	376	350	14	256	30	50	26	1	19	6	-
Experiment Stage	308	285	7	250	22	6	23	4	14	4	1
Prototype Stage	179	152	2	132	15	3	27	1	12	10	4
Product Development Stage	141	132	3	111	11	7	9	1	6	1	1
Commercialization Stage	72	58	2	46	10	-	14	3	6	4	1

- The percentages of cooperation cases by bioindustrial category and cooperation stage were higher in biopharmaceutical and bioassay, bioinformatics and R&D service industries at the experiment stage. On the other hand, percentages in other industries were higher at the basic research stage.

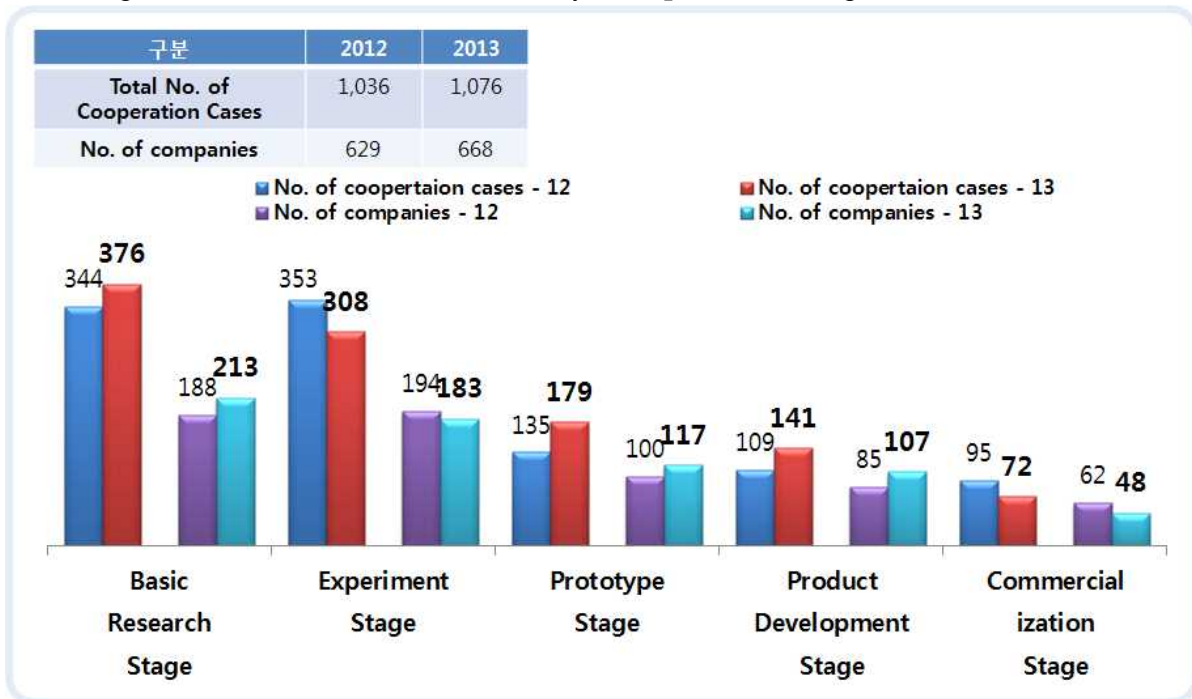
< Table 2-19 > No. of Cooperation Cases by Bioindustrial Category and Cooperation Stage (Unit : Cases)

Industrial Category	Companies in Total	Companies with Cooperative Relationships	Cooperation Stage					Total	
			Basic Research Stage	Experiment Stage	Prototype Stage	Product Development Stage	Commercialization Stage		
Total	971	261	376	308	179	141	72	1,076	100.0%
Biopharmaceutical industry	317	87	118	170	84	38	15	425	39.5%
Biochemical industry	203	61	73	30	21	31	36	191	17.8%
Biofood industry	199	57	68	65	48	49	14	244	22.7%
Bioenvironmental industry	76	17	11	6	4	4	7	32	3.0%
Bioelectronics industry	26	8	63	2	8	6	-	79	7.3%
Bioprocess and equipment industry	70	13	7	10	6	9	-	32	3.0%
Bioenergy and bioresource industry	27	6	11	6	4	1	-	22	2.0%
Bioassay, bioinformatics and R&D service industry	53	12	25	19	4	3	-	51	4.7%

2) Number of Partners by Cooperation Stage

- The number of companies with cooperative relationships by stage including those that made multiple responses is 668. By stage, 213 companies (31.9%) are in the stage of basic research.
- When cooperation case and company number percentages are compared, the percentage of company count is lower than the rate of cooperation cases in basic research and experiment stages. This indicates that the average cooperation cases per company are larger in the initial stages of cooperation than the later stages.

< Figure 2-24 > No. of Partners by Cooperation Stage (Unit : Cases, Count)



* Based on 261 companies with cooperative relationships.
Multiple responses accepted.

< Table 2-20 > No. of Partners by Cooperation Stage (Unit : Cases, Count)

Classification		Total	Basic Research	Experimental	Prototype	Product Development	Commercialization
No. of cases	Domestic	977	350	285	152	132	58
	Overseas	99	26	23	27	9	14
Total		1,076	376	308	179	141	72
Percentage		100.0	34.9	28.6	16.6	13.1	6.7
No. of companies	Domestic	591	192	167	98	98	36
	Overseas	77	21	16	19	9	12
Total		668	213	183	117	107	48
Percentage		100.0	31.9	27.4	17.5	16.0	7.2

○ As for the number of partners by bioindustrial category and cooperation stage, there was a total of 536 partners in biopharmaceutical, biochemical and biofood industries(80.2% of all partners).

○ In biopharmaceutical and biofood industries, the percentage of experiment stage was found to be high.

< Table 2-21 > No. of Partners by Bioindustrial Category and Cooperation Stage (Unit : Count)

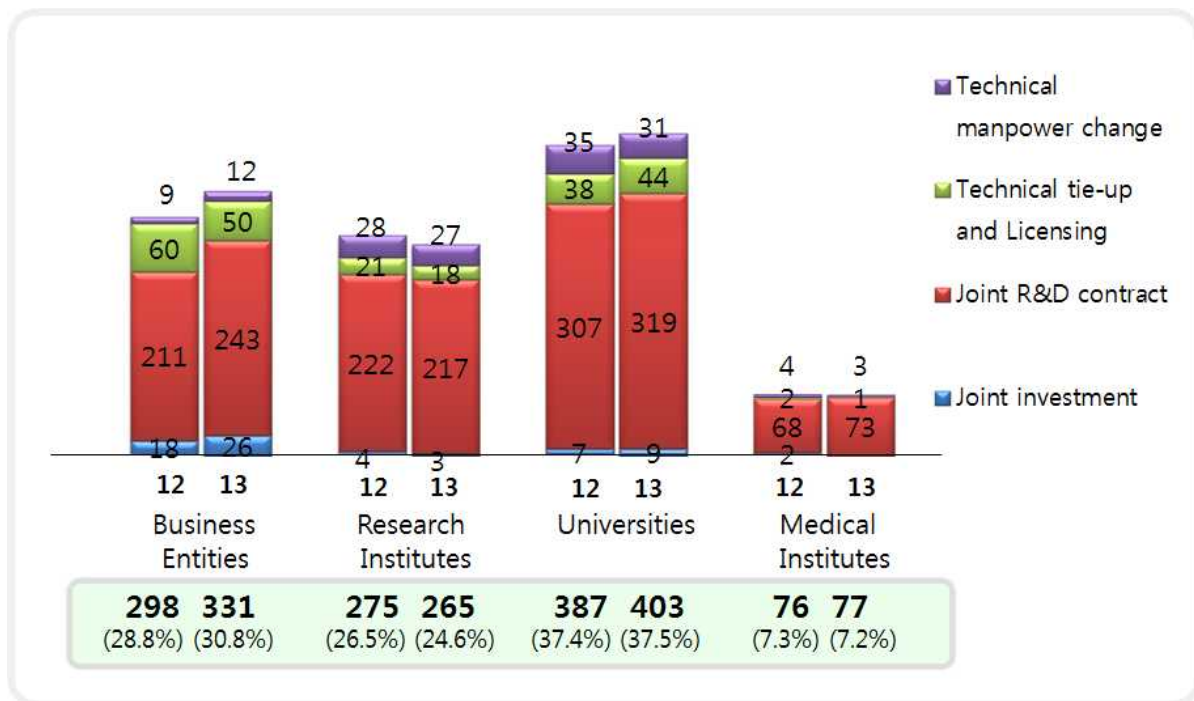
Industrial Category	2012		2013		Cooperation Stage				
	Companies in Total	%	Companies in Total	%	Basic Research	Experimental	Prototype	Product Development	Commercialization
Total	629	100.0%	668	100.0%	213	183	117	107	48
Biopharmaceutical industry	277	44.0%	249	37.3%	69	91	47	29	13
Biochemical industry	134	21.3%	139	20.8%	54	25	19	26	15
Biofood industry	118	18.8%	148	22.2%	37	39	28	31	13
Bioenvironmental industry	16	2.5%	30	4.5%	9	6	4	4	7
Bioelectronics industry	24	3.8%	28	4.2%	15	2	6	5	-
Bioprocess and equipment industry	21	3.3%	26	3.9%	6	6	6	8	-
Bioenergy and bioresource industry	17	2.7%	20	3.0%	10	6	3	1	-
Bioassay, bioinformatics and R&D service industry	22	3.5%	28	4.2%	13	8	4	3	-

C. Cooperating Organizations

1) Number of Cooperation Cases by Cooperating Organization

- By cooperating organization, the number of cooperation cases with universities was the largest at 403, which is 37.5% of 1,076 cases in total. It was followed by cooperation cases with business entities (331), research institutes (265) and medical institutes (77).

< Figure 2-25 > No. of Cooperation Cases by Cooperating Organization (Unit : Cases)



* Based on 261 companies with cooperative relationships.
Multiple responses accepted.

< Table 2-22 > No. of Cooperation Cases by Cooperating Organization (Unit : Cases)

Classification	Cooperative Relationships in Total	Domestic					Overseas				
		Total	Joint Investment	Joint R&D	Technical Tie-up	Technical Manpower Exchange	Total	Joint Investment	Joint R&D	Technical Tie-up	Technical Manpower Exchange
Total	1,076	977	28	795	88	66	99	10	57	25	7
Business Entities	331	265	16	212	30	7	66	10	31	20	5
Small and Medium-scale Venture Companies	246	207	16	157	27	7	39	6	19	10	4
Middle-standing Companies	49	33	-	32	1	-	16	-	9	7	-
Large Enterprises	36	25	-	23	2	-	11	4	3	3	1
Research Institutes	265	250	3	202	18	27	15	-	15	-	-
Government-invested Research Institutes	212	203	3	167	14	19	9	-	9	-	-
Private Research Institutes	53	47	-	35	4	8	6	-	6	-	-
Universities	403	388	9	310	40	29	15	-	9	4	2
Medical Institutes	77	74	-	71	-	3	3	-	2	1	-

○ By bioindustrial category, the number of cooperation cases in biopharmaceutical industry was the largest with business entities. However, the cases of cooperation with in biochemical and biofood industries were relatively larger with universities.

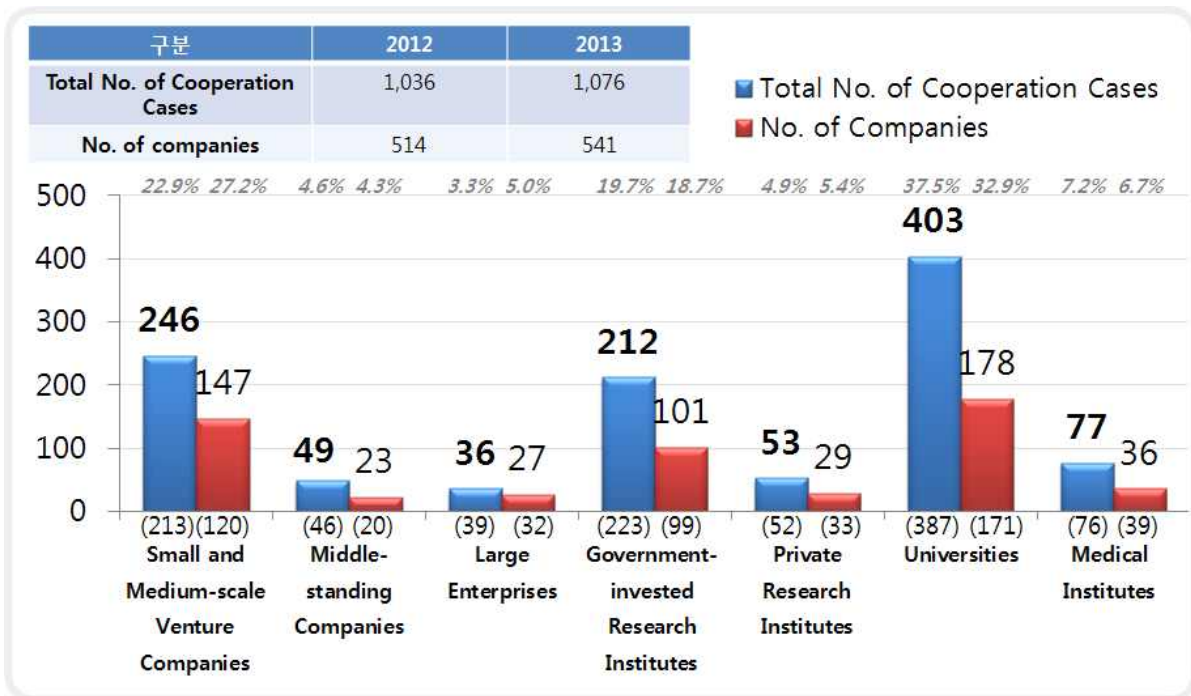
< Table 2-23 > No. of Cooperation Cases by Bioindustrial Category and Cooperating Organization (Unit : Cases)

Industrial Category	Companies in Total	Companies with Cooperative Relationships	Cooperating Organization				Total	
			Business Entities	Research Institutes	Universities	Medical Institutes		
Total	971	261	331	265	403	77	1,076	100.0%
Biopharmaceutical industry	317	87	150	85	138	52	425	39.5%
Biochemical industry	203	61	49	68	74	-	191	17.8%
Biofood industry	199	57	72	37	123	12	244	22.7%
Bioenvironmental industry	76	17	15	7	10	-	32	3.0%
Bioelectronics industry	26	8	16	32	25	6	79	7.3%
Bioprocess and equipment industry	70	13	9	8	11	4	32	3.0%
Bioenergy and bioresource industry	27	6	6	6	7	3	22	2.0%
Bioassay, bioinformatics and R&D service industry	53	12	14	22	15	-	51	4.7%

2) Number of Partners by Cooperating Organization

○ The number of bio-companies holding cooperative relationships with universities is 178. It was found that an average of 2.3 cooperation cases was completed per each of these companies.

< Figure 2-26 > No. of Partners by Cooperating Organization (Unit : Cases, Count)



* Based on 261 companies with cooperative relationships.
Multiple responses accepted.

- By bioindustrial category, the number of partners in biopharmaceutical industry was the largest with business entities. However, the partners of cooperation in biochemical and biofood industries were relatively larger with universities.

< Table 2-24 > No. of Partners by Bioindustrial Category and Cooperating Organization (Unit : Cases)

Industrial Category	Comp anies in Total	Comp anies with Coop erative Relati onshi ps	Cooperating Organization				Total	
			Business Entities	Research Institutes	Universit ies	Medical Institutes		
Total	971	261	197	130	178	36	541	100.0%
Biopharmaceutical industry	317	87	90	42	54	19	205	37.9%
Biochemical industry	203	61	28	34	48	-	110	20.3%
Biofood industry	199	57	37	24	43	8	112	20.7%
Bioenvironmental industry	76	17	11	7	10	-	28	5.2%
Bioelectronics industry	26	8	9	5	4	4	22	4.1%
Bioprocess and equipment industry	70	13	8	6	8	3	25	4.6%
Bioenergy and bioresource industry	27	6	6	4	5	2	17	3.1%
Bioassay, bioinformatics and R&D service industry	53	12	8	8	6	-	22	4.1%

< Table 2-25 > Domestic and Overseas Cooperative Relationships and Cooperating Organizations
(Unit : Cases, Count, %)

Classification		Total	Venture Companies	Middle-standing Companies	Large Enterprises	Government-invested Research Institutes	Private Research Institutes	Universities	Medical Institutes	
Joint investment	Total Investments	Domestic	28	16	-	-	3	-	9	-
		Overseas	10	6	-	4	-	-	-	-
		Subtotal	38	22	-	4	3	-	9	-
	No. of Companies	Domestic	17	9	-	-	3	-	5	-
		Overseas	8	6	-	2	-	-	-	-
		Subtotal	25	15	-	2	3	-	5	-
Joint R&D contract	Total Investments	Domestic	795	157	32	23	167	35	310	71
		Overseas	57	19	9	3	9	6	9	2
		Subtotal	852	176	41	26	176	41	319	73
	No. of Companies	Domestic	364	81	15	16	74	19	127	32
		Overseas	38	14	4	3	5	4	7	1
		Subtotal	402	95	19	19	79	23	134	33
Technical tie-up and Licensing	Total Investments	Domestic	88	27	1	2	14	4	40	-
		Overseas	25	10	7	3	-	-	4	1
		Subtotal	113	37	8	5	14	4	44	1
	No. of Companies	Domestic	56	21	1	2	11	3	18	-
		Overseas	17	7	3	3	-	-	3	1
		Subtotal	73	28	4	5	11	3	21	1
Technical manpower change	Total Investments	Domestic	66	7	-	-	19	8	29	3
		Overseas	7	4	-	1	-	-	2	-
		Subtotal	73	11	-	1	19	8	31	3
	No. of Companies	Domestic	35	6	-	-	8	3	16	2
		Overseas	6	3	-	1	-	-	2	-
		Subtotal	41	9	-	1	8	3	18	2
Cooperation Cases in Total		1,076	246	49	36	212	53	403	77	
Percentage		100.0	22.9	4.6	3.3	19.7	4.9	37.5	7.2	
Companies in Total		541	147	23	27	101	29	178	36	
Percentage		100.0	27.2	4.3	5.0	18.7	5.4	32.9	6.7	

3) Cooperating Organizations by Scale of Workers

- The number of cooperation cases between a small and medium-scale venture company with 50 - 299 workers and a same small and medium-scale venture company (with 1 - 299 workers) is large at 102.
- The numbers of cooperation cases between a bioindustrial company with 1 - less than 50 workers and a government-invested research institute and a university are also large at 126 and 222 respectively (123 and 216 in Korea respectively).

< Table 2-26 > Cooperating Organizations by Scale of Workers (Unit : Count)

Classification	Cooperative Relationships in Total	Business Entities				Research Institutes			Universities	Medical Institutes	
		Total	Venture Companies	Middle-standing Companies	Large Enterprises	Total	Government-invested Research Institutes	Private Research Institutes			
Total	Total	1,076	331	246	49	36	265	212	53	403	77
	1 - less than 50 workers	537	134	97	20	17	151	126	25	222	30
	50 - 299	306	117	102	5	10	45	27	18	119	25
	300 - 999	103	34	19	13	2	21	21	-	31	17
	1,000 or more	130	46	28	11	7	48	38	10	31	5
Domestic	Total	977	265	207	33	25	250	203	47	388	74
	1 - less than 50 workers	500	109	81	12	16	146	123	23	216	29
	50 - 299	272	92	84	3	5	43	27	16	114	23
	300 - 999	90	26	17	7	2	16	16	-	31	17
	1,000 or more	115	38	25	11	2	45	37	8	27	5
Overseas	Total	99	66	39	16	11	15	9	6	15	3
	1 - less than 50 workers	37	25	16	8	1	5	3	2	6	1
	50 - 299	34	25	18	2	5	2	-	2	5	2
	300 - 999	13	8	2	6	-	5	5	-	-	-
	1,000 or more	15	8	3	-	5	3	1	2	4	-

5 Supply and Demand Status of Bioindustry

A. Bioindustry's Supply and Demand Status of 2013

- Bioindustry's supply and demand status in 2013 reached total of 9 trillion and 333 billion won and the proportion of production took 83.3% in the supply market with 7 trillion and 523.8 billion won and the proportion of import took 16.7% with 1 trillion and 509.5 billion won.
- On the other hand, the size of domestic demand reached 64.9% of the total size of supply and demand with 5 trillion and 866.9 billion won in the demand market and the size of export reached 35.1% of the total size of supply and demand with 3 trillion and 166.4 billion won.

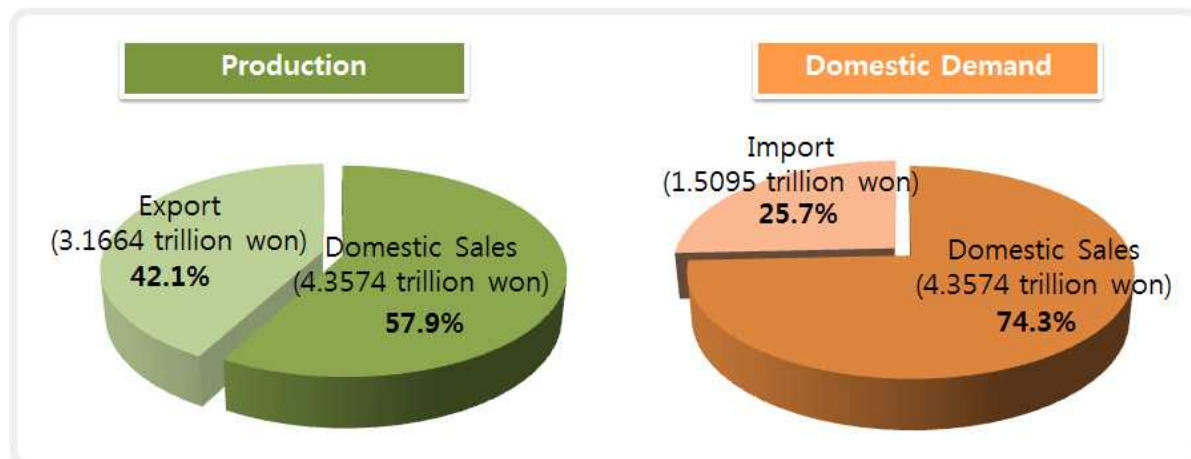
<Table 2-27> 2011~2013 Bioindustry's Trend of Supply and Demand

(Unit : one hundred million Won)

Year	Supply				Total	Demand			
	Production		Import			Domestic Demand		Export	
	Amount	Distribution Ratio	Amount	Distribution Ratio		Amount	Distribution Ratio	Amount	Distribution Ratio
2011	63,963	80.4	15,612	19.6	79,574	52,081	65.4	27,494	34.6
2012	71,445	83.3	14,311	16.7	85,756	55,281	64.5	30,475	35.5
2013	75,238	83.3	15,095	16.7	90,333	58,669	64.9	31,664	35.1
Annual Average Rate of Change	8.5		-1.7		6.5	6.1		7.3	

- The production size of domestic bioindustry in 2013 reached 7 trillion and 523.8 billion won. Among them, the domestic sales took 57.9% with 4 trillion and 357.4 billion won and the export took, 42.1% with 3 trillion and 166.4 billion won.
- The size of domestic demand due to domestic sales and import reached 5 trillion and 866.9 billion won. Among them, the domestic sales took 74.3% with 4 trillion and 357.4 billion won and the import took 25.7% with 1 trillion and 509.5 billion won.

<Figure 2-27> 2013 Bioindustry's Size of Production and Domestic Demand



- The production size of bioindustry reached 3 trillion and 211.0 billion won which is 40.2% of the total industry, and biopharmaceutical industry took 36.9% with 2 trillion and 775.4 billion won.
- The industry that has the largest proportion in the bioindustry's domestic demand market is biopharmaceutical industry reaching 2 trillion and 961.6 billion won which is 50.5% of the total market.

<Table 2-28> 2013 Bioindustry's Status of Production and Domestic Demand

(Unit : million Won, %)

Industrial Category	Production				Domestic Demand			
	Domestic Sales	Export	Total	Distribution Ratio	Domestic Sales	Import	Total	Distribution Ratio
Total	4,357,396	3,166,435	7,523,831	100.0	4,357,396	1,509,457	5,866,853	100.0
Biopharmaceutical industry	1,636,942	1,138,462	2,775,404	36.9	1,636,942	1,324,637	2,961,578	50.5
Biochemical industry	451,091	111,110	562,201	7.5	451,091	64,086	515,177	8.8
Biofood industry	1,338,933	1,682,131	3,021,064	40.2	1,338,933	46,638	1,385,571	23.6
Bioenvironmental industry	30,093	12	30,105	0.4	30,093	226	30,319	0.5
Bioelectronics industry	35,814	115,882	151,696	2.0	35,814	1,471	37,285	0.6
Bioprocess and equipment industry	73,481	49,286	122,768	1.6	73,481	57,026	130,508	2.2
Bioenergy and bioresource industry	637,245	28,690	665,935	8.9	637,245	13,142	650,387	11.1
Bioassay, bioinformatics and R&D service industry	153,797	40,861	194,658	2.6	153,797	2,231	156,028	2.7

B. Recent Trend of Supply and Demand Status

1) 2011~2013 Trend of Supply and Demand Status

- Both production and domestic demand showed continuous growth from 2011 to 2013 in the supply and demand trend of bioindustry. For the average variation rate per year since 2011, the supply and demand marked 6.5%, production 8.5%, and domestic demand 6.1%.

<Table 2-29> 2011~2013 Bioindustry's Trend of Production and Domestic Demand

(Unit : one hundred million Won, %)

Classification		2011	2012	2013	Annual Average Rate of Change
Supply and Demand (Production+Import)	Investment Amount	79,574	85,756	90,333	6.5
	Distribution Ratio	10.6	7.8	5.3	
Production (Domestic Sales+Export)	Investment Amount	63,963	71,445	75,238	8.5
	Distribution Ratio	10.5	11.7	5.3	
Domestic Demand (Domestic Sales+Import)	Investment Amount	52,081	55,281	58,669	6.1
	Distribution Ratio	9.6	6.1	6.1	

<Figure 2-28> 2011~2013 Bioindustry's Trend of Production and Domestic Demand

(Unit : one hundred million Won)



- The production sector increased by 5.3% in 2013 compared to 2012, and bioelectronics industry reached the highest growth rate with 22.5%.
- The domestic demand sector increased by 6.1% in 2013 compared to 2012, and bioelectronics industry reached 53.8% growth.
- The size of biopharmaceutical industry that takes 50.5% of the total domestic demand market increased 5.0% compared to the previous year.

<Table 2-30> 2011~2013 Bioindustry's Trend of Supply and Demand by Category

(Unit : one hundred million Won, %)

Industrial Category	Production					Domestic Demand				
	2011	2012	2013	Variation from the year before	Annual Average Rate of Change	2011	2012	2013	Variation from the year before	Annual Average Rate of Change
Total	63,963	71,445	75,238	5.3	8.5	52,081	55,281	58,669	6.1	6.1
Biopharmaceutical industry	24,607	27,087	27,754	2.5	6.2	27,367	28,194	29,616	5.0	4.0
Biochemical industry	4,305	5,030	5,622	11.8	14.3	4,354	4,749	5,152	8.5	8.8
Biofood industry	25,978	28,579	30,211	5.7	7.8	10,989	13,019	13,856	6.4	12.3
Bioenvironmental industry	1,092	275	301	9.6	-47.5	1,066	277	303	9.6	-46.7
Bioelectronics industry	1,164	1,238	1,517	22.5	14.2	239	242	373	53.8	24.9
Bioprocess and equipment industry	811	1,219	1,228	0.7	23.0	2496	1308	1305	-0.2	-27.7
Bioenergy and bioresource industry	4,387	6,122	6,659	8.8	23.2	4,237	5,959	6,504	9.1	23.9
Bioassay, bioinformatics and R&D service industry	1,620	1,895	1,947	2.7	9.6	1,333	1,533	1,560	1.8	8.2

2) 2009~2013 Trend of Supply and Demand

- Both production and domestic demand showed continuous growth according to the 2009~2013 supply and demand trend. The average variation rate per year for supply and demand rated 7.8%, production 8.9%, and domestic demand 8.5% since 2009, resulting in continuous growth with more than average of 7%.

<Table 2-31> 2009~2013 Bioindustry's Trend of Supply and Demand

(Unit : one hundred million Won, %)

Classification		2009	2010	2011	2012	2013	Annual Average Rate of Change
Supply and Demand (Production+Import)	Investment Amount	66,841	71,935	79,574	85,756	90,333	7.8
	Distribution Ratio	18.1	7.6	10.6	7.8	5.3	
Production (Domestic Sales+Export)	Investment Amount	53,549	57,878	63,963	71,445	75,238	8.9
	Distribution Ratio	18.7	8.1	10.5	11.7	5.3	
Domestic Demand (Domestic Sales+Import)	Investment Amount	42,367	47,519	52,081	55,281	58,669	8.5
	Distribution Ratio	12.8	12.2	9.6	6.1	6.1	

<Figure 2-29> 2009~2013 Bioindustry's Trend of Supply and Demand

(Unit : one hundred million Won)



<Table 2-32> 2009~2013 Bioindustry's Trend of Supply and Demand by Category

(Unit : one hundred million Won, %)

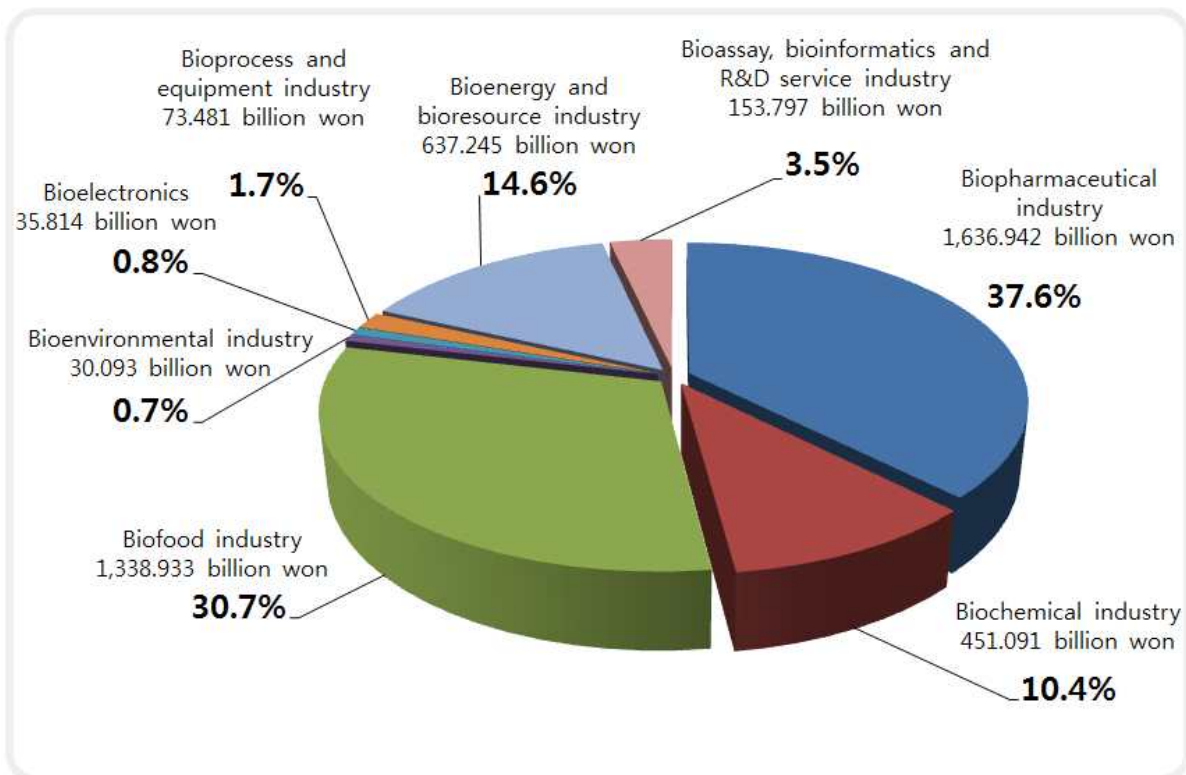
Industrial Category	Production							Domestic Demands						
	2009	2010	2011	2012	2013	Variation from the year before	Annual Average Rate of Change	2009	2010	2011	2012	2013	Variation from the year before	Annual Average Rate of Change
Total	53,549	57,878	63,963	71,445	75,238	5.3	8.9	42,367	47,519	52,081	55,281	58,669	6.1	8.5
Biopharmaceutical industry	24,922	23,732	24,607	27,087	27,754	2.5	2.7	25,363	26,210	27,367	28,194	29,616	5.0	4.0
Biochemical industry	3,303	2,904	4,305	5,030	5,622	11.8	14.2	3,721	3,245	4,354	4,749	5,152	8.5	8.5
Biofood industry	15,593	23,461	25,978	28,579	30,211	5.7	18.0	5,148	9,992	10,989	13,019	13,856	6.4	28.1
Bioenvironmental industry	2,281	1,060	1,092	275	301	9.6	-39.7	2,192	1,037	1,066	277	303	9.6	-39.0
Bioelectronics industry	699	1,212	1,164	1,238	1,517	22.5	21.4	369	489	239	242	373	53.8	0.3
Bioprocess and equipment industry	2,127	963	811	1,219	1,228	0.7	-12.8	2,952	2,405	2,496	1,308	1,305	-0.2	-18.5
Bioenergy and bioresource industry	1,207	2,913	4,387	6,122	6,659	8.8	53.3	1,216	2,769	4,237	5,959	6,504	9.1	52.1
Bioassay, bioinformatics and R&D service industry	3,417	1,633	1,620	1,895	1,947	2.7	-13.1	1,406	1,373	1,333	1,533	1,560	1.8	2.6

6 Domestic Sales of Bioindustry

A. Domestic Sales Status of 2013

- The size of bioindustry's domestic sales in 2013 reached 4 trillion and 357.4 billion won and biopharmaceutical industry took the largest proportion among them with 1 trillion and 636.9 billion won(37.6%).
- The following largest industries were biofood industry with 1 trillion and 338.9 billion won(30.7%) and bioenergy and bioresource industry with 637.2 billion won(14.6%).
- Biopharmaceutical industry, biofood industry, bioenergy and bioresource industry took 82.9%(83.2% in 2012) of the total market for the bioindustry's domestic sales in 2013.

<Figure 2-30> 2013 Bioindustry's Size of Domestic Sales by Category



- [Table 2-33] shows the domestic bioproducts or bioservices that have more than 1.0% domestic sales among 51 domestic bioproducts and bioservices, according to the size. Feed additive's size of domestic sales took 16.0% of the total bioindustry with 695.7 billion won.
- The following largest bioproducts or bioservices were hemotherapeutics (11.5%), other biopharmaceuticals(10.2%), biofuel(9.7%), functional health foods(7.7%). Among the TOP5 products, 2 items belonged to biopharmaceutical and biofood industry.

<Table 2-33> 2013 Main Bioproduct's Size of Domestic Sales (Unit : million Won, %)

Ranking	Code	Product Name	Domestic Sales	Distribution Ratio
1	3050	Feed additives	695,739	16.0
2	1060	Hemotherapeutics	502,966	11.5
3	1000	Other biopharmaceuticals	445,291	10.2
4	7010	Biofuel	424,150	9.7
5	3010	Functional health foods	336,795	7.7
6	2040	Biocosmetics and home & personal care chemicals	323,189	7.4
7	1030	Vaccines	310,089	7.1
8	7020	Artificial seeds and seedlings	166,066	3.8
9	3030	Food additives	146,856	3.4
10	1040	Hormones	112,457	2.6
11	1100	Animal medications	87,439	2.0
12	3040	Fermented foods	83,023	1.9
13	8050	Biosafety and efficacy evaluation services	78,421	1.8
14	1080	New therapeutics	56,917	1.3
15	1050	Immunotherapeutics	49,570	1.1
16	3020	Amino acids	44,761	1.0

B. Recent Trend of Domestic Sales Status

1) 2011~2013 Trend of Domestic Sales Status

- The size of bioindustry's domestic sales in 2013 increased by 260.4 billion won(6.4%) with 4 trillion and 357.4 billion won compared to 4 trillion and 970.0 billion won in 2012.

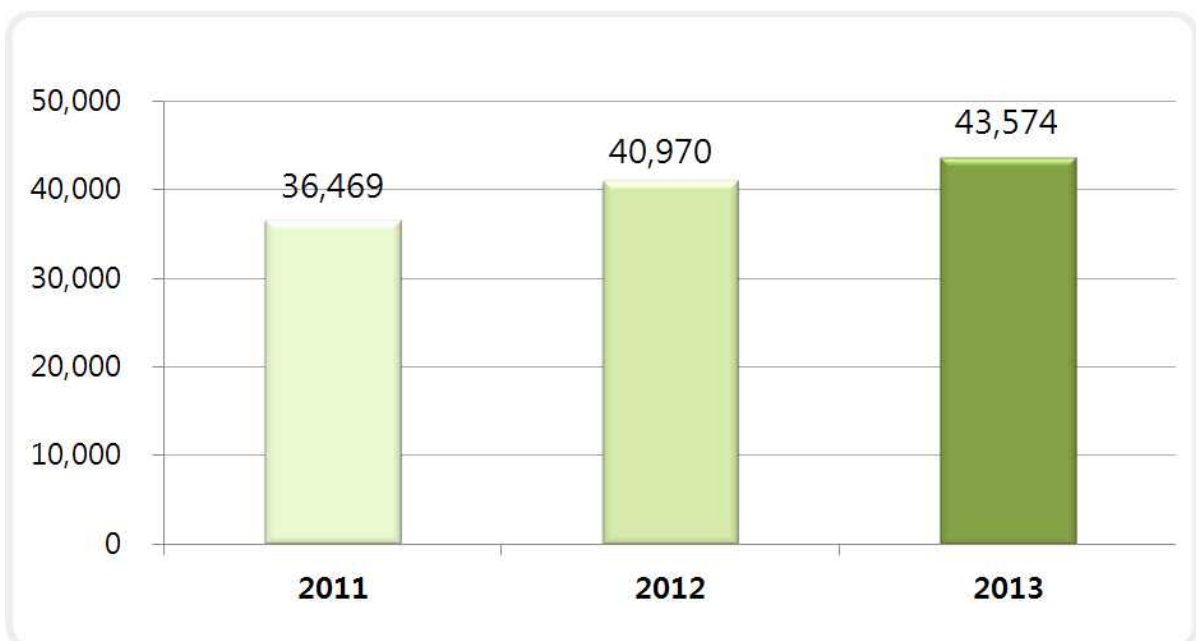
<Table 2-34> 2011~2013 Bioindustry's Trend of Domestic Sales

(Unit : one hundred million Won, %)

Classification		2011	2012	2013	Annual Average Rate of Change
Domestic Sales	Amount of money	36,469	40,970	43,574	9.3
	Rate of Change	9.0	12.3	6.4	

<Figure 2-31> 2011~2013 Bioindustry's Trend of Domestic Sales

(Unit : one hundred million Won)



- The growth size of biofood industry increased by 7.1% with 887.0 billion won compared to 2012, and its proportion within the industry increased from 30.5% to 30.7%.
- Bioenergy and bioresource industry also increased by 9.3% compared to 2012, and its proportion within the industry increased from 14.2% to 14.6%.
- On the other hand, in bioprocess and equipment industry, the sales decreased by KRW 32.0 billion (4.2%) from 2012. The ratio within the industry also decreased by 0.2%p to a low 1.7%.

<Table 2-35> 2011~2013 Bioindustry's Trend of Domestic Sales by Category

(Unit : million Won, %)

Industrial Category	2011		2012		2013		Variation from the year before		Annual Average Rate of Change
	Domestic Sales	Distribution Ratio	Domestic Sales	Distribution Ratio	Domestic Sales	Distribution Ratio	Domestic Sales	Rate of Change	
Total	3,646,896	100.0	4,097,024	100.0	4,357,396	100.0	260,372	6.4	9.3
Biopharmaceutical industry	1,506,329	41.3	1,577,524	38.5	1,636,942	37.6	59,418	3.8	4.2
Biochemical industry	355,684	9.8	406,185	9.9	451,091	10.4	44,906	11.1	12.6
Biofood industry	1,065,834	29.2	1,250,255	30.5	1,338,933	30.7	88,678	7.1	12.1
Bioenvironmental industry	106,381	2.9	27,446	0.7	30,093	0.7	2,647	9.6	-46.8
Bioelectronics industry	23,738	0.7	23,987	0.6	35,814	0.8	11,827	49.3	22.8
Bioprocess and equipment industry	43,895	1.2	76,691	1.9	73,481	1.7	-3,210	-4.2	29.4
Bioenergy and bioresource industry	413,275	11.3	582,984	14.2	637,245	14.6	54,261	9.3	24.2
Bioassay, bioinformatics and R&D service industry	131,760	3.6	151,952	3.7	153,797	3.5	1,845	1.2	8.0

2) 2009~2013 Trend of Domestic Sales

- Since 2009, the average variation rate per year for the past 5 years showed 10.6%.
- The size of domestic sales in 2010 went over 3 trillion won, and in 2013, it reached 4 trillion and 357.4 billion won.

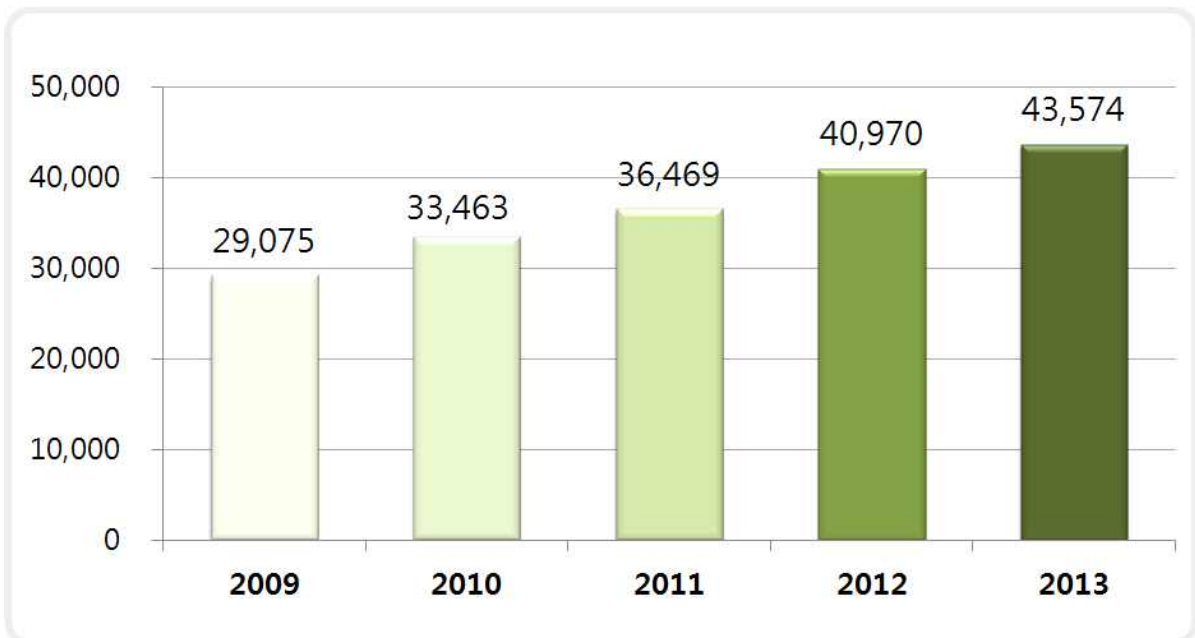
<Table 2-36> 2009~2013 Bioindustry's Trend of Domestic Sales Status

(Unit : one hundred million Won, %)

Classification		2009	2010	2011	2012	2013	Annual Average Rate of Change
Domestic Sales	Amount of money	29,075	33,463	36,469	40,970	43,574	10.6
	Rate of Change	11.5	15.1	9.0	12.3	6.4	

<Figure 2-32> 2009~2013 Bioindustry's Trend of Domestic Sales Status

(Unit : one hundred million Won)



<Table 2-37> 2009~2013 Bioindustry's Trend of Domestic Sales by Category

(Unit : million Won, %)

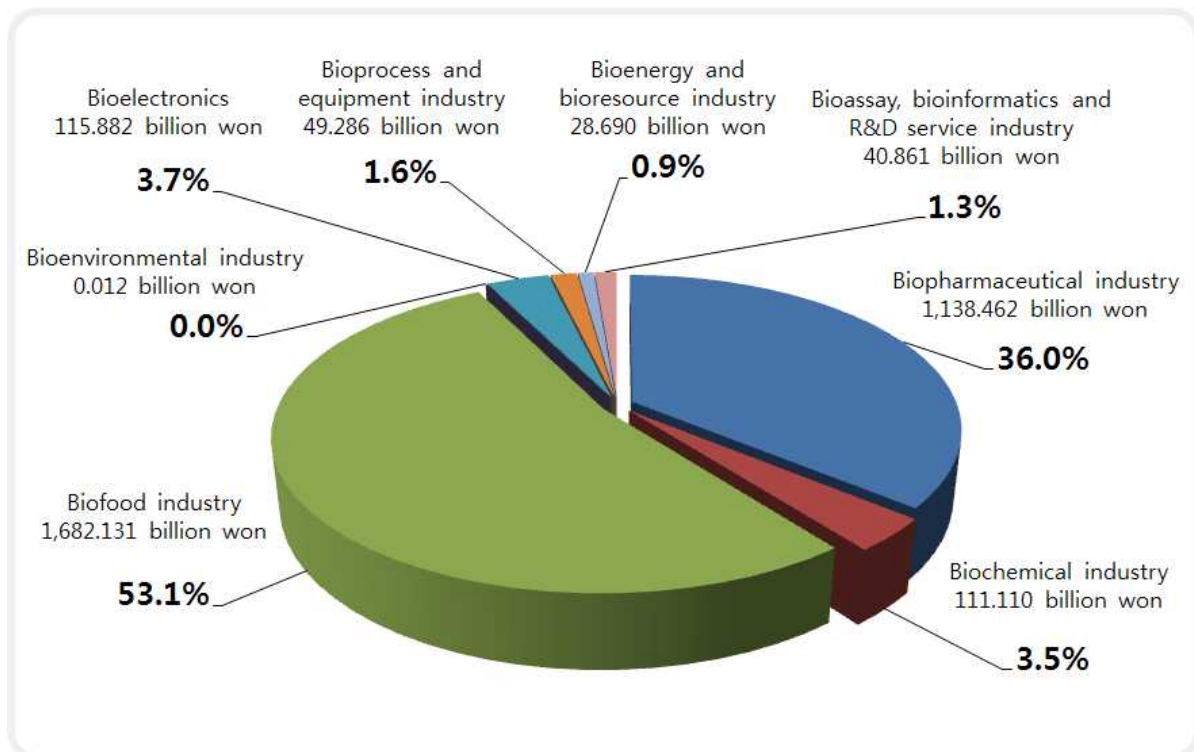
Industrial Category	2009		2010		2011		2012		2013		Variation from the year before		Annual Average Rate of Change
	Domestic Sales	Distribution Ratio	Domestic Sales	Distribution Ratio	Domestic Sales	Distribution Ratio	Domestic Sales	Distribution Ratio	Domestic Sales	Distribution Ratio	Domestic Sales	Rate of Change	
Total	2,907,448	100	3,346,287	100	3,646,896	100	4,097,024	100	4,357,396	100	260,372	6.4	13.7
Biopharmaceutical industry	1,564,251	53.8	1,521,210	45.5	1,506,329	41.3	1,577,524	38.5	1,636,942	37.6	59,418	3.8	2.8
Biochemical industry	260,356	9.0	230,073	6.9	355,684	9.8	406,185	9.9	451,091	10.4	44,906	11.1	18.8
Biofood industry	481,123	16.5	989,797	29.6	1,065,834	29.2	1,250,255	30.5	1,338,933	30.7	88,678	7.1	34.1
Bioenvironmental industry	215,152	7.4	103,052	3.1	106,381	2.9	27,446	0.7	30,093	0.7	2,647	9.6	-38.0
Bioelectronics industry	32,826	1.1	48,039	1.4	23,738	0.7	23,987	0.6	35,814	0.8	11,827	49.3	8.3
Bioprocess and equipment industry	102,853	3.5	48,803	1.5	43,895	1.2	76,691	1.9	73,481	1.7	-3,210	-4.2	-2.4
Bioenergy and bioresource industry	110,653	3.8	269,342	8.0	413,275	11.3	582,984	14.2	637,245	14.6	54,261	9.3	78.3
Bioassay, bioinformatics and R&D service industry	140,234	4.8	135,971	4.1	131,760	3.6	151,952	3.7	153,797	3.5	1,845	1.2	4.4

7 Export Status of Bioindustry

A. Export Status of 2013

- The size of bioindustry's export in 2013 reached 3 trillion and 166.4 billion won.
- Biofood industry took the largest proportion with 1 trillion and 682.1 billion won(53.1%) and the following largest industry was biopharmaceutical industry with 1 trillion and 138.5 billion won(36.0%) according to the bioindustry's size of export by category.

<Figure 2-33> 2013 Bioindustry's Size of Export by Category



- [Table 2-38] shows domestic bioproducts or bioservices that have more than 1.0% export amount among 51 domestic bioproducts and bioservices, according to the size. 14 products showed more than 1.0% of exports.
- Feed additives ranked the highest amount of export with 1 trillion and 224.7 billion won(38.7%) and the following largest bioproducts or bioservices were food additives(12.3%), vaccines(7.7%), immunotherapeutics(7.4%) and other biopharmaceuticals(4.3%).
- 9 product among 14 belonged to biopharmaceutical industry and 3 belonged to biofood industry according to the size of export.

<Table 2-38> 2013 Main Bioproduct's Export

(Unit : million Won, %)

Ranking	Code	Product Name	Amount of Export	Distribution Ratio
1	3050	Feed additives	1,224,679	38.7
2	3030	Food additives	388,412	12.3
3	1030	Vaccines	242,959	7.7
4	1050	Immunotherapeutics	234,398	7.4
5	1000	Other biopharmaceuticals	134,659	4.3
6	1090	Diagnostic kits	130,566	4.1
7	5040	Biosensors	112,739	3.6
8	1060	Hemotherapeutics	96,183	3.0
9	1040	Hormones	93,598	3.0
10	1020	Anticancer medications	81,115	2.6
11	1010	Antibiotics	75,805	2.4
12	1100	Animal medications	43,650	1.4
13	3010	Functional health foods	39,178	1.2
14	2030	Enzymes and reagents for research	35,602	1.1

B. Recent Trend of Export Status

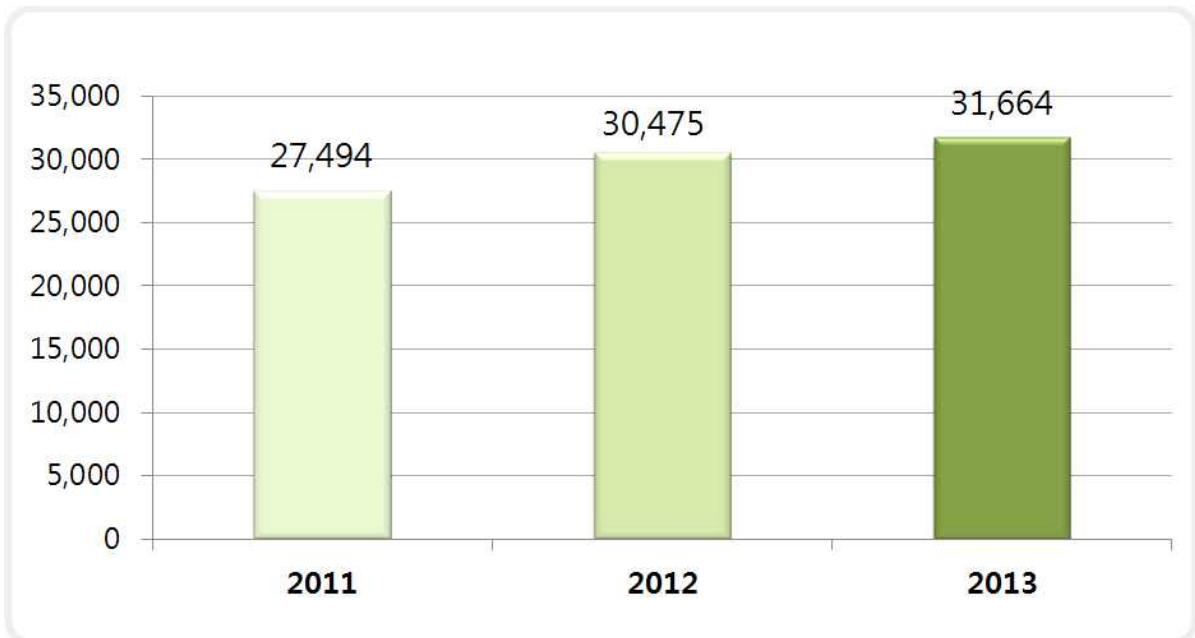
1) 2011~2013 Trend of Export

- The amount of bioindustry's export in 2013 increased by 118.9 billion won(3.9%) with 3 trillion and 166.4 billion won compared to 3 trillion and 475.0 billion won in 2012.

<Table 2-39> 2011~2013 Bioindustry's Trend of Export (Unit : one hundred million Won, %)

Classification		2011	2012	2013	Annual Average Rate of Change
Export	Amount	27,494	30,475	31,664	7.3
	Rate of Change	12.6	10.8	3.9	

<Figure 2-34> 2011~2013 Bioindustry's Trend of Export (Unit : one hundred million Won)



- Bioelectronics industry export recorded the highest increase to KRW 115.9 billion by KRW 160.0 billion (29.9%) from 2012.

<Table 2-40> 2011~2013 Bioindustry's Trend of Export by Category

(Unit : million Won, %)

Industrial Category	2011		2012		2013		Variation from the year before		Annual Average Rate of Change
	Amount of Export	Distribution Ratio	Amount of Export	Distribution Ratio	Amount of Export	Distribution Ratio	Amount of Export	Rate of Change	
Total	2,749,356	100.0	3,047,520	100.0	3,166,435	100.0	118,914	3.9	7.3
Biopharmaceutical industry	954,412	34.7	1,131,198	37.1	1,138,462	36.0	7,264	0.6	9.2
Biochemical industry	74,783	2.7	96,766	3.2	111,110	3.5	14,344	14.8	21.9
Biofood industry	1,531,965	55.7	1,607,654	52.8	1,682,131	53.1	74,477	4.6	4.8
Bioenvironmental industry	2,782	0.1	18	0.0	12	0.0	-6	-32.8	-93.4
Bioelectronics industry	92,623	3.4	99,841	3.3	115,882	3.7	16,042	16.1	11.9
Bioprocess and equipment industry	37,199	1.4	45,256	1.5	49,286	1.6	4,031	8.9	15.1
Bioenergy and bioresource industry	25,393	0.9	29,254	1.0	28,690	0.9	-564	-1.9	6.3
Bioassay, bioinformatics and R&D service industry	30,198	1.1	37,534	1.2	40,861	1.3	3,327	8.9	16.3

2) 2009~2013 Trend of Export

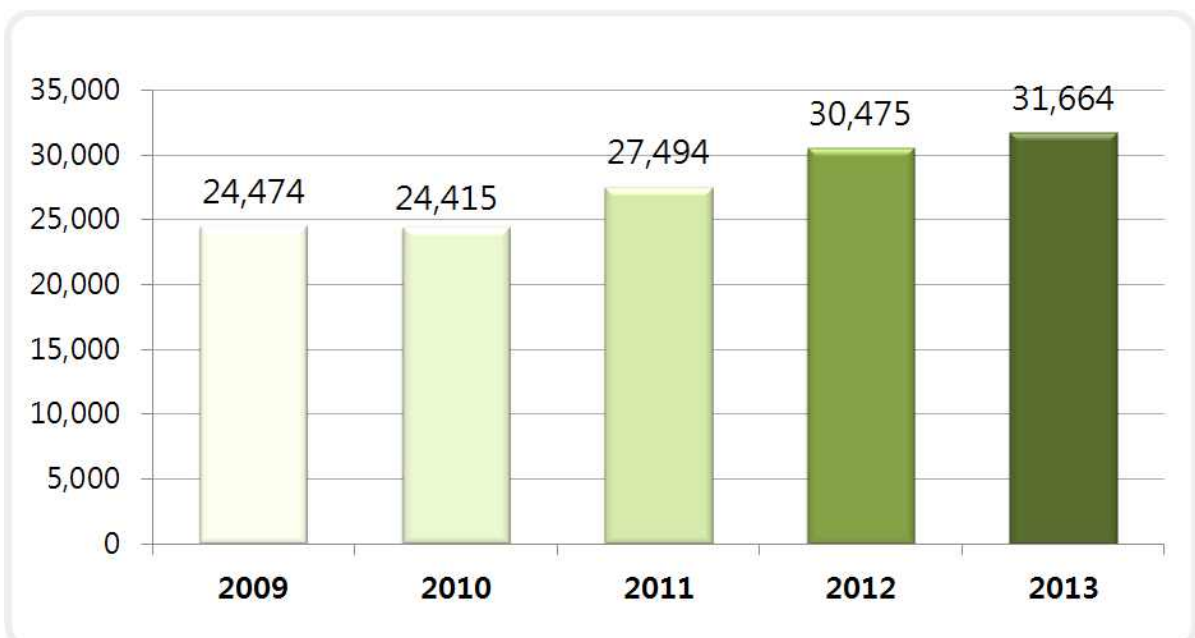
- Bioindustry's amount of export decreased by 0.2% in 2010 after it went over 2 trillion won in 2009. But since 2011, it picked up an upward trend and increased by 3.9% in 2013 compared to 2012.
- Since 2009, bioindustry's export showed continuous growth with 6.7% increase of average variation rate per year.

<Table 2-41> 2009~2013 Bioindustry's Trend of Export

(Unit : one hundred million Won, %)

Classification		2009	2010	2011	2012	2013	Annual Average Rate of Change
Export	Amount	24,474	24,415	27,494	30,475	31,664	6.7
	Rate of Change	28.6	-0.2	12.6	10.8	3.9	

<Figure 2-35> 2009~2013 Bioindustry's Trend of Export (Unit : one hundred million Won)



<Table 2-42> 2009~2013 Bioindustry's Trend of Export by Category

(Unit : million Won, %)

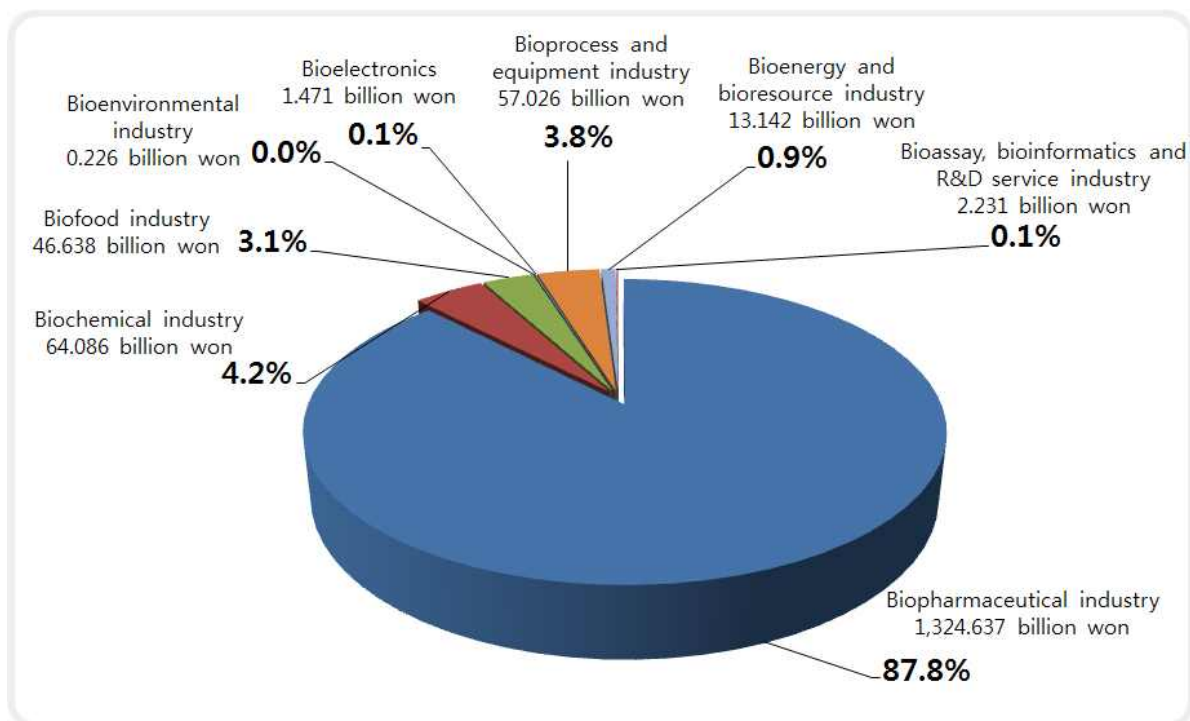
Industrial Category	2009		2010		2011		2012		2013		Variation from the year before		Annual Average Rate of Change
	Amount of Export	Distribution Ratio	Amount of Export	Distribution Ratio	Amount of Export	Distribution Ratio	Amount of Export	Distribution Ratio	Amount of Export	Distribution Ratio	Domes-tic Sales	Rate of Change	
Total	2,447,455	100.0	2,441,539	100.0	2,749,356	100.0	3,047,520	100.0	3,166,435	100.0	118,914	3.9	6.7
Biopharmaceutical industry	927,929	37.9	852,028	34.9	954,412	34.7	1,131,198	37.1	1,138,462	36.0	7,264	0.6	5.2
Biochemical industry	69,907	2.9	60,352	2.5	74,783	2.7	96,766	3.2	111,110	3.5	14,344	14.8	12.3
Biofood industry	1,078,216	44.1	1,356,334	55.6	1,531,965	55.7	1,607,654	52.8	1,682,131	53.1	74,477	4.6	11.8
Bioenvironmental industry	12,933	0.5	2,902	0.1	2,782	0.1	18	0.0	12	0.0	-6	-32.8	-82.5
Bioelectronics industry	37,055	1.5	73,181	3.0	92,623	3.4	99,841	3.3	115,882	3.7	16,042	16.1	33.0
Bioprocess and equipment industry	109,876	4.5	47,483	1.9	37,199	1.4	45,256	1.5	49,286	1.6	4,031	8.9	-18.2
Bioenergy and bioresource industry	10,059	0.4	21,950	0.9	25,393	0.9	29,254	1.0	28,690	0.9	-564	-1.9	30.0
Bioassay, bioinformatics and R&D service industry	201,480	8.2	27,309	1.1	30,198	1.1	37,534	1.2	40,861	1.3	3,327	8.9	-32.9

8 Import Status of Bioindustry

A. Import Status of 2013

- The size of bioindustry's import in 2013 reached 1 trillion and 509.5 billion won.
- Biopharmaceutical industry showed the highest proportion among the total import amount with 1 trillion and 324.6 billion won(87.8%) according to the bioindustry's size of import by category.

<Figure 2-36> 2013 Bioindustry's Size of Import by Category



- Among 51 domestic bioproducts and bioservices, there is 14 products that have more than 1.0% import amount.
- Among bioproducts, vaccines ranked the highest import amount among the total imports with 344.9 billion won(22.9%) and then the following highest products were anticancer medications with 297.9 billion won(19.7%), hemotherapeutics with 170.6 billion won(11.3%), hormones with 165.4 billion won(11.0%) and other biopharmaceuticals with 126.8 billion won(8.4%).
- 9 products among 14 belonged to biopharmaceutical industry according to the size of imports, and it took 87.1% among the total import amount.

<Table 2-43> 2013 Main Bioproduct's Import (Unit : million Won, %)

Ranking	Code	Product Name	Amount of Import	Distribution Ratio
1	1030	Vaccines	344,927	22.9
2	1020	Anticancer medications	297,940	19.7
3	1060	Hemotherapeutics	170,617	11.3
4	1040	Hormones	165,429	11.0
5	1000	Other biopharmaceuticals	126,808	8.4
6	1050	Immunotherapeutics	98,505	6.5
7	1090	Diagnostic kits	58,798	3.9
8	6030	Bioprocess and analysis equipments	52,437	3.5
9	1080	New therapeutics	35,194	2.3
10	2000	Other biochemicals	26,590	1.8
11	3000	Other biofoods	19,437	1.3
12	2020	Industrial enzymes and reagents	17,631	1.2
13	1010	Antibiotics	16,030	1.1
14	2030	Enzymes and reagents for research	15,864	1.1

B. Recent Trend of Import Status

1) 2011~2013 Bioindustry's Trend of Import

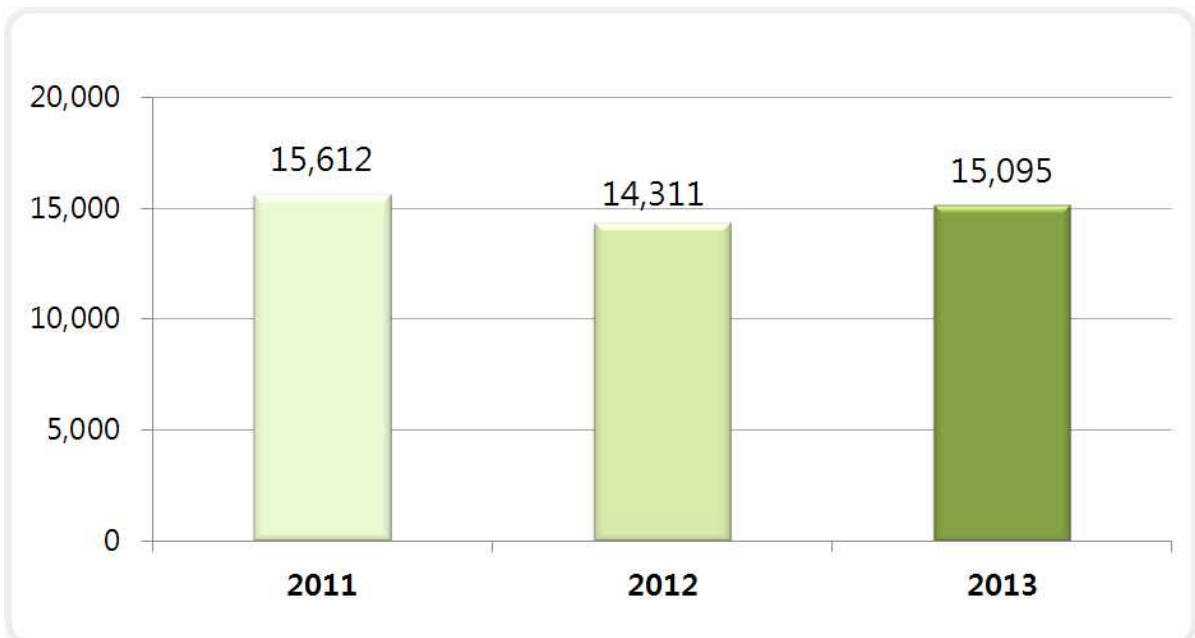
- The amount of bioindustry's import in 2013 increased by 78.4 billion won(5.5%) with 1 trillion and 509.5 billion won compared to 1 trillion and 431.1 billion won in 2012.
- The average variation rate per year for 2011~2013 is -1.7%.

<Table 2-44> 2011~2013 Bioindustry's Trend of Import

(Unit : one hundred million Won, %)

Classification		2011	2012	2013	Annual Average Rate of Change
Import	Amount	15,612	14,311	15,095	-1.7
	Rate of Change	11.1	-8.3	5.5	

<Figure 2-37> 2011~2013 Bioindustry's Trend of Import (Unit : one hundred million Won)



<Table 2-45> 2011~2013 Bioindustry's Trend of Import by Category

(Unit : million Won, %)

Industrial Category	2011		2012		2013		Variation from the year before		Annual Average Rate of Change
	Amount of Import	Distribution Ratio	Amount of Import	Distribution Ratio	Amount of Import	Distribution Ratio	Amount of Import	Rate of Change	
Total	1,561,182	100.0	1,431,097	100.0	1,509,457	100.0	78,360	5.5	-1.7
Biopharmaceutical industry	1,230,328	78.8	1,241,893	86.8	1,324,637	87.8	82,743	6.7	3.8
Biochemical industry	79,718	5.1	68,726	4.8	64,086	4.2	-4,640	-6.8	-10.3
Biofood industry	33,073	2.1	51,680	3.6	46,638	3.1	-5,041	-9.8	18.7
Bioenvironmental industry	239	0.0	230	0.0	226	0.0	-4	-1.7	-2.9
Bioelectronics industry	150	0.0	248	0.0	1,471	0.1	1,223	493.3	213.6
Bioprocess and equipment industry	205,724	13.2	54,113	3.8	57,026	3.8	2,913	5.4	-47.4
Bioenergy and bioresource industry	10,436	0.7	12,897	0.9	13,142	0.9	245	1.9	12.2
Bioassay, bioinformatics and R&D service industry	1,514	0.1	1,310	0.1	2,231	0.1	921	70.3	21.4

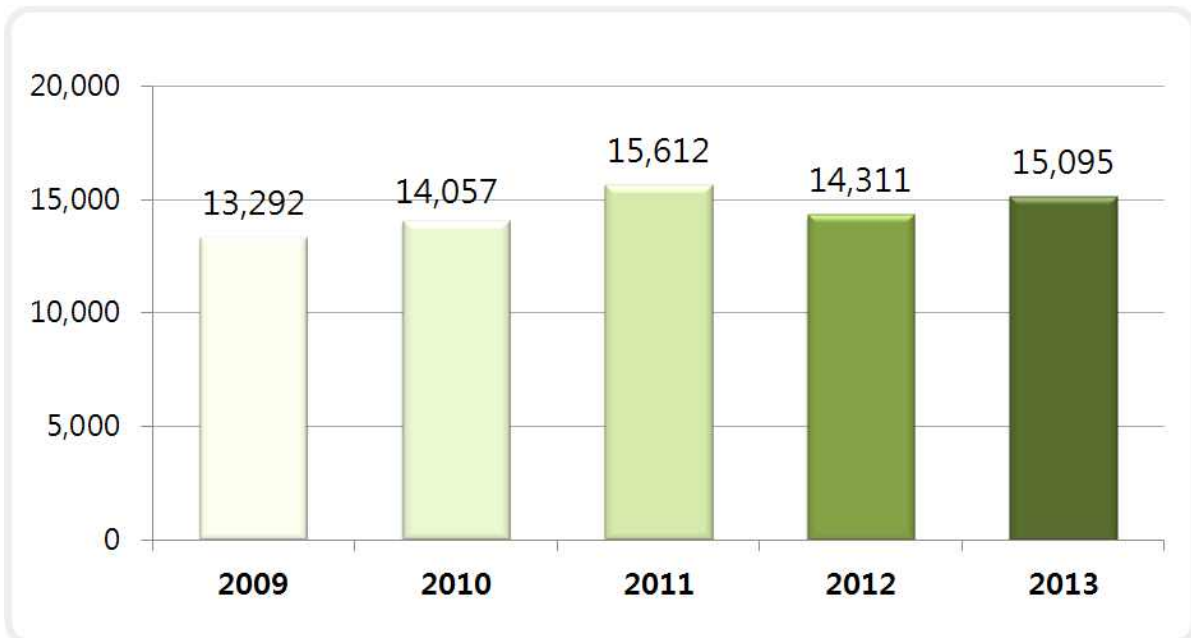
2) 2009~2013 Bioindustry's Trend of Import

- Domestic bioindustry's import decreased in 2012, but increased again in 2013. Its average increase rate of import per year marked 3.2% since 2009.

<Table 2-46> 2009~2013 Bioindustry's Trend of Import (Unit : one hundred million Won, %)

Classification		2009	2010	2011	2012	2013	Annual Average Rate of Change
Import	Amount	13,292	14,057	15,612	14,311	15,095	3.2
	Rate of Change	15.9	5.8	11.1	-8.3	5.5	

<Figure 2-38> 2009~2013 Bioindustry's Trend of Import (Unit : one hundred million Won)



<Table 2-47> 2009~2013 Bioindustry's Trend of Import by Category

(Unit : one hundred million Won, %)

Industrial Category	2009		2010		2011		2012		2013		Variation from the year before		Annual Average Rate of Change
	Amount of Import	Distribution Ratio	Amount of Import	Distribution Ratio	Amount of Import	Distribution Ratio	Amount of Import	Distribution Ratio	Amount of Import	Distribution Ratio	Domestic Sales	Rate of Change	
Total	1,329,247	100.0	1,405,659	100.0	1,561,182	100.0	1,431,097	100.0	1,509,457	100.0	78,360	5.5	3.2
Biopharmaceutical industry	972,097	73.1	1,099,776	78.2	1,230,328	78.8	1,241,893	86.8	1,324,637	87.8	82,743	6.7	8.0
Biochemical industry	111,678	8.4	94,432	6.7	79,718	5.1	68,726	4.8	64,086	4.2	-4,640	-6.8	-13.0
Biofood industry	33,738	2.5	9,383	0.7	33,073	2.1	51,680	3.6	46,638	3.1	-5,041	-9.8	8.4
Bioenvironmental industry	3,988	0.3	676	0.0	239	0.0	230	0.0	226	0.0	-4	-1.7	-51.2
Bioelectronics industry	4,106	0.3	822	0.1	150	0.0	248	0.0	1,471	0.1	1,223	493.3	-22.6
Bioprocess and equipment industry	192,308	14.5	191,672	13.6	205,724	13.2	54,113	3.8	57,026	3.8	2,913	5.4	-26.2
Bioenergy and bioresource industry	10,896	0.8	7,550	0.5	10,436	0.7	12,897	0.9	13,142	0.9	245	1.9	4.8
Bioassay, bioinformatics and R&D service industry	436	0.0	1,346	0.1	1,514	0.1	1,310	0.1	2,231	0.1	921	70.3	50.4



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< Table 1 > General Status of Company
 < Table 1-1 > Distribution by Geography(I -7)

	Total	Seoul	Busan	Daegu	Incheon	Gwangju	Daejeon	Ulsan	Sejong	Gyeonggi	Gangwon	Chungbuk	Chungnam	Jeonbuk	Jeonnam	Gyeongbuk	Gyeongnam	Jeju
Number of companies	971	175	16	25	23	11	79	8	6	319	56	69	54	25	28	36	28	13
■ Sales Situation																		
No sales	295	54	4	10	10	4	22	2	2	112	13	13	17	5	8	7	8	4
Sales below break-even - 1 year	11	-	-	1	-	-	2	-	-	5	1	-	1	-	-	-	1	-
Sales below break-even - 2~3 years	72	10	2	4	2	2	8	-	1	11	8	4	5	2	5	6	2	-
Sales below break-even - 4~5 years	85	18	-	3	-	1	9	-	1	21	5	6	5	6	2	4	3	1
Sales below break-even - 6~9 years	85	15	1	3	1	1	9	1	-	25	8	7	1	2	3	3	4	1
Sales below break-even - 10 or more years	73	9	3	-	-	1	5	-	2	25	6	7	7	2	3	2	-	1
Sales below break-even - Unknown	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Sales above break-even - 1 year	2	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Sales above break-even - 2~3 years	18	2	-	-	2	1	1	-	-	6	1	2	1	-	1	-	1	-
Sales above break-even - 4~5 years	36	7	1	1	3	-	4	-	-	8	2	-	1	-	2	4	1	2
Sales above break-even - 6~9 years	61	3	3	1	2	-	5	2	-	15	3	9	3	2	2	4	4	3
Sales above break-even - 10 or more years	184	38	2	1	2	1	11	2	-	78	6	19	10	5	1	3	4	1
Sales - Unknown	48	18	-	1	1	-	3	-	-	13	3	2	2	1	1	3	-	-
■ Main type of industry																		
Biopharmaceutical industry	317	77	3	8	9	1	18	1	1	135	9	27	15	5	1	2	4	1
Biochemical industry	203	22	3	4	3	2	33	2	4	48	13	13	14	5	11	16	5	5
Biofood industry	199	17	8	5	5	3	5	-	1	50	19	20	19	8	9	11	13	6
Bioenvironmental industry	76	5	1	5	3	2	5	3	-	26	8	4	1	4	2	2	5	-
Bioelectronics industry	26	8	-	1	1	1	3	-	-	5	5	-	1	-	-	1	-	-
Bioprocess and equipment industry	70	20	-	2	1	1	6	-	-	31	1	1	4	-	1	2	-	-
Bioenergy and bioresource industry	27	1	1	-	1	-	3	2	-	9	-	2	-	2	3	1	1	1
Bioassay, bioinformatics and R&D service industry	53	25	-	-	-	1	6	-	-	15	1	2	-	1	1	1	-	-
□ No sales																		
Biopharmaceutical industry	109	26	-	2	5	-	2	-	-	55	1	8	5	2	1	-	1	1
Biochemical industry	44	5	-	1	-	-	13	1	1	10	1	1	3	3	2	1	1	1
Biofood industry	61	6	2	3	2	-	-	-	1	18	6	3	8	-	3	2	5	2
Bioenvironmental industry	25	2	1	3	2	1	2	-	-	7	4	1	-	-	-	2	-	-
Bioelectronics industry	10	5	-	-	-	1	1	-	-	1	1	-	-	-	-	1	-	-
Bioprocess and equipment industry	22	5	-	1	-	1	-	-	-	12	-	-	1	-	1	1	-	-
Bioenergy and bioresource industry	13	1	1	-	1	-	2	1	-	5	-	-	-	-	1	-	1	-
Bioassay, bioinformatics and R&D service industry	11	4	-	-	-	1	2	-	-	4	-	-	-	-	-	-	-	-
□ Sales below break-even - 1 year																		
Biopharmaceutical industry	2	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-
Biochemical industry	3	-	-	-	-	-	1	-	-	1	-	-	1	-	-	-	-	-
Biofood industry	3	-	-	1	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Bioenvironmental industry	2	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-
Bioassay, bioinformatics and R&D service industry	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
□ Sales below break-even - 2~3 years																		
Biopharmaceutical industry	18	6	-	1	-	-	2	-	-	6	1	1	1	-	-	-	-	-
Biochemical industry	25	2	1	1	-	2	3	-	1	3	2	1	2	-	3	4	-	-
Biofood industry	13	-	1	1	1	-	1	-	-	1	4	-	1	-	1	1	1	-
Bioenvironmental industry	4	-	-	-	1	-	-	-	-	-	-	1	-	1	-	-	1	-
Bioelectronics industry	2	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Bioprocess and equipment industry	4	1	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-
Bioenergy and bioresource industry	4	-	-	-	-	-	-	-	-	-	-	1	-	1	1	1	-	-
Bioassay, bioinformatics and R&D service industry	2	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
□ Sales below break-even - 4~5 years																		
Biopharmaceutical industry	20	6	-	1	-	1	1	-	-	8	2	-	1	-	-	-	-	-
Biochemical industry	18	4	-	-	-	-	4	-	1	2	1	2	1	-	-	3	-	-
Biofood industry	17	2	-	-	-	-	-	-	-	5	1	2	2	3	-	1	-	1
Bioenvironmental industry	9	-	-	1	-	-	1	-	-	1	-	1	-	1	1	-	3	-
Bioelectronics industry	4	-	-	-	-	-	1	-	-	1	1	-	1	-	-	-	-	-
Bioprocess and equipment industry	7	3	-	1	-	-	-	-	-	3	-	-	-	-	-	-	-	-
Bioenergy and bioresource industry	3	-	-	-	-	-	1	-	-	-	-	1	-	1	-	-	-	-
Bioassay, bioinformatics and R&D service industry	7	3	-	-	-	-	1	-	-	1	-	-	-	1	1	-	-	-

	Total	Seoul	Busan	Daegu	Incheon	Gwangju	Daejeon	Ulsan	Sejong	Gyeonggi	Gangwon	Chungbuk	Chungnam	Jeonbuk	Jeonnam	Gyeongbuk	Gyeongnam	Jeju
Number of companies	971	175	16	25	23	11	79	8	6	319	56	69	54	25	28	36	28	13
<input type="checkbox"/> Sales below break-even - 6~9 years																		
Biopharmaceutical industry	24	5	-	2	-	-	5	-	-	8	-	4	-	-	-	-	-	-
Biochemical industry	23	2	1	1	-	-	2	-	-	6	3	2	-	-	2	2	2	-
Biofood industry	19	1	-	-	1	1	1	-	-	4	2	1	1	2	1	1	2	1
Bioenvironmental industry	9	1	-	-	-	-	1	1	-	5	1	-	-	-	-	-	-	-
Bioelectronics industry	2	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Bioprocess and equipment industry	3	1	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-
Bioassay, bioinformatics and R&D service industry	5	4	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
<input type="checkbox"/> Sales below break-even -10 or more years																		
Biopharmaceutical industry	27	5	1	-	-	-	1	-	1	11	1	4	2	1	-	-	-	-
Biochemical industry	11	1	1	-	-	-	1	-	1	2	-	1	2	-	1	-	-	1
Biofood industry	21	1	1	-	-	1	1	-	-	5	3	1	3	1	2	2	-	-
Bioenvironmental industry	5	-	-	-	-	-	-	-	-	4	1	-	-	-	-	-	-	-
Bioelectronics industry	2	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-
Bioprocess and equipment industry	3	-	-	-	-	-	1	-	-	2	-	-	-	-	-	-	-	-
Bioassay, bioinformatics and R&D service industry	4	2	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-
<input type="checkbox"/> Sales below break-even - Unknown																		
Biofood industry	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
<input type="checkbox"/> Sales above break-even - 1 year																		
Biopharmaceutical industry	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bioenvironmental industry	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
<input type="checkbox"/> Sales above break-even - 2~3 years																		
Biopharmaceutical industry	5	1	-	-	-	-	-	-	-	2	1	1	-	-	-	-	-	-
Biochemical industry	4	-	-	-	1	-	1	-	-	1	-	1	-	-	-	-	-	-
Biofood industry	4	-	-	-	-	1	-	-	-	1	-	1	-	-	-	-	1	-
Bioelectronics industry	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Bioprocess and equipment industry	2	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-
Bioenergy and bioresource industry	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Bioassay, bioinformatics and R&D service industry	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<input type="checkbox"/> Sales above break-even - 4~5 years																		
Biopharmaceutical industry	11	1	-	1	2	-	1	-	-	6	-	-	-	-	-	-	-	-
Biochemical industry	9	1	-	-	-	-	3	-	-	-	2	-	-	-	-	3	-	-
Biofood industry	8	1	1	-	-	-	-	-	-	1	-	-	1	-	1	1	1	1
Bioenvironmental industry	3	1	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	-
Bioprocess and equipment industry	3	2	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Bioenergy and bioresource industry	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Bioassay, bioinformatics and R&D service industry	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<input type="checkbox"/> Sales above break-even - 6~9 years																		
Biopharmaceutical industry	14	1	-	-	1	-	1	1	-	3	2	1	1	-	-	1	2	-
Biochemical industry	18	-	-	-	1	-	1	-	-	5	-	3	1	-	1	2	1	3
Biofood industry	15	-	3	-	-	-	2	-	-	2	1	5	-	-	1	-	1	-
Bioenvironmental industry	3	-	-	1	-	-	-	-	-	-	-	-	-	2	-	-	-	-
Bioelectronics industry	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bioprocess and equipment industry	5	-	-	-	-	-	1	-	-	3	-	-	1	-	-	-	-	-
Bioenergy and bioresource industry	2	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-
Bioassay, bioinformatics and R&D service industry	3	1	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-
<input type="checkbox"/> Sales above break-even - 10 or more years																		
Biopharmaceutical industry	64	11	2	1	1	-	3	-	-	33	-	7	4	1	-	-	1	-
Biochemical industry	36	7	-	-	-	-	3	1	-	13	2	3	3	2	1	-	1	-
Biofood industry	33	4	-	-	1	-	-	-	-	11	2	6	2	2	-	2	2	1
Bioenvironmental industry	13	-	-	-	-	1	-	1	-	8	1	1	1	-	-	-	-	-
Bioelectronics industry	4	1	-	-	-	-	-	-	-	2	1	-	-	-	-	-	-	-
Bioprocess and equipment industry	17	8	-	-	-	-	2	-	-	5	-	1	-	-	-	1	-	-
Bioenergy and bioresource industry	3	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-
Bioassay, bioinformatics and R&D service industry	14	7	-	-	-	-	3	-	-	3	-	1	-	-	-	-	-	-
<input type="checkbox"/> Sales - Unknown																		
Biopharmaceutical industry	22	14	-	-	-	-	2	-	-	2	-	1	1	1	-	1	-	-
Biochemical industry	12	-	-	1	1	-	1	-	-	5	2	-	-	-	1	1	-	-
Biofood industry	4	2	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-
Bioenvironmental industry	2	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Bioprocess and equipment industry	4	-	-	-	-	-	-	-	-	3	-	-	1	-	-	-	-	-
Bioassay, bioinformatics and R&D service industry	4	1	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-

< Table 1-2 > Existence of other business within the company(Ⅱ-4-1)

(Unit : number of firms)

	Total	Exclusive business	Plural businesses	Unknown
Number of companies	971	514	453	4
<input checked="" type="checkbox"/> Sales Situation				
No sales	295	148	147	-
Sales below break-even - 1 year	11	6	5	-
Sales below break-even - 2~3 years	72	43	29	-
Sales below break-even - 4~5 years	85	55	30	-
Sales below break-even - 6~9 years	85	53	32	-
Sales below break-even - 10 or more years	73	41	32	-
Sales below break-even - Unknown	1	-	1	-
Sales above break-even - 1 year	2	-	2	-
Sales above break-even - 2~3 years	18	12	6	-
Sales above break-even - 4~5 years	36	20	16	-
Sales above break-even - 6~9 years	61	34	27	-
Sales above break-even - 10 or more years	184	76	108	-
Sales - Unknown	48	26	18	4
<input checked="" type="checkbox"/> Main type of industry				
Biopharmaceutical industry	317	143	170	4
Biochemical industry	203	110	93	-
Biofood industry	199	99	100	-
Bioenvironmental industry	76	45	31	-
Bioelectronics industry	26	18	8	-
Bioprocess and equipment industry	70	48	22	-
Bioenergy and bioresource industry	27	13	14	-
Bioassay, bioinformatics and R&D service industry	53	38	15	-
<input type="checkbox"/> No sales				
Biopharmaceutical industry	109	52	57	-
Biochemical industry	44	21	23	-
Biofood industry	61	20	41	-
Bioenvironmental industry	25	17	8	-
Bioelectronics industry	10	8	2	-
Bioprocess and equipment industry	22	14	8	-
Bioenergy and bioresource industry	13	7	6	-
Bioassay, bioinformatics and R&D service industry	11	9	2	-
<input type="checkbox"/> Sales below break-even - 1 year				
Biopharmaceutical industry	2	1	1	-
Biochemical industry	3	2	1	-
Biofood industry	3	2	1	-
Bioenvironmental industry	2	-	2	-
Bioassay, bioinformatics and R&D service industry	1	1	-	-
<input type="checkbox"/> Sales below break-even - 2~3 years				
Biopharmaceutical industry	18	11	7	-
Biochemical industry	25	16	9	-
Biofood industry	13	7	6	-
Bioenvironmental industry	4	2	2	-
Bioelectronics industry	2	1	1	-
Bioprocess and equipment industry	4	2	2	-
Bioenergy and bioresource industry	4	3	1	-
Bioassay, bioinformatics and R&D service industry	2	1	1	-
<input type="checkbox"/> Sales below break-even - 4~5 years				
Biopharmaceutical industry	20	12	8	-
Biochemical industry	18	13	5	-
Biofood industry	17	11	6	-
Bioenvironmental industry	9	5	4	-
Bioelectronics industry	4	3	1	-
Bioprocess and equipment industry	7	6	1	-
Bioenergy and bioresource industry	3	2	1	-
Bioassay, bioinformatics and R&D service industry	7	3	4	-

	Total	Exclusive business	Plural businesses	Unknown
Number of companies	971	514	453	4
<input type="checkbox"/> Sales below break-even - 6~9 years				
Biopharmaceutical industry	24	15	9	-
Biochemical industry	23	10	13	-
Biofood industry	19	16	3	-
Bioenvironmental industry	9	6	3	-
Bioelectronics industry	2	1	1	-
Bioprocess and equipment industry	3	1	2	-
Bioassay, bioinformatics and R&D service industry	5	4	1	-
<input type="checkbox"/> Sales below break-even - 10 or more years				
Biopharmaceutical industry	27	7	20	-
Biochemical industry	11	8	3	-
Biofood industry	21	13	8	-
Bioenvironmental industry	5	4	1	-
Bioelectronics industry	2	2	-	-
Bioprocess and equipment industry	3	3	-	-
Bioassay, bioinformatics and R&D service industry	4	4	-	-
<input type="checkbox"/> Sales below break-even - Unknown				
Biofood industry	1	-	1	-
<input type="checkbox"/> Sales above break-even - 1 year				
Biopharmaceutical industry	1	-	1	-
Bioenvironmental industry	1	-	1	-
<input type="checkbox"/> Sales above break-even - 2~3 years				
Biopharmaceutical industry	5	2	3	-
Biochemical industry	4	3	1	-
Biofood industry	4	3	1	-
Bioelectronics industry	1	1	-	-
Bioprocess and equipment industry	2	2	-	-
Bioenergy and bioresource industry	1	-	1	-
Bioassay, bioinformatics and R&D service industry	1	1	-	-
<input type="checkbox"/> Sales above break-even - 4~5 years				
Biopharmaceutical industry	11	3	8	-
Biochemical industry	9	6	3	-
Biofood industry	8	4	4	-
Bioenvironmental industry	3	2	1	-
Bioprocess and equipment industry	3	3	-	-
Bioenergy and bioresource industry	1	1	-	-
Bioassay, bioinformatics and R&D service industry	1	1	-	-
<input type="checkbox"/> Sales above break-even - 6~9 years				
Biopharmaceutical industry	14	8	6	-
Biochemical industry	18	8	10	-
Biofood industry	15	9	6	-
Bioenvironmental industry	3	1	2	-
Bioelectronics industry	1	1	-	-
Bioprocess and equipment industry	5	4	1	-
Bioenergy and bioresource industry	2	-	2	-
Bioassay, bioinformatics and R&D service industry	3	3	-	-
<input type="checkbox"/> Sales above break-even - 10 or more years				
Biopharmaceutical industry	64	21	43	-
Biochemical industry	36	17	19	-
Biofood industry	33	11	22	-
Bioenvironmental industry	13	6	7	-
Bioelectronics industry	4	1	3	-
Bioprocess and equipment industry	17	12	5	-
Bioenergy and bioresource industry	3	-	3	-
Bioassay, bioinformatics and R&D service industry	14	8	6	-
<input type="checkbox"/> Sales - Unknown				
Biopharmaceutical industry	22	11	7	4
Biochemical industry	12	6	6	-
Biofood industry	4	3	1	-
Bioenvironmental industry	2	2	-	-
Bioprocess and equipment industry	4	1	3	-
Bioassay, bioinformatics and R&D service industry	4	3	1	-

<Table 1-3 > Distribution by Type of Company[Duplication](II-4-2)

(Unit : number of firms)

	Total	Venture companies	INNO-BIZ	Kosdaq-listed companies	Listed companies	Not applicable/Unknown
Number of companies	971	317	324	86	87	413
■ Sales Situation						
No sales	295	80	74	22	35	139
Sales below break-even - 1 year	11	4	4	-	1	5
Sales below break-even - 2~3 years	72	27	17	4	3	36
Sales below break-even - 4~5 years	85	34	34	5	3	36
Sales below break-even - 6~9 years	85	40	38	7	5	25
Sales below break-even - 10 or more years	73	21	28	11	6	27
Sales below break-even - Unknown	1	1	1	-	-	-
Sales above break-even - 1 year	2	-	-	-	-	2
Sales above break-even - 2~3 years	18	7	3	-	1	10
Sales above break-even - 4~5 years	36	15	11	4	1	15
Sales above break-even - 6~9 years	61	27	32	5	7	15
Sales above break-even - 10 or more years	184	52	69	24	19	78
Sales - Unknown	48	9	13	4	6	25
■ Main type of industry						
Biopharmaceutical industry	317	83	81	46	43	139
Biochemical industry	203	74	76	13	21	80
Biofood industry	199	60	70	10	18	83
Bioenvironmental industry	76	25	34	1	1	37
Bioelectronics industry	26	15	9	3	-	9
Bioprocess and equipment industry	70	24	29	6	1	33
Bioenergy and bioresource industry	27	8	6	2	3	13
Bioassay, bioinformatics and R&D service industry	53	28	19	5	-	19
□ No sales						
Biopharmaceutical industry	109	24	18	13	15	54
Biochemical industry	44	15	17	1	7	16
Biofood industry	61	10	12	5	11	30
Bioenvironmental industry	25	9	12	-	-	12
Bioelectronics industry	10	3	2	-	-	6
Bioprocess and equipment industry	22	8	9	2	-	11
Bioenergy and bioresource industry	13	3	3	-	2	7
Bioassay, bioinformatics and R&D service industry	11	8	1	1	-	3
□ Sales below break-even - 1 year						
Biopharmaceutical industry	2	1	1	-	-	1
Biochemical industry	3	1	-	-	1	1
Biofood industry	3	1	2	-	-	1
Bioenvironmental industry	2	1	1	-	-	1
Bioassay, bioinformatics and R&D service industry	1	-	-	-	-	1
□ Sales below break-even - 2~3 years						
Biopharmaceutical industry	18	8	7	2	2	6
Biochemical industry	25	8	4	2	1	14
Biofood industry	13	5	3	-	-	7
Bioenvironmental industry	4	1	2	-	-	2
Bioelectronics industry	2	1	-	-	-	1
Bioprocess and equipment industry	4	1	1	-	-	3
Bioenergy and bioresource industry	4	1	-	-	-	3
Bioassay, bioinformatics and R&D service industry	2	2	-	-	-	-
□ Sales below break-even - 4~5 years						
Biopharmaceutical industry	20	9	7	3	2	7
Biochemical industry	18	4	6	1	1	10
Biofood industry	17	7	7	-	-	8
Bioenvironmental industry	9	5	5	-	-	3
Bioelectronics industry	4	2	1	1	-	2
Bioprocess and equipment industry	7	4	3	-	-	2
Bioenergy and bioresource industry	3	2	2	-	-	1
Bioassay, bioinformatics and R&D service industry	7	1	3	-	-	3

	Total	Venture companies	INNO-BIZ	Kosdaq-listed companies	Listed companies	Not applicable/Unknown
Number of companies	971	317	324	86	87	413
<input type="checkbox"/> Sales below break-even - 6~9 years						
Biopharmaceutical industry	24	12	8	2	2	7
Biochemical industry	23	15	13	3	2	3
Biofood industry	19	5	6	-	1	8
Bioenvironmental industry	9	2	5	1	-	4
Bioelectronics industry	2	2	2	-	-	-
Bioprocess and equipment industry	3	1	2	1	-	1
Bioassay, bioinformatics and R&D service industry	5	3	2	-	-	2
<input type="checkbox"/> Sales below break-even - 10 or more years						
Biopharmaceutical industry	27	8	10	8	4	7
Biochemical industry	11	3	4	1	1	4
Biofood industry	21	8	12	2	1	5
Bioenvironmental industry	5	-	-	-	-	5
Bioelectronics industry	2	2	1	-	-	-
Bioprocess and equipment industry	3	-	1	-	-	2
Bioassay, bioinformatics and R&D service industry	4	-	-	-	-	4
<input type="checkbox"/> Sales below break-even - Unknown						
Biofood industry	1	1	1	-	-	-
<input type="checkbox"/> Sales above break-even - 1 year						
Biopharmaceutical industry	1	-	-	-	-	1
Bioenvironmental industry	1	-	-	-	-	1
<input type="checkbox"/> Sales above break-even - 2~3 years						
Biopharmaceutical industry	5	1	1	-	1	3
Biochemical industry	4	1	1	-	-	3
Biofood industry	4	2	1	-	-	2
Bioelectronics industry	1	1	-	-	-	-
Bioprocess and equipment industry	2	1	-	-	-	1
Bioenergy and bioresource industry	1	1	-	-	-	-
Bioassay, bioinformatics and R&D service industry	1	-	-	-	-	1
<input type="checkbox"/> Sales above break-even - 4~5 years						
Biopharmaceutical industry	11	4	3	3	-	4
Biochemical industry	9	4	3	-	-	4
Biofood industry	8	4	3	-	1	2
Bioenvironmental industry	3	2	1	-	-	1
Bioprocess and equipment industry	3	1	1	1	-	2
Bioenergy and bioresource industry	1	-	-	-	-	1
Bioassay, bioinformatics and R&D service industry	1	-	-	-	-	1
<input type="checkbox"/> Sales above break-even - 6~9 years						
Biopharmaceutical industry	14	5	5	3	2	5
Biochemical industry	18	7	10	1	3	4
Biofood industry	15	8	12	-	-	3
Bioenvironmental industry	3	1	1	-	1	-
Bioelectronics industry	1	1	-	-	-	-
Bioprocess and equipment industry	5	3	2	-	-	2
Bioenergy and bioresource industry	2	-	-	1	1	-
Bioassay, bioinformatics and R&D service industry	3	2	2	-	-	1
<input type="checkbox"/> Sales above break-even - 10 or more years						
Biopharmaceutical industry	64	8	15	9	14	32
Biochemical industry	36	15	16	4	1	15
Biofood industry	33	9	11	3	4	13
Bioenvironmental industry	13	4	7	-	-	6
Bioelectronics industry	4	3	3	2	-	-
Bioprocess and equipment industry	17	3	8	2	-	8
Bioenergy and bioresource industry	3	1	1	1	-	1
Bioassay, bioinformatics and R&D service industry	14	9	8	3	-	3
<input type="checkbox"/> Sales - Unknown						
Biopharmaceutical industry	22	3	6	3	1	12
Biochemical industry	12	1	2	-	4	6
Biofood industry	4	-	-	-	-	4
Bioenvironmental industry	2	-	-	-	-	2
Bioprocess and equipment industry	4	2	2	-	1	1
Bioassay, bioinformatics and R&D service industry	4	3	3	1	-	-

< Table 1-4 > Distribution by Establishment Year (Unit : number of firms)

	Total	Before 1950	1951~1980	1981~1990	1991~1995	1996~2000	2001~2005	2006~2010	2011~2013	Unknown
Number of companies	971	13	140	106	80	272	216	114	24	6
<input checked="" type="checkbox"/> Sales Situation										
No sales	295	5	55	42	24	60	63	37	8	1
Sales below break-even - 1 year	11	-	2	1	1	2	-	4	1	-
Sales below break-even - 2~3 years	72	1	4	6	4	18	16	18	5	-
Sales below break-even - 4~5 years	85	-	3	6	1	35	25	12	3	-
Sales below break-even - 6~9 years	85	-	7	3	6	29	32	8	-	-
Sales below break-even - 10 or more years	73	1	10	11	8	28	13	1	1	-
Sales below break-even - Unknown	1	-	-	-	-	1	-	-	-	-
Sales above break-even - 1 year	2	-	1	-	-	-	-	-	1	-
Sales above break-even - 2~3 years	18	1	-	-	-	8	3	5	1	-
Sales above break-even - 4~5 years	36	-	4	2	-	8	10	12	-	-
Sales above break-even - 6~9 years	61	2	6	2	3	16	25	6	1	-
Sales above break-even - 10 or more years	184	2	41	31	25	55	24	3	3	-
Sales - Unknown	48	1	7	2	8	12	5	8	-	5
<input checked="" type="checkbox"/> Main type of industry										
Biopharmaceutical industry	317	10	65	50	31	77	49	26	7	2
Biochemical industry	203	2	25	15	10	62	45	35	7	2
Biofood industry	199	1	35	20	13	60	54	14	2	-
Bioenvironmental industry	76	-	9	9	6	19	28	4	-	1
Bioelectronics industry	26	-	-	1	2	11	7	4	1	-
Bioprocess and equipment industry	70	-	1	8	16	18	12	12	3	-
Bioenergy and bioresource industry	27	-	5	2	1	4	5	7	3	-
Bioassay, bioinformatics and R&D service industry	53	-	-	1	1	21	16	12	1	1
<input type="checkbox"/> No sales										
Biopharmaceutical industry	109	4	23	21	10	23	18	8	2	-
Biochemical industry	44	1	9	4	3	11	6	9	1	-
Biofood industry	61	-	18	9	5	9	17	3	-	-
Bioenvironmental industry	25	-	2	4	-	5	11	3	-	-
Bioelectronics industry	10	-	-	1	-	3	5	-	1	-
Bioprocess and equipment industry	22	-	-	1	6	5	3	5	2	-
Bioenergy and bioresource industry	13	-	3	1	-	1	2	5	1	-
Bioassay, bioinformatics and R&D service industry	11	-	-	1	-	3	1	4	1	1
<input type="checkbox"/> Sales below break-even - 1 year										
Biopharmaceutical industry	2	-	-	-	-	1	-	1	-	-
Biochemical industry	3	-	1	-	-	-	-	1	1	-
Biofood industry	3	-	1	1	-	1	-	-	-	-
Bioenvironmental industry	2	-	-	-	1	-	-	1	-	-
Bioassay, bioinformatics and R&D service industry	1	-	-	-	-	-	-	1	-	-
<input type="checkbox"/> Sales below break-even - 2~3 years										
Biopharmaceutical industry	18	-	3	3	1	7	2	2	-	-
Biochemical industry	25	1	-	2	-	7	5	7	3	-
Biofood industry	13	-	1	1	1	1	3	5	1	-
Bioenvironmental industry	4	-	-	-	-	1	3	-	-	-
Bioelectronics industry	2	-	-	-	1	-	-	1	-	-
Bioprocess and equipment industry	4	-	-	-	-	1	2	1	-	-
Bioenergy and bioresource industry	4	-	-	-	1	-	1	1	1	-
Bioassay, bioinformatics and R&D service industry	2	-	-	-	-	1	-	1	-	-
<input type="checkbox"/> Sales below break-even - 4~5 years										
Biopharmaceutical industry	20	-	1	1	-	9	4	4	1	-
Biochemical industry	18	-	1	2	1	6	5	2	1	-
Biofood industry	17	-	1	1	-	11	3	1	-	-
Bioenvironmental industry	9	-	-	1	-	3	5	-	-	-
Bioelectronics industry	4	-	-	-	-	2	1	1	-	-
Bioprocess and equipment industry	7	-	-	1	-	3	-	2	1	-
Bioenergy and bioresource industry	3	-	-	-	-	1	2	-	-	-
Bioassay, bioinformatics and R&D service industry	7	-	-	-	-	-	5	2	-	-

	Total	Before 1950	1951~1980	1981~1990	1991~1995	1996~2000	2001~2005	2006~2010	2011~2013	Unknown
Number of companies	971	13	140	106	80	272	216	114	24	6
<input type="checkbox"/> Sales below break-even - 6~9 years										
Biopharmaceutical industry	24	-	4	1	2	8	6	3	-	-
Biochemical industry	23	-	-	-	-	10	9	4	-	-
Biofood industry	19	-	1	1	1	7	9	-	-	-
Bioenvironmental industry	9	-	2	-	2	1	4	-	-	-
Bioelectronics industry	2	-	-	-	-	1	1	-	-	-
Bioprocess and equipment industry	3	-	-	1	1	-	1	-	-	-
Bioassay, bioinformatics and R&D service industry	5	-	-	-	-	2	2	1	-	-
<input type="checkbox"/> Sales below break-even - 10 or more years										
Biopharmaceutical industry	27	1	5	6	3	8	3	-	1	-
Biochemical industry	11	-	2	-	1	6	2	-	-	-
Biofood industry	21	-	3	3	2	7	6	-	-	-
Bioenvironmental industry	5	-	-	2	-	3	-	-	-	-
Bioelectronics industry	2	-	-	-	-	2	-	-	-	-
Bioprocess and equipment industry	3	-	-	-	2	1	-	-	-	-
Bioassay, bioinformatics and R&D service industry	4	-	-	-	-	1	2	1	-	-
<input type="checkbox"/> Sales below break-even - Unknown										
Biofood industry	1	-	-	-	-	1	-	-	-	-
<input type="checkbox"/> Sales above break-even - 1 year										
Biopharmaceutical industry	1	-	-	-	-	-	-	-	1	-
Bioenvironmental industry	1	-	1	-	-	-	-	-	-	-
<input type="checkbox"/> Sales above break-even - 2~3 years										
Biopharmaceutical industry	5	1	-	-	-	1	2	1	-	-
Biochemical industry	4	-	-	-	-	3	-	1	-	-
Biofood industry	4	-	-	-	-	3	1	-	-	-
Bioelectronics industry	1	-	-	-	-	-	-	1	-	-
Bioprocess and equipment industry	2	-	-	-	-	1	-	1	-	-
Bioenergy and bioresource industry	1	-	-	-	-	-	-	-	1	-
Bioassay, bioinformatics and R&D service industry	1	-	-	-	-	-	-	1	-	-
<input type="checkbox"/> Sales above break-even - 4~5 years										
Biopharmaceutical industry	11	-	3	1	-	3	1	3	-	-
Biochemical industry	9	-	1	-	-	-	3	5	-	-
Biofood industry	8	-	-	1	-	1	3	3	-	-
Bioenvironmental industry	3	-	-	-	-	1	2	-	-	-
Bioprocess and equipment industry	3	-	-	-	-	2	1	-	-	-
Bioenergy and bioresource industry	1	-	-	-	-	1	-	-	-	-
Bioassay, bioinformatics and R&D service industry	1	-	-	-	-	-	-	1	-	-
<input type="checkbox"/> Sales above break-even - 6~9 years										
Biopharmaceutical industry	14	1	1	1	1	6	4	-	-	-
Biochemical industry	18	-	3	-	1	2	10	2	-	-
Biofood industry	15	1	-	-	-	5	7	1	1	-
Bioenvironmental industry	3	-	1	1	-	-	1	-	-	-
Bioelectronics industry	1	-	-	-	-	-	-	1	-	-
Bioprocess and equipment industry	5	-	-	-	1	1	2	1	-	-
Bioenergy and bioresource industry	2	-	1	-	-	-	-	1	-	-
Bioassay, bioinformatics and R&D service industry	3	-	-	-	-	2	1	-	-	-
<input type="checkbox"/> Sales above break-even - 10 or more years										
Biopharmaceutical industry	64	2	23	14	9	7	6	1	2	-
Biochemical industry	36	-	4	7	4	15	4	1	1	-
Biofood industry	33	-	10	3	4	10	5	1	-	-
Bioenvironmental industry	13	-	3	1	2	5	2	-	-	-
Bioelectronics industry	4	-	-	-	1	3	-	-	-	-
Bioprocess and equipment industry	17	-	-	5	5	4	3	-	-	-
Bioenergy and bioresource industry	3	-	1	1	-	1	-	-	-	-
Bioassay, bioinformatics and R&D service industry	14	-	-	-	-	10	4	-	-	-
<input type="checkbox"/> Sales - Unknown										
Biopharmaceutical industry	22	1	2	2	5	4	3	3	-	2
Biochemical industry	12	-	4	-	-	2	1	3	-	2
Biofood industry	4	-	-	-	-	4	-	-	-	-
Bioenvironmental industry	2	-	-	-	1	-	-	-	-	1
Bioprocess and equipment industry	4	-	1	-	1	-	-	2	-	-
Bioassay, bioinformatics and R&D service industry	4	-	-	-	1	2	1	-	-	-

< Table 1-5 > Distribution by total number of workers' size(II-3) (Unit : number of firms, people)

	Total	Less than 50	50~299	300~999	More than 1,000	Un-known	Average	CEO's gender			Employees' gender		
								Male	Female	Unknown	Male	Female	Unknown
Number of companies	971	575	254	77	45	20	367	863	77	31	254,496	74,422	20,048
■ Sales Situation													
No sales	295	150	83	34	19	9	305	264	18	13	57,374	19,680	10,049
Sales below break-even - 1 year	11	7	3	-	1	-	267	10	1	-	2,574	365	0
Sales below break-even - 2~3 years	72	55	14	2	1	-	89	60	11	1	4,683	1,479	261
Sales below break-even - 4~5 years	85	70	13	1	1	-	70	77	7	1	4,240	1,230	518
Sales below break-even - 6~9 years	85	69	11	3	2	-	156	77	7	1	8,279	4,718	302
Sales below break-even - 10 or more years	73	47	19	5	1	1	99	68	5	-	4,824	2,229	48
Sales below break-even - Unknown	1	1	-	-	-	-	43	1	-	-	-	-	43
Sales above break-even - 1 year	2	1	1	-	-	-	64	2	-	-	43	4	80
Sales above break-even - 2~3 years	18	14	4	-	-	-	41	15	3	-	508	227	-
Sales above break-even - 4~5 years	36	29	5	1	1	-	74	29	6	1	1,893	722	31
Sales above break-even - 6~9 years	61	39	15	3	4	-	1,172	56	5	-	65,277	4,676	1,558
Sales above break-even - 10 or more years	184	71	77	24	12	-	256	171	13	-	29,115	11,925	6,110
Sales - Unknown	48	22	9	4	3	10	2,734	33	1	14	75,686	27,167	1,048
■ Main type of industry													
Biopharmaceutical industry	317	119	127	49	14	8	223	285	20	12	43,650	15,777	9,551
Biochemical industry	203	145	33	7	15	3	1,068	177	18	8	172,063	38,145	3,467
Biofood industry	199	127	41	14	14	3	256	179	17	3	28,481	16,082	5,666
Bioenvironmental industry	76	57	14	1	1	3	60	70	5	1	3,088	834	474
Bioelectronics industry	26	18	5	3	-	-	101	21	4	1	1,467	1,011	152
Bioprocess and equipment industry	70	52	15	2	-	1	56	60	5	5	2,497	798	536
Bioenergy and bioresource industry	27	19	5	1	1	1	107	23	3	1	2,182	500	105
Bioassay, bioinformatics and R&D service industry	53	38	14	-	-	1	47	48	5	-	1,068	1,275	97
□ No sales													
Biopharmaceutical industry	109	42	44	20	2	1	213	101	6	2	14,427	4,765	3,828
Biochemical industry	44	27	7	4	5	1	618	41	2	1	22,494	2,981	1,087
Biofood industry	61	22	17	9	11	2	552	55	3	3	17,317	10,827	4,429
Bioenvironmental industry	25	17	6	-	-	2	31	23	1	1	392	114	209
Bioelectronics industry	10	7	2	1	-	-	122	6	3	1	561	503	152
Bioprocess and equipment industry	22	17	4	-	-	1	36	17	1	4	357	154	243
Bioenergy and bioresource industry	13	9	2	-	1	1	158	10	2	1	1,617	207	66
Bioassay, bioinformatics and R&D service industry	11	9	1	-	-	1	37	11	-	-	209	129	35
□ Sales below break-even - 1 year													
Biopharmaceutical industry	2	2	-	-	-	-	14	1	1	-	15	13	-
Biochemical industry	3	2	-	-	1	-	834	3	-	-	2,291	212	-
Biofood industry	3	2	1	-	-	-	70	3	-	-	135	76	-
Bioenvironmental industry	2	1	1	-	-	-	39	2	-	-	62	15	-
Bioassay, bioinformatics and R&D service industry	1	-	1	-	-	-	120	1	-	-	71	49	-
□ Sales below break-even - 2~3 years													
Biopharmaceutical industry	18	8	9	-	1	-	225	16	2	-	3,285	767	-
Biochemical industry	25	21	2	2	-	-	59	20	4	1	775	466	234
Biofood industry	13	11	2	-	-	-	32	12	1	-	328	76	8
Bioenvironmental industry	4	4	-	-	-	-	18	2	2	-	35	37	-
Bioelectronics industry	2	2	-	-	-	-	34	2	-	-	41	27	-
Bioprocess and equipment industry	4	4	-	-	-	-	22	3	1	-	61	27	-
Bioenergy and bioresource industry	4	3	1	-	-	-	51	4	-	-	138	66	-
Bioassay, bioinformatics and R&D service industry	2	2	-	-	-	-	26	1	1	-	20	13	19
□ Sales below break-even - 4~5 years													
Biopharmaceutical industry	20	13	7	-	-	-	49	17	2	1	431	377	178
Biochemical industry	18	14	3	-	1	-	181	17	1	-	2,826	376	60
Biofood industry	17	16	-	1	-	-	49	15	2	-	481	301	52
Bioenvironmental industry	9	8	1	-	-	-	24	9	-	-	69	23	128
Bioelectronics industry	4	2	2	-	-	-	100	3	1	-	313	88	-
Bioprocess and equipment industry	7	7	-	-	-	-	15	7	-	-	43	13	52
ioenergy and bioresource industry	3	3	-	-	-	-	25	2	1	-	23	18	33
Bioassay, bioinformatics and R&D service industry	7	7	-	-	-	-	15	7	-	-	54	34	15

	Total	Less than 50	50~299	300~999	More than 1,000	Unknown	Average	CEO's gender			Employees' gender		
								Male	Female	Unknown	Male	Female	Unknown
Number of companies	971	575	254	77	45	20	367	863	77	31	254,496	74,422	20,048
<input type="checkbox"/> Sales below break-even - 6~9 years													
Biopharmaceutical industry	24	16	5	3	-	-	115	22	2	-	1,889	682	200
Biochemical industry	23	20	1	-	2	-	406	21	1	1	5,520	3,777	46
Biofood industry	19	18	1	-	-	-	23	17	2	-	331	84	27
Bioenvironmental industry	9	7	2	-	-	-	50	9	-	-	366	63	25
Bioelectronics industry	2	2	-	-	-	-	10	2	-	-	14	5	-
Bioprocess and equipment industry	3	2	1	-	-	-	57	3	-	-	110	61	-
Bioassay, bioinformatics and R&D service industry	5	4	1	-	-	-	20	3	2	-	49	46	4
<input type="checkbox"/> Sales below break-even - 10 or more years													
Biopharmaceutical industry	27	10	10	5	1	1	216	25	2	-	3,847	1,720	48
Biochemical industry	11	9	2	-	-	-	28	11	-	-	209	100	-
Biofood industry	21	15	6	-	-	-	43	18	3	-	651	244	-
Bioenvironmental industry	5	5	-	-	-	-	8	5	-	-	29	9	-
Bioelectronics industry	2	2	-	-	-	-	11	2	-	-	13	8	-
Bioprocess and equipment industry	3	3	-	-	-	-	10	3	-	-	21	8	-
Bioassay, bioinformatics and R&D service industry	4	3	1	-	-	-	49	4	-	-	54	140	-
<input type="checkbox"/> Sales below break-even - Unknown													
Biofood industry	1	1	-	-	-	-	43	1	-	-	-	-	43
<input type="checkbox"/> Sales above break-even - 1 year													
Biopharmaceutical industry	1	-	1	-	-	-	80	1	-	-	-	-	80
Bioenvironmental industry	1	1	-	-	-	-	47	1	-	-	43	4	-
<input type="checkbox"/> Sales above break-even - 2~3 years													
Biopharmaceutical industry	5	2	3	-	-	-	104	5	-	-	335	184	-
Biochemical industry	4	3	1	-	-	-	28	4	-	-	94	16	-
Biofood industry	4	4	-	-	-	-	10	2	2	-	28	13	-
Bioelectronics industry	1	1	-	-	-	-	7	1	-	-	4	3	-
Bioprocess and equipment industry	2	2	-	-	-	-	17	2	-	-	26	7	-
Bioenergy and bioresource industry	1	1	-	-	-	-	23	1	-	-	21	2	-
Bioassay, bioinformatics and R&D service industry	1	1	-	-	-	-	2	-	1	-	-	2	-
<input type="checkbox"/> Sales above break-even - 4~5 years													
Biopharmaceutical industry	11	7	3	1	-	-	81	9	2	-	565	323	-
Biochemical industry	9	8	-	-	1	-	135	6	3	-	1,017	198	-
Biofood industry	8	7	1	-	-	-	45	8	-	-	229	132	-
Bioenvironmental industry	3	3	-	-	-	-	11	2	1	-	27	7	-
Bioprocess and equipment industry	3	2	1	-	-	-	34	2	-	1	43	34	25
Bioenergy and bioresource industry	1	1	-	-	-	-	6	1	-	-	-	-	6
Bioassay, bioinformatics and R&D service industry	1	1	-	-	-	-	40	1	-	-	12	28	-
<input type="checkbox"/> Sales above break-even - 6~9 years													
Biopharmaceutical industry	14	4	6	2	2	-	358	14	-	-	3,500	1,510	-
Biochemical industry	18	13	3	-	2	-	3,630	14	4	-	60,983	2,827	1,532
Biofood industry	15	13	2	-	-	-	21	14	1	-	183	128	6
Bioenvironmental industry	3	2	-	1	-	-	115	3	-	-	300	46	-
Bioelectronics industry	1	1	-	-	-	-	7	1	-	-	4	3	-
Bioprocess and equipment industry	5	3	2	-	-	-	47	5	-	-	136	80	20
Bioenergy and bioresource industry	2	1	1	-	-	-	44	2	-	-	67	20	-
Bioassay, bioinformatics and R&D service industry	3	2	1	-	-	-	55	3	-	-	104	62	-
<input type="checkbox"/> Sales above break-even - 10 or more years													
Biopharmaceutical industry	64	8	33	15	8	-	378	61	3	-	14,527	5,110	4,554
Biochemical industry	36	23	12	1	-	-	66	33	3	-	1,626	534	222
Biofood industry	33	15	11	4	3	-	427	30	3	-	8,797	4,201	1,090
Bioenvironmental industry	13	8	4	-	1	-	183	13	-	-	1,757	512	112
Bioelectronics industry	4	1	1	2	-	-	223	4	-	-	517	374	-
Bioprocess and equipment industry	17	9	7	1	-	-	91	14	3	-	1,141	274	132
Bioenergy and bioresource industry	3	1	1	1	-	-	168	3	-	-	316	187	-
Bioassay, bioinformatics and R&D service industry	14	6	8	-	-	-	83	13	1	-	434	733	-
<input type="checkbox"/> Sales - Unknown													
Biopharmaceutical industry	22	7	6	3	-	6	114	13	-	9	829	326	663
Biochemical industry	12	5	2	-	3	2	10,117	7	-	5	74,228	26,658	286
Biofood industry	4	3	-	-	-	1	4	4	-	-	1	-	11
Bioenvironmental industry	2	1	-	-	-	1	12	1	1	-	8	4	-
Bioprocess and equipment industry	4	3	-	1	-	-	191	4	-	-	559	140	64
Bioassay, bioinformatics and R&D service industry	4	3	1	-	-	-	31	4	-	-	61	39	24

< Table 1-6 > Size of Capital(II-1) (Unit : number of firms, million Won)

	Total	Capital		
		Number of respondent companies	Sum	Average
Number of companies	971	819	12,369,652	15,103
<input checked="" type="checkbox"/> Sales Situation				
No sales	295	245	4,162,707	16,991
Sales below break-even - 1 year	11	10	179,168	17,917
Sales below break-even - 2~3 years	72	58	837,027	14,432
Sales below break-even - 4~5 years	85	72	286,510	3,979
Sales below break-even - 6~9 years	85	72	416,647	5,787
Sales below break-even - 10 or more years	73	62	290,140	4,680
Sales below break-even - Unknown	1	1	1,680	1,680
Sales above break-even - 1 year	2	2	21,092	10,546
Sales above break-even - 2~3 years	18	13	20,098	1,546
Sales above break-even - 4~5 years	36	29	208,865	7,202
Sales above break-even - 6~9 years	61	54	2,365,825	43,812
Sales above break-even - 10 or more years	184	173	2,083,362	12,043
Sales - Unknown	48	28	1,496,531	53,448
<input checked="" type="checkbox"/> Main type of industry				
Biopharmaceutical industry	317	282	4,063,856	14,411
Biochemical industry	203	165	5,838,041	35,382
Biofood industry	199	156	1,847,822	11,845
Bioenvironmental industry	76	67	89,556	1,337
Bioelectronics industry	26	20	42,707	2,135
Bioprocess and equipment industry	70	61	140,867	2,309
Bioenergy and bioresource industry	27	25	271,672	10,867
Bioassay, bioinformatics and R&D service industry	53	43	75,130	1,747
<input checked="" type="checkbox"/> Number of employees				
Less than 50	571	453	643,679	1,421
50~299	252	236	2,163,806	9,169
300~999	77	74	1,440,649	19,468
More than 1,000	45	45	8,070,855	179,352
Unknown	26	11	50,663	4,606
<input type="checkbox"/> Sales situation - No sales				
Biopharmaceutical industry				
Less than 50	42	33	85,359	2,587
50~299	44	39	676,264	17,340
300~999	20	20	411,261	20,563
More than 1,000	2	2	290,718	145,359
Unknown	1	-	-	-
Biochemical industry				
Less than 50	27	19	41,568	2,188
50~299	7	7	38,588	5,513
300~999	4	4	99,954	24,989
More than 1,000	5	5	1,277,070	255,414
Unknown	1	-	-	-
Biofood industry				
Less than 50	22	14	9,316	665
50~299	17	12	49,629	4,136
300~999	9	8	126,978	15,872
More than 1,000	11	11	748,732	68,067
Unknown	2	1	750	750
Bioenvironmental industry				
Less than 50	17	14	12,301	879
50~299	6	6	15,190	2,532
Unknown	2	2	1,006	503
Bioelectronics industry				
Less than 50	7	4	10,771	2,693
50~299	2	1	6,958	6,958
300~999	1	1	200	200
Bioprocess and equipment industry				
Less than 50	17	16	11,325	708
50~299	4	4	40,741	10,185
Unknown	1	-	-	-
Bioenergy and bioresource industry				
Less than 50	8	7	3,250	464
50~299	2	2	20,220	10,110
More than 1,000	1	1	167,456	167,456
Unknown	2	2	600	300
Bioassay, bioinformatics and R&D service industry				
Less than 50	9	8	2,561	320
50~299	1	1	13,888	13,888
Unknown	1	1	53	53
<input type="checkbox"/> Sales below break-even - 1 year				
Biopharmaceutical industry				
Less than 50	2	2	1,025	513

		Total	Capital		
			Number of respondent companies	Sum	Average
Number of companies		971	819	12,369,652	15,103
Biochemical industry	Less than 50	2	1	55	55
	More than 1,000	1	1	171,377	171,377
Biofood industry	Less than 50	2	2	2,340	1,170
	50~299	1	1	900	900
Bioenvironmental industry	Less than 50	1	1	50	50
	50~299	1	1	2,521	2,521
Bioassay, bioinformatics and R&D service industry	50~299	1	1	900	900
<input type="checkbox"/> Sales below break-even - 2~3 years					
Biopharmaceutical industry	Less than 50	8	6	14,125	2,354
	50~299	9	8	29,693	3,712
	More than 1,000	1	1	707,036	707,036
Biochemical industry	Less than 50	21	14	8,796	628
	50~299	2	2	9,425	4,713
	300~999	2	2	29,742	14,871
Biofood industry	Less than 50	11	9	2,441	271
	50~299	2	2	14,777	7,389
Bioenvironmental industry	Less than 50	4	4	752	188
Bioelectronics industry	Less than 50	2	1	2,146	2,146
Bioprocess and equipment industry	Less than 50	4	3	2,856	952
Bioenergy and bioresource industry	Less than 50	3	3	5,077	1,692
	50~299	1	1	3,325	3,325
Bioassay, bioinformatics and R&D service industry	Less than 50	2	2	6,836	3,418
<input type="checkbox"/> Sales below break-even - 4~5 years					
Biopharmaceutical industry	Less than 50	13	12	60,846	5,071
	50~299	6	6	34,243	5,707
	Unknown	1	1	1,106	1,106
Biochemical industry	Less than 50	14	11	5,593	508
	50~299	3	3	7,868	2,623
	More than 1,000	1	1	127,247	127,247
Biofood industry	Less than 50	16	12	16,560	1,380
	300~999	1	1	9,100	9,100
Bioenvironmental industry	Less than 50	8	8	6,471	809
	50~299	1	1	3,121	3,121
Bioelectronics industry	Less than 50	2	2	2,474	1,237
	50~299	2	1	3,419	3,419
Bioprocess and equipment industry	Less than 50	7	7	2,354	336
Bioenergy and bioresource industry	Less than 50	3	3	5,008	1,669
Bioassay, bioinformatics and R&D service industry	Less than 50	7	3	1,100	367
<input type="checkbox"/> Sales below break-even - 6~9 years					
Biopharmaceutical industry	Less than 50	16	13	27,644	2,126
	50~299	5	5	29,288	5,858
	300~999	3	3	95,043	31,681
Biochemical industry	Less than 50	20	18	24,106	1,339
	50~299	1	1	8,426	8,426
	More than 1,000	2	2	167,402	83,701
Biofood industry	Less than 50	18	13	23,686	1,822
	50~299	1	1	15,606	15,606
Bioenvironmental industry	Less than 50	7	5	2,915	583
	50~299	2	2	5,500	2,750
Bioelectronics industry	Less than 50	2	2	750	375
Bioprocess and equipment industry	Less than 50	2	2	1,139	570
	50~299	1	1	9,879	9,879
Bioassay, bioinformatics and R&D service industry	Less than 50	4	3	1,899	633
	50~299	1	1	3,364	3,364
<input type="checkbox"/> Sales below break-even - 10 or more years					
Biopharmaceutical industry	Less than 50	10	9	13,104	1,456
	50~299	10	10	94,215	9,422
	300~999	5	5	49,382	9,876
	More than 1,000	1	1	32,625	32,625
	Unknown	1	1	1,800	1,800
Biochemical industry	Less than 50	9	6	33,548	5,591
	50~299	2	2	15,669	7,835
Biofood industry	Less than 50	15	13	7,699	592
	50~299	6	6	37,128	6,188
Bioenvironmental industry	Less than 50	5	3	600	200
Bioelectronics industry	Less than 50	2	2	2,645	1,323

		Total	Capital		
			Number of respondent companies	Sum	Average
Number of companies		971	819	12,369,652	15,103
Bioprocess and equipment industry	Less than 50	3	2	500	250
Bioassay, bioinformatics and R&D service industry	Less than 50	3	1	300	300
	50~299	1	1	925	925
<input type="checkbox"/> Sales below break-even - Unknown					
Biofood industry	Less than 50	1	1	1,680	1,680
<input type="checkbox"/> Sales above break-even - 1 year					
Biopharmaceutical industry	50~299	1	1	18,392	18,392
Bioenvironmental industry	Less than 50	1	1	2,700	2,700
<input type="checkbox"/> Sales above break-even - 2~3 years					
Biopharmaceutical industry	Less than 50	2	2	1,043	522
	50~299	3	3	11,152	3,717
Biochemical industry	Less than 50	3	3	930	310
	50~299	1	1	2,000	2,000
Biofood industry	Less than 50	4	1	800	800
Bioelectronics industry	Less than 50	1	1	100	100
Bioprocess and equipment industry	Less than 50	2	1	1,573	1,573
Bioenergy and biosource industry	Less than 50	1	1	2,500	2,500
Bioassay, bioinformatics and R&D service industry	Less than 50	1	-	-	-
<input type="checkbox"/> Sales above break-even - 4~5 years					
Biopharmaceutical industry	Less than 50	7	5	7,590	1,518
	50~299	3	3	67,669	22,556
	300~999	1	1	12,849	12,849
Biochemical industry	Less than 50	8	7	4,267	610
	More than 1,000	1	1	87,800	87,800
Biofood industry	Less than 50	7	6	3,512	585
	50~299	1	1	19,045	19,045
Bioenvironmental industry	Less than 50	3	3	2,284	761
Bioprocess and equipment industry	Less than 50	2	1	340	340
	50~299	1	1	3,509	3,509
Bioenergy and biosource industry	Less than 50	1	-	-	-
Bioassay, bioinformatics and R&D service industry	Less than 50	1	-	-	-
<input type="checkbox"/> Sales above break-even - 6~9 years					
Biopharmaceutical industry	Less than 50	4	4	1,884	471
	50~299	6	6	14,027	2,338
	300~999	2	2	105,838	52,919
	More than 1,000	2	2	153,313	76,657
Biochemical industry	Less than 50	13	11	8,814	801
	50~299	3	3	38,865	12,955
	More than 1,000	2	2	1,963,993	981,997
Biofood industry	Less than 50	13	10	9,769	977
	50~299	2	2	4,607	2,304
Bioenvironmental industry	Less than 50	2	1	400	400
	300~999	1	1	10,846	10,846
Bioelectronics industry	Less than 50	1	1	225	225
Bioprocess and equipment industry	Less than 50	3	2	1,200	600
	50~299	2	2	800	400
Bioenergy and biosource industry	Less than 50	1	1	6,670	6,670
	50~299	1	1	40,106	40,106
Bioassay, bioinformatics and R&D service industry	Less than 50	2	2	2,741	1,371
	50~299	1	1	1,727	1,727
<input type="checkbox"/> Sales above break-even - 10 or more years					
Biopharmaceutical industry	Less than 50	8	7	7,303	1,043
	50~299	33	33	256,174	7,763
	300~999	15	14	294,077	21,006
	More than 1,000	8	8	311,574	38,947
Biochemical industry	Less than 50	23	21	30,884	1,471
	50~299	12	10	321,312	32,131
	300~999	1	1	10,758	10,758
Biofood industry	Less than 50	15	12	9,192	766
	50~299	11	11	62,657	5,696
	300~999	4	3	81,034	27,011
	More than 1,000	3	3	589,884	196,628

		Total	Capital		
			Number of respondent companies	Sum	Average
Number of companies		971	819	12,369,652	15,103
Bioenvironmental industry	Less than 50	8	8	7,458	932
	50~299	4	4	13,688	3,422
	More than 1,000	1	1	596	596
Bioelectronics industry	Less than 50	1	1	758	758
	50~299	1	1	3,391	3,391
	300~999	2	2	8,870	4,435
Bioprocess and equipment industry	Less than 50	9	9	3,488	388
	50~299	7	6	11,113	1,852
	300~999	1	1	14,000	14,000
Bioenergy and bioresource industry	Less than 50	1	1	2,180	2,180
	50~299	1	1	8,130	8,130
	300~999	1	1	7,150	7,150
Bioassay, bioinformatics and R&D service industry	Less than 50	6	6	10,841	1,807
	50~299	8	8	16,850	2,106
□ Sales - Unknown					
Biopharmaceutical industry	Less than 50	5	4	39,804	9,951
	50~299	5	5	22,736	4,547
	300~999	3	3	40,873	13,624
	Unknown	9	2	42,781	21,391
Biochemical industry	Less than 50	4	-	-	-
	50~299	2	2	25,386	12,693
	More than 1,000	3	3	1,274,032	424,677
	Unknown	3	1	2,567	2,567
Biofood industry	Less than 50	3	-	-	-
	Unknown	1	-	-	-
Bioenvironmental industry	Less than 50	1	1	1,157	1,157
	Unknown	1	-	-	-
Bioprocess and equipment industry	Less than 50	3	2	3,356	1,678
	300~999	1	1	32,694	32,694
Bioassay, bioinformatics and R&D service industry	Less than 50	3	3	2,345	782
	50~299	1	1	8,800	8,800

< Table 1-7 > Ratio of Net Worth(Ⅱ-2)

(Unit : number of firms, %)

		Total	Ratio of Net worth	
			Number of respondent companies	Average
Number of companies		971	739	50
<input checked="" type="checkbox"/> Sales Situation				
No sales		295	218	50
Sales below break-even - 1 year		11	10	38
Sales below break-even - 2~3 years		72	54	45
Sales below break-even - 4~5 years		85	52	47
Sales below break-even - 6~9 years		85	64	46
Sales below break-even - 10 or more years		73	58	51
Sales below break-even - Unknown		1	1	18
Sales above break-even - 1 year		2	2	28
Sales above break-even - 2~3 years		18	13	31
Sales above break-even - 4~5 years		36	27	50
Sales above break-even - 6~9 years		61	52	56
Sales above break-even - 10 or more years		184	160	56
Sales - Unknown		48	28	50
<input checked="" type="checkbox"/> Main type of industry				
Biopharmaceutical industry		317	266	51
Biochemical industry		203	146	49
Biofood industry		199	136	53
Bioenvironmental industry		76	58	54
Bioelectronics industry		26	20	46
Bioprocess and equipment industry		70	52	50
Bioenergy and bioresource industry		27	22	36
Bioassay, bioinformatics and R&D service industry		53	39	42
<input checked="" type="checkbox"/> Number of employees				
Less than 50		571	383	46
50~299		252	231	52
300~999		77	74	60
More than 1,000		45	45	58
Unknown		26	6	36
<input type="checkbox"/> Sales situation - No sales				
Biopharmaceutical industry	Less than 50	42	27	46
	50~299	44	38	53
	300~999	20	20	61
	More than 1,000	2	2	50
	Unknown	1	-	-
Biochemical industry	Less than 50	27	18	54
	50~299	7	6	44
	300~999	4	4	51
	More than 1,000	5	5	61
	Unknown	1	-	-
Biofood industry	Less than 50	22	10	45
	50~299	17	12	48
	300~999	9	8	48
	More than 1,000	11	11	63
	Unknown	2	-	-
Bioenvironmental industry	Less than 50	17	11	56
	50~299	6	5	37
	Unknown	2	-	-
Bioelectronics industry	Less than 50	7	4	43
	50~299	2	1	32
	300~999	1	1	70
Bioprocess and equipment industry	Less than 50	17	12	33
	50~299	4	4	74
	Unknown	1	-	-
Bioenergy and bioresource industry	Less than 50	8	6	24
	50~299	2	2	36
	More than 1,000	1	1	36
	Unknown	2	1	29
Bioassay, bioinformatics and R&D service industry	Less than 50	9	7	38
	50~299	1	1	76
	Unknown	1	1	45
<input type="checkbox"/> Sales below break-even - 1 year				
Biopharmaceutical industry	Less than 50	2	2	22

		Total	Ratio of Net worth	
			Number of respondent companies	Average
Number of companies		971	739	50
Biochemical industry	Less than 50	2	1	44
	More than 1,000	1	1	59
Biofood industry	Less than 50	2	2	51
	50~299	1	1	23
Bioenvironmental industry	Less than 50	1	1	39
	50~299	1	1	54
Bioassay, bioinformatics and R&D service industry	50~299	1	1	17
<input type="checkbox"/> Sales below break-even - 2~3 years				
Biopharmaceutical industry	Less than 50	8	5	41
	50~299	9	8	44
	More than 1,000	1	1	35
Biochemical industry	Less than 50	21	12	30
	50~299	2	2	60
	300~999	2	2	53
Biofood industry	Less than 50	11	8	51
	50~299	2	2	60
Bioenvironmental industry	Less than 50	4	4	65
Bioelectronics industry	Less than 50	2	1	36
Bioprocess and equipment industry	Less than 50	4	3	49
Bioenergy and bioresource industry	Less than 50	3	3	62
	50~299	1	1	-49
Bioassay, bioinformatics and R&D service industry	Less than 50	2	2	76
<input type="checkbox"/> Sales below break-even - 4~5 years				
Biopharmaceutical industry	Less than 50	13	10	46
	50~299	6	6	43
	Unknown	1	1	35
Biochemical industry	Less than 50	14	4	63
	50~299	3	3	60
	1,000명	1	1	53
Biofood industry	Less than 50	16	6	50
	300~999	1	1	52
Bioenvironmental industry	Less than 50	8	7	55
	50~299	1	1	46
Bioelectronics industry	Less than 50	2	2	-1
	50~299	2	1	44
Bioprocess and equipment industry	Less than 50	7	4	57
Bioenergy and bioresource industry	Less than 50	3	3	18
Bioassay, bioinformatics and R&D service industry	Less than 50	7	2	46
<input type="checkbox"/> Sales below break-even - 6~9 years				
Biopharmaceutical industry	Less than 50	16	12	36
	50~299	5	5	52
	300~999	3	3	63
Biochemical industry	Less than 50	20	16	40
	50~299	1	1	65
	More than 1,000	2	2	71
Biofood industry	Less than 50	18	10	55
	50~299	1	1	32
Bioenvironmental industry	Less than 50	7	4	41
	50~299	2	2	78
Bioelectronics industry	Less than 50	2	2	74
Bioprocess and equipment industry	Less than 50	2	2	51
	50~299	1	1	54
Bioassay, bioinformatics and R&D service industry	Less than 50	4	2	-2
	50~299	1	1	29
<input type="checkbox"/> Sales below break-even - 10 or more years				
Biopharmaceutical industry	Less than 50	10	8	35
	50~299	10	10	55
	300~999	5	5	67
	More than 1,000	1	1	65
	Unknown	1	-	-
Biochemical industry	Less than 50	9	6	48
	50~299	2	2	49
Biofood industry	Less than 50	15	12	57
	50~299	6	6	61
Bioenvironmental industry	Less than 50	5	3	45
Bioelectronics industry	Less than 50	2	2	23

		Total	Ratio of Net worth	
			Number of respondent companies	Average
Number of companies		971	739	50
Bioprocess and equipment industry	Less than 50	3	1	17
Bioassay, bioinformatics and R&D service industry	Less than 50	3	1	68
	50~299	1	1	0
<input type="checkbox"/> Sales below break-even - Unknown				
Biofood industry	Less than 50	1	1	18
<input type="checkbox"/> Sales above break-even - 1 year				
Biopharmaceutical industry	50~299	1	1	23
Bioenvironmental industry	Less than 50	1	1	34
<input type="checkbox"/> Sales above break-even - 2~3 years				
Biopharmaceutical industry	Less than 50	2	2	-31
	50~299	3	3	44
Biochemical industry	Less than 50	3	3	58
	50~299	1	1	22
Biofood industry	Less than 50	4	1	0
Bioelectronics industry	Less than 50	1	1	38
Bioprocess and equipment industry	Less than 50	2	1	75
	50~299	1	1	24
Bioassay, bioinformatics and R&D service industry	Less than 50	1	-	-
<input type="checkbox"/> Sales above break-even - 4~5 years				
Biopharmaceutical industry	Less than 50	7	5	49
	50~299	3	3	26
	300~999	1	1	81
Biochemical industry	Less than 50	8	6	61
	More than 1,000	1	1	32
Biofood industry	Less than 50	7	5	40
	50~299	1	1	48
Bioenvironmental industry	Less than 50	3	3	64
Bioprocess and equipment industry	Less than 50	2	1	25
	50~299	1	1	84
Bioenergy and bioresource industry	Less than 50	1	-	-
Bioassay, bioinformatics and R&D service industry	Less than 50	1	-	-
<input type="checkbox"/> Sales above break-even - 6~9 years				
Biopharmaceutical industry	Less than 50	4	3	48
	50~299	6	6	67
	300~999	2	2	42
	More than 1,000	2	2	37
Biochemical industry	Less than 50	13	11	48
	50~299	3	3	43
	More than 1,000	2	2	58
Biofood industry	Less than 50	13	10	60
	50~299	2	2	64
Bioenvironmental industry	Less than 50	2	1	57
	300~999	1	1	64
Bioelectronics industry	Less than 50	1	1	70
Bioprocess and equipment industry	Less than 50	3	2	67
	50~299	2	2	57
Bioenergy and bioresource industry	Less than 50	1	1	69
	50~299	1	1	77
Bioassay, bioinformatics and R&D service industry	Less than 50	2	1	56
	50~299	1	1	58
<input type="checkbox"/> Sales above break-even - 10 or more years				
Biopharmaceutical industry	Less than 50	8	6	51
	50~299	33	32	58
	300~999	15	14	65
	More than 1,000	8	8	63
Biochemical industry	Less than 50	23	16	45
	50~299	12	10	67
	300~999	1	1	50
Biofood industry	Less than 50	15	9	56
	50~299	11	11	59
	300~999	4	3	43
	More than 1,000	3	3	53

		Total	Ratio of Net worth	
			Number of respondent companies	Average
Number of companies		971	739	50
Bioenvironmental industry	Less than 50	8	7	58
	50~299	4	4	60
	More than 1,000	1	1	58
Bioelectronics industry	Less than 50	1	1	40
	50~299	1	1	92
	300~999	2	2	69
Bioprocess and equipment industry	Less than 50	9	8	60
	50~299	7	6	55
	300~999	1	1	28
Bioenergy and bioresource industry	Less than 50	1	1	68
	50~299	1	-	-
	300~999	1	1	91
Bioassay, bioinformatics and R&D service industry	Less than 50	6	6	39
	50~299	8	8	38
<input type="checkbox"/> Sales - Unknown				
Biopharmaceutical industry	Less than 50	5	4	57
	50~299	5	5	51
	300~999	3	3	75
	Unknown	9	2	27
Biochemical industry	Less than 50	4	-	-
	50~299	2	2	12
	More than 1,000	3	3	54
	Unknown	3	1	57
Biofood industry	Less than 50	3	-	-
	Unknown	1	-	-
Bioenvironmental industry	Less than 50	1	1	43
	Unknown	1	-	-
Bioprocess and equipment industry	Less than 50	3	2	28
	300~999	1	1	46
Bioassay, bioinformatics and R&D service industry	Less than 50	3	3	54
	50~299	1	1	78

< Table 2 > Manpower Status of Bioindustry

< Table 2-1 > Manpower Size of Researchers(III-2) (Unit : number of firms, people)

	Total	Bioindustry Workers		Researcher: Doctor		Researcher: Master		Researcher: Bachelor		Researcher: Others		Researcher: Total		
		Total	Average	Total	Average	Total	Average	Total	Average	Total	Average	Total	Average	
Number of companies	971	38,197	39	1,595	2	5,347	6	3,448	4	1,215	1	11,605	12	
■ Sales Situation														
No sales	295	5,672	19	335	1	1,101	4	721	2	157	1	2,314	8	
Sales below break-even - 1 year	11	185	17	23	2	56	5	26	2	4	0	109	10	
Sales below break-even - 2~3 years	72	2,017	28	88	1	275	4	195	3	45	1	603	8	
Sales below break-even - 4~5 years	85	1,561	18	108	1	293	3	207	2	97	1	705	8	
Sales below break-even - 6~9 years	85	2,064	24	108	1	324	4	209	2	46	1	687	8	
Sales below break-even - 10 or more years	73	2,815	39	158	2	396	5	226	3	42	1	822	11	
Sales below break-even - Unknown	1	43	43	3	3	14	14	8	8	2	2	27	27	
Sales above break-even - 1 year	2	114	57	1	1	2	1	6	3	-	-	9	5	
Sales above break-even - 2~3 years	18	429	24	15	1	77	4	53	3	1	0	146	8	
Sales above break-even - 4~5 years	36	1,042	29	61	2	189	5	141	4	15	0	406	11	
Sales above break-even - 6~9 years	61	3,720	61	163	3	674	11	293	5	174	3	1,304	21	
Sales above break-even - 10 or more years	184	18,204	99	494	3	1,843	10	1,309	7	628	3	4,274	23	
Sales - Unknown	48	331	7	38	1	103	2	54	1	4	0	199	4	
■ Main type of industry														
Biopharmaceutical industry	317	18,469	58	738	2	2,460	8	1,257	4	451	1	4,906	15	
Biochemical industry	203	4,936	24	307	2	1,097	5	603	3	130	1	2,137	11	
Biofood industry	199	8,070	41	274	1	885	4	497	2	193	1	1,849	9	
Bioenvironmental industry	76	1,330	18	37	0	140	2	173	2	50	1	400	5	
Bioelectronics industry	26	1,169	45	46	2	158	6	115	4	24	1	343	13	
Bioprocess and equipment industry	70	1,259	18	41	1	157	2	162	2	37	1	397	6	
Bioenergy and bioresource industry	27	1,045	39	44	2	107	4	104	4	169	6	424	16	
Bioassay, bioinformatics and R&D service industry	53	1,919	36	108	2	343	6	537	10	161	3	1,149	22	
■ Number of employees														
Less than 50	575	7,095	12	504	1	1,225	2	1,090	2	190	0	3,009	5	
50~299	254	15,094	59	450	2	1,629	6	1,582	6	436	2	4,097	16	
300~999	77	7,043	91	203	3	852	11	338	4	239	3	1,632	21	
More than 1,000	45	8,957	199	438	10	1,639	36	436	10	350	8	2,863	64	
Unknown	20	8	0	-	-	2	0	2	0	-	-	4	0	
□ Sales situation - No sales														
Biopharmaceutical industry	Less than 50	42	442	11	51	1	110	3	78	2	18	0	257	6
	50~299	44	940	21	48	1	195	4	196	4	26	1	465	11
	300~999	20	1,070	54	47	2	226	11	52	3	6	0	331	17
	More than 1,000	2	-	-	-	-	-	-	-	-	-	-	-	-
	Unknown	1	-	-	-	-	-	-	-	-	-	-	-	-
Biochemical industry	Less than 50	27	203	8	12	0	33	1	36	1	7	0	88	3
	50~299	7	279	40	8	1	17	2	30	4	10	1	65	9
	300~999	4	10	3	1	0	3	1	-	-	3	1	7	2
	More than 1,000	5	147	29	49	10	63	13	20	4	10	2	142	28
	Unknown	1	-	-	-	-	-	-	-	-	-	-	-	-
Biofood industry	Less than 50	22	199	9	15	1	37	2	37	2	3	0	92	4
	50~299	17	455	27	13	1	42	2	37	2	20	1	112	7
	300~999	9	503	56	13	1	63	7	39	4	13	1	128	14
	More than 1,000	11	539	49	27	2	160	15	52	5	12	1	251	23
	Unknown	2	-	-	-	-	-	-	-	-	-	-	-	-
Bioenvironmental industry	Less than 50	17	106	6	5	0	21	1	24	1	6	0	56	3
	50~299	6	210	35	3	1	7	1	17	3	2	0	29	5
	Unknown	2	-	-	-	-	-	-	-	-	-	-	-	-
Bioelectronics industry	Less than 50	7	62	9	9	1	22	3	19	3	1	0	51	7
	50~299	2	18	9	1	1	7	4	5	3	-	-	13	7
	300~999	1	-	-	-	-	-	-	-	-	-	-	-	-
Bioprocess and equipment industry	Less than 50	17	85	5	3	0	14	1	12	1	3	0	32	2
	50~299	4	81	20	4	1	15	4	11	3	3	1	33	8
	Unknown	1	-	-	-	-	-	-	-	-	-	-	-	-
Bioenergy and bioresource industry	Less than 50	9	90	10	4	0	9	1	23	3	9	1	45	5
	50~299	2	60	30	-	-	5	3	8	4	-	-	13	7
	More than 1,000	1	79	79	10	10	21	21	6	6	5	5	42	42
	Unknown	1	-	-	-	-	-	-	-	-	-	-	-	-
Bioassay, bioinformatics and R&D service industry	Less than 50	9	77	9	9	1	19	2	17	2	-	-	45	5
	50~299	1	13	13	3	3	10	10	-	-	-	-	13	13
	Unknown	1	4	4	-	-	2	2	2	2	-	-	4	4

		Total	Bioindustry		Researcher: Doctor		Researcher: Master		Researcher: Bachelor		Researcher: Others		Researcher: Total	
			Total	Average	Total	Average	Total	Average	Total	Average	Total	Average	Total	Average
Number of companies		971	38,197	39	1,595	2	5,347	6	3,448	4	1,215	1	11,605	12
<input type="checkbox"/> Sales below break-even - 1 year														
Bio pharmaceutical industry	Less than 50	2	27	14	3	2	2	1	3	2	-	-	8	4
Biochemical industry	Less than 50	2	20	10	-	-	1	1	9	5	1	1	11	6
	More than 1,000	1	13	13	5	5	8	8	-	-	-	-	13	13
Biofood industry	Less than 50	2	52	26	1	1	9	5	7	4	-	-	17	9
	50~299	1	4	4	2	2	1	1	1	1	-	-	4	4
Bioenvironmental industry	Less than 50	1	5	5	-	-	-	-	2	2	-	-	2	2
	50~299	1	12	12	1	1	3	3	-	-	-	-	4	4
Bioassay, bioinformatics and R&D service industry	50~299	1	52	52	11	11	32	32	4	4	3	3	50	50
<input type="checkbox"/> Sales below break-even - 2~3 years														
Bio pharmaceutical industry	Less than 50	8	96	12	9	1	21	3	4	1	-	-	34	4
	50~299	9	595	66	16	2	53	6	34	4	6	1	109	12
	More than 1,000	1	167	167	20	20	38	38	10	10	10	10	78	78
Biochemical industry	Less than 50	21	197	9	15	1	32	2	43	2	6	0	96	5
	50~299	2	17	9	1	1	1	1	5	3	1	1	8	4
	300~999	2	225	113	7	4	65	33	27	14	7	4	106	53
Biofood industry	Less than 50	11	86	8	5	0	16	1	18	2	3	0	42	4
	50~299	2	247	124	-	-	4	2	4	2	1	1	9	5
Bioenvironmental industry	Less than 50	4	44	11	-	-	2	1	9	2	1	0	12	3
Bioelectronics industry	Less than 50	2	68	34	6	3	10	5	7	4	4	2	27	14
Bioprocess and equipment industry	Less than 50	4	48	12	2	1	6	2	7	2	2	1	17	4
Bioenergy and bioresource industry	Less than 50	3	57	19	3	1	10	3	3	1	2	1	18	6
	50~299	1	129	129	1	1	12	12	21	21	2	2	36	36
Bioassay, bioinformatics and R&D service industry	Less than 50	2	41	21	3	2	5	3	3	2	-	-	11	6
<input type="checkbox"/> Sales below break-even - 4~5 years														
Bio pharmaceutical industry	Less than 50	13	271	21	24	2	53	4	44	3	7	1	128	10
	50~299	7	316	45	11	2	38	5	13	2	53	8	115	16
Biochemical industry	Less than 50	14	170	12	8	1	27	2	35	3	7	1	77	6
	50~299	3	160	53	2	1	16	5	12	4	-	-	30	10
	More than 1,000	1	30	30	2	2	6	6	2	2	2	2	12	12
Biofood industry	Less than 50	16	190	12	21	1	37	2	19	1	2	0	79	5
	300~999	1	31	31	2	2	21	21	2	2	6	6	31	31
Bioenvironmental industry	Less than 50	8	71	9	4	1	15	2	12	2	4	1	35	4
	50~299	1	25	25	3	3	5	5	-	-	-	-	8	8
Bioelectronics industry	Less than 50	2	33	17	6	3	16	8	4	2	1	1	27	14
	50~299	2	50	25	4	2	14	7	14	7	4	2	36	18
Bioprocess and equipment industry	Less than 50	7	82	12	4	1	15	2	16	2	4	1	39	6
Bioenergy and bioresource industry	Less than 50	3	36	12	2	1	6	2	11	4	3	1	22	7
Bioassay, bioinformatics and R&D service industry	Less than 50	7	96	14	15	2	24	3	23	3	4	1	66	9
<input type="checkbox"/> Sales below break-even - 6~9 years														
Bio pharmaceutical industry	Less than 50	16	234	15	21	1	57	4	37	2	1	0	116	7
	50~299	5	222	44	10	2	44	9	35	7	6	1	95	19
	300~999	3	95	32	5	2	28	9	13	4	1	0	47	16
Biochemical industry	Less than 50	20	330	17	23	1	53	3	35	2	7	0	118	6
	50~299	1	178	178	6	6	34	34	3	3	4	4	47	47
	More than 1,000	2	51	26	13	7	20	10	2	1	1	1	36	18
Biofood industry	Less than 50	18	181	10	11	1	26	1	30	2	4	0	71	4
	50~299	1	106	106	2	2	4	4	1	1	-	-	7	7
Bioenvironmental industry	Less than 50	7	60	9	3	0	8	1	9	1	2	0	22	3
	50~299	2	352	176	1	1	3	2	3	2	19	10	26	13
Bioelectronics industry	Less than 50	2	19	10	2	1	4	2	6	3	-	-	12	6
Bioprocess and equipment industry	Less than 50	2	38	19	1	1	4	2	8	4	-	-	13	7
	50~299	1	126	126	4	4	17	17	21	21	-	-	42	42
Bioassay, bioinformatics and R&D service industry	Less than 50	4	40	10	4	1	11	3	4	1	1	0	20	5
	50~299	1	32	32	2	2	11	11	2	2	-	-	15	15

		Total	Bioindustry Workers		Researcher: Doctor		Researcher: Master		Researcher: Bachelor		Researcher: Others		Researcher: Total	
			Total	Average	Total	Average	Total	Average	Total	Average	Total	Average	Total	Average
Number of companies		971	38,197	39	1,595	2	5,347	6	3,448	4	1,215	1	11,605	12
<input type="checkbox"/> Sales below break-even - 10 or more years														
Biopharmaceutical industry	Less than 50	10	176	18	19	2	34	3	35	4	5	1	93	9
	50~299	10	975	98	76	8	133	13	75	8	15	2	299	30
	300~999	5	379	76	22	4	73	15	39	8	6	1	140	28
	More than 1,000	1	59	59	9	9	40	40	-	-	1	1	50	50
	Unknown	1	4	4	-	-	-	-	-	-	-	-	-	-
Biochemical industry	Less than 50	9	123	14	6	1	18	2	9	1	-	-	33	4
	50~299	2	177	89	4	2	26	13	10	5	-	-	40	20
Biofood industry	Less than 50	15	177	12	11	1	21	1	20	1	3	0	55	4
	50~299	6	478	80	3	1	37	6	25	4	2	0	67	11
Bioenvironmental industry	Less than 50	5	35	7	-	-	5	1	-	-	1	0	6	1
Bioelectronics industry	Less than 50	2	21	11	5	3	5	3	-	-	5	3	15	8
Bioprocess and equipment industry	Less than 50	3	25	8	-	-	1	0	3	1	1	0	5	2
Bioassay, bioinformatics and R&D service industry	Less than 50	3	25	8	3	1	3	1	10	3	3	1	19	6
	50~299	1	161	161	-	-	-	-	-	-	-	-	-	-
<input type="checkbox"/> Sales below break-even - Unknown														
Biofood industry	Less than 50	1	43	43	3	3	14	14	8	8	2	2	27	27
<input type="checkbox"/> Sales above break-even - 1 year														
Biopharmaceutical industry	50~299	1	67	67	-	-	-	-	-	-	-	-	-	-
Bioenvironmental industry	Less than 50	1	47	47	1	1	2	2	6	6	-	-	9	9
<input type="checkbox"/> Sales above break-even - 2~3 years														
Biopharmaceutical industry	Less than 50	2	66	33	1	1	3	2	9	5	1	1	14	7
	50~299	3	245	82	8	3	58	19	28	9	-	-	94	31
Biochemical industry	Less than 50	3	30	10	1	0	3	1	2	1	-	-	6	2
	50~299	1	7	7	2	2	4	4	-	-	-	-	6	6
Biofood industry	Less than 50	4	23	6	2	1	1	0	8	2	-	-	11	3
Bioelectronics industry	Less than 50	1	-	-	-	-	-	-	-	-	-	-	-	-
Bioprocess and equipment industry	Less than 50	2	33	17	1	1	4	2	5	3	-	-	10	5
Bioenergy and bioresource industry	Less than 50	1	23	23	-	-	2	2	1	1	-	-	3	3
Bioassay, bioinformatics and R&D service industry	Less than 50	1	2	2	-	-	2	2	-	-	-	-	2	2
<input type="checkbox"/> Sales above break-even - 4~5 years														
Biopharmaceutical industry	Less than 50	7	119	17	11	2	28	4	14	2	1	0	54	8
	50~299	3	321	107	7	2	32	11	46	15	6	2	91	30
	300~999	1	114	114	3	3	19	19	1	1	-	-	23	23
Biochemical industry	Less than 50	8	116	15	8	1	19	2	4	1	-	-	31	4
	More than 1,000	1	91	91	19	19	49	49	18	18	5	5	91	91
Biofood industry	Less than 50	7	89	13	5	1	6	1	10	1	1	0	22	3
	50~299	1	18	18	3	3	10	10	5	5	-	-	18	18
Bioenvironmental industry	Less than 50	3	26	9	-	-	2	1	7	2	-	-	9	3
Bioprocess and equipment industry	Less than 50	2	45	23	2	1	4	2	4	2	1	1	11	6
	50~299	1	57	57	2	2	6	6	12	12	-	-	20	20
Bioenergy and bioresource industry	Less than 50	1	6	6	1	1	3	3	1	1	1	1	6	6
Bioassay, bioinformatics and R&D service industry	Less than 50	1	40	40	-	-	11	11	19	19	-	-	30	30
<input type="checkbox"/> Sales above break-even - 6~9 years														
Biopharmaceutical industry	Less than 50	4	52	13	-	-	8	2	2	1	-	-	10	3
	50~299	6	366	61	30	5	57	10	40	7	11	2	138	23
	300~999	2	1,434	717	34	17	85	43	5	3	18	9	142	71
	More than 1,000	2	387	194	13	7	68	34	35	18	64	32	180	90
Biochemical industry	Less than 50	13	263	20	14	1	43	3	41	3	7	1	105	8
	50~299	3	86	29	1	0	4	1	17	6	2	1	24	8
	More than 1,000	2	492	246	47	24	332	166	87	44	15	8	481	241
Biofood industry	Less than 50	13	147	11	13	1	26	2	28	2	-	-	67	5
	50~299	2	116	58	2	1	16	8	10	5	-	-	28	14
Bioenvironmental industry	Less than 50	2	40	20	1	1	3	2	8	4	-	-	12	6
	300~999	1	7	7	1	1	6	6	-	-	-	-	7	7
Bioelectronics industry	Less than 50	1	7	7	1	1	3	3	-	-	-	-	4	4
Bioprocess and equipment industry	Less than 50	3	35	12	-	-	6	2	5	2	4	1	15	5
	50~299	2	64	32	1	1	5	3	4	2	-	-	10	5
Bioenergy and bioresource industry	Less than 50	1	30	30	-	-	1	1	3	3	-	-	4	4
	50~299	1	57	57	-	-	-	-	-	-	3	3	3	3
Bioassay, bioinformatics and R&D service industry	Less than 50	2	17	9	5	3	6	3	3	2	-	-	14	7
	50~299	1	120	120	-	-	5	5	5	5	50	50	60	60

		Total	Bioindustry Workers		Researcher: Doctor		Researcher: Master		Researcher: Bachelor		Researcher: Others		Researcher: Total	
			Total	Average	Total	Average	Total	Average	Total	Average	Total	Average	Total	Average
Number of companies		971	38,197	39	1,595	2	5,347	6	3,448	4	1,215	1	11,605	12
<input type="checkbox"/> Sales above break-even - 10 or more years														
Biopharmaceutical industry	Less than 50	8	198	25	10	1	22	3	32	4	7	1	71	9
	50~299	33	3,310	100	51	2	214	6	155	5	35	1	455	14
	300~999	15	872	58	23	2	70	5	49	3	26	2	168	11
	More than 1,000	8	4,632	579	132	17	569	71	139	17	121	15	961	120
Biochemical industry	Less than 50	23	343	15	20	1	70	3	36	2	11	0	137	6
	50~299	12	1,088	91	19	2	106	9	100	8	18	2	243	20
	300~999	1	42	42	3	3	29	29	7	7	3	3	42	42
	More than 1,000	3	2,176	725	82	27	225	75	24	8	101	34	432	144
Biofood industry	Less than 50	15	257	17	19	1	28	2	29	2	4	0	80	5
	50~299	11	941	86	12	1	61	6	59	5	12	1	144	13
	300~999	4	1,011	253	6	2	20	5	24	6	4	1	54	14
	More than 1,000	3	2,176	725	82	27	225	75	24	8	101	34	432	144
Bioenvironmental industry	Less than 50	8	129	16	9	1	19	2	17	2	4	1	49	6
	50~299	4	89	22	3	1	9	2	19	5	11	3	42	11
	300~999	1	72	72	2	2	30	30	40	40	-	-	72	72
	More than 1,000	1	72	72	2	2	30	30	40	40	-	-	72	72
Bioelectronics industry	Less than 50	1	24	24	2	2	2	2	2	2	1	1	7	7
	50~299	1	92	92	1	1	5	5	4	4	-	-	10	10
	300~999	2	775	388	9	5	70	35	54	27	8	4	141	71
	More than 1,000	2	775	388	9	5	70	35	54	27	8	4	141	71
Bioprocess and equipment industry	Less than 50	9	224	25	5	1	21	2	9	1	9	1	44	5
	50~299	7	301	43	10	1	36	5	38	5	9	1	93	13
	300~999	1	2	2	-	-	-	-	2	2	-	-	2	2
	More than 1,000	1	2	2	-	-	-	-	2	2	-	-	2	2
Bioenergy and bioresource industry	Less than 50	1	21	21	3	3	5	5	1	1	1	1	10	10
	50~299	1	85	85	6	6	6	6	3	3	5	5	20	20
	300~999	1	372	372	14	14	27	27	23	23	138	138	202	202
	More than 1,000	1	372	372	14	14	27	27	23	23	138	138	202	202
Bioassay, bioinformatics and R&D service industry	Less than 50	6	91	15	11	2	22	4	21	4	3	1	57	10
	50~299	8	1,057	132	42	5	177	22	422	53	97	12	738	92
<input type="checkbox"/> Sales - Unknown														
Biopharmaceutical industry	Less than 50	7	20	3	1	0	5	1	5	1	-	-	11	2
	50~299	6	97	16	10	2	30	5	28	5	-	-	68	11
	300~999	3	101	34	13	4	47	16	1	0	-	-	61	20
	Unknown	6	-	-	-	-	-	-	-	-	-	-	-	-
Biochemical industry	Less than 50	5	26	5	3	1	5	1	12	2	-	-	20	4
	50~299	2	-	-	-	-	-	-	-	-	-	-	-	-
	More than 1,000	3	22	7	8	3	10	3	1	0	3	1	22	7
	Unknown	2	-	-	-	-	-	-	-	-	-	-	-	-
Biofood industry	Less than 50	3	1	0	1	0	-	-	-	-	-	-	1	0
	Unknown	1	-	-	-	-	-	-	-	-	-	-	-	-
Bioenvironmental industry	Less than 50	1	-	-	-	-	-	-	-	-	-	-	-	-
	Unknown	1	-	-	-	-	-	-	-	-	-	-	-	-
Bioprocess and equipment industry	Less than 50	3	13	4	2	1	3	1	5	2	1	0	11	4
	300~999	1	-	-	-	-	-	-	-	-	-	-	-	-
Bioassay, bioinformatics and R&D service industry	Less than 50	3	11	4	-	-	1	0	2	1	-	-	3	1
	50~299	1	40	40	-	-	2	2	-	-	-	-	2	2

< Table 2-2 > Manpower Size of Production Workers (Unit : number of firms, people)

	Total	Bioindustry Workers		Production workers: Doctor		Production workers: Master		Production workers: Bachelor		Production workers: Others		Production workers: Total		
		Total	Average	Total	Average	Total	Average	Total	Average	Total	Average	Total	Average	
Number of companies	971	38,197	39	139	0	854	1	4,098	4	7,114	7	12,205	13	
■ Sales Situation														
No sales	295	5,672	19	36	0	190	1	976	3	1,057	4	2,259	8	
Sales below break-even - 1 year	11	185	17	-	-	5	0	15	1	11	1	31	3	
Sales below break-even - 2~3 years	72	2,017	28	6	0	81	1	358	5	394	5	839	12	
Sales below break-even - 4~5 years	85	1,561	18	6	0	53	1	203	2	246	3	508	6	
Sales below break-even - 6~9 years	85	2,064	24	6	0	46	1	238	3	292	3	582	7	
Sales below break-even - 10 or more years	73	2,815	39	30	0	34	0	238	3	529	7	831	11	
Sales below break-even - Unknown	1	43	43	1	1	3	3	7	7	5	5	16	16	
Sales above break-even - 1 year	2	114	57	-	-	1	1	23	12	-	-	24	12	
Sales above break-even - 2~3 years	18	429	24	9	1	8	0	60	3	116	6	193	11	
Sales above break-even - 4~5 years	36	1,042	29	2	0	18	1	154	4	109	3	283	8	
Sales above break-even - 6~9 years	61	3,720	61	6	0	155	3	294	5	643	11	1,098	18	
Sales above break-even - 10 or more years	184	18,204	99	37	0	258	1	1,518	8	3,686	20	5,499	30	
Sales - Unknown	48	331	7	-	-	2	0	14	0	26	1	42	1	
■ Main type of industry														
Biopharmaceutical industry	317	18,469	58	75	0	514	2	1,681	5	3,275	10	5,545	17	
Biochemical industry	203	4,936	24	11	0	73	0	560	3	876	4	1,520	7	
Biofood industry	199	8,070	41	34	0	147	1	1,197	6	1,983	10	3,361	17	
Bioenvironmental industry	76	1,330	18	9	0	16	0	205	3	158	2	388	5	
Bioelectronics industry	26	1,169	45	1	0	23	1	158	6	392	15	574	22	
Bioprocess and equipment industry	70	1,259	18	3	0	39	1	122	2	240	3	404	6	
Bioenergy and bioresource industry	27	1,045	39	2	0	30	1	84	3	159	6	275	10	
Bioassay, bioinformatics and R&D service industry	53	1,919	36	4	0	12	0	91	2	31	1	138	3	
■ Number of employees														
Less than 50	575	7,095	12	78	0	170	0	895	2	908	2	2,051	4	
50~299	254	15,094	59	23	0	281	1	1,474	6	3,603	14	5,381	21	
300~999	77	7,043	91	18	0	280	4	1,108	14	1,437	19	2,843	37	
More than 1,000	45	8,957	199	20	0	123	3	620	14	1,165	26	1,928	43	
Unknown	20	8	0	-	-	-	-	1	0	1	0	2	0	
□ Sales situation - No sales														
Biopharmaceutical industry	Less than 50	42	442	11	-	-	5	0	15	0	46	1	66	2
	50~299	44	940	21	-	-	8	0	91	2	169	4	268	6
	300~999	20	1,070	54	6	0	68	3	166	8	185	9	425	21
	More than 1,000	2	-	-	-	-	-	-	-	-	-	-	-	-
	Unknown	1	-	-	-	-	-	-	-	-	-	-	-	-
Biochemical industry	Less than 50	27	203	8	-	-	5	0	37	1	42	2	84	3
	50~299	7	279	40	1	0	6	1	37	5	112	16	156	22
	300~999	4	10	3	-	-	-	-	1	0	2	1	3	1
	More than 1,000	5	147	29	-	-	-	-	-	-	5	1	5	1
	Unknown	1	-	-	-	-	-	-	-	-	-	-	-	-
Biofood industry	Less than 50	22	199	9	21	1	6	0	35	2	10	0	72	3
	50~299	17	455	27	1	0	24	1	61	4	130	8	216	13
	300~999	9	503	56	2	0	17	2	254	28	102	11	375	42
	More than 1,000	11	539	49	4	0	33	3	96	9	155	14	288	26
	Unknown	2	-	-	-	-	-	-	-	-	-	-	-	-
Bioenvironmental industry	Less than 50	17	106	6	-	-	2	0	11	1	18	1	31	2
	50~299	6	210	35	-	-	3	1	84	14	21	4	108	18
	Unknown	2	-	-	-	-	-	-	-	-	-	-	-	-
Bioelectronics industry	Less than 50	7	62	9	-	-	-	2	0	-	-	2	0	
	50~299	2	18	9	-	-	2	1	3	2	-	-	5	3
	300~999	1	-	-	-	-	-	-	-	-	-	-	-	-
Bioprocess and equipment industry	Less than 50	17	85	5	-	-	1	0	15	1	7	0	23	1
	50~299	4	81	20	-	-	3	1	9	2	19	5	31	8
	Unknown	1	-	-	-	-	-	-	-	-	-	-	-	-
Bioenergy and bioresource industry	Less than 50	9	90	10	-	-	2	0	6	1	13	1	21	2
	50~299	2	60	30	-	-	-	-	43	22	-	-	43	22
	More than 1,000	1	79	79	1	1	5	5	10	10	21	21	37	37
	Unknown	1	-	-	-	-	-	-	-	-	-	-	-	-
Bioassay, bioinformatics and R&D service industry	Less than 50	9	77	9	-	-	-	-	-	-	-	-	-	-
	50~299	1	13	13	-	-	-	-	-	-	-	-	-	-
	Unknown	1	4	4	-	-	-	-	-	-	-	-	-	-

		Total	Bioindustry Workers		Production workers: Doctor		Production workers: Master		Production workers: Bachelor		Production workers: Others		Production workers: Total	
			Total	Average	Total	Average	Total	Average	Total	Average	Total	Average	Total	Average
Number of companies		971	38,197	39	139	0	854	1	4,098	4	7,114	7	12,205	13
<input type="checkbox"/> Sales below break-even - 1 year														
Bio pharmaceutical industry	Less than 50	2	27	14	-	-	4	2	-	-	-	-	4	2
Biochemical industry	Less than 50	2	20	10	-	-	-	-	3	2	2	1	5	3
	More than 1,000	1	13	13	-	-	-	-	-	-	-	-	-	-
Biofood industry	Less than 50	2	52	26	-	-	1	1	8	4	8	4	17	9
	50~299	1	4	4	-	-	-	-	-	-	-	-	-	-
Bioenvironmental industry	Less than 50	1	5	5	-	-	-	-	-	-	1	1	1	1
	50~299	1	12	12	-	-	-	-	4	4	-	-	4	4
Bioassay, bioinformatics and R&D service industry	50~299	1	52	52	-	-	-	-	-	-	-	-	-	-
<input type="checkbox"/> Sales below break-even - 2~3 years														
Bio pharmaceutical industry	Less than 50	8	96	12	-	-	5	1	18	2	1	0	24	3
	50~299	9	595	66	1	0	7	1	55	6	175	19	238	26
	More than 1,000	1	167	167	-	-	20	20	30	30	15	15	65	65
Biochemical industry	Less than 50	21	197	9	-	-	2	0	27	1	35	2	64	3
	50~299	2	17	9	-	-	1	1	5	3	3	2	9	5
	300~999	2	225	113	-	-	-	-	92	46	10	5	102	51
Biofood industry	Less than 50	11	86	8	-	-	1	0	16	1	12	1	29	3
	50~299	2	247	124	-	-	1	1	62	31	74	37	137	69
Bioenvironmental industry	Less than 50	4	44	11	3	1	1	0	2	1	17	4	23	6
Bioelectronics industry	Less than 50	2	68	34	-	-	1	1	6	3	12	6	19	10
Bioprocess and equipment industry	Less than 50	4	48	12	-	-	14	4	16	4	-	-	30	8
Bioenergy and bioresource industry	Less than 50	3	57	19	1	0	20	7	5	2	7	2	33	11
	50~299	1	129	129	-	-	1	1	9	9	32	32	42	42
Bioassay, bioinformatics and R&D service industry	Less than 50	2	41	21	1	1	7	4	15	8	1	1	24	12
<input type="checkbox"/> Sales below break-even - 4~5 years														
Bio pharmaceutical industry	Less than 50	13	271	21	1	0	16	1	27	2	31	2	75	6
	50~299	7	316	45	-	-	11	2	21	3	71	10	103	15
Biochemical industry	Less than 50	14	170	12	1	0	5	0	29	2	27	2	62	4
	50~299	3	160	53	-	-	2	1	32	11	48	16	82	27
	More than 1,000	1	30	30	-	-	3	3	6	6	9	9	18	18
Biofood industry	Less than 50	16	190	12	2	0	5	0	27	2	29	2	63	4
	300~999	1	31	31	-	-	-	-	-	-	-	-	-	-
Bioenvironmental industry	Less than 50	8	71	9	-	-	2	0	16	2	16	2	34	4
	50~299	1	25	25	-	-	1	1	13	13	-	-	14	14
Bioelectronics industry	Less than 50	2	33	17	-	-	1	1	2	1	1	1	4	2
	50~299	2	50	25	1	1	2	1	8	4	3	2	14	7
Bioprocess and equipment industry	Less than 50	7	82	12	1	0	3	0	17	2	3	0	24	3
Bioenergy and bioresource industry	Less than 50	3	36	12	-	-	1	0	5	2	5	2	11	4
Bioassay, bioinformatics and R&D service industry	Less than 50	7	96	14	-	-	1	0	-	-	3	0	4	1
<input type="checkbox"/> Sales below break-even - 6~9 years														
Bio pharmaceutical industry	Less than 50	16	234	15	-	-	3	0	39	2	18	1	60	4
	50~299	5	222	44	-	-	11	2	42	8	19	4	72	14
	300~999	3	95	32	1	0	8	3	20	7	16	5	45	15
Biochemical industry	Less than 50	20	330	17	2	0	1	0	41	2	38	2	82	4
	50~299	1	178	178	-	-	3	3	7	7	15	15	25	25
	More than 1,000	2	51	26	1	1	5	3	1	1	8	4	15	8
Biofood industry	Less than 50	18	181	10	-	-	4	0	14	1	34	2	52	3
	50~299	1	106	106	-	-	1	1	30	30	54	54	85	85
Bioenvironmental industry	Less than 50	7	60	9	-	-	1	0	9	1	12	2	22	3
	50~299	2	352	176	-	-	-	-	-	-	26	13	26	13
Bioelectronics industry	Less than 50	2	19	10	-	-	2	1	4	2	-	-	6	3
Bioprocess and equipment industry	Less than 50	2	38	19	-	-	-	-	1	1	12	6	13	7
	50~299	1	126	126	1	1	4	4	13	13	40	40	58	58
Bioassay, bioinformatics and R&D service industry	Less than 50	4	40	10	-	-	1	0	10	3	-	-	11	3
	50~299	1	32	32	1	1	2	2	7	7	-	-	10	10

		Total	Bioindustry Workers		Production workers: Doctor		Production workers: Master		Production workers: Bachelor		Production workers: Others		Production workers: Total	
			Total	Average	Total	Average	Total	Average	Total	Average	Total	Average	Total	Average
Number of companies		971	38,197	39	139	0	854	1	4,098	4	7,114	7	12,205	13
<input type="checkbox"/> Sales below break-even - 10 or more years														
Biopharmaceutical industry	Less than 50	10	176	18	23	2	2	0	7	1	12	1	44	4
	50~299	10	975	98	-	-	4	0	42	4	187	19	233	23
	300~999	5	379	76	-	-	10	2	67	13	62	12	139	28
	More than 1,000	1	59	59	1	1	-	-	6	6	2	2	9	9
	Unknown	1	4	4	-	-	-	-	1	1	1	1	2	2
Biochemical industry	Less than 50	9	123	14	1	0	4	0	31	3	12	1	48	5
	50~299	2	177	89	-	-	12	6	34	17	54	27	100	50
Biofood industry	Less than 50	15	177	12	-	-	-	-	16	1	36	2	52	3
	50~299	6	478	80	-	-	2	0	28	5	159	27	189	32
Bioenvironmental industry	Less than 50	5	35	7	5	1	-	-	1	0	1	0	7	1
Bioelectronics industry	Less than 50	2	21	11	-	-	-	-	1	1	-	-	1	1
Bioprocess and equipment industry	Less than 50	3	25	8	-	-	-	-	4	1	3	1	7	2
Bioassay, bioinformatics and R&D service industry	Less than 50	3	25	8	-	-	-	-	-	-	-	-	-	-
	50~299	1	161	161	-	-	-	-	-	-	-	-	-	-
<input type="checkbox"/> Sales below break-even - Unknown														
Biofood industry	Less than 50	1	43	43	1	1	3	3	7	7	5	5	16	16
<input type="checkbox"/> Sales above break-even - 1 year														
Biopharmaceutical industry	50~299	1	67	67	-	-	-	-	-	-	-	-	-	-
Bioenvironmental industry	Less than 50	1	47	47	-	-	1	1	23	23	-	-	24	24
<input type="checkbox"/> Sales above break-even - 2~3 years														
Biopharmaceutical industry	Less than 50	2	66	33	7	4	1	1	18	9	-	-	26	13
	50~299	3	245	82	1	0	7	2	34	11	86	29	128	43
Biochemical industry	Less than 50	3	30	10	-	-	-	-	1	0	15	5	16	5
	50~299	1	7	7	-	-	-	-	1	1	-	-	1	1
Biofood industry	Less than 50	4	23	6	1	0	-	-	2	1	-	-	3	1
Bioelectronics industry	Less than 50	1	-	-	-	-	-	-	-	-	-	-	-	-
Bioprocess and equipment industry	Less than 50	2	33	17	-	-	-	-	4	2	3	2	7	4
Bioenergy and biosource industry	Less than 50	1	23	23	-	-	-	-	-	-	12	12	12	12
Bioassay, bioinformatics and R&D service industry	Less than 50	1	2	2	-	-	-	-	-	-	-	-	-	-
<input type="checkbox"/> Sales above break-even - 4~5 years														
Biopharmaceutical industry	Less than 50	7	119	17	1	0	-	-	27	4	2	0	30	4
	50~299	3	321	107	-	-	-	-	36	12	20	7	56	19
	300~999	1	114	114	-	-	12	12	26	26	14	14	52	52
Biochemical industry	Less than 50	8	116	15	-	-	-	-	33	4	20	3	53	7
	More than 1,000	1	91	91	-	-	-	-	-	-	-	-	-	-
Biofood industry	Less than 50	7	89	13	1	0	1	0	17	2	22	3	41	6
	50~299	1	18	18	-	-	-	-	-	-	-	-	-	-
Bioenvironmental industry	Less than 50	3	26	9	-	-	-	-	3	1	-	-	3	1
Bioprocess and equipment industry	Less than 50	2	45	23	-	-	5	3	6	3	21	11	32	16
	50~299	1	57	57	-	-	-	-	6	6	10	10	16	16
Bioenergy and biosource industry	Less than 50	1	6	6	-	-	-	-	-	-	-	-	-	-
Bioassay, bioinformatics and R&D service industry	Less than 50	1	40	40	-	-	-	-	-	-	-	-	-	-
<input type="checkbox"/> Sales above break-even - 6~9 years														
Biopharmaceutical industry	Less than 50	4	52	13	-	-	4	1	11	3	4	1	19	5
	50~299	6	366	61	-	-	12	2	24	4	115	19	151	25
	300~999	2	1,434	717	5	3	116	58	123	62	251	126	495	248
	More than 1,000	2	387	194	-	-	5	3	32	16	92	46	129	65
Biochemical industry	Less than 50	13	263	20	-	-	1	0	50	4	40	3	91	7
	50~299	3	86	29	-	-	6	2	6	2	7	2	19	6
	More than 1,000	2	492	246	-	-	2	1	1	1	5	3	8	4
Biofood industry	Less than 50	13	147	11	-	-	1	0	22	2	6	0	29	2
	50~299	2	116	58	-	-	4	2	18	9	46	23	68	34
Bioenvironmental industry	Less than 50	2	40	20	-	-	-	-	-	-	7	4	7	4
	300~999	1	7	7	-	-	-	-	-	-	-	-	-	-
Bioelectronics industry	Less than 50	1	7	7	-	-	-	-	-	-	-	-	-	-
Bioprocess and equipment industry	Less than 50	3	35	12	1	0	-	-	-	-	15	5	16	5
	50~299	2	64	32	-	-	4	2	5	3	30	15	39	20
Bioenergy and biosource industry	Less than 50	1	30	30	-	-	-	-	2	2	12	12	14	14
	50~299	1	57	57	-	-	-	-	-	-	13	13	13	13
Bioassay, bioinformatics and R&D service industry	Less than 50	2	17	9	-	-	-	-	-	-	-	-	-	-
	50~299	1	120	120	-	-	-	-	-	-	-	-	-	-

		Total	Bioindustry Workers		Production workers: Doctor		Production workers: Master		Production workers: Bachelor		Production workers: Others		Production workers: Total	
			Total	Average	Total	Average	Total	Average	Total	Average	Total	Average	Total	Average
Number of companies		971	38,197	39	139	0	854	1	4,098	4	7,114	7	12,205	13
<input type="checkbox"/> Sales above break-even - 10 or more years														
Biopharmaceutical industry	Less than 50	8	198	25	1	0	7	1	32	4	23	3	63	8
	50~299	33	3,310	100	11	0	92	3	267	8	1,096	33	1,466	44
	300~999	15	872	58	4	0	30	2	175	12	150	10	359	24
	More than 1,000	8	4,632	579	12	2	44	6	223	28	412	52	691	86
Biochemical industry	Less than 50	23	343	15	3	0	7	0	29	1	26	1	65	3
	50~299	12	1,088	91	2	0	8	1	56	5	340	28	406	34
	300~999	1	42	42	-	-	-	-	-	-	-	-	-	-
Biofood industry	Less than 50	15	257	17	-	-	3	0	20	1	63	4	86	6
	50~299	11	941	86	-	-	30	3	187	17	286	26	503	46
	300~999	4	1,011	253	-	-	4	1	62	16	311	78	377	94
	More than 1,000	3	2,176	725	1	0	6	2	215	72	441	147	663	221
Bioenvironmental industry	Less than 50	8	129	16	-	-	2	0	21	3	14	2	37	5
	50~299	4	89	22	1	0	3	1	18	5	25	6	47	12
	More than 1,000	1	72	72	-	-	-	-	-	-	-	-	-	-
Bioelectronics industry	Less than 50	1	24	24	-	-	-	-	4	4	2	2	6	6
	50~299	1	92	92	-	-	1	1	8	8	55	55	64	64
	300~999	2	775	388	-	-	14	7	120	60	319	160	453	227
Bioprocess and equipment industry	Less than 50	9	224	25	-	-	3	0	6	1	60	7	69	8
	50~299	7	301	43	-	-	2	0	20	3	17	2	39	6
	300~999	1	2	2	-	-	-	-	-	-	-	-	-	-
Bioenergy and bioresource industry	Less than 50	1	21	21	-	-	-	-	2	2	3	3	5	5
	50~299	1	85	85	-	-	-	-	-	-	26	26	26	26
	300~999	1	372	372	-	-	1	1	2	2	15	15	18	18
Bioassay, bioinformatics and R&D service industry	Less than 50	6	91	15	-	-	-	-	11	2	2	0	13	2
	50~299	8	1,057	132	2	0	1	0	40	5	-	-	43	5
<input type="checkbox"/> Sales - Unknown														
Biopharmaceutical industry	Less than 50	7	20	3	-	-	2	0	6	1	-	-	8	1
	50~299	6	97	16	-	-	-	-	-	-	-	-	-	-
	300~999	3	101	34	-	-	-	-	-	-	-	-	-	-
	Unknown	6	-	-	-	-	-	-	-	-	-	-	-	-
Biochemical industry	Less than 50	5	26	5	-	-	-	-	-	-	1	0	1	0
	50~299	2	-	-	-	-	-	-	-	-	-	-	-	-
	More than 1,000	3	22	7	-	-	-	-	-	-	-	-	-	-
	Unknown	2	-	-	-	-	-	-	-	-	-	-	-	-
Biofood industry	Less than 50	3	1	0	-	-	-	-	-	-	-	-	-	-
	Unknown	1	-	-	-	-	-	-	-	-	-	-	-	-
Bioenvironmental industry	Less than 50	1	-	-	-	-	-	-	-	-	-	-	-	-
	Unknown	1	-	-	-	-	-	-	-	-	-	-	-	-
Bioprocess and equipment industry	Less than 50	3	13	4	-	-	-	-	-	-	-	-	-	-
	300~999	1	-	-	-	-	-	-	-	-	-	-	-	-
Bioassay, bioinformatics and R&D service industry	Less than 50	3	11	4	-	-	-	-	-	-	5	2	5	2
	50~299	1	40	40	-	-	-	-	8	8	20	20	28	28

< Table 2-3 > Manpower Size of Others such as sales/administrative(III-2)

(Unit : number of firms, people)

	Total	Bioindustry Workers		Others: Doctor		Others: Master		Others: Bachelor		Others: Others		Others: Total		
		Total	Average	Total	Average	Total	Average	Total	Average	Total	Average	Total	Average	
Number of companies	971	38,197	39	362	0	1,210	1	7,874	8	4,941	5	14,387	15	
■ Sales Situation														
No sales	295	5,672	19	28	0	67	0	751	3	253	1	1,099	4	
Sales below break-even - 1 year	11	185	17	7	1	12	1	24	2	2	0	45	4	
Sales below break-even - 2~3 years	72	2,017	28	10	0	39	1	444	6	82	1	575	8	
Sales below break-even - 4~5 years	85	1,561	18	10	0	25	0	201	2	112	1	348	4	
Sales below break-even - 6~9 years	85	2,064	24	24	0	56	1	454	5	261	3	795	9	
Sales below break-even - 10 or more years	73	2,815	39	53	1	116	2	629	9	364	5	1,162	16	
Sales below break-even - Unknown	1	43	43	-	-	-	-	-	-	-	-	-	-	
Sales above break-even - 1 year	2	114	57	67	34	1	1	13	7	-	-	81	41	
Sales above break-even - 2~3 years	18	429	24	2	0	13	1	65	4	10	1	90	5	
Sales above break-even - 4~5 years	36	1,042	29	22	1	38	1	229	6	64	2	353	10	
Sales above break-even - 6~9 years	61	3,720	61	23	0	162	3	934	15	199	3	1,318	22	
Sales above break-even - 10 or more years	184	18,204	99	111	1	665	4	4,086	22	3,569	19	8,431	46	
Sales - Unknown	48	331	7	5	0	16	0	44	1	25	1	90	2	
■ Main type of industry														
Biopharmaceutical industry	317	18,469	58	217	1	545	2	3,939	12	3,317	10	8,018	25	
Biochemical industry	203	4,936	24	44	0	185	1	774	4	276	1	1,279	6	
Biofood industry	199	8,070	41	37	0	266	1	1,833	9	724	4	2,860	14	
Bioenvironmental industry	76	1,330	18	11	0	24	0	324	4	183	2	542	7	
Bioelectronics industry	26	1,169	45	11	0	40	2	159	6	42	2	252	10	
Bioprocess and equipment industry	70	1,259	18	9	0	34	0	281	4	134	2	458	7	
Bioenergy and bioresource industry	27	1,045	39	9	0	30	1	170	6	137	5	346	13	
Bioassay, bioinformatics and R&D service industry	53	1,919	36	24	0	86	2	394	7	128	2	632	12	
■ Number of employees														
Less than 50	575	7,095	12	102	0	211	0	1,273	2	449	1	2,035	4	
50~299	254	15,094	59	163	1	528	2	3,250	13	1,675	7	5,616	22	
300~999	77	7,043	91	52	1	245	3	1,883	24	388	5	2,568	33	
More than 1,000	45	8,957	199	45	1	226	5	1,467	33	2,428	54	4,166	93	
Unknown	20	8	0	-	-	-	-	1	0	1	0	2	0	
□ Sales situation - No sales														
Biopharmaceutical industry	Less than 50	42	442	11	5	0	7	0	62	1	45	1	119	3
	50~299	44	940	21	7	0	12	0	148	3	40	1	207	5
	300~999	20	1,070	54	7	0	11	1	291	15	5	0	314	16
	More than 1,000	2	-	-	-	-	-	-	-	-	-	-	-	-
	Unknown	1	-	-	-	-	-	-	-	-	-	-	-	-
Biochemical industry	Less than 50	27	203	8	-	-	2	0	21	1	8	0	31	1
	50~299	7	279	40	1	0	3	0	49	7	5	1	58	8
	300~999	4	10	3	-	-	-	-	-	-	-	-	-	-
	More than 1,000	5	147	29	-	-	-	-	-	-	-	-	-	-
	Unknown	1	-	-	-	-	-	-	-	-	-	-	-	-
Biofood industry	Less than 50	22	199	9	5	0	5	0	22	1	3	0	35	2
	50~299	17	455	27	1	0	13	1	19	1	94	6	127	7
	300~999	9	503	56	-	-	-	-	-	-	-	-	-	-
	More than 1,000	11	539	49	-	-	-	-	-	-	-	-	-	-
	Unknown	2	-	-	-	-	-	-	-	-	-	-	-	-
Bioenvironmental industry	Less than 50	17	106	6	-	-	2	0	6	0	11	1	19	1
	50~299	6	210	35	-	-	1	0	57	10	15	3	73	12
	Unknown	2	-	-	-	-	-	-	-	-	-	-	-	-
Bioelectronics industry	Less than 50	7	62	9	1	0	2	0	2	0	4	1	9	1
	50~299	2	18	9	-	-	-	-	-	-	-	-	-	-
	300~999	1	-	-	-	-	-	-	-	-	-	-	-	-
Bioprocess and equipment industry	Less than 50	17	85	5	-	-	4	0	25	1	1	0	30	2
	50~299	4	81	20	-	-	-	-	-	-	17	4	17	4
	Unknown	1	-	-	-	-	-	-	-	-	-	-	-	-
Bioenergy and bioresource industry	Less than 50	9	90	10	-	-	1	0	21	2	2	0	24	3
	50~299	2	60	30	-	-	-	-	4	2	-	-	4	2
	More than 1,000	1	79	79	-	-	-	-	-	-	-	-	-	-
	Unknown	1	-	-	-	-	-	-	-	-	-	-	-	-
Bioassay, bioinformatics and R&D service industry	Less than 50	9	77	9	1	0	4	0	24	3	3	0	32	4
	50~299	1	13	13	-	-	-	-	-	-	-	-	-	-
	Unknown	1	4	4	-	-	-	-	-	-	-	-	-	-

		Total	Bioindustry		Others: Doctor		Others: Master		Others: Bachelor		Others: Others		Others: Total	
			Total	Average	Total	Average	Total	Average	Total	Average	Total	Average	Total	Average
Number of companies		971	38,197	39	362	0	1,210	1	7,874	8	4,941	5	14,387	15
☐ Sales below break-even - 1 year														
Bio pharmaceutical industry	Less than 50	2	27	14	4	2	8	4	2	1	1	1	15	8
Biochemical industry	Less than 50	2	20	10	1	1	-	-	3	2	-	-	4	2
	More than 1,000	1	13	13	-	-	-	-	-	-	-	-	-	-
Biofood industry	Less than 50	2	52	26	-	-	4	2	13	7	1	1	18	9
	50~299	1	4	4	-	-	-	-	-	-	-	-	-	-
Bioenvironmental industry	Less than 50	1	5	5	-	-	-	-	2	2	-	-	2	2
	50~299	1	12	12	-	-	-	-	4	4	-	-	4	4
Bioassay, bioinformatics and R&D service industry	50~299	1	52	52	2	2	-	-	-	-	-	-	2	2
☐ Sales below break-even - 2~3 years														
Bio pharmaceutical industry	Less than 50	8	96	12	-	-	4	1	32	4	2	0	38	5
	50~299	9	595	66	-	-	5	1	216	24	27	3	248	28
	More than 1,000	1	167	167	5	5	8	8	9	9	2	2	24	24
Biochemical industry	Less than 50	21	197	9	2	0	4	0	26	1	5	0	37	2
	50~299	2	17	9	-	-	-	-	-	-	-	-	-	-
	300~999	2	225	113	-	-	-	-	17	9	-	-	17	9
Biofood industry	Less than 50	11	86	8	-	-	1	0	8	1	6	1	15	1
	50~299	2	247	124	-	-	7	4	88	44	6	3	101	51
Bioenvironmental industry	Less than 50	4	44	11	1	0	-	-	6	2	2	1	9	2
Bioelectronics industry	Less than 50	2	68	34	1	1	3	2	17	9	1	1	22	11
Bioprocess and equipment industry	Less than 50	4	48	12	-	-	-	-	-	-	1	0	1	0
Bioenergy and bioresource industry	Less than 50	3	57	19	-	-	6	2	-	-	-	-	6	2
	50~299	1	129	129	-	-	1	1	20	20	30	30	51	51
Bioassay, bioinformatics and R&D service industry	Less than 50	2	41	21	1	1	-	-	5	3	-	-	6	3
☐ Sales below break-even - 4~5 years														
Bio pharmaceutical industry	Less than 50	13	271	21	5	0	11	1	42	3	10	1	68	5
	50~299	7	316	45	2	0	3	0	26	4	67	10	98	14
Biochemical industry	Less than 50	14	170	12	2	0	1	0	26	2	2	0	31	2
	50~299	3	160	53	-	-	2	1	28	9	18	6	48	16
	More than 1,000	1	30	30	-	-	-	-	-	-	-	-	-	-
Biofood industry	Less than 50	16	190	12	1	0	4	0	32	2	11	1	48	3
	300~999	1	31	31	-	-	-	-	-	-	-	-	-	-
Bioenvironmental industry	Less than 50	8	71	9	-	-	1	0	1	0	-	-	2	0
	50~299	1	25	25	-	-	-	-	3	3	-	-	3	3
Bioelectronics industry	Less than 50	2	33	17	-	-	-	-	2	1	-	-	2	1
	50~299	2	50	25	-	-	-	-	-	-	-	-	-	-
Bioprocess and equipment industry	Less than 50	7	82	12	-	-	-	-	16	2	3	0	19	3
Bioenergy and bioresource industry	Less than 50	3	36	12	-	-	-	-	3	1	-	-	3	1
Bioassay, bioinformatics and R&D service industry	Less than 50	7	96	14	-	-	3	0	22	3	1	0	26	4
☐ Sales below break-even - 6~9 years														
Bio pharmaceutical industry	Less than 50	16	234	15	3	0	3	0	41	3	11	1	58	4
	50~299	5	222	44	1	0	7	1	36	7	11	2	55	11
	300~999	3	95	32	-	-	1	0	2	1	-	-	3	1
Biochemical industry	Less than 50	20	330	17	6	0	4	0	85	4	35	2	130	7
	50~299	1	178	178	6	6	21	21	29	29	50	50	106	106
	More than 1,000	2	51	26	-	-	-	-	-	-	-	-	-	-
Biofood industry	Less than 50	18	181	10	3	0	4	0	33	2	18	1	58	3
	50~299	1	106	106	-	-	-	-	10	10	4	4	14	14
Bioenvironmental industry	Less than 50	7	60	9	-	-	2	0	7	1	7	1	16	2
	50~299	2	352	176	1	1	8	4	170	85	121	61	300	150
Bioelectronics industry	Less than 50	2	19	10	-	-	1	1	-	-	-	-	1	1
Bioprocess and equipment industry	Less than 50	2	38	19	1	1	1	1	10	5	-	-	12	6
	50~299	1	126	126	2	2	3	3	20	20	1	1	26	26
Bioassay, bioinformatics and R&D service industry	Less than 50	4	40	10	-	-	-	-	6	2	3	1	9	2
	50~299	1	32	32	1	1	1	1	5	5	-	-	7	7

		Total	Bioindustry		Others: Doctor		Others: Master		Others: Bachelor		Others: Others		Others: Total	
			Total	Average	Total	Average	Total	Average	Total	Average	Total	Average	Total	Average
Number of companies		971	38,197	39	362	0	1,210	1	7,874	8	4,941	5	14,387	15
<input type="checkbox"/> Sales below break-even - 10 or more years														
Biopharmaceutical industry	Less than 50	10	176	18	10	1	1	0	17	2	11	1	39	4
	50~299	10	975	98	6	1	27	3	205	21	205	21	443	44
	300~999	5	379	76	10	2	23	5	58	12	9	2	100	20
	More than 1,000	1	59	59	-	-	-	-	-	-	-	-	-	-
	Unknown	1	4	4	-	-	-	-	1	1	1	1	2	2
Biochemical industry	Less than 50	9	123	14	5	1	3	0	17	2	17	2	42	5
	50~299	2	177	89	7	4	5	3	25	13	-	-	37	19
Biofood industry	Less than 50	15	177	12	-	-	5	0	27	2	38	3	70	5
	50~299	6	478	80	2	0	12	2	155	26	53	9	222	37
Bioenvironmental industry	Less than 50	5	35	7	8	2	2	0	4	1	8	2	22	4
Bioelectronics industry	Less than 50	2	21	11	1	1	2	1	2	1	-	-	5	3
Bioprocess and equipment industry	Less than 50	3	25	8	-	-	-	-	10	3	3	1	13	4
Bioassay, bioinformatics and R&D service industry	Less than 50	3	25	8	2	1	-	-	4	1	-	-	6	2
	50~299	1	161	161	2	2	36	36	104	104	19	19	161	161
<input type="checkbox"/> Sales below break-even - Unknown														
Biofood industry	Less than 50	1	43	43	-	-	-	-	-	-	-	-	-	-
<input type="checkbox"/> Sales above break-even - 1 year														
Biopharmaceutical industry	50~299	1	67	67	67	67	-	-	-	-	-	-	67	67
Bioenvironmental industry	Less than 50	1	47	47	-	-	1	1	13	13	-	-	14	14
<input type="checkbox"/> Sales above break-even - 2~3 years														
Biopharmaceutical industry	Less than 50	2	66	33	-	-	5	3	21	11	-	-	26	13
	50~299	3	245	82	-	-	7	2	16	5	-	-	23	8
Biochemical industry	Less than 50	3	30	10	-	-	-	-	6	2	2	1	8	3
	50~299	1	7	7	-	-	-	-	-	-	-	-	-	-
Biofood industry	Less than 50	4	23	6	-	-	1	0	7	2	1	0	9	2
Bioelectronics industry	Less than 50	1	-	-	-	-	-	-	-	-	-	-	-	-
Bioprocess and equipment industry	Less than 50	2	33	17	1	1	-	-	11	6	4	2	16	8
Bioenergy and biosource industry	Less than 50	1	23	23	1	1	-	-	4	4	3	3	8	8
Bioassay, bioinformatics and R&D service industry	Less than 50	1	2	2	-	-	-	-	-	-	-	-	-	-
<input type="checkbox"/> Sales above break-even - 4~5 years														
Biopharmaceutical industry	Less than 50	7	119	17	2	0	2	0	27	4	4	1	35	5
	50~299	3	321	107	13	4	14	5	109	36	38	13	174	58
	300~999	1	114	114	2	2	11	11	20	20	6	6	39	39
Biochemical industry	Less than 50	8	116	15	2	0	3	0	14	2	13	2	32	4
	More than 1,000	1	91	91	-	-	-	-	-	-	-	-	-	-
Biofood industry	Less than 50	7	89	13	1	0	3	0	19	3	3	0	26	4
	50~299	1	18	18	-	-	-	-	-	-	-	-	-	-
Bioenvironmental industry	Less than 50	3	26	9	-	-	-	-	14	5	-	-	14	5
Bioprocess and equipment industry	Less than 50	2	45	23	-	-	-	-	2	1	-	-	2	1
	50~299	1	57	57	-	-	3	3	18	18	-	-	21	21
Bioenergy and biosource industry	Less than 50	1	6	6	-	-	-	-	-	-	-	-	-	-
Bioassay, bioinformatics and R&D service industry	Less than 50	1	40	40	2	2	2	2	6	6	-	-	10	10
<input type="checkbox"/> Sales above break-even - 6~9 years														
Biopharmaceutical industry	Less than 50	4	52	13	-	-	3	1	14	4	6	2	23	6
	50~299	6	366	61	4	1	11	2	50	8	12	2	77	13
	300~999	2	1,434	717	14	7	77	39	652	326	54	27	797	399
	More than 1,000	2	387	194	2	1	4	2	71	36	1	1	78	39
Biochemical industry	Less than 50	13	263	20	1	0	12	1	48	4	6	0	67	5
	50~299	3	86	29	-	-	40	13	3	1	-	-	43	14
	More than 1,000	2	492	246	-	-	-	-	3	2	-	-	3	2
Biofood industry	Less than 50	13	147	11	1	0	9	1	39	3	2	0	51	4
	50~299	2	116	58	-	-	4	2	10	5	6	3	20	10
Bioenvironmental industry	Less than 50	2	40	20	-	-	1	1	12	6	8	4	21	11
	300~999	1	7	7	-	-	-	-	-	-	-	-	-	-
Bioelectronics industry	Less than 50	1	7	7	-	-	-	-	3	3	-	-	3	3
Bioprocess and equipment industry	Less than 50	3	35	12	-	-	-	-	2	1	2	1	4	1
	50~299	2	64	32	-	-	-	-	15	8	-	-	15	8
Bioenergy and biosource industry	Less than 50	1	30	30	-	-	-	-	12	12	-	-	12	12
	50~299	1	57	57	-	-	-	-	-	-	41	41	41	41
Bioassay, bioinformatics and R&D service industry	Less than 50	2	17	9	1	1	1	1	-	-	1	1	3	2
	50~299	1	120	120	-	-	-	-	-	-	60	60	60	60

		Total	Bioindustry Workers		Others: Doctor		Others: Master		Others: Bachelor		Others: Others		Others: Total	
			Total	Average	Total	Average	Total	Average	Total	Average	Total	Average	Total	Average
Number of companies		971	38,197	39	362	0	1,210	1	7,874	8	4,941	5	14,387	15
<input type="checkbox"/> Sales above break-even - 10 or more years														
Biopharmaceutical industry	Less than 50	8	198	25	2	0	4	1	44	6	14	2	64	8
	50~299	33	3,310	100	9	0	128	4	839	25	413	13	1,389	42
	300~999	15	872	58	2	0	25	2	280	19	38	3	345	23
	More than 1,000	8	4,632	579	30	4	107	13	570	71	2,273	284	2,980	373
Biochemical industry	Less than 50	23	343	15	2	0	20	1	91	4	28	1	141	6
	50~299	12	1,088	91	9	1	65	5	281	23	84	7	439	37
	300~999	1	42	42	-	-	-	-	-	-	-	-	-	-
Biofood industry	Less than 50	15	257	17	7	0	8	1	50	3	26	2	91	6
	50~299	11	941	86	2	0	29	3	152	14	111	10	294	27
	300~999	4	1,011	253	6	2	50	13	335	84	189	47	580	145
	More than 1,000	3	2,176	725	8	3	107	36	814	271	152	51	1,081	360
Bioenvironmental industry	Less than 50	8	129	16	1	0	6	1	25	3	11	1	43	5
	50~299	4	89	22	-	-	-	-	-	-	-	-	-	-
	More than 1,000	1	72	72	-	-	-	-	-	-	-	-	-	-
Bioelectronics industry	Less than 50	1	24	24	-	-	3	3	2	2	6	6	11	11
	50~299	1	92	92	1	1	4	4	9	9	4	4	18	18
	300~999	2	775	388	7	4	25	13	122	61	27	14	181	91
Bioprocess and equipment industry	Less than 50	9	224	25	4	0	20	2	57	6	30	3	111	12
	50~299	7	301	43	1	0	3	0	93	13	72	10	169	24
	300~999	1	2	2	-	-	-	-	-	-	-	-	-	-
Bioenergy and bioresource industry	Less than 50	1	21	21	1	1	-	-	4	4	1	1	6	6
	50~299	1	85	85	6	6	7	7	15	15	11	11	39	39
	300~999	1	372	372	1	1	15	15	87	87	49	49	152	152
Bioassay, bioinformatics and R&D service industry	Less than 50	6	91	15	4	1	2	0	15	3	-	-	21	4
	50~299	8	1,057	132	8	1	37	5	201	25	30	4	276	35
<input type="checkbox"/> Sales - Unknown														
Biopharmaceutical industry	Less than 50	7	20	3	-	-	-	-	1	0	-	-	1	0
	50~299	6	97	16	2	0	9	2	18	3	-	-	29	5
	300~999	3	101	34	3	1	7	2	19	6	11	4	40	13
	Unknown	6	-	-	-	-	-	-	-	-	-	-	-	-
Biochemical industry	Less than 50	5	26	5	-	-	-	-	2	0	3	1	5	1
	50~299	2	-	-	-	-	-	-	-	-	-	-	-	-
	More than 1,000	3	22	7	-	-	-	-	-	-	-	-	-	-
	Unknown	2	-	-	-	-	-	-	-	-	-	-	-	-
Biofood industry	Less than 50	3	1	0	-	-	-	-	-	-	-	-	-	-
	Unknown	1	-	-	-	-	-	-	-	-	-	-	-	-
Bioenvironmental industry	Less than 50	1	-	-	-	-	-	-	-	-	-	-	-	-
	Unknown	1	-	-	-	-	-	-	-	-	-	-	-	-
Bioprocess and equipment industry	Less than 50	3	13	4	-	-	-	-	2	1	-	-	2	1
	300~999	1	-	-	-	-	-	-	-	-	-	-	-	-
Bioassay, bioinformatics and R&D service industry	Less than 50	3	11	4	-	-	-	-	2	1	1	0	3	1
	50~299	1	40	40	-	-	-	-	-	-	10	10	10	10

< Table 3 > Investment Status of Bioindustry (Unit : number of firms, million Won)

	Total	Total		R&D Investment		Total		Facility Investment		
		R&D Investment		in Bioindustry		Facility Investment		in Bioindustry		
		Total	Average	Total	Average	Total	Average	Total	Average	
Number of companies	971	4,295,210	4,423	1,165,103	1,200	493,718	508	221,617	228	
■ Sales Situation										
No sales	295	585,099	1,983	193,531	656	57,798	196	29,282	99	
Sales below break-even - 1 year	11	63,957	5,814	10,793	981	16,166	1,470	1,104	100	
Sales below break-even - 2~3 years	72	95,399	1,325	44,726	621	28,039	389	5,832	81	
Sales below break-even - 4~5 years	85	56,624	666	46,415	546	32,158	378	7,182	84	
Sales below break-even - 6~9 years	85	141,412	1,664	64,404	758	17,621	207	6,414	75	
Sales below break-even - 10 or more years	73	184,502	2,527	92,150	1,262	36,850	505	16,712	229	
Sales below break-even - Unknown	1	-	-	-	-	-	-	-	-	
Sales above break-even - 1 year	2	1,674	837	160	80	-	-	-	-	
Sales above break-even - 2~3 years	18	6,293	350	5,376	299	4,492	250	3,337	185	
Sales above break-even - 4~5 years	36	54,809	1,522	21,057	585	9,543	265	8,586	239	
Sales above break-even - 6~9 years	61	2,159,308	35,398	230,418	3,777	94,824	1,554	53,454	876	
Sales above break-even - 10 or more years	184	912,285	4,958	423,986	2,304	156,655	851	54,028	294	
Sales - Unknown	48	33,848	705	32,087	668	39,572	824	35,686	743	
■ Main type of industry										
Biopharmaceutical industry	317	1,496,987	4,722	857,255	2,704	365,913	1,154	173,412	547	
Biochemical industry	203	2,235,169	11,011	95,835	472	67,153	331	15,169	75	
Biofood industry	199	278,024	1,397	108,190	544	37,227	187	15,431	78	
Bioenvironmental industry	76	24,291	320	10,717	141	2,564	34	1,879	25	
Bioelectronics industry	26	29,354	1,129	20,769	799	2,700	104	1,810	70	
Bioprocess and equipment industry	70	88,637	1,266	18,584	265	2,330	33	1,454	21	
Bioenergy and bioresource industry	27	67,258	2,491	20,798	770	3,122	116	2,140	79	
Bioassay, bioinformatics and R&D service industry	53	75,490	1,424	32,955	622	12,709	240	10,322	195	
■ Number of employees										
Less than 50	575	183,340	319	116,152	202	45,780	80	40,112	70	
50~299	254	483,408	1,903	361,956	1,425	109,458	431	67,108	264	
300~999	77	559,614	7,268	304,062	3,949	114,378	1,485	48,987	636	
More than 1,000	45	3,068,814	68,196	382,933	8,510	224,102	4,980	65,410	1,454	
Unknown	20	34	2	-	-	-	-	-	-	
□ Sales situation - No sales										
Biopharmaceutical industry	Less than 50	42	9,708	231	8,279	197	3,295	78	3,295	78
	50~299	44	126,630	2,878	116,409	2,646	11,761	267	10,804	246
	300~999	20	89,716	4,486	34,232	1,712	10,962	548	5,235	262
	More than 1,000	2	35,326	17,663	100	50	-	-	-	-
	Unknown	1	-	-	-	-	-	-	-	-
Biochemical industry	Less than 50	27	7,050	261	3,845	142	650	24	315	12
	50~299	7	3,636	519	500	71	850	121	130	19
	300~999	4	7,658	1,915	400	100	1,000	250	40	10
	More than 1,000	5	168,353	33,671	5,500	1,100	5,000	1,000	3,000	600
	Unknown	1	-	-	-	-	-	-	-	-
Biofood industry	Less than 50	22	3,033	138	2,127	97	1,635	74	1,028	47
	50~299	17	3,781	222	1,980	116	1,030	61	410	24
	300~999	9	18,293	2,033	3,175	353	4,320	480	775	86
	More than 1,000	11	48,072	4,370	4,800	436	14,500	1,318	2,300	209
	Unknown	2	-	-	-	-	-	-	-	-
Bioenvironmental industry	Less than 50	17	1,760	104	648	38	-	-	-	-
	50~299	6	1,029	172	954	159	1	0	1	0
	Unknown	2	-	-	-	-	-	-	-	-
Bioelectronics industry	Less than 50	7	400	57	110	16	300	43	210	30
	50~299	2	1,730	865	500	250	500	250	300	150
	300~999	1	-	-	-	-	-	-	-	-
Bioprocess and equipment industry	Less than 50	17	1,412	83	760	45	1,010	59	600	35
	50~299	4	2,689	672	2,489	622	-	-	-	-
	Unknown	1	-	-	-	-	-	-	-	-
Bioenergy and bioresource industry	Less than 50	9	2,101	233	1,164	129	500	56	500	56
	50~299	2	4,897	2,449	-	-	-	-	-	-
	More than 1,000	1	42,046	42,046	3,000	3,000	-	-	-	-
	Unknown	1	-	-	-	-	-	-	-	-
Bioassay, bioinformatics and R&D service industry	Less than 50	9	1,828	203	1,559	173	384	43	239	27
	50~299	1	3,917	3,917	1,000	1,000	100	100	100	100
	Unknown	1	34	34	-	-	-	-	-	-

		Total	Total R&D Investment		R&D Investment in Bioindustry		Total Facility Investment		Facility Investment in Bioindustry	
			Total	Average	Total	Average	Total	Average	Total	Average
Number of companies		971	4,295,210	4,423	1,165,103	1,200	493,718	508	221,617	228
<input type="checkbox"/> Sales below break-even - 1 year										
Bio pharmaceutical industry	Less than 50	2	1,343	672	1,343	672	40	20	40	20
Biochemical industry	Less than 50	2	97	49	77	39	25	13	15	8
	More than 1,000	1	16,600	16,600	1,500	1,500	15,000	15,000	200	200
Biofood industry	Less than 50	2	472	236	402	201	10	5	10	5
	50~299	1	1,000	1,000	50	50	-	-	-	-
Bioenvironmental industry	Less than 50	1	55	55	55	55	-	-	-	-
	50~299	1	2,760	2,760	828	828	-	-	-	-
Bioassay, bioinformatics and R&D service industry	50~299	1	41,630	41,630	6,538	6,538	1,091	1,091	839	839
<input type="checkbox"/> Sales below break-even - 2~3 years										
Bio pharmaceutical industry	Less than 50	8	3,578	447	3,185	398	296	37	296	37
	50~299	9	13,399	1,489	10,344	1,149	585	65	345	38
	More than 1,000	1	54,366	54,366	20,000	20,000	10,000	10,000	2,000	2,000
Biochemical industry	Less than 50	21	3,269	156	2,459	117	654	31	454	22
	50~299	2	500	250	200	100	100	50	50	25
	300~999	2	11,672	5,836	2,400	1,200	14,892	7,446	1,200	600
Biofood industry	Less than 50	11	1,789	163	1,489	135	31	3	21	2
	50~299	2	288	144	150	75	-	-	-	-
Bioenvironmental industry	Less than 50	4	560	140	386	97	30	8	30	8
Bioelectronics industry	Less than 50	2	1,076	538	1,076	538	200	100	200	100
Bioprocess and equipment industry	Less than 50	4	1,470	368	770	193	85	21	70	18
Bioenergy and biosource industry	Less than 50	3	635	212	435	145	240	80	240	80
	50~299	1	975	975	10	10	10	10	10	10
Bioassay, bioinformatics and R&D service industry	Less than 50	2	1,822	911	1,822	911	916	458	916	458
<input type="checkbox"/> Sales below break-even - 4~5 years										
Bio pharmaceutical industry	Less than 50	13	10,812	832	10,807	831	937	72	732	56
	50~299	7	19,106	2,729	17,580	2,511	24,678	3,525	2,109	301
Biochemical industry	Less than 50	14	1,663	119	1,114	80	200	14	50	4
	50~299	3	1,244	415	899	300	1,000	333	-	-
	More than 1,000	1	-	-	-	-	-	-	-	-
Biofood industry	Less than 50	16	3,876	242	3,442	215	2,723	170	2,716	170
	300~999	1	1,830	1,830	10	10	50	50	-	-
Bioenvironmental industry	Less than 50	8	1,342	168	1,192	149	190	24	165	21
	50~299	1	733	733	733	733	-	-	-	-
Bioelectronics industry	Less than 50	2	2,150	1,075	1,100	550	1,000	500	400	200
	50~299	2	8,605	4,303	6,765	3,383	-	-	-	-
Bioprocess and equipment industry	Less than 50	7	2,612	373	1,119	160	275	39	100	14
Bioenergy and biosource industry	Less than 50	3	820	273	405	135	600	200	405	135
Bioassay, bioinformatics and R&D service industry	Less than 50	7	1,831	262	1,249	178	505	72	505	72
<input type="checkbox"/> Sales below break-even - 6~9 years										
Bio pharmaceutical industry	Less than 50	16	6,840	428	5,199	325	182	11	182	11
	50~299	5	8,602	1,720	8,602	1,720	1,838	368	1,838	368
	300~999	3	11,819	3,940	11,819	3,940	10,113	3,371	384	128
Biochemical industry	Less than 50	20	10,223	511	9,186	459	2,498	125	2,483	124
	50~299	1	6,636	6,636	6,636	6,636	-	-	-	-
	More than 1,000	2	83,167	41,584	14,000	7,000	300	150	300	150
Biofood industry	Less than 50	18	4,124	229	1,733	96	246	14	116	6
	50~299	1	845	845	845	845	-	-	-	-
Bioenvironmental industry	Less than 50	7	310	44	160	23	300	43	280	40
	50~299	2	1,900	950	1,000	500	-	-	-	-
Bioelectronics industry	Less than 50	2	497	249	407	204	30	15	30	15
Bioprocess and equipment industry	Less than 50	2	686	343	208	104	15	8	2	1
	50~299	1	3,387	3,387	3,387	3,387	99	99	99	99
Bioassay, bioinformatics and R&D service industry	Less than 50	4	1,072	268	1,072	268	-	-	-	-
	50~299	1	1,304	1,304	150	150	2,000	2,000	700	700

		Total	Total R&D Investment		R&D Investment in Bioindustry		Total Facility Investment		Facility Investment in Bioindustry	
			Total	Average	Total	Average	Total	Average	Total	Average
Number of companies		971	4,295,210	4,423	1,165,103	1,200	493,718	508	221,617	228
<input type="checkbox"/> Sales below break-even - 10 or more years										
Biopharmaceutical industry	Less than 50	10	7,212	721	5,111	511	75	8	75	8
	50~299	10	63,821	6,382	56,013	5,601	16,341	1,634	9,912	991
	300~999	5	35,630	7,126	11,480	2,296	8,719	1,744	1,400	280
	More than 1,000	1	61,174	61,174	7,806	7,806	8,057	8,057	2,169	2,169
	Unknown	1	-	-	-	-	-	-	-	-
Biochemical industry	Less than 50	9	3,469	385	2,628	292	655	73	555	62
	50~299	2	3,275	1,638	2,210	1,105	369	185	169	85
Biofood industry	Less than 50	15	2,234	149	1,070	71	463	31	261	17
	50~299	6	5,453	909	4,028	671	2,102	350	2,102	350
Bioenvironmental industry	Less than 50	5	120	24	45	9	-	-	-	-
Bioelectronics industry	Less than 50	2	1,252	626	1,252	626	8	4	8	4
Bioprocess and equipment industry	Less than 50	3	577	192	317	106	50	17	50	17
Bioassay, bioinformatics and R&D service industry	Less than 50	3	285	95	190	63	11	4	11	4
	50~299	1	-	-	-	-	-	-	-	-
<input type="checkbox"/> Sales below break-even - Unknown										
Biofood industry	Less than 50	1	-	-	-	-	-	-	-	-
<input type="checkbox"/> Sales above break-even - 1 year										
Biopharmaceutical industry	50~299	1	-	-	-	-	-	-	-	-
Bioenvironmental industry	Less than 50	1	1,674	1,674	160	160	-	-	-	-
<input type="checkbox"/> Sales above break-even - 2~3 years										
Biopharmaceutical industry	Less than 50	2	2,150	1,075	2,150	1,075	1,600	800	1,600	800
	50~299	3	2,206	735	2,206	735	1,332	444	1,332	444
Biochemical industry	Less than 50	3	600	200	400	133	350	117	235	78
	50~299	1	647	647	-	-	1,040	1,040	-	-
Biofood industry	Less than 50	4	30	8	20	5	-	-	-	-
Bioelectronics industry	Less than 50	1	-	-	-	-	-	-	-	-
Bioprocess and equipment industry	Less than 50	2	60	30	-	-	-	-	-	-
Bioenergy and bioresource industry	Less than 50	1	600	600	600	600	170	170	170	170
Bioassay, bioinformatics and R&D service industry	Less than 50	1	-	-	-	-	-	-	-	-
<input type="checkbox"/> Sales above break-even - 4~5 years										
Biopharmaceutical industry	Less than 50	7	4,980	711	1,442	206	1,718	245	818	117
	50~299	3	5,013	1,671	4,351	1,450	6,815	2,272	6,815	2,272
	300~999	1	2,581	2,581	1,371	1,371	126	126	126	126
Biochemical industry	Less than 50	8	2,038	255	1,988	249	832	104	782	98
	More than 1,000	1	21,473	21,473	7,157	7,157	-	-	-	-
Biofood industry	Less than 50	7	1,297	185	1,139	163	42	6	35	5
	50~299	1	14,736	14,736	1,200	1,200	-	-	-	-
Bioenvironmental industry	Less than 50	3	443	148	161	54	-	-	-	-
Bioprocess and equipment industry	Less than 50	2	10	5	10	5	10	5	10	5
	50~299	1	2,238	2,238	2,238	2,238	-	-	-	-
Bioenergy and bioresource industry	Less than 50	1	-	-	-	-	-	-	-	-
Bioassay, bioinformatics and R&D service industry	Less than 50	1	-	-	-	-	-	-	-	-
<input type="checkbox"/> Sales above break-even - 6~9 years										
Biopharmaceutical industry	Less than 50	4	1,183	296	1,183	296	4,660	1,165	4,660	1,165
	50~299	6	10,860	1,810	9,895	1,649	3,398	566	2,450	408
	300~999	2	173,633	86,817	170,223	85,112	1,796	898	1,706	853
	More than 1,000	2	103,685	51,843	33,371	16,686	70,700	35,350	42,240	21,120
Biochemical industry	Less than 50	13	4,702	362	4,212	324	985	76	798	61
	50~299	3	4,270	1,423	260	87	300	100	50	17
	More than 1,000	2	1,849,044	924,522	6,000	3,000	9,000	4,500	600	300
Biofood industry	Less than 50	13	2,113	163	1,793	138	794	61	789	61
	50~299	2	1,708	854	1,708	854	3,000	1,500	10	5
Bioenvironmental industry	Less than 50	2	317	159	150	75	-	-	-	-
	300~999	1	5,774	5,774	358	358	40	40	-	-
Bioelectronics industry	Less than 50	1	100	100	100	100	50	50	50	50
Bioprocess and equipment industry	Less than 50	3	378	126	328	109	101	34	101	34
	50~299	2	704	352	-	-	-	-	-	-
Bioenergy and bioresource industry	Less than 50	1	226	226	226	226	-	-	-	-
	50~299	1	251	251	251	251	-	-	-	-
Bioassay, bioinformatics and R&D service industry	Less than 50	2	360	180	360	180	-	-	-	-
	50~299	1	-	-	-	-	-	-	-	-

		Total	Total R&D Investment		R&D Investment in Bioindustry		Total Facility Investment		Facility Investment in Bioindustry	
			Total	Average	Total	Average	Total	Average	Total	Average
Number of companies		971	4,295,210	4,423	1,165,103	1,200	493,718	508	221,617	228
<input type="checkbox"/> Sales above break-even - 10 or more years										
Biopharmaceutical industry	Less than 50	8	3,289	411	3,094	387	9,842	1,230	9,832	1,229
	50~299	33	41,797	1,267	30,983	939	13,001	394	12,111	367
	300~999	15	88,609	5,907	17,283	1,152	13,633	909	1,830	122
	More than 1,000	8	464,221	58,028	219,457	27,432	89,841	11,230	11,390	1,424
Biochemical industry	Less than 50	23	8,791	382	7,196	313	686	30	601	26
	50~299	12	10,218	852	10,194	850	2,147	179	2,142	179
	300~999	1	4,724	4,724	4,724	4,724	8,620	8,620	1,000	1,000
Biofood industry	Less than 50	15	3,840	256	3,157	210	1,728	115	1,728	115
	50~299	11	9,103	828	7,750	705	2,839	258	2,839	258
	300~999	4	29,820	7,455	6,880	1,720	1,010	253	80	20
	More than 1,000	3	120,287	40,096	59,242	19,747	704	235	211	70
Bioenvironmental industry	Less than 50	8	1,810	226	1,535	192	3	0	3	0
	50~299	4	2,704	676	1,352	338	1,000	250	400	100
	More than 1,000	1	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Bioelectronics industry	Less than 50	1	414	414	414	414	-	-	-	-
	50~299	1	669	669	669	669	-	-	-	-
	300~999	2	12,461	6,231	8,376	4,188	612	306	612	306
Bioprocess and equipment industry	Less than 50	9	30,718	3,413	477	53	230	26	170	19
	50~299	7	8,644	1,235	5,731	819	453	65	250	36
	300~999	1	33,052	33,052	750	750	2	2	2	2
Bioenergy and biosource industry	Less than 50	1	800	800	800	800	-	-	-	-
	50~299	1	3,163	3,163	3,163	3,163	852	852	65	65
	300~999	1	10,744	10,744	10,744	10,744	750	750	750	750
Bioassay, bioinformatics and R&D service industry	Less than 50	6	2,802	467	1,910	318	715	119	125	21
	50~299	8	18,605	2,326	17,105	2,138	6,987	873	6,887	861
<input type="checkbox"/> Sales - Unknown										
Biopharmaceutical industry	Less than 50	7	-	-	-	-	-	-	-	-
	50~299	6	12,100	2,017	12,100	2,017	1,839	307	1,839	307
	300~999	3	21,598	7,199	19,837	6,612	37,733	12,578	33,847	11,282
	Unknown	6	-	-	-	-	-	-	-	-
Biochemical industry	Less than 50	5	150	30	150	30	-	-	-	-
	50~299	2	-	-	-	-	-	-	-	-
	More than 1,000	3	-	-	-	-	-	-	-	-
	Unknown	2	-	-	-	-	-	-	-	-
Biofood industry	Less than 50	3	-	-	-	-	-	-	-	-
	Unknown	1	-	-	-	-	-	-	-	-
Bioenvironmental industry	Less than 50	1	-	-	-	-	-	-	-	-
	Unknown	1	-	-	-	-	-	-	-	-
Bioprocess and equipment industry	Less than 50	3	-	-	-	-	-	-	-	-
	300~999	1	-	-	-	-	-	-	-	-
Bioassay, bioinformatics and R&D service industry	Less than 50	3	-	-	-	-	-	-	-	-
	50~299	1	-	-	-	-	-	-	-	-

		Total	Domestic																																																	
			Business Entities																					Research Institutes																												
			Sub Total							1~299							300~999							1,000 or more							Government-invested					Private					Universities					Medical Institutes						
			Total	Basic	Exper	Prot	Proct	Com	Total	Basic	Exper	Prot	Proct	Com	Total	Basic	Exper	Prot	Proct	Com	Total	Basic	Exper	Prot	Proct	Com	Total	Basic	Exper	Prot	Proct	Com	Total	Basic	Exper	Prot	Proct	Com	Total	Basic	Exper	Prot	Proct	Com	Total	Basic	Exper	Prot	Proct	Com		
Number of companies		971	795	256	250	132	111	46	157	43	40	36	31	7	32	7	6	3	6	10	23	7	11	1	4	-	167	81	29	23	22	12	35	14	8	5	8	-	310	91	123	46	34	16	71	13	33	18	6	1		
Biochemical industry	Less than 50	27	2	0	1	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-				
	50~299	7	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	300~999	4	1	1	0	0	0	0	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	More than 1,000	5	10	10	0	0	0	0	3	3	-	-	-	-	1	1	-	-	-	-	1	1	-	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	3	3	-	-	-	-	-	-	-	-		
Unknown	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Biofood industry	Less than 50	22	38	13	8	12	4	1	5	-	3	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	6	1	1	2	1	1	-	-	-	-	-	-	23	10	4	9	-	-	4	2	-	-	2	-		
	50~299	17	2	1	1	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	1	-	-	-	-	-	-	-	-	-			
	300~999	9	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	More than 1,000	11	5	0	3	2	0	0	2	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	3	-	-	-	-	-	-	-	-	-			
Unknown	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bioenvironmental industry	Less than 50	17	4	0	1	3	0	0	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	2	-	1	1	-	-	-	-	-	-	-	-	-		
	50~299	6	1	0	1	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-			
Unknown	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bioelectronics industry	Less than 50	7	2	0	0	1	1	0	2	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	50~299	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	300~999	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bioprocess and equipment industry	Less than 50	17	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	50~299	4	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Unknown	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bioenergy and bioresource industry	Less than 50	9	3	0	3	0	0	0	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-		
	50~299	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	More than 1,000	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Unknown	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bioassay, bioinformatics and R&D service industry	Less than 50	9	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	50~299	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Unknown	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<input type="checkbox"/> Sales below break-even - 1 year																																																				
Biopharmaceutical industry	Less than 50	2	3	0	0	0	3	0	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	More than 1,000	1	2	2	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Biofood industry	Less than 50	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	50~299	1	2	0	0	0	0	2	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bioenvironmental industry	Less than 50	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	50~299	1	2	0	0	0	1	1	2	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bioassay, bioinformatics and R&D service industry	50~299	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<input type="checkbox"/> Sales below break-even - 2~3 years																																																				
Biopharmaceutical industry	Less than 50	8	5	1	2	1	0	1	2	1	1	-	-	-	-	-	-	-	-	1	-	1	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	50~299	9	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	More than 1,000	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

		Total	Domestic																																																	
			Sub Total		Business Entities															Research Institutes																																
					1~299					300~999					1,000 or more					Government-invested					Private					Universities					Medical Institutes																	
			Total	Basic	Expe	Prot	Pro	Com	Total	Basic	Expe	Prot	Pro	Com	Total	Basic	Expe	Prot	Pro	Com	Total	Basic	Expe	Prot	Pro	Com	Total	Basic	Expe	Prot	Pro	Com	Total	Basic	Expe	Prot	Pro	Com	Total	Basic	Expe	Prot	Pro	Com								
Number of companies		971	795	256	250	132	111	46	157	43	40	36	31	7	32	7	6	3	6	10	23	7	11	1	4	-	167	81	29	23	22	12	35	14	8	5	8	-	310	91	123	46	34	16	71	13	33	18	6	1		
Biochemical industry	Less than 50	21	6	1	0	2	3	0	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	1	-	-	-	1	-	2	1	-	1	-	-	-	-	-	-	-	-			
	50~299	2	1	1	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	300~999	2	4	1	2	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Biofood industry	Less than 50	11	11	3	1	3	3	1	1	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	50~299	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Bioenvironmental industry	Less than 50	4	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Bioelectronics industry	Less than 50	2	7	0	0	5	2	0	3	-	-	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Bioprocess and equipment industry	Less than 50	4	4	0	0	4	0	0	2	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bioenergy and bioresource industry	Less than 50	3	3	3	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	50~299	1	6	4	0	1	1	0	1	1	-	-	-	-	1	-	-	-	1	-	1	1	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bioassay, bioinformatics and R&D service industry	Less than 50	2	1	0	1	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
<input type="checkbox"/> Sales below break-even - 4~5 years																																																				
Biopharmaceutical industry	Less than 50	13	5	0	4	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	50~299	7	3	0	3	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Biochemical industry	Less than 50	14	3	0	2	1	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	50~299	3	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	More than 1,000	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Biofood industry	Less than 50	16	4	2	1	0	1	0	3	2	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	300~999	1	4	1	3	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bioenvironmental industry	Less than 50	8	4	4	0	0	0	1	1	-	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	50~299	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bioelectronics industry	Less than 50	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	50~299	2	1	0	0	1	0	0	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bioprocess and equipment industry	Less than 50	7	3	2	0	0	1	0	3	2	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bioenergy and bioresource industry	Less than 50	3	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bioassay, bioinformatics and R&D service industry	Less than 50	7	30	15	12	1	2	0	3	3	-	-	-	-	3	-	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<input type="checkbox"/> Sales below break-even - 6~9 years																																																				
Biopharmaceutical industry	Less than 50	16	7	2	3	0	2	0	3	2	-	-	1	-	1	-	1	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	50~299	5	2	0	2	0	0	0	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	300~999	3	5	5	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Biochemical industry	Less than 50	20	14	1	4	4	2	3	2	-	1	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	5	1	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	50~299	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	More than 1,000	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Biofood industry	Less than 50	18	4	3	0	0	0	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	50~299	1	3	3	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bioenvironmental industry	Less than 50	7	3	0	2	1	0	0	2	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	50~299	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

		Total	Domestic																																															
			Business Entities															Research Institutes																																
			Sub Total					1~299					300~999					1,000 or more					Government-invested						Private						Universities						Medical Institutes									
			Total	Basic	Expe	Prot	Pro	Total	Basic	Expe	Prot	Pro	Total	Basic	Expe	Prot	Pro	Total	Basic	Expe	Prot	Pro	Total	Basic	Expe	Prot	Pro	Total	Basic	Expe	Prot	Pro	Total	Basic	Expe	Prot	Pro	Total	Basic	Expe	Prot	Pro								
Number of companies		971	795	256	250	132	111	46	157	43	40	36	31	7	32	7	6	3	6	10	23	7	11	1	4	-	167	81	29	23	22	12	35	14	8	5	8	-	310	91	123	46	34	16	71	13	33	18	6	1
Bioelectronics industry	Less than 50	2	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Bioprocess and equipment industry	Less than 50	2	5	0	4	1	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	50~299	1	4	0	4	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Bioassay, bioinformatics and R&D service industry	Less than 50	4	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	50~299	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
<input type="checkbox"/> Sales below break-even - 10 or more years																																																		
Biopharmaceutical industry	Less than 50	10	10	0	9	1	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	50~299	10	19	6	8	2	3	0	3	-	-	-	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	300~999	5	6	0	1	5	0	0	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	More than 1,000	1	2	0	2	0	0	0	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	Unknown	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Biochemical industry	Less than 50	9	8	2	1	1	3	1	3	1	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	50~299	2	5	1	1	3	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Biofood industry	Less than 50	15	10	3	4	0	2	1	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	50~299	6	38	4	12	9	12	1	18	-	-	-	7	6	5	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Bioenvironmental industry	Less than 50	5	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Bioelectronics industry	Less than 50	2	4	4	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Bioprocess and equipment industry	Less than 50	3	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Bioassay, bioinformatics and R&D service industry	Less than 50	3	2	2	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	50~299	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
<input type="checkbox"/> Sales below break-even - Unknown																																																		
Biofood industry	Less than 50	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
<input type="checkbox"/> Sales above break-even - 1 year																																																		
Biopharmaceutical industry	50~299	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Bioenvironmental industry	Less than 50	1	3	0	0	0	1	2	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
<input type="checkbox"/> Sales above break-even - 2~3 years																																																		
Biopharmaceutical industry	Less than 50	2	4	0	0	0	4	0	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	50~299	3	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Biochemical industry	Less than 50	3	2	0	1	0	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	50~299	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Biofood industry	Less than 50	4	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Bioelectronics industry	Less than 50	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Bioprocess and equipment industry	Less than 50	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Bioenergy and bioresource industry	Less than 50	1	3	0	1	2	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Bioassay, bioinformatics and R&D service industry	Less than 50	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
<input type="checkbox"/> Sales above break-even - 4~5 years																																																		
Biopharmaceutical industry	Less than 50	7	4	1	2	1	0	0	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	50~299	3	20	1	19	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	300~999	1	1	0	1	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				

		Total	Domestic																																															
			Business Entities																		Research Institutes																													
			Sub Total						1~299						300~999						1,000 or more						Government-invested						Private						Universities						Medical Institutes					
			Total	Basic	Experimental	Prototype	Product	Commercial	Total	Basic	Experimental	Prototype	Product	Commercial	Total	Basic	Experimental	Prototype	Product	Commercial	Total	Basic	Experimental	Prototype	Product	Commercial	Total	Basic	Experimental	Prototype	Product	Commercial	Total	Basic	Experimental	Prototype	Product	Commercial	Total	Basic	Experimental	Prototype	Product	Commercial						
Number of companies		971	795	256	250	132	111	46	157	43	40	36	31	7	32	7	6	3	6	10	23	7	11	1	4	-	167	81	29	23	22	12	35	14	8	5	8	-	310	91	123	46	34	16	71	13	33	18	6	1
Biochemical industry	Less than 50	8	8	2	3	3	0	0	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	6	2	3	1	-	-	-	-	-	-
	More than 1,000	1	13	5	0	0	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11	3	-	-	4	4	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Biofood industry	Less than 50	7	2	1	0	0	0	1	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	50~299	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bioenvironmental industry	Less than 50	3	1	0	0	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bioprocess and equipment industry	Less than 50	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	50~299	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bioenergy and bioresource industry	Less than 50	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bioassay, bioinformatics and R&D service industry	Less than 50	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<input type="checkbox"/> Sales above break-even - 6~9 years																																																		
Biopharmaceutical industry	Less than 50	4	3	0	2	0	0	1	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	50~299	6	4	0	3	1	0	0	2	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	300~999	2	15	3	4	8	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	More than 1,000	2	1	0	0	1	0	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Biochemical industry	Less than 50	13	11	5	3	1	2	0	1	1	-	-	-	-	-	-	-	-	-	-	5	2	2	-	1	-	3	1	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	50~299	3	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	More than 1,000	2	18	0	0	0	0	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Biofood industry	Less than 50	13	14	7	2	3	2	0	4	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	1	-	1	1	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	50~299	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bioenvironmental industry	Less than 50	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	300~999	1	1	1	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bioelectronics industry	Less than 50	1	28	27	1	0	0	0	2	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bioprocess and equipment industry	Less than 50	3	2	0	0	0	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	50~299	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bioenergy and bioresource industry	Less than 50	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	50~299	1	1	0	1	0	0	0	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bioassay, bioinformatics and R&D service industry	Less than 50	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	50~299	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<input type="checkbox"/> Sales above break-even - 10 or more years																																																		
Biopharmaceutical industry	Less than 50	8	4	0	1	1	2	0	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	50~299	33	60	11	15	25	9	0	13	-	-	11	2	-	-	-	-	-	-	-	-	-	-	-	-	-	4	1	2	1	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	300~999	15	16	11	5	0	0	4	2	2	-	-	-	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	More than 1,000	8	19	18	1	0	0	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Biochemical industry	Less than 50	23	24	7	3	3	8	3	2	2	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	9	1	2	1	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	50~299	12	18	11	6	1	0	0	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	300~999	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Biofood industry	Less than 50	15	15	2	2	3	8	0	1	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	2	1	1	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	50~299	11	14	1	8	4	1	0	3	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	300~999	4	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	More than 1,000	3	38	11	17	0	8	2	14	6	3	-	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

< Table4-4 > Overseas Scale of Joint R&D Contract Cooperation (III-4) (Unit : Cases, Count)

	Total	Overseas																																																						
		Sub Total															Business Entities												Research Institutes																											
		1~299						300~999						1,000 or more			Government-invested			Private			Universities			Medical Institutes																														
		Tot	Bas	Expe	Prot	Prod	Com	Tot	Bas	Expe	Prot	Prod	Com	Tot	Bas	Expe	Prot	Prod	Com	Tot	Bas	Expe	Prot	Prod	Com	Tot	Bas	Expe	Prot	Prod	Com	Tot	Bas	Expe	Prot	Prod	Com	Tot	Bas	Expe	Prot	Prod	Com													
Number of companies	971	57	19	14	12	6	6	19	5	4	4	3	3	9	3	2	3	1	-	3	-	-	1	1	1	9	6	3	-	-	-	6	2	-	2	-	2	9	2	4	2	1	-	2	1	1	-	-	-							
<input checked="" type="checkbox"/> Sales Situation																																																								
No sales	295	7	3	1	0	0	3	2	1	1	-	-	-	1	1	-	-	-	-	1	-	-	-	1	1	1	1	1	1	-	-	-	2	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-							
Sales below break-even - 1 year	11	3	3	0	0	0	0	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
Sales below break-even - 2~3 years	72	9	3	3	2	1	0	4	1	1	1	1	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-	1	-	-	2	1	1	-	-	-							
Sales below break-even - 4~5 years	85	2	1	0	1	0	0	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-							
Sales below break-even - 6~9 years	85	2	0	0	0	2	0	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-							
Sales below break-even - 10 or more years	73	3	0	2	0	1	0	1	-	1	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-								
Sales below break-even - Unknown	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
Sales above break-even - 1 year	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
Sales above break-even - 2~3 years	18	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
Sales above break-even - 4~5 years	36	4	1	0	3	0	0	-	-	-	-	-	-	3	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-							
Sales above break-even - 6~9 years	61	9	4	2	0	1	2	3	-	-	-	1	2	-	-	-	-	-	-	-	-	-	6	4	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
Sales above break-even - 10 or more years	184	18	4	6	6	1	1	6	-	1	3	1	1	4	2	2	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	2	-	2	-	-	3	-	3	-	-	-	-	-	-					
Sales - Unknown	48	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
<input checked="" type="checkbox"/> Main type of industry																																																								
Biopharmaceutical industry	317	31	8	8	7	2	6	9	-	2	3	1	3	7	2	2	3	-	-	3	-	-	1	1	1	7	4	3	-	-	-	3	1	-	-	-	2	2	1	1	-	-	-	-	-	-	-	-	-	-						
Biochemical industry	203	4	2	1	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	1	-	1	-	-	-	-	-	-	-						
Biofood industry	199	11	2	3	4	2	0	4	1	1	1	1	-	2	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2	-	-	3	-	2	1	-	-	-	-	-	-				
Bioenvironmental industry	76	2	2	0	0	0	0	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Bioelectronics industry	26	2	0	1	0	1	0	2	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Bioprocess and equipment industry	70	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Bioenergy and bioresource industry	27	5	3	1	1	0	0	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1	-	1	-	-	2	1	1	-	-	-	-	-			
Bioassay, bioinformatics and R&D service industry	53	2	2	0	0	0	0	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-				
<input checked="" type="checkbox"/> Number of employees																																																								
Less than 50	575	18	5	3	5	3	2	6	2	1	1	2	-	4	1	-	3	-	-	-	-	-	-	-	-	3	2	1	-	-	-	2	-	-	-	-	2	3	-	1	1	1	-	-	-	-	-	-	-	-	-	-				
50~299	254	21	8	2	4	3	4	10	3	-	3	1	3	1	-	-	1	-	2	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	2	2	-	-	-	-	4	2	1	1	-	-	2	1	1	-	-	-	-	-
300~999	77	11	5	6	0	0	0	2	-	2	-	-	-	4	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
More than 1,000	45	7	1	3	3	0	0	1	-	1	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Unknown	20	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
<input type="checkbox"/> Sales situation - No sales																																																								
Biopharmaceutical industry																																																								
Less than 50	42	3	1	0	0	0	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	2	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
50~299	44	1	0	0	0	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
300~999	20	1	0	1	0	0	0	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
More than 1,000	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Unknown	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					

		Total	Overseas																																															
			Sub Total		Business Entities															Research Institutes																														
					1~299					300~999					1,000 or more					Government-invested					Private					Universities					Medical Institutes															
			Total	Basic	Exper	Prot	Proct	Com	Total	Basic	Exper	Prot	Proct	Com	Total	Basic	Exper	Prot	Proct	Com	Total	Basic	Exper	Prot	Proct	Com	Total	Basic	Exper	Prot	Proct	Com	Total	Basic	Exper	Prot	Proct	Com	Total	Basic	Exper	Prot	Proct	Com						
Number of companies		971	57	19	14	12	6	6	19	5	4	4	3	3	9	3	2	3	1	-	3	-	-	1	1	1	9	6	3	-	-	-	6	2	-	2	-	2	9	2	4	2	1	-	2	1	1	-	-	-
Biochemical industry	Less than 50	27	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	50~299	7	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	300~999	4	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	More than 1,000	5	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	Unknown	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Biofood industry	Less than 50	22	2	2	0	0	0	0	1	1	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	50~299	17	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	300~999	9	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	More than 1,000	11	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	Unknown	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bioenvironmental industry	Less than 50	17	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	50~299	6	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	Unknown	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bioelectronics industry	Less than 50	7	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	50~299	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	300~999	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bioprocess and equipment industry	Less than 50	17	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	50~299	4	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	Unknown	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bioenergy and bioresource industry	Less than 50	9	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	50~299	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	More than 1,000	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Unknown	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bioassay, bioinformatics and R&D service industry	Less than 50	9	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	50~299	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	Unknown	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
<input type="checkbox"/> Sales below break-even - 1 year																																																		
Biopharmaceutical industry	Less than 50	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Biochemical industry	Less than 50	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	More than 1,000	1	1	1	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Biofood industry	Less than 50	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	50~299	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bioenvironmental industry	Less than 50	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	50~299	1	2	2	0	0	0	0	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Bioassay, bioinformatics and R&D service industry	50~299	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
<input type="checkbox"/> Sales below break-even - 2~3 years																																																		
Biopharmaceutical industry	Less than 50	8	1	0	1	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	50~299	9	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	More than 1,000	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

		Total	Overseas																																																
			Business Entities																		Research Institutes																														
			Sub Total						1~299						300~999						1,000 or more						Government-invested						Private						Universities						Medical Institutes						
			Total	Basic	Experimental	Prototype	Product	Commercial	Total	Basic	Experimental	Prototype	Product	Commercial	Total	Basic	Experimental	Prototype	Product	Commercial	Total	Basic	Experimental	Prototype	Product	Commercial	Total	Basic	Experimental	Prototype	Product	Commercial	Total	Basic	Experimental	Prototype	Product	Commercial	Total	Basic	Experimental	Prototype	Product	Commercial							
Number of companies		971	57	19	14	12	6	6	19	5	4	4	3	3	9	3	2	3	1	-	3	-	-	1	1	1	9	6	3	-	-	-	6	2	-	2	-	2	9	2	4	2	1	-	2	1	1	-	-	-	
Biochemical industry	Less than 50	21	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	50~299	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	300~999	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Biofood industry	Less than 50	11	1	0	0	1	0	0	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	50~299	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bioenvironmental industry	Less than 50	4	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bioelectronics industry	Less than 50	2	2	0	1	0	1	0	2	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bioprocess and equipment industry	Less than 50	4	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bioenergy and bioresource industry	Less than 50	3	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	50~299	1	5	3	1	1	0	0	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bioassay, bioinformatics and R&D service industry	Less than 50	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<input type="checkbox"/> Sales below break-even - 4~5 years																																																			
Biopharmaceutical industry	Less than 50	13	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	50~299	7	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Biochemical industry	Less than 50	14	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	50~299	3	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	More than 1,000	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Biofood industry	Less than 50	16	1	0	0	1	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	300~999	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bioenvironmental industry	Less than 50	8	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	50~299	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bioelectronics industry	Less than 50	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	50~299	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bioprocess and equipment industry	Less than 50	7	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bioenergy and bioresource industry	Less than 50	3	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bioassay, bioinformatics and R&D service industry	Less than 50	7	1	1	0	0	0	0	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<input type="checkbox"/> Sales below break-even - 6~9 years																																																			
Biopharmaceutical industry	Less than 50	16	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	50~299	5	1	0	0	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	300~999	3	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Biochemical industry	Less than 50	20	1	0	0	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	50~299	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	More than 1,000	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Biofood industry	Less than 50	18	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	50~299	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bioenvironmental industry	Less than 50	7	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	50~299	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

	Total	Overseas																																															
		Business Entities																		Research Institutes																													
		Sub Total						1~299						300~999						1,000 or more						Government-invested						Private						Universities						Medical Institutes					
		Total	Basic	Exper	Prot	Proct	Com	Total	Basic	Exper	Prot	Proct	Com	Total	Basic	Exper	Prot	Proct	Com	Total	Basic	Exper	Prot	Proct	Com	Total	Basic	Exper	Prot	Proct	Com	Total	Basic	Exper	Prot	Proct	Com	Total	Basic	Exper	Prot	Proct	Com	Total	Basic	Exper	Prot	Proct	Com
Number of companies	971	57	19	14	12	6	6	19	5	4	4	3	3	9	3	2	3	1	-	3	-	-	1	1	1	9	6	3	-	-	-	6	2	-	2	-	2	9	2	4	2	1	-	2	1	1	-	-	-
Bioelectronics industry	Less than 50	2	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Bioprocess and equipment industry	Less than 50	2	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	50~299	1	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bioassay, bioinformatics and R&D service industry	Less than 50	4	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	50~299	1	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
<input type="checkbox"/> Sales below break-even - 10 or more years																																																	
Biopharmaceutical industry	Less than 50	10	1	0	1	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	50~299	10	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	300~999	5	1	0	1	0	0	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	More than 1,000	1	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	Unknown	1	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Biochemical industry	Less than 50	9	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	50~299	2	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Biofood industry	Less than 50	15	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	50~299	6	1	0	0	0	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bioenvironmental industry	Less than 50	5	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bioelectronics industry	Less than 50	2	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bioprocess and equipment industry	Less than 50	3	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bioassay, bioinformatics and R&D service industry	Less than 50	3	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	50~299	1	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
<input type="checkbox"/> Sales below break-even - Unknown																																																	
Biofood industry	Less than 50	1	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
<input type="checkbox"/> Sales above break-even - 1 year																																																	
Biopharmaceutical industry	50~299	1	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bioenvironmental industry	Less than 50	1	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
<input type="checkbox"/> Sales above break-even - 2~3 years																																																	
Biopharmaceutical industry	Less than 50	2	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	50~299	3	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Biochemical industry	Less than 50	3	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	50~299	1	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Biofood industry	Less than 50	4	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bioelectronics industry	Less than 50	1	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bioprocess and equipment industry	Less than 50	2	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bioenergy and bioresource industry	Less than 50	1	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bioassay, bioinformatics and R&D service industry	Less than 50	1	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
<input type="checkbox"/> Sales above break-even - 4~5 years																																																	
Biopharmaceutical industry	Less than 50	7	3	0	0	3	0	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	50~299	3	1	1	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	300~999	1	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

		Total	Overseas																																															
			Sub Total		Business Entities												Research Institutes																																	
					1~299				300~999				1,000 or more				Government-invested				Private				Universities				Medical Institutes																					
			Total	Basic	Experimental	Prototype	Product	Commercial	Total	Basic	Experimental	Prototype	Product	Commercial	Total	Basic	Experimental	Prototype	Product	Commercial	Total	Basic	Experimental	Prototype	Product	Commercial	Total	Basic	Experimental	Prototype	Product	Commercial	Total	Basic	Experimental	Prototype	Product	Commercial												
Number of companies		971	57	19	14	12	6	6	19	5	4	4	3	3	9	3	2	3	1	-	3	-	-	1	1	1	9	6	3	-	-	-	6	2	-	2	-	2	9	2	4	2	1	-	2	1	1	-	-	-
Biochemical industry	Less than 50	8	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	More than 1,000	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Biofood industry	Less than 50	7	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	50~299	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bioenvironmental industry	Less than 50	3	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bioprocess and equipment industry	Less than 50	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	50~299	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bioenergy and bioresource industry	Less than 50	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bioassay, bioinformatics and R&D service industry	Less than 50	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
<input type="checkbox"/> Sales above break-even - 6~9 years																																																		
Bio pharmaceutical industry	Less than 50	4	1	0	0	0	1	0	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	50~299	6	2	0	0	0	0	2	2	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	300~999	2	5	3	2	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	More than 1,000	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Biochemical industry	Less than 50	13	1	1	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	50~299	3	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	More than 1,000	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Biofood industry	Less than 50	13	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	50~299	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bioenvironmental industry	Less than 50	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	300~999	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bioelectronics industry	Less than 50	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bioprocess and equipment industry	Less than 50	3	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	50~299	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bioenergy and bioresource industry	Less than 50	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	50~299	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bioassay, bioinformatics and R&D service industry	Less than 50	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	50~299	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<input type="checkbox"/> Sales above break-even - 10 or more years																																																		
Bio pharmaceutical industry	Less than 50	8	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	50~299	33	5	1	0	3	0	1	4	-	-	3	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	300~999	15	4	2	2	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	More than 1,000	8	1	0	0	1	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Biochemical industry	Less than 50	23	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	50~299	12	1	0	1	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	300~999	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Biofood industry	Less than 50	15	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	50~299	11	1	0	0	0	1	0	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	300~999	4	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	More than 1,000	3	5	0	3	2	0	0	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

		Total	Overseas																																															
			Business Entities																Research Institutes																															
			Sub Total						1~299				300~999				1,000 or more				Government-invested				Private				Universities				Medical Institutes																	
			Total	Basic	Experimental	Prototype	Product	Commercial	Total	Basic	Experimental	Prototype	Product	Commercial	Total	Basic	Experimental	Prototype	Product	Commercial	Total	Basic	Experimental	Prototype	Product	Commercial	Total	Basic	Experimental	Prototype	Product	Commercial	Total	Basic	Experimental	Prototype	Product	Commercial	Total	Basic	Experimental	Prototype	Product	Commercial						
Number of companies		971	57	19	14	12	6	6	19	5	4	4	3	3	9	3	2	3	1	-	3	-	-	1	1	1	9	6	3	-	-	-	6	2	-	2	-	2	9	2	4	2	1	-	2	1	1	-	-	-
Bioenvironmental industry	Less than 50	8	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	50~299	4	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	More than 1,000	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Bioelectronics industry	Less than 50	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	50~299	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	300~999	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Bioprocess and equipment industry	Less than 50	9	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	50~299	7	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	300~999	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Bioenergy and bioresource industry	Less than 50	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	50~299	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	300~999	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Bioassay, bioinformatics and R&D service industry	Less than 50	6	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	50~299	8	1	1	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
<input type="checkbox"/> Sales - Unknown																																																		
Biopharmaceutical industry	Less than 50	7	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	50~299	6	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	300~999	3	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	Unknown	6	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Biochemical industry	Less than 50	5	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	50~299	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	More than 1,000	3	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	Unknown	2	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Biofood industry	Less than 50	3	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	Unknown	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Bioenvironmental industry	Less than 50	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	Unknown	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Bioprocess and equipment industry	Less than 50	3	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	300~999	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Bioassay, bioinformatics and R&D service industry	Less than 50	3	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
	50~299	1	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				

< Table4-8 > Overseas Scale of Domestic/ International Technical Manpower Exchange Cooperation (III-4) (Unit : Cases, Count)

	Total	Overseas																																												
		Sub Total												Business Entities												Research Institutes																				
						1~299				300~999				1,000 or more				Government-invested				Private				Universities				Medical Institutes																
		Tota	Bas	Expe	Prot	Prod	Com	Tota	Bas	Expe	Prot	Prod	Com	Tota	Bas	Expe	Prot	Prod	Com	Tota	Bas	Expe	Prot	Prod	Com	Tota	Bas	Expe	Prot	Prod	Com	Tota	Bas	Expe	Prot	Prod	Com	Tota	Bas	Expe	Prot	Prod	Com			
Number of companies	971	7	0	1	4	1	1	4	-	-	2	1	1	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	2	-	1	1	-	-	-	-	-	-	-
<input checked="" type="checkbox"/> Sales Situation																																														
No sales	295	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sales below break-even - 1 year	11	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sales below break-even - 2~3 years	72	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sales below break-even - 4~5 years	85	1	0	0	1	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-
Sales below break-even - 6~9 years	85	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sales below break-even - 10 or more years	73	2	0	1	1	0	0	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-
Sales below break-even - Unknown	1	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sales above break-even - 1 year	2	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sales above break-even - 2~3 years	18	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sales above break-even - 4~5 years	36	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sales above break-even - 6~9 years	61	4	0	0	2	1	1	3	-	-	1	1	1	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sales above break-even - 10 or more years	184	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sales - Unknown	48	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<input checked="" type="checkbox"/> Main type of industry																																														
Biopharmaceutical industry	317	3	0	1	2	0	0	1	-	-	1	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-
Biochemical industry	203	2	0	0	0	1	1	2	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Biofood industry	199	2	0	0	2	0	0	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-
Bioenvironmental industry	76	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bioelectronics industry	26	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bioprocess and equipment industry	70	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bioenergy and bioresource industry	27	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bioassay, bioinformatics and R&D service industry	53	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<input checked="" type="checkbox"/> Number of employees																																														
Less than 50	571	5	0	1	2	1	1	3	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	1	1	-	-	-	-	-	-	-
50~299	252	2	0	0	2	0	0	1	-	-	1	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
300~999	77	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
More than 1,000	45	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown	26	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<input type="checkbox"/> Sales situation - No sales																																														
Biopharmaceutical industry																																														
Less than 50	42	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50~299	44	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
300~999	20	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
More than 1,000	2	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown	1	0	0	0	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

< Table 5 > Size of Sales and Import in Bioindustry

< Table 5-1 > Size of Domestic Sales and Export by Category among
Classification Scheme of Bioindustry (III-6)

(Unit : million Won)

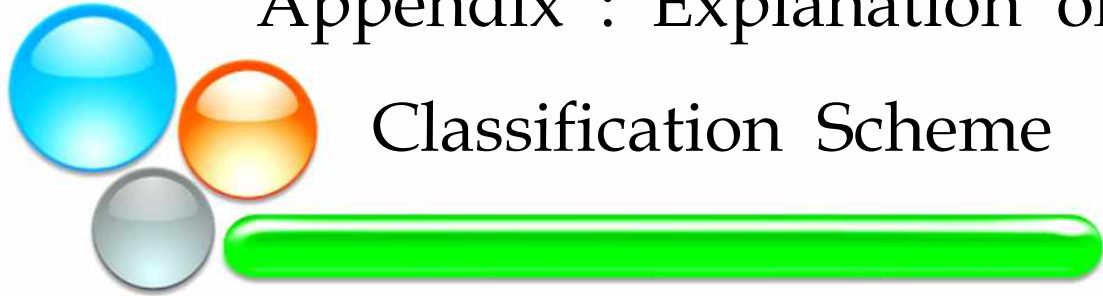
Industry No.	Industry Name	Category No.	Category Name	Domestic Sales	Export	Total
1	Biopharmaceutical industry	1010	Antibiotics	31,348	75,805	107,153
		1020	Anticancer medications	16,159	81,115	97,274
		1030	Vaccines	310,089	242,959	553,047
		1040	Hormones	73,630	83,608	157,238
		1050	Immunotherapeutics	49,570	234,398	283,968
		1060	Hemotherapeutics	502,966	96,183	599,149
		1070	Growth factors	41,099	12,846	53,945
		1080	New therapeutics	56,917	2,675	59,592
		1090	Diagnostic kits	22,434	130,566	153,000
		1100	Animal medications	87,439	43,650	131,089
		1000	Other biopharmaceuticals	445,291	134,659	579,950
			Subtotal			1,636,942
2	Biochemical industry	2010	Biopolymers	27,570	28,121	55,691
		2020	Industrial enzymes and reagents	280	15,627	15,907
		2030	Enzymes and reagents for research	41,277	35,602	76,879
		2040	Biocosmetics and home & personal care chemicals	323,189	30,186	353,375
		2050	Biological agrochemicals and fertilizers	26,249	28	26,277
		2000	Other biochemicals	32,526	1,545	34,071
			Subtotal			451,091
3	Biofood industry	3010	Functional health foods	336,795	39,178	375,973
		3020	Amino acids	44,761	24,534	69,295
		3030	Food additives	146,856	388,412	535,268
		3040	Fermented foods	83,023	-	83,023
		3050	Feed additives	695,739	1,224,679	1,920,418
		3000	Other biofoods	31,759	5,328	37,087
			Subtotal			1,338,933
4	Bioenvironmental industry	4010	Microbial treatment agents	17,806	12	17,818
		4020	Microbe-immobilized materials and equipments	1,400	-	1,400
		4030	Bioenvironmental agents and systems	6,655	-	6,655
		4040	Measuring apparatus for environmental pollution(service for pollution assessment)	3,800	-	3,800
		4000	Other bioenvironmental productions and services	432	-	432
			Subtotal			30,093

Industry No.	Industry Name	Category No.	Category Name	Domestic Sales	Export	Total
5	Bioelectronics industry	5010	DNA chips	9,843	964	10,807
		5020	Protein chips	100	-	100
		5030	Cell chips	-	-	-
		5040	Biosensors	25,699	112,739	138,438
		5050	BioMEMS	-	-	-
		5000	Other bioelectronics	172	2,180	2,352
		Subtotal				35,814
6	Bioprocess and equipment industry	6010	Bioreactors	1,910	379	2,289
		6020	Biomedical and diagnostic apparatuses	12,350	11,504	23,854
		6030	Bioprocess and analysis equipments	18,862	19,197	38,059
		6040	Plant and process design	14,000	-	14,000
		6000	Other bioprocess and equipments	26,359	18,207	44,567
		Subtotal				73,481
7	Bioenergy and bioresource industry	7010	Biofuel	424,150	-	424,150
		7020	Artificial seeds and seedlings	166,066	28,690	194,756
		7030	Experimental animals	4,480	-	4,480
		7040	Transgenic animals and plants	413	-	413
		7000	Other bioenergy and bioresources	42,136	-	42,136
		Subtotal				637,245
8	Bioassay, bioinformatics and R&D service industry	8010	Bioinformatics services	234	-	234
		8020	Gene analysis services	25,832	28,722	54,554
		8030	Protein analysis services	1,870	550	2,420
		8040	R&D services	19,282	4,478	23,760
		8050	Biosafety and efficacy evaluation services	78,421	7,088	85,509
		8060	Diagnosis and preservation services	28,083	22	28,105
		8000	Other bioassays, bioinformatics services	75	-	75
		Subtotal				153,797
Total				4,357,396	3,166,435	7,523,831

< Table 5-2 > Size of Import by Category among
Classification Scheme of Bioindustry (III-7) (Unit : million Won)

Industry No.	Industry Name	Category No.	Category Name	Import
1	Biopharmaceutical industry	1010	Antibiotics	16,030
		1020	Anticancer medications	297,940
		1030	Vaccines	344,927
		1040	Hormones	165,429
		1050	Immunotherapeutics	98,505
		1060	Hemotherapeutics	170,617
		1070	Growth factors	-
		1080	New therapeutics	35,194
		1090	Diagnostic kits	58,798
		1100	Animal medications	10,387
		1000	Other biopharmaceuticals	126,808
Subtotal			1,324,637	
2	Biochemical industry	2010	Biopolymers	-
		2020	Industrial enzymes and reagents	17,631
		2030	Enzymes and reagents for research	15,864
		2040	Biocosmetics and home & personal care chemicals	3,464
		2050	Biological agrochemicals and fertilizers	537
		2000	Other biochemicals	26,590
		Subtotal		
3	Biofood industry	3010	Functional health foods	3,700
		3020	Amino acids	10,435
		3030	Food additives	2,887
		3040	Fermented foods	-
		3050	Feed additives	10,180
		3000	Other biofoods	19,437
		Subtotal		
4	Bioenvironmental industry	4010	Microbial treatment agents	-
		4020	Microbe-immobilized materials and equipments	-
		4030	Bioenvironmental agents and systems	-
		4040	Measuring apparatus for environmental pollution(service for pollution assessment)	226
		4000	Other bioenvironmental productions and services	-
		Subtotal		

Industry No.	Industry Name	Category No.	Category Name	Import
5	Bioelectronics industry	5010	DNA chips	471
		5020	Protein chips	-
		5030	Cell chips	-
		5040	Biosensors	1,000
		5050	BioMEMS	-
		5000	Other bioelectronics	-
		Subtotal		
6	Bioprocess and equipment industry	6010	Bioreactors	1,000
		6020	Biomedical and diagnostic apparatuses	2,108
		6030	Bioprocess and analysis equipments	52,437
		6040	Plant and process design	-
		6000	Other bioprocess and equipments	1,481
		Subtotal		
7	Bioenergy and bioresource industry	7010	Biofuel	2
		7020	Artificial seeds and seedlings	13,140
		7030	Experimental animals	-
		7040	Transgenic animals and plants	-
		7000	Other bioenergy and bioresources	-
		Subtotal		
8	Bioassay, bioinformatics and R&D service industry	8010	Bioinformatics services	1,000
		8020	Gene analysis services	-
		8030	Protein analysis services	-
		8040	R&D services	1,231
		8050	Biosafety and efficacy evaluation services	-
		8060	Diagnosis and preservation services	-
		8000	Other bioassays, bioinformatics services	-
		Subtotal		
Total				1,509,457



Appendix : Explanation on
Classification Scheme

1. Bioindustry

1. Biopharmaceutical industry

Field of study concerning biopharmaceuticals, medical drugs or medical equipment produced using biotechnology in the R&D or production process to diagnosis, prevent and cure diverse diseases of human or animals. It is an industry that produces the following products.

1010 Antibiotics

Base material or related medicine that inhibits or kills the growth and proliferation of microorganisms

Exception 1110) Animal medications

1020 Anticancer medications

Base material or medicine that is used in cure for malignant tumor

1030 Vaccines

Antigen used to automatically increase immunity of a person or animal in the prevention of infectious diseases (Substance that prevents or cures diseases selectively by artificially stimulating the immune system)

1040 Hormones

Base material and related medicine that is made of hormones, its variants or analogs to cure special diseases using physiological characteristics of hormones

1050 Immunotherapeutics

Base material and related medicine that is used to adjust bioimmune activities such as protein substances

1060 Hemotherapeutics

Serum protein products which were separated from blood or biotechnologically manufactured materials and medical products, which are used to treat pathologic conditions of patients (symptoms caused by deficiency in serum protein, etc.)

1070 Growth factors

Polypeptides which facilitate cell division, growth or differentiation, and their modified substances or analogues (including their mimicking agents or peptides which have only the active fraction)

1080 New therapeutics(ex. gene therapeutics, cell therapy, cloned organs, etc.)

New therapeutic agents which have different way of treatment compared to existing agents (Gene therapeutics, cell therapy products, cloned organs and therapeutic antibodies are included in this category at present.)

<Reference>

Gene therapeutics - Agents of normal genes which are transduced in patients to treat diseases caused by genetic abnormalities

Cell therapyproducts - Medical products of living autologous, allogenic or xenogenic cells which are processed to be modified their biological characteristics by in vitro proliferation, selection or other methods

Cloned organs - Artificial organ substitutes which are not mechanical attachments or implants but organs produced by cell culture

Therapeutic antibodies- Antibodies of major immunologic mechanisms which are produced in vitro to protect human body from foreign pathogenic organisms

1090 Diagnostic kits

Kits and reagents which are used to diagnose the actual condition of diseases

Exception Reagents used in research are classified as '2030) Enzymes and reagents for research'

1100 Animal medications

Therapeutic products which are used to diagnose, treat and prevent diseases of animals (including probiotics)

Exception 3050) Feed additives

1000 Other biopharmaceuticals

Other biomedical products which are not classified above (including ingredients and intermediates which are not classified above)

Exception 3020) Amino acids

2. Biochemical industry

Industrial activities which produce compounds or substitutes of existing chemical products using bio-purification technology or biotechnology in R&D or manufacturing process [excluding products which are used mainly in medical purpose]

2010 Biopolymers

Materials (structural constituents), biocompatible polymers and biodegradable resins (functional packaging materials) which are made from proteins, nucleic acids or polysaccharides

Exception 1090) New therapeutics

2020 Industrial enzymes and reagents

Enzymes which are extracted from industrially valuable organisms or produced by biotechnology, and other industrial reagents

2030 Enzymes and reagents for research

Reagents, buffer solutions, polymerases, reagent kits, DNA vectors and gene expression systems

2040 Biocosmetics and home & personal care chemicals

Household items such as a soap, detergents and functional cosmetics

2050 Biological agrochemicals and fertilizers

Microbial agents which are used to exterminate or control weeds, pests or microorganisms which inhibit growth of crops, and microbial agents which enrich nutrients in soil to enhance growth of crops

Exception For agricultural pesticides and fertilizers produced by a bioprocess using non-microbial or non-biological agents, refer to '2000) Other biochemicals'.

2000 Other biochemicals

Other biochemicals which are not classified above (including macromolecular monomers, solvents and others)

3. Biofood industry

Industrial activities which produce foods, beverages, animal foods and animal/vegetable fat and oil using bio-purification technology or biotechnology in R&D or manufacturing process [excluding products which

are used mainly in medical purpose]

3010 Functional health foods

which functionally useful ingredients for human body and biotechnology are used in its manufacturing (limited to foods which Commissioner of Korea Food and Drug Administration admitted that they have functionality according to 「The Law for Functional Health Foods」)

3020 Amino acids

Aminoacids used in drugs, foods and feed additives

3030 Food additives

Substances which are added in foods such as seasonings, food preservatives, nucleotides, peptides and lipids (including starch, organic acids and functional sugar, etc.)

Exception

3010) Functional health foods

3020) Amino acids

3040 Fermented foods

Products which went through fermentation process such as fermented sauces, alcoholic beverages, pickled vegetables and fermented livestock foods

Exception

3010) Functional health foods

3050 Feed additives

Various kinds of feed additives, nutrients and feedstuffs for animal raising or fish farming

Exception

For animal drugs including probiotics, refer to '1100 animal drugs'.

3000 Other biofoods

Other biofoods which were not classified above (including ingredients and intermediates which were not classified above)

4. Bioenvironmental industry

Industrial activities which produce substances or systems for environmental cleanup, environmental remediation and reducing/preventing environmental pollution using bioderivatives or biotechnology in R&D or manufacturing process, or industrial activities which build up pollution diagnosis and assessment services or facilities using these products, providing following products or services

4010 Microbial treatment agents

Microorganism agents for the purpose of environmental cleanup (waste/wastewater treatment, etc.), reducing/preventing environmental pollution (biodesulfurization, biocracking, biocollection, biopulping, etc.) and environmental remediation, including construction and installation services associated with selling such products

4020 Microbe-immobilized materials and equipments

Immobilized materials and equipments for the purpose of environmental cleanup (waste/wastewater treatment, foul smell/VOC treatment, etc.) such as a microorganism-utilizing filter, including construction and installation services associated with selling such products

4030 Bioenvironmental agents and systems

Materials, equipments and systems for the purpose of

waste/wastewater treatment, foul smell/VOC treatment, environmental remediation and resource recycling, including construction and installation services associated with selling such products

Exception 4010) Microbial treatment agents

4020) Microbe-immobilized materials and equipments

4040 Measuring apparatus for environmental pollution(service for pollution assessment)

Equipments which measure water quality, soil pollution level and air pollution level (including construction and installation services associated with selling such products), and pollution source diagnosis and pollution level measuring services on demand of customers

Exception 5040) Biosensors

4000 Other bioenvironmental productions and services

Other bioenvironmental products which were not classified above (including ingredients and intermediates which were not classified above) and associates services

5. Bioelectronics industry

Industrial activities which produce components/materials of medical or analytical purpose using nano/electronic technology, bio information or biotechnology in R&D or manufacturing process, producing following products

5010 DNA chips

Detecting devices which fix DNAs

5020 Protein chips

Detecting devices which fix proteins

5030 Cell chips

Detecting devices which fix cells and devices which analyze cellular phenomena

5040 Biosensors

Detecting devices which utilize various kinds of biofunctions

5050 BioMEMS

Micro electromechanical systems(MEMS) for the purpose of medical or R&D use such as biotechnology, health examination or drug administration

5000 Other bioelectronics

Other bioelectronic components/materials which are not classified above

Example

Biocomputers, neurochips, carbohydrate chips

6. Bioprocess and equipment industry

Industrial activities which produce devices, equipments and plants for the purpose of using bioderivatives or biotechnologies in R&D or manufacturing process, providing following products or services [including biomedical devices and diagnostic devices]

6010 Bioreactors

Devices which produce valuable substances using biological reactions

Example

Fermentation bath, cell incubators, enzyme reaction

incubators

6020 Biomedical and diagnostic apparatuses

Devices which examine and diagnose physical or physiologic functions for medical purpose

Exception

1080) Newtherapeutics, diagnostic reagents and kits

2010) Biopolymers

5040) Biosensors, BioMEMS

6030 Bioprocess and analysis equipments

Experimental and R&D devices such as separation/purification devices, synthesis/cloning devices, sequence analyzing devices, and other interpretation/analysis devices

6040 Plant and process design

System constructing and plant designing services using bioprocess technology and devices, equipments

6000 Other bioprocess and equipments

Bioprocess devices and experimental devices which are not classified above (including ingredients and components which are not classified above)

7. Bioenergy and bioresource industry

Industrial activities which develop energy by utilizing organisms or biotechnology in R&D or manufacturing process, and industrial activities which dig out and produce organisms which have novel functions and then cultivate or raise them

7010 Biofuel

Alternative fuel materials which are produced under conversion process from biomass

7020 Artificial seeds and seedlings

Seeds, improved seeds, mushroom strains and energy crops for forestry or agricultural use

7030 Experimental animals

Experimental animals including transgenic animals such as insects, mice and rats

7040 Transgenic animals and plants

Transgenic animals and plants

Exception 7020) Artificial seeds and seedlings
7030) Experimental animals

7000 Other bioenergy and bioresources

Other bioenergy (biogas) and organisms (including microbial strains and cell strains)

Exception For developmental services, refer to subsections of "8. Bioassay, bioinformatics and R&D service industry"

8. Bioassay, bioinformatics and R&D service industry

Industrial activities of biotechnology which conduct R&D by proxy or provide analysis/assessment consulting services and associated bioinformations, providing services described below [Activities manufacturing class 1~7 products on consignment of other companies are referred to as production activities of relevant products]

8010 Bioinformatics services

Services which provide customers with solutions based on bioinformatics and predictions

Example Bioinformatics database services, statistical analysis of bioexperimental data, oligomer designing, antibody designing and cell strain designing

8020 Gene analysis services

Services which utilize genetic analysis

Example Genetic sequence analysis, parentage test, GMO diagnosis, microorganism identification, DNA genotyping, SNP analysis

8030 Protein analysis services

Services which utilize protein analysis

Example Protein sequence/structure analysis, protein expression pattern analysis

8040 R&D services(ex. drug development services, etc.)

Activities which conduct R&D essential for product development by proxy using biotechnology. Services and technical consulting excluding providing bioinformations (In sales survey of a company, sales which come from technology transfer in biotechnological field correspond to this category)

Example New drug development

8050 Biosafety and efficacy evaluation services

Preclinical study or clinical study services

8060 Diagnosis and preservation services

Disease diagnosis services and cell line preservation services using biotechnology

Example Cord blood preservation service

Exception 8010) Bioinformatics services
8020) Gene analysis services
8030) Disease diagnosis services which utilize one of protein analysis services

8000 Other bioassays, bioinformatics services

Other bioassays, bioinformatics services which are not classified above

Example Services which provide information on standardization (GMP, FDA certification, IQ, OQ, PQ), technology and management consulting services

2. Biotechnology

A. Genetic engineering

Technology which changes the genetic characteristics of target organisms by gene manipulation or transplantation

A1. Gene manipulation

Technology which directly deal with genes such as gene identification, modification, separation, recombination, synthesis, amplification and transfer

Corresponding List

- A101. Genetic material development
- A102. Gene separation
- A103. Gene cloning
- A104. Gene transformation
- A105. Gene screening
- A106. Genetic mutation
- A107. Gene targeting
- A108. DNA synthesis
- A109. DNA amplification

A2. Gene expression and regulation

Technologies which modify the mode, degree or rate of expression of genetic information by intervening in replication, transcription and translation of genetic information

Corresponding List

- A201. Host cell development
- A202. Gene overexpression
- A203. Secretory expression
- A204. Gene replication and transcriptional regulation
- A205. Signal transduction analysis
- A206. Oncogenesis
- A207. Gene expression profile analysis
- A208. High throughput gene expression
- A209. RNA interference

A3. Gene application

Technologies which develop new molecules, nuclei or individuals

Corresponding List

- A301. Transgenic animals
- A302. Transgenic plants
- A303. Transgenic microorganisms
- A304. Molecular evolution
- A305. Genome shuffling

A4. Gene therapy

Technologies which are used in the whole therapeutic process from development of therapeutic genes to transferring them into human body and expression

Corresponding List

- A401. Ex vivo therapy
- A402. Gene therapy vector development and production
- A403. Evaluation of gene transfer and expression
- A404. Therapeutic gene development
- A405. Germline gene therapy
- A406. In vivo model for gene therapy
- A407. Oncolytic virus therapy
- A408. RNA interference
- A409. DNA vaccine

A0. Genetic engineering, n.e.s.

B. Protein engineering

Technologies which analyze structure and function of proteins and design, create or apply specific proteins

B1. Protein structure analysis

Technologies which analyze sequence, mass, planar structure and conformation of proteins

Corresponding List

- B101. Protein mass spectrometry
- B102. Protein sequence analysis
- B103. Protein 3D structure analysis
- B104. High throughput structural determination
- B105. Protein linkage maps
- B106. Protein-protein interaction mapping

B2. Protein function analysis

Technologies which analyze functions of proteins such as their stability, recognition and response

Corresponding List

- B201. Protein stability analysis
- B202. Protein folding analysis
- B203. Protein recognition mechanism analysis
- B204. Protein reaction analysis
- B205. Inhibitor screening and development
- B206. Protein linkage map analysis
- B207. Protein-protein interaction mapping

B3. Complex protein engineering

Technologies which are utilized in protein modification, manipulation of antibodies and receptors, and protein designing

Corresponding List

- B301. Antibody engineering
- B302. Protein modification
- B303. Receptor engineering
- B304. Protein design
- B305. Complex protein formation

B4. Peptide engineering

Technologies which are utilized in synthesis, purification, designing, analysis of structure and function of peptides

Corresponding List

- B401. Peptide synthesis and purification

- B402. Peptide design
- B403. Peptide structure and function analysis
- B404. Activated peptide utilization
- B405. Multidimensional peptide separation

B5. Protein application

Technologies which develop or utilize enzymes or combinatorial biocatalysts using proteins

Corresponding List

- B501. Novel enzyme screening
- B502. Artificial enzyme production and utilization
- B503. Protein refolding
- B504. Combinatorial biocatalysis
- B505. Enzyme therapy

B0. Protein engineering, n.e.s.

C. Other macromolecule engineering

Technologies which analyze structure and functions of biomacromolecules such as carbohydrate or lipid, and which develop valuable materials by modifying or utilizing these biomacromolecules

C1. Lipid engineering

Technologies which artificially synthesize lipids or separate them from its natural state, analyze their structure and functions, and develop valuable materials such as functional lipids by physically or biochemically modifying or processing them

Corresponding List

- C101. Functional lipid development

C2. Carbohydrate engineering

Technologies which artificially synthesize carbohydrates or separate them from

its natural state, analyze their structure and functions, and develop valuable materials such as functional carbohydrates by physically or biochemically modifying or processing them

Corresponding List

- C201. Polysaccharide chemistry
- C202. Neoglycan technology
- C203. Functional carbohydrate development

C0. Other macromolecule engineering, n.e.s.

D. Cell and tissue engineering

Technologies which are utilized to maintain, improve and recover organic functions by manufacturing and using new cells which can express valuable genetic characteristics or by producing artificial tissues or organs

D1. Stem cell therapy

Technologies which induce undifferentiated stem cells to differentiate into specific cells or tissues in appropriate *in vitro* condition and utilize them to treat injured tissues or organs

Corresponding List

- D101. Embryonic stem cell utilization
- D102. Adult stem cell utilization
- D103. Stem cell differentiation induction
- D104. Regenerative medicine

D2. Bioenvironment regulation

Technologies which create *in vitro* conditions physically and chemically similar to conditions of living bodies to maximize specific functions of cells or organs

Corresponding List

- D201. Biological and chemical bioenvironment
- D202. Physical, mechanical bioenvironment mimics
- D203. Cell and biomaterials interface

D204. Hybrid tissue engineering

D3. Functional biomaterial development

Technologies which develop structurally and chemically modified functional biocompatible materials which can induce specific activities by interaction with cells and tissues in organisms

Corresponding List

- D301. New biomaterial development
- D302. Biocompatibility enhancing technology
- D303. Functional supporter development
- D304. Biocompatibility material development

D4. Cell engineering

Comprehensive cellular technologies including technologies which create new cells such as hybrid cells or recombinant cells, and cell separating and culturing technologies

Corresponding List

- D401. Cell assays
- D402. Cell microencapsulation
- D403. Cell manipulation
- D404. Nuclear transfer

D5. Tissue engineering

Technologies which are utilized in maintaining, developing and recovering biofunctions by manufacturing artificial tissues or organs using cells, organs and biocompatible materials

Corresponding List

- D501. Tissue assays
- D502. Tissue microencapsulation
- D503. Tissue manipulation
- D504. Tissue culture

D0. Cell and tissue engineering, n.e.s.

E. System biology and bioinformatics

Technologies which study on comprehensive characteristics of living organisms by analyzing and integrating their constituents and interactions, and technologies which obtain and utilize valuable information by processing and handling living organism-originated information

E1. Gene sequence analysis

Technologies which analyze the whole genetic information of an individual by using DNA sequencer or other devices

Corresponding List

- E101. SNP(single nucleotide polymorphism) analysis
- E102. cDNA library construction
- E103. Gene-expression profile analysis
- E104. DNA chip development and application
- E105. High throughput screening
- E106. Full-length cDNA cloning
- E107. Whole genome sequence technology

E2. Functional genomics

Technologies which investigate genetic functions to obtain information required for diagnosis and prognosis prediction of diseases and for developing medicines

Corresponding List

- E201. Proteome related technology
- E202. Genetic functional network analysis
- E203. Comparative genomics
- E204. Pharmacogenomics
- E205. Toxicogenomics
- E206. Gene targeting
- E207. Transcriptomics
- E208. Genotyping
- E209. Haplotype profiling
- E210. Genome-wide gene trapping
- E211. Inverse genomics

E3. Proteomics

Technologies which investigate structure and function of specific proteins and interaction between proteins to understand cellular behavior and gene expression

Corresponding List

- E301. Protein display
- E302. Protein informatics
- E303. Cellular proteomics
- E304. Disease-related expression profiling
- E305. Pharmacoproteomics
- E306. Protein chip development and application

E4. Bioinformatics

Technologies which obtain and utilize valuable information by analyzing and processing bioinformation of organisms using computer

Corresponding List

- E401. Biological database construction
- E402. Data mining system development
- E403. Biological system modeling and simulation
- E404. Base sequence analysis and design
- E405. Structure/function prediction
- E406. Biological network analysis

E0. System biology and bioinformatics, n.e.s.

F. Metabolic engineering

Technologies which improve production of target metabolites or produce new metabolites by analyzing and modifying the metabolism pathway or its regulatory system

F1. Metabolite production

Technologies which industrially produce primary metabolites essential for cell growth (nucleic acids, aminoacids, vitamins, etc.) and secondary metabolites which are biosynthesized after cell growth (antibiotics, dyes, etc.)

Corresponding List

- F101. Primary metabolite production (amino acid, organic acid, alcohol, etc.)
- F102. Secondary metabolite production(antibiotics, etc.)
- F103. Production of other bioproducts (nucleic acid, lipid, protein, carbohydrate, etc.)

F2. Applications of metabolic engineering

Technologies which are utilized in improving production of target metabolites, producing new metabolites or biological degradation of non-organic materials by analyzing, modifying and redesigning the metabolic pathways and their regulatory systems

Corresponding List

- F201. Enhanced production of existing metabolites
- F202. Production of novel metabolites
- F203. Optimizing the substrate utilization
- F204. Designing pathways for degradation of xenobiotics
- F205. Engineering of metabolic pathways and cellular system for improving mid and downstream bioprocesses

F3. Understanding the metabolism and metabolic pathway

Technologies which analyze and informationize metabolic flux, metabolic regulatory system and metabolic networks

Corresponding List

- F301. Metabolic flux analysis
- F302. Metabolic flux regulation analysis
- F303. Metabolic network analysis
- F304. Metabolic profiling
- F305. Isotopomer analysis

F0. Metabolic engineering, n.e.s.

Corresponding List

- F001. Integration of genome, transcriptome, proteome, metabolome and fluxome
- F002. In silico metabolic engineering

G. Bioprocess

Processing technologies such as culturing, biotransformation, recovery and purification which utilize organisms or bioderivatives for production of valuable materials or products

G1. Fermentation engineering

Microbial culturing technologies which are utilized to maximize the production of valuable materials

Corresponding List

- G101. Strain improvement
- G102. High cell density culture
- G103. Recombinant microorganism culture engineering
- G104. Algae cell culture engineering
- G105. Cell immobilization

G2. Cell culture engineering

Technologies utilized in optimal culturing of cell strains derived from animals, plants and insects

Corresponding List

- G201. Plant cell culture engineering
- G202. Animal cell culture engineering
- G203. Cell line development
- G204. Plant tissue culture engineering
- G205. Insect cell culture
- G206. Media optimization

G3. Biotransformation

Technologies which convert precursor materials to other valuable materials by utilizing biocatalysts

Corresponding List

- G301. Enzyme reaction engineering
- G302. Enzyme stabilization
- G303. Enzyme immobilization
- G304. Chirotechnology

G4. Bioseparation engineering

Technologies which are utilized to optimally recover and purify valuable materials produced by bioprocesses

Corresponding List

- G401. Filtration
- G402. Centrifugation
- G403. Extraction
- G404. Adsorption
- G405. Chromatography
- G406. Membrane separation
- G407. Precipitation / crystallization
- G408. Freeze drying
- G409. Electrophoresis
- G410. Cell separation

G5. Industrialization

Technologies which design, analyze, optimize and manage manufacturing processes to produce living organisms or bioderivatives in industrial scale

Corresponding List

- G501. Scaleup technology
- G502. Bioreactor design and fabrication
- G503. Process design
- G504. Process control and optimization
- G505. Sterilization
- G506. Cost analysis
- G507. Process validation

- G508. Quality assurance / control
- G509. cGMP(current Good Manufacturing Practices)
- G510. GLP(Good Laboratory Practice)

G0. Bioprocess, n.e.s.

Corresponding List

- G001. Bioleaching
- G002. Cryopreservation

H. Bioresource production and utilization

Technologies which produce and preserve bioresources such as animals, plants and microorganisms efficiently, and produce valuable products by separating and processing materials obtained from these bioresources

H1. Plant resource utilization technology

Technologies associated with genetic resource preserving, genetic modification, molecular breeding, cultivation, pest control, and processing and storage of agricultural products, for efficient production of plant resources

Corresponding List

- H101. Nuclear fusion
- H102. Cultivation and breeding
- H103. Transgenic plant development and molecular breeding
- H104. Plant transformation analysis and detection
- H105. Plant cell differentiation
- H106. Plant gene resources analysis and preservation
- H107. Disease and parasite protection
- H108. Farm product quality control and storage

H2. Animal resource utilization technology

Technologies which produce products which assist preservation, breeding, growth and efficient production of animal resources, or technologies which produce valuable products by utilizing byproducts of animal resource production

Corresponding List

- H201. Nuclear fusion
- H202. Animal resource utilization
- H203. Animal breeding, development and proliferation
- H204. Transgenic animal development
- H205. Animal disease control
- H206. Experimental animal development and production
- H207. Experimental animal management and utilization
- H208. Animal feed production
- H209. Animal byproduct processing technology
- H210. Animal cell cloning technology

H3. Microbial resource utilization technology

Technologies which separate, identify and manage valuable microorganic resources or technologies which produce valuable materials by using these resources

Corresponding List

- H301. Nuclear fusion
- H302. Screening and Identification of microbial resource
- H303. isolation
- H304. Probiotic development and utilization

H4. Insect resource utilization technology

Technologies which produce valuable materials by preserving or utilizing insect resources such as insect bodies, insect cells or insect-associated microorganisms

Corresponding List

- H401. Functional insect and its material utilization
- H402. Utilization of insect organ and insect cell line
- H403. Preservation of insect resource and search for its application

H404. Utilization of insect based microorganism

H5. Marine/fresh water organism technology

Technologies which are utilized in producing valuable materials or environmental conservation by preserving, separating, breeding and utilizing bioresources associated with marine lives or limnobios

Corresponding List

- H501. Aquatic animal breeding and development
- H502. Aquatic farming
- H503. Excellent individual preservation
- H504. Aquatic microorganism utilization
- H505. Aquatic plant breeding and utilization
- H506. Aquatic organism resources screening
- H507. Aquatic environment preservation

H6. Food engineering

Technologies which produce and manage foods or food materials by discovering, assessing, processing and packaging bioresources which can be utilized as general foods or functional health foods.

Corresponding List

- H601. Food processing and packaging
- H602. Functional food material production
- H603. Food pollutant detection and management
- H604. Fermentation foods and enzyme utilization
- H605. Food quality and nutrition evaluation
- H606. Food additives development

H7. Biomaterializing technology

Technologies which produce valuable materials or assess their functions by discovering, assessing, separating, purifying, biocatalyzing and biomimicking biomaterials derived from bioresources

Corresponding List

- H701. Metabolism enhancing biomaterial screening
- H702. Biomaterial production and utilization
- H703. Biomaterial functionality evaluation

H704. Biomaterial separation and purification

H705. Biomimetry

H706. Molecular high throughput screening

H8. Biodiversity conservation

Technologies which preserve and manage genetic, species and ecosystemic diversity

Corresponding List

H801. Genetic diversity preservation and management

H802. Species diversity preservation and management

H803. Ecosystem diversity preservation and management

H804. Cryopreservation

H0. Bioresource production and utilization, n.e.s.

Corresponding List

H001. Bioproduct engineering

H002. Life support system for closed environment

I. Environmental biotechnology and bioenergy technology

Biotechnologies which are applied to environmental area and bioenergy area such as measuring, processing and remedying pollution

I1. Clean technology

Technologies of production and management which utilize eco-friendly alternative materials and processes which can reduce energy or resource consumption or discharge of reduce environmental pollutants

Corresponding List

I101. Process-related clean technology

I102. Biological agrochemicals development

I103. Biodegradable material production

I104. Bio-based solvent technology

I2. Environmental pollution control and management technology

Management and reducing technologies which can reduce discharge of environmental pollutants to natural environments such as water, air and earth, or can restore polluted natural environment

Corresponding List

- I201. Air pollution control and treatment
- I202. Water pollution control and treatment
- I203. Soil pollution control and remediation
- I204. Waste treatment
- I205. Environmental pollutants measurement and analysis
- I206. Environmental assessment and control
- I207. Ecosystem restoration

I3. Bioenergy technology

Technologies which produce and utilize energy-related products including electricity, fuel (liquid, solid and gaseous), heat, chemicals and other materials by using renewable resources such as biomass

Corresponding List

- I301. Bioethanol production using starch biomass
- I302. Bioethanol production using lignocellulosic biomass
- I303. Biodiesel production
- I304. Biogas production
- I305. Biogas utilization
- I306. Biohydrogen production
- I307. Biobutanol production

I0. Environmental biotechnology and bioenergy technology, n.e.s.

J. Nanobiotechnology

Technologies which control and apply biomolecules by fusing nanotechnology and biotechnology in nano scale

J1. Nano-biodevice fabrication

Technologies which compose and produce biodevices by controlling organisms or bioderivatives in nano scale

Corresponding List

- J101. Nano-DNA chip fabrication
- J102. Nano-protein chip fabrication
- J103. Nano chip production and application
- J104. Nano-bioelectronic device fabrication
- J105. Nano-biosensor system
- J106. Nano-bioactuator fabrication
- J107. Nano-biosignal analysis

J2. Nanobiomaterial technology

Technologies which produce medical and industrial materials by controlling, designing and processing organisms or bioderivatives in nano scale to utilize their biocontrol functions

Corresponding List

- J201. Biomaterial self-assembly
- J202. Biomaterial production for nanobiochip
- J203. Hybrid nanomaterial manufacturing
- J204. Bio-nanoparticle manufacturing
- J205. Bio-nanomaterial thin film fabrication

J3. Nano drug delivery system

Technologies and systems which regulate drug releasing rate by controlling particles in nano scale or improve drug delivery to target area

Corresponding List

- J301. Nanomaterial for drug delivery

- J302. Nanostructure manipulation and property analysis
- J303. Nano-carrier manufacturing
- J304. Molecular target discovery

J4. BioNEMS(Nanoelectromechanical systems), nano-LOC(lab-on-a-chip)

Technologies which produce biochips by utilizing microprocessing techniques in nano scale, and technologies which design, fabricate and produce biochips which materialize various kinds of laboratory procedures such as combination, reaction, separation and analysis

Corresponding List

- J401. Nano-fluidic
- J402. Nano-processing
- J403. Nano-lithography
- J404. Surface, interface control
- J405. Nanoscale particle manipulation
- J406. Nanoflow visualization & diagnosis

J0. Nanobiotechnology, n.e.s.

K. Bioelectronics engineering

Technologies which construct, produce and utilize biodevices on the basis of detecting functions of organisms or bioderivatives

K1. Biosensor fabrication

Technologies which design, construct and produce devices which detect and quantify specific materials by artificially materializing detecting functions of organisms or bioderivatives

Corresponding List

- K101. Biomaterial immobilization
- K102. Sensor array fabrication
- K103. Biomolecule recognition analysis
- K104. Sensor system design
- K105. Signal detection and transducing
- K106. Remote transmission

K2. Bioelectronic device fabrication

Technologies which design, construct and produce devices which detect specific materials and have data processing and storing functions by artificially materializing electron delivery and storage functions of organisms or bioderivatives

Corresponding List

- K201. Biofilm fabrication
- K202. Device fabrication
- K203. Biomemory fabrication
- K204. Biocomputing

K3. Biochip fabrication

Technologies which fabricate chips which analyze functions of genes, proteins and cells by immobilization of organisms or bioderivatives on solid board with high density

Corresponding List

- K301. DNA chip fabrication and application
- K302. Protein chip fabrication and application
- K303. Cell chip fabrication and application
- K304. High throughput screening
- K305. Array fabrication
- K306. Biodata mining
- K307. Instrument manufacturing for biochip

K4. Microfluidics

Technologies which investigate the fluidic phenomenon in microstructures related to collecting, treating, separating and transferring materials in biochips and lab-on-a-chip

Corresponding List

- K401. Plastic microfabrication
- K402. Microfluidic transport
- K403. Low Reynolds number flow
- K404. Multiscale flow simulation
- K405. Microflow driving & manipulation
- K406. Micro/nanoscale particle manipulation
- K407. Microflow visualization & diagnosis

K0. Bioelectronics, n.e.s.

L. Biosafety and efficacy evaluation

Technologies which evaluate potential risks or biologic efficacy of biotechnologies and biotechnological products

L1. Safety evaluation

Technologies related to evaluation methods and tools of risks of biotechnologies and biotechnological products

Corresponding List

- L101. Medicine, cosmetics safety evaluation
- L102. Food and food additives safety evaluation
- L103. Chemical material safety evaluation
- L104. Biological agrochemicals safety evaluation
- L105. Microbiological safety evaluation
- L106. GMO safety evaluation
- L107. Clinical trial
- L108. Toxicity evaluation

L2. Safety management

Management technologies which reduce or block potential risks of

biotechnologies and biotechnological products

Corresponding List

- L201. Safety management
- L202. HACCP(hazard analysis critical control points)
- L203. Safety management of GMO

L3. Environmental assessment

Technologies related to establishment and evaluation of methods for minimizing or avoiding influence on environment and technologies related to evaluation of influence on natural/life environment, social/economic environment and culture before initiating works which have potential influence on environment

Corresponding List

- L301. Environmental assessment of natural disaster
- L302. Environmental assessment of chemicals
- L303. Environmental assessment of radioactive materials
- L304. Environmental assessment of synthetic resins and petroleum products
- L305. Environmental assessment of magnetism
- L306. Evaluation and management of GMO
- L307. Biodegradability evaluation

L4. Biohazard management

Technologies which prevent, manage and restore disasters which are caused by leakage of toxic materials, pathogens and biotechnological organisms or man-made changes on ecosystem to cause serious influence on mankind and ecosystem

Corresponding List

- L401. Safety management of chemicals
- L402. Safety management of radioactive materials
- L403. Biohazard management caused by natural disaster
- L404. Biological remediation restoration using microorganisms
- L405. Biohazard management caused by bio-weapons

L5. Efficacy evaluation

Technologies which evaluate efficacy of materials which enhance or inhibit activities of human body, organisms or bioderivatives

Corresponding List

- L501. *In vitro* assay
- L502. *In vivo* assay
- L503. Pharmacokinetic evaluation
- L504. Preclinical trial
- L505. Clinical trial I
- L506. Clinical trial II
- L507. Clinical trial III
- L508. Clinical trial IV

L0. Biosafety and efficacy evaluation, n.e.s.

M. Other biotechnology

M1. Combinational biology

Technologies which secure molecular diversity from genetic information on the basis of genetic recombination and select potential candidate materials of specific activities, and secure their genetic information

Corresponding List

- M101. Shape library construction
- M102. Hybrid polyketide antibiotics development

M2. Drug delivery

Technologies which minimize adverse reactions of drugs and maximize effects and efficacy of drugs by regulating drug release rate or facilitating drug delivery to target area

Corresponding List

- M201. Controlled release formulation
- M202. Biomaterials for drug delivery
- M203. Structure manipulation and property analysis
- M204. Carrier development
- M205. Molecular target discovery

M3. Immunotherapy

Technologies which treat diseases using in vivo immune system by producing, modifying and activating materials and cells related to in vivo immunity

Corresponding List

- M301. Immunomodulator
- M302. Immunotherapeutics
- M303. Targeted immunotherapy

M0. Biotechnology, n.e.s.

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