Bio technology in Korea

MINISTRY OF EDUCATION,
SCIENCE AND TECHNOLOGY

A new wave of Life Science

Biotechnology of KOREA

Promise to preserve the earth...

Korean biotechnology goes beyond the limit.

Contents

Bioeconomy's Leader, **Bio-Korea**

Biotechnology and the bio-industry have been recognized as one of the future engines for growth and they are required to drive the world economy in the wake of the success of information and communication technology. Biotechnology is expected to solve many of today's most pressing problems, such as the phenomenon of the ageing society, the depletion of fossil fuels, the outbreak of new infectious diseases, widespread water shortages and global warming.

Through convergence with other cutting-edge technologies including information technology and nano technology, it could lead innovation in the medicine, chemical, energy, agricultural and food industries among others, as well as creating new value-added industrial groups. As such, the OECD predicts that the era of the 'bioeconomy' will arrive in 20 or 30 years and that biotech-based products will become deeply rooted in our daily lives, having as large an impact as information technology. Accordingly, the major advanced countries are already actively preparing for the new era.

The Korean government has selected biotechnology as one of the areas that needs national support and intensive fostering. Along with research and development in the biotechnology area, the government is also encouraging study and discussion of its ethical, legal and social impact and implications in order to establish a balance between technological advance and ethical issues.

Korea is preparing for a brighter future as the leader of the upcoming bioeconomy!

ABOUT KOREA

History of Biotechnology in Korea

Vision for Biotechnology in Korea

01. Development of Biotechnology in korea

Country	South Korea, officially the Republic of Korea (ROK), and often referred to as Korea
Location	Strategically located at the crossroads of Northeast Asia, Korea is neighbored by China to the west, Japan to the east, and the Russian Far East to the north
Capital City	Seoul
Territory	99,720 sq km
Population	48,607,000(2008)
Gross Domestic Product (GDP)	KRW 243.6 trillion (Q3, 2008)
Science and Technology	Korea vaunts of the highest broadband subscription rate in the world (30.4 per 100 inhabitants as of 2007), and one of the world's most advanced mobile telecommunications infrastructure
Leading companies	Samsung Electronics, Hyundai Motor, POSCO, LG Electronics, Hyundai Heavy Industries

Strategic Reginal Location

within 3.5 hours flight time

The Korean government had begun promoting biotechnology from the mid 1980's and after establishing a basic plan for the promotion of biotechnology (Biotech 2000) in 1994, started to coordinate government policies and expand its investment in R&D greatly.

In 2004, biotechnology (Novel Biomedicine and Organs) was selected as one of the next-generation engine for industrial growth. In 2006, the government published "The 2nd Framework Plan for the Promotion of Biotechnology (Bio-Vision 2016)" in an effort to actively foster the biotechnology sector and transform it into a national economic growth engine for the future.

Year	Main Issue
1983	Genetic Engineering Promotion Law was established (Genetic Engineering Promotion Law changed to Biotechnology Promotion Law)
1985	Korea Research Institute of Bioscience & Biotechnology (KRIBB) was established
1994	Basic Plan for the Promotion of Biotechnology (Biotech 2000: 1994~2007) was established
1998	Brain Research Promotion Law was implemented and Basic Plan for the Promotion of Brain Research established (Braintech 21: 1998~2007)
2004	Novel Biomedicine and Organs industry was designated as one of the next-generation growth engines
2006	The 2nd Framework Plan for the Promotion of Biotechnology (Bio-Vision 2016: 2007~2016) was published
2007	The 2nd Framework Plan for the Promotion of Brain Research (2008~2017) was announced and The Master Plan for National Life Resources was established
2008	Science and Technology Basic plan "577 initiative" was established and "BT Committee" under the National Science and Technology Council was formed

Vision for Biotechnology in Korea

The Basic Plan for the Promotion of Biotechnology, a government wide master plan for national biotechnology development, has been prepared to provide the policy direction and guideline.

Bio-Vision 2016 was established the direction of the development of Korean biotechnology over a 10-year period up until 2016 and it was published to achieve a goal of making Korea a biotechnology leader, according to a vision of realizing a sound "Health life" and "Prosperous Bioeconomy".

VISION "Health life" and "Prosperous Bioeconomy"
∘ Joining the Group of Global Top 7 Biotechnology Nations ∘

Objectives

Category	2006	2016
No. of science-technology papers published (National ranking)	12th	7th
Competitiveness in patented technology (National ranking)	15th	7th
No. of R&D manpower (Postgraduate degrees)	9,500	17,300
Industrialized market value	KRW 2.7 trillion	KRW 60 trillion

* The size of the biotechnology market is expected to expand dramatically from the year 2010 onwards, as acceleration of technology convergence is likely to result in inclusion of synthetic new drugs among bio products.

Key Directions

1) Strengthening an efficient comprehensive coordination system
   - Multi-ministerial coordination / Efficient budget allocation system
2) Acquiring of creative original technology
   - Facilitating overall R&D activities / Core and fusion technologies needed
3) Developing of an advanced industrial infrastructure
   - Realignment of industrial systems / Securing the commercialization infrastructure
4) Promoting of bioethics and a culture of research integrity
   - Social consent for safety ethics / Promotion of ELSI research

Governmental Commitment to Promote Biotechnology

Improvement of Technological Competitiveness

Securing High-Quality Human Resources

Strengthening of Industrial Capacity

Enhancement of Regional Innovation Capability

02. Current Status of Biotechnology in Korea

Governmental Commitment to **Promote Biotechnology**

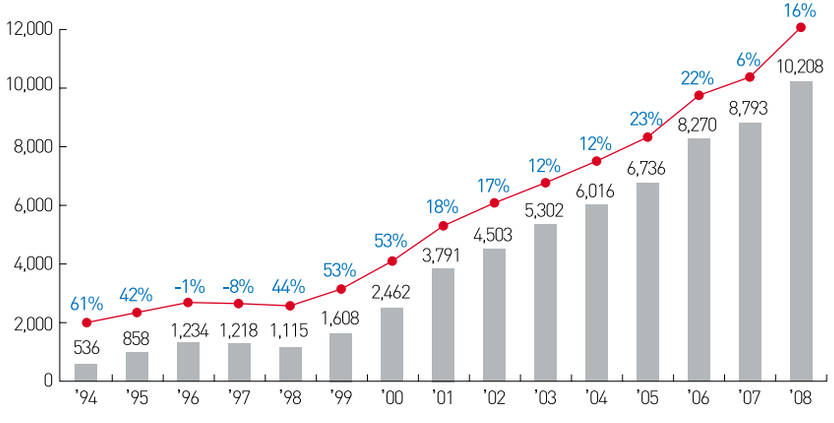
Government Investment in R&D

Korea is accelerating investment and promotion policy in order to acquire core technologies and strengthen the industrial infrastructure in the area of biotechnology, which is rapidly becoming the key strategic industry to lead the world economy in the wake of information technology.

Investment in biotechnology R&D began to increase rapidly in the 1990s. Since the publication of the Basic Plan for the Promotion of Biotechnology in 1994, the investment has been increasing at an annual average rate of 24%. In 2008, investment in biotechnology R&D amounted to KRW 1.02 trillion, representing an increase of 16% over the previous year.

■ Government Investment in Biotechnology (1994~2008)

[Unit : KRW 100 million]



※ Source : Ministry of Education, Science and Technology(MEST), 2009

Investment in biotechnology is led by six ministries (including those of Education, Science and Technology; Knowledge Economy; Health and Welfare; Food, Agriculture, Forestry and Fisheries) as well as other agencies and research institutes run by the government.

Ministry Roles and Support

Ministry of Education, Science and Technology (www.mest.go.kr)	• Basic strategic planing; support for and arbitration of ministerial policy-making • Development of professional human resources to promote R&D in biotechnology • Support for fundamental bio-science and cutting-edge technology, etc
Ministry of Food, Agriculture, Forestry and Fisheries (www.mifaff.go.kr)	• Support for applied research into the improvement of animal/plant/microorganism breeding species and the development of novel food substances • Support of fundamental researches such as attainment/ analysis/usage/preservation of genes needed for fisheries, etc
Ministry of Knowledge Economy (www.mke.go.kr)	• Development and improvement of biotechnology processes • Development of new/recycled energy sources and efficient usage of mineral resources, etc
Ministry of Health and Welfare (www.mw.go.kr)	• Promotion of R&D on biotechnology in the fields of health, medicine and food sanitation, as well as the development of professional manpower • Promotion of businesses and researches related with clinical trials, etc
Ministry of the Environment (www.me.go.kr)	• Preservation of biodiversity and sustainable usage of the related components • Support of technology development, fundamental research and applied research in waste handling and prevention of environmental pollution, etc
Ministry of Land, Transport and Maritime Affairs (www.mltm.go.kr)	• Support for applied research concerning the production of useful substances using fishery materials, the breeding and improvement of marine species, and the development of new substances • Development of technology for the prevention of marine pollution, and promotion/development of research institutes, etc

National Investment

The government announced 'Science and Technology Basic Plan, 577 initiative' in August 2008 to cope with social, economic and scientific changes, and to concentrate investment on 7 key tasks

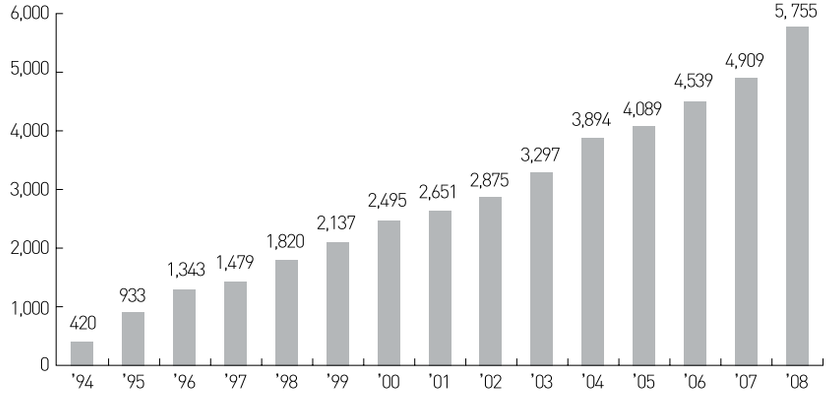
The key investment related to biotechnology includes 4 areas of Green Ocean, Risk Science, Mega Trend Science and National Platform Technology.

1	Technology Areas	Industrial Technologies (Green Ocean)
	Projects	Developing emerging technologies in the areas of drug, health andmedical care for which market sizes are expected to expand in the future due to the aging society
	Critical Technologies	Next-generation system S/W, cancer diagnosis and treatment, brain science, drug discovery and development technology, etc
2	Technology Areas	National Issues-related Technologies (Risk Science)
	Projects	Technology development in the area of current issues related to healthy life of people including new types of disease such as mad cow disease and pathogenic avian influenza, and food safety
	Critical Technologies	Immune disease and infectious disease response, food safety evaluation, IT nano-device technology, etc
3	Technology Areas	Global Issues-related Technologies (Mega Trend Science)
	Projects	Technology development to cope with common issues of human kind such as energy and resources, climate change, environment and food, and to occupy vantage point in the future market
	Critical Technologies	New and renewable energy (solar energy, wind energy, bioenergy, etc), Environment conservation and restoration technology, etc
4	Technology Areas	Basic & Convergent Technologies (National Platform Technology)
	Projects	Developing platform and convergent/composite material technologies with substantial socioeconomic effect, which become the base of next-generation technology innovation
	Critical Technologies	Drug delivery technology, Biochip and biosensor, etc

The level of scientific achievement and the technological competitiveness in Korean biotechnology sector are rapidly improving.

In terms of the number of papers published, Korea was ranked no. 11 in the world as of 2008. The data indicates a steady quantitative increase since 1994, the year in which the national promotion of biotechnology began. In 2008, the number of SCI-expanded papers published was 5,755, showing an increase of 17.2% over the previous year.

■ Year-by-Year Paper Publication of Biotechnology in Korea



※ Source : Ministry of Education, Science and Technology(MEST), 2009

The qualitative growth of publishing papers is as impressive as their quantitative growth. The number of articles published in the world's leading journals such as Nature, Science and Cell increases to more than 30 each year, more than 60% of which are in the field of biotechnology. In addition, the number of papers in the IF 10 or higher is also increasing, indicating the qualitative growth of Korean biotechnology.

Type	2006	2007	2008
No. of Papers in IF 10 or Higher Journals	149	142	229
No. of Papers in IF 20 or Higher Journals	50	33	53

The quantitative and qualitative growth of Korean biotechnology in terms of patents all show continued growth.

Between 2006~2007, 170 patents in biotechnology were registered in the USA. The Technology Strength (TS) index ranking improved to no.13 between 2006~2007, showing an improvement of 4 places over no.17 between 1998~2001.

■ No. of patents published by Korea in the USA

Category	1998~2001	2002~2005	2006~2007
No. of patents (average)	178 (44.5)	207 (51.7)	70 (85)
TS Index Ranking	17th	15th	13th

1998 ~ 2001

No	Contury	TS Index
1	USA	24,497
2	Germany	1,050
3	England	948
4	Canada	862
5	England	804
6	France	519
7	Denmark	408
⋮	⋮	
17	Korea	78

2006 ~ 2007

No	Contury	TS Index
1	USA	9,111
2	Germany	886
3	England	806
4	Netherlands	646
5	Germany	547
⋮	⋮	
13	Korea	109
14	Australia	108
15	Taiwan	78

※ Source : Biotech Policy Research Center, 2008

According to the 2008 "World Patent Report" issued by the World Intellectual Property Organization (WIPO), innovations are becoming a more global phenomenon, with the increase in the number of patents registered by Northeast Asian countries including China and Korea, as well as by the US, leading the overall worldwide number of patents.

▶ In 2006, the number of patents worldwide was 1.76 million, an increase of 4.9% over the previous year. 76% of all patents were concentrated in Japan, the US, Korea, Germany and China. The increase in the number patents registered by China (32.1%), Korea (6.6%) and US (6.7%) was especially notable.

Securing **High-Quality Human Resources** as the Driving Force behind Biotechnology Development

Professional development in the biotechnology sector assisted by the government is becoming more active. People with master or PhD degrees accounted for more than 30% of the total number of professionals.

In terms of academic degrees, over 18,000 bachelors, 7,000 masters and 2,500 PhD's have been awarded annually in the sector since 2005.

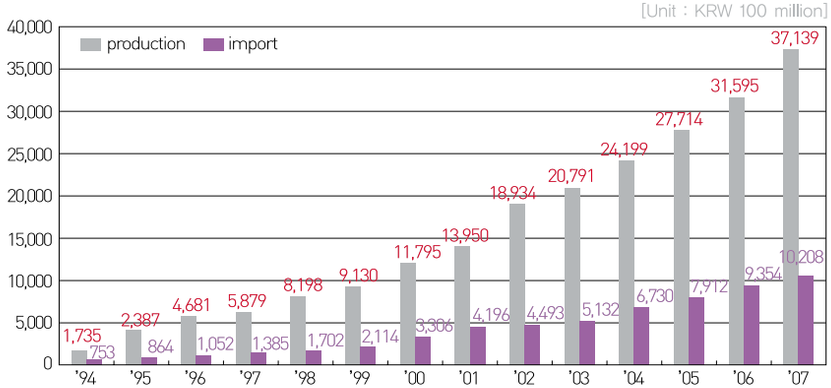
Strengthening of **Industrial Capacity**

Biotechnology industry in korea has grown 19-fold since 1994, due to aggressive policy assisted by the government.

In 1994, the size of biotechnology market in korea was KRW 244.8 billion. In 2006, the total value of biotechnology products (produced + imported) surpassed this figure by a long shot, amounting to KRW 4.347 trillion in 2007 (i.e., an average annual growth rate of 30.5% from 1994~2007).

■ Annual market size of bioindustry in Korea (1994~2007)

[Unit : KRW 100 million]



※ Source : Ministry of Knowledge Economy, 2008

834 companies, including more than 600 venture companies, are involved in the biotechnology sector, and more than 20,000 people are employed in the industry.

■ Biotechnology Companies in Korea

[Unit : KRW 100 million]

Year	No. of Companies	Employees	Export	Import
2005	708	13,867	12,311	7,912
2006	794	17,316	13,502	9,354
2007	834	20,236	14,715	10,208
CAGR	8.5%	20.8%	9.3%	13.5%

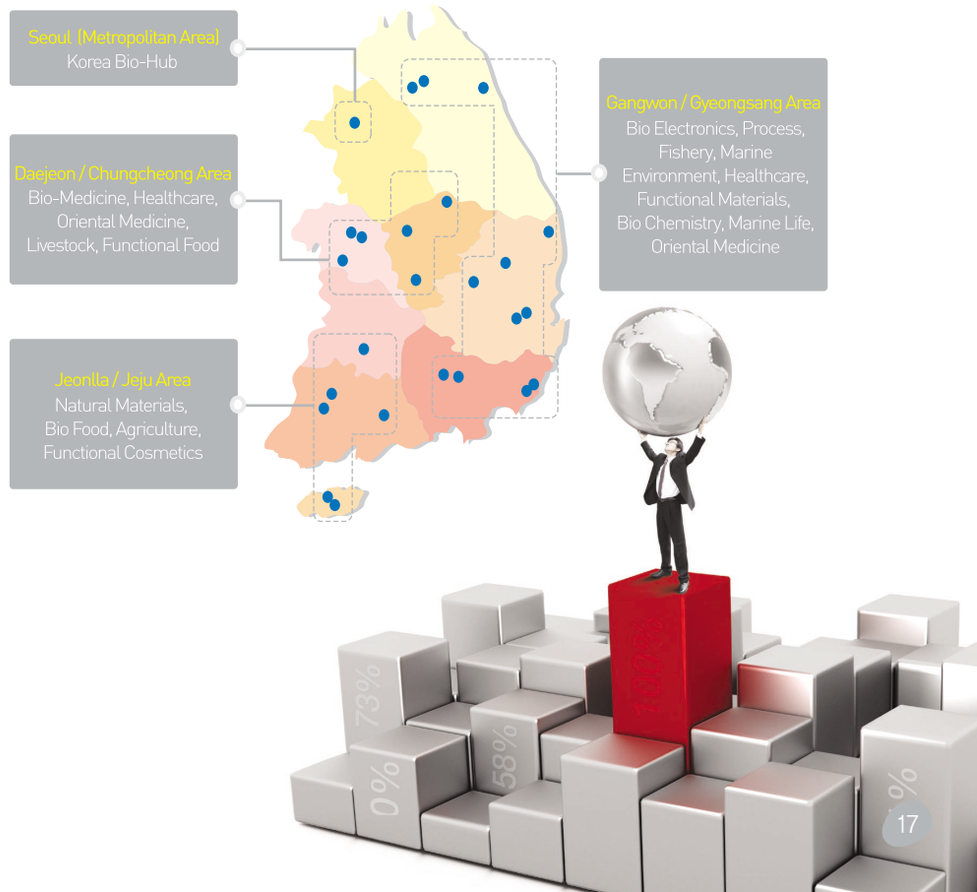
※ Source : Ministry of Knowledge Economy, 2008

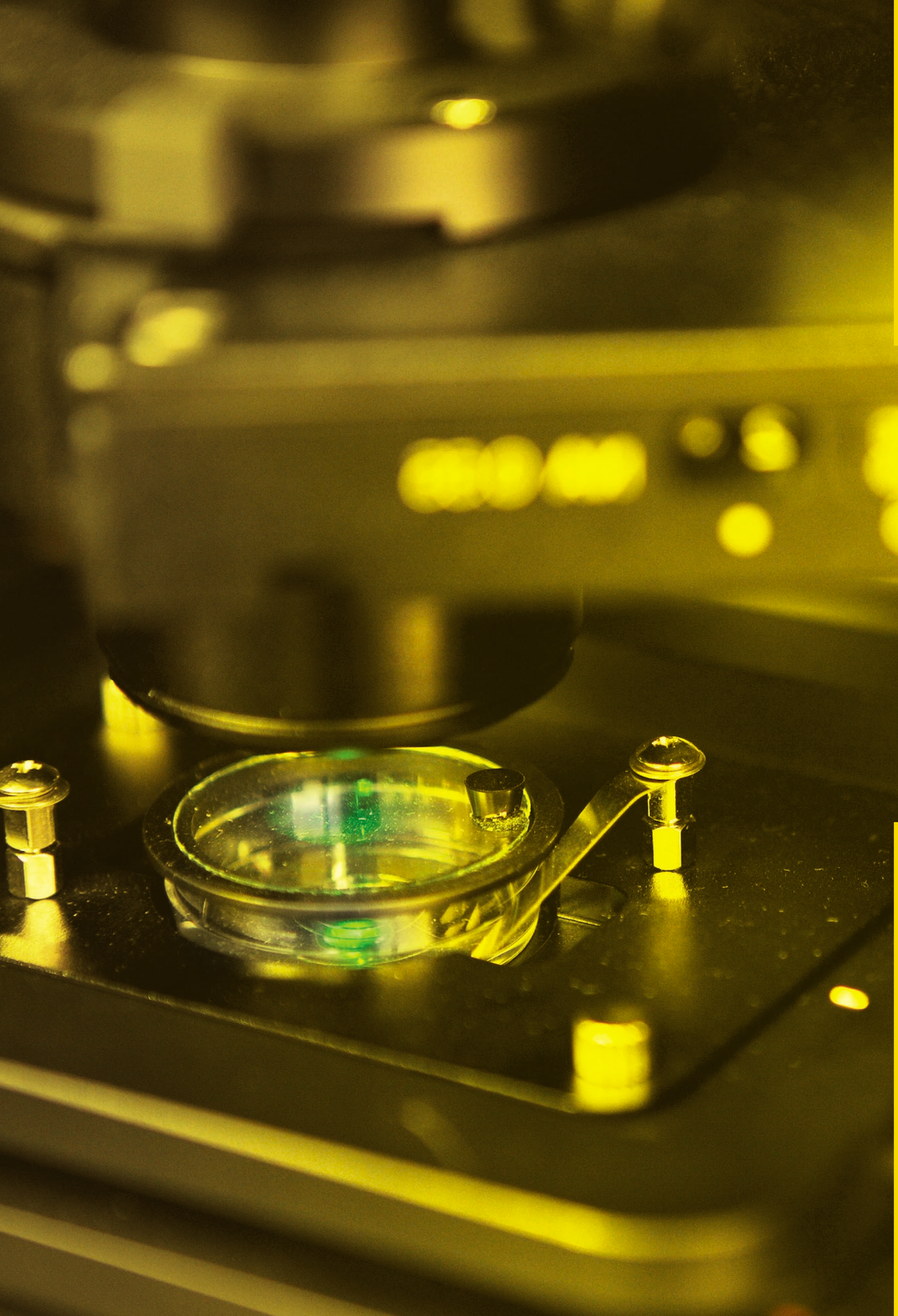
Biotechnology companies in Korea are concentrating on the development and production of biomedicines and biofoods. In detail, production is led by biomedicines at 45% and biofoods at 35%, followed by biochemistry at 6% and bioenvironmental products at 5%.

Enhancement of **Regional Innovation** Capability

The Korean government is developing the biotechnology industry by fostering and supporting bio-clusters in consideration of their regional characteristics.

With the goal of developing a regional innovation system and balanced national development by creating a biotechnology industry complex in each region, the bio-cluster system was introduced in 1998. To date, 28 biotechnology centers have been built in 13 cities and provinces. The Korea Bio-Hub has been established as the focal point of the nation's regional centers. The promotion of regional clusters and the national biotechnology industry has been helped by creating a human resources and technical network among the regional clusters and by increasing the level of support for industrialization.





Strength of Korea 03.

Key Success Cases

The Optimum Environment
for Conducting Global Clinical Trials

International Cooperation

New Drug Development

Since the commercialization of Sunpla, the anticancer drug developed by SK Pharmaceutical in 1999, 14 new drugs have been developed. With the US FDA's approval of Factive, a new anti-microbial agent from LG Life Sciences in 2003, Korea has become world's tenth country to have developed the new drug.

As a latecomer to the biotechnology industry with a history of just 20 years, the development of 14 new drugs is a remarkable outcome. The future of new drug development in Korea is very promising, as many new drugs are currently undergoing clinical trial phase in the US FDA.

No	Drug	Company	Efficacy	Date of Approval
1	Sunpla Inj.	SK Chemical	Stomach Cancer	1999. 7
2	EGF Topical Solution	DAEWOONG Pharm	Diabetic Foot Ulcer	2001. 5
3	Joins Tab.	SK Chemical	Arthritis	2001. 7
4	Milican Inj.	Dong-wha	Liver Cancer	2001. 7
5	Q-roxin Tab.	Choongwae Pharm	Urinary Tract Infection	2001.12
6	Stillen Cap.	Donga Pharm	Stomach Inflammation	2002. 6
7	Factive Tab.	LG Life Sciences	Respiratory Tract Infection	2002.12 (KFDA), 2003.4 (FDA)
8	Camtobell Inj.	CKD Pharm	Ovarian/Lung Cancer	2003. 10
9	Maxmarvil Tab.	Yuyu Pharm	Osteoporosis	2004. 11
10	Revanex Tab.	Yuhan	Peptic Ulcer	2005. 9
11	Zydena Tab.	Donga Pharm	Erectile Dysfunction	2005. 11
12	Levovir Cap.	Bukwang Pharm	Hepatitis B	2006. 11
13	Mvix	SK Chemical	Erectile Dysfunction	2007. 7
14	Ilaprazole	Ilyang Pharm	Peptic Ulcer	2008.11

※ Source : Korea Drug Research Association

Growth Potential of Korean Biotechnology Companies

Technology transfer with global pharmaceutical companies for outstanding new drug candidate developed by Korean companies has entered a highly active phase.

For example, Dong-Wha Pharmaceutical developed a new candidate drug showing outstanding effects against osteoporosis, and signed a technology transfer agreement with P&G, a multinational pharmaceutical company, for US$ 511 million.

Zydena, an anti-impotence drug developed by Dong-A Pharmaceutical, was being exported to 42 countries as of 2008, while Levovir, a hepatitis B therapeutics developed by Bu Kwang Pharmaceutical, was recently approved by the government of the Philippines, thereby opening up the market in south east Asia.

Company	Contents
Ilyang Pharm	• In regard to "Ilaprazole", a next generation therapeutics for peptic ulcers patented in 26 countries, Ilyang signed a license agreement in 2005 with TAP Pharmaceuticals, a U.S. peptic ulcer treatment maker, under which Ilyang received US$ 90 million in royalties, and agreed to a royalty payment of 5-10% of sales per year during the first 15 years of distribution of the new drug. TAP in turn obtained the global rights (excluding Asia) to Ilaprazole • In particular, as the patent rights of TAP Pharmaceuticals "Prevacid" expires in November 2009, TAP has chosen "Ilaprazole" as an alternative, providing it with primary support
Dong-wha Pharm	• Dong-wha Pharmaceutical enjoys royalties from DW-1350, osteoporosis treatment, and DW224a, a new quinolone with antipneumococcal activity • In regard to the osteoporosis treatment, on July 7, 2007, Dong-wha received KRW 470.1 billion in royalties for worldwide technology transfer, excluding distribution rights in Asia, through a licensing agreement with P&G, a multinational pharmaceutical company
LG Life Sciences	• With regard to "LB84451," a liver treatment which is in Phase 2 of development, LG Life Sciences entered a licensing agreement with Gilead Sciences, Inc., a US-based company. Under the agreement, LG is to receive US$ 200 million in royalties for technology and will further enjoy sales-based royalties after commercialization

Increasing Investment by Foreigners

Investment in Korean biotechnology companies by foreign investors is increasing in line with the advances made in the nation's biotechnology infrastructure and research environment.

[Unit : US$ million]

Company	Investor Organization	Invested Amount	Business Contents
Celltrion	Vaxgene (US)	30	Bio-medicine company (CMO); Manufacture of arthritis treatment, colon cancer antibodies, etc
Eugene Science	Meiji Seika Kaisha Ltd. (Japan), H&Q (US)	9	Manufacture and export raw materials of "CholZero," cholesterol- H&Q (US) lowering beverage
Anterogen	Dinippon Sumitomo Pharma (Japan)	1	Heart function recovery using cells excerpted from patients bone marrow
DNA Link	Orchid (US)	1	Research on Single Nucleotide Polymorphism (SNP)
Viromed	Takara Bio Inc (Japan)	6	Clinical trials for cancers or hereditary diseases
Bernabiotech Korea	Bernabiotech (Switzerland)	10	Manufacturing and development of conjugate vaccines

※ Source : Invest KOREA (www.investkorea.org)

In addition, there has been active investment in various forms, including merger & acquisition and joint ventures.

1) Examples of M&A between Bio Venture Firms of Korea and the US

Histostem, a Korean biotechnology company, has recently signed a memorandum of understanding with Stem Cell Therapy International (SCTI) based in Tampa, Florida, with regard to a prospective merger of the two companies.

2) Examples of Joint Ventures between Korean Biotechnology Companies and Foreign Venture Capital

On February 26, 2007, Crystal Genomics and ProQuest Investments created a joint venture, Palkion, to transfer technology regarding novel molecule therapeutics for hypoxemia (anemia, stroke & neuroprotection etc) owned by Crystal Genomics, and conduct clinical trials in Palkion.

3) Multinational Pharmaceutical Company: In support of start-up Korean bio venture firms

Novartis - Get Armed To Explore Global Markets (GATE) Project: The goal is to support start-ups by Korea's bio venture firms and the development of the Korean Biotechnology Industry (A review of domestic firms is under way after a presentation of the GATE Project on March 29, 2008).

The Optimum Environment for Conducting Global Clinical Trials

-Choose Korea for Your Next Clinical Trial Site

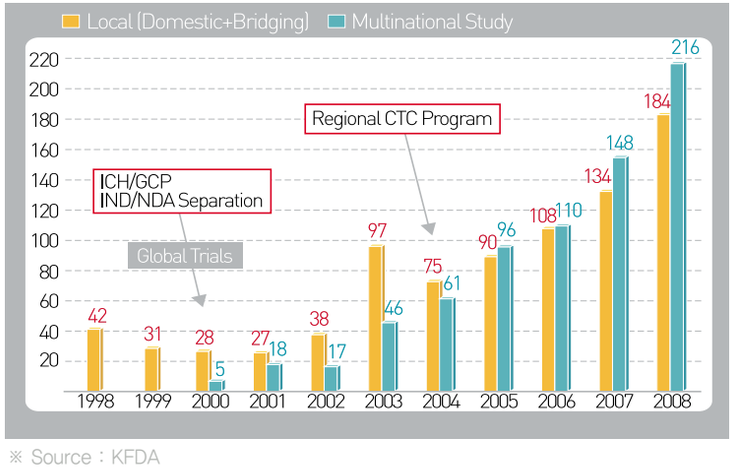
While only five multinational clinical trials were performed in 2000, the first year in which multinational clinical trials were allowed in Korea, that number increased to 216 in 2008, representing a 40-fold increase in 8 years - ample evidence of Korea's capability that have been rapidly improved for conducting clinical trials.

According to the article, "Trends in the Globalization of Clinical Trials", published in Nature Reviews Drug Discovery (2007.12), Korea was ranked 25th in the world in terms of multinational clinical trials.

Although there are many reasons why Korea is fast becoming the 'Clinical Hub' of multinational pharmaceutical companies, the speed, quality and efficiency of its clinical trials are particularly noteworthy.

As such, the Korean government established the Korea National Enterprise for Clinical Trials (KoNECT) to meet increasing demand for clinical trials and to strengthen national capability by fostering the necessary human resources, core technology, and infrastructure in preparation for becoming a global clinical trial hub.

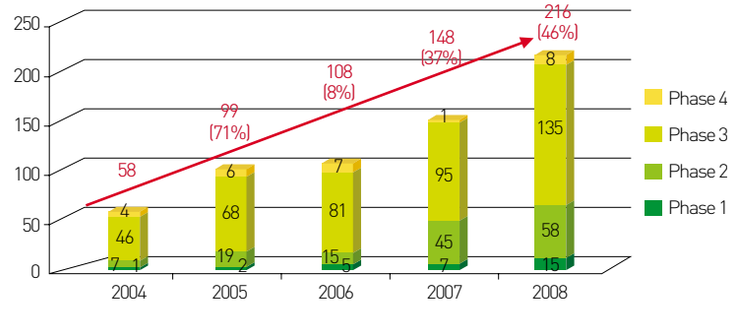
■ Number of approved clinical trials in Korea



※ Source : KFDA

Although the early multinational clinical trials conducted in Korea were generally either phase 3 or 4, the portions of ealy phases (phase 1 and 2) trials have been increasing gradually. In 2008, the number of phase 1 or 2 multinational clinical trials was 73, and 34% of the total

■ Annual rate of multinational clinical trials



※ Source : KoNECT, (%) is the change rate compared to past year

Extract from a Press Conference by Joseph M. Feczko, Senior Vice-Chairman of Pfizer, at Westin Chosun Hotel, September 2006

"Clinical testing is the most important aspect of new drug development, and Korea offers the ideal conditions as Asia's clinical test hub"

Joseph M. Feczko, a Senior Vice-Chairman of Pfizer, the world's largest pharmaceutical company, stated that Korea was one of the fastest growing clinical countries in Asia, as it offered various competitive factors such as talented, open-minded research staff, low costs, and high quality

Pfizer assessed Korea as having global level competitiveness in terms of speed, quality and efficiency in the clinical testing of new drugs. Its high patent registration rate means competitive 'speed'. In terms of regional data collected, Korea's error rate per 100 pages (DCF) was only 2%, which was superior not only to the global average of 4.0% but even that of the US's 3.7%, proving Korea's high 'quality' according to Pfizer's analysis. In terms of 'efficiency', the rate of sites without patent registration after the clinical test announcement is 0%, far lower than the world average of 16% and the US's of 13%

Pfizer particularly emphasized the high quality of Korea's medical professionals. As positive proof of this, more and more Korean medical professionals are becoming chief researchers (PI) of multinational clinical tests...

International Cooperation

The Korean government is offering various incentives such as tax benefits and financial aid to foreign companies and institutes conducting research activities in Korea. The efforts have resulted in major research institutes such as Pasteur, Battelle and RIKEN to open the local operation.

Institute	Research Area	Organization Type	Progress
Pasteur Research Institute, France	Biotechnology	Independent Corporation (IP Korea)	Opened a research center in 2004
Cavendish Laboratory, University of Cambridge	Basic Science	Joint Research Center (KAIST)	Opened a research center in 2004
The Institute of Physical and Chemical Research (RIKEN)	Nanotechnology	Cooperative Research Center (Hanyang University)	Opened a research center in 2005
State Optical Institute, Russia	Optics	SOI Korea Corporation (Korea Electrotechnology Research Institute)	Opened a research center in 2005
APEC e-IMBL	Biotechnology	International Organization (Seoul National University)	Opened a research center in 2005
APEC Climate Center	Weather & Climate	International Organization (Korea Meteorological Administration)	Opened a research center in 2005
National Institutes of Health, USA	Biotechnology (Tuberculosis)	Joint Research Center (Korea Research Institute of Chemical Technology)	Opened a research center in 2006
Battelle Research Center, USA	Inhalation Toxicity	Joint Research Center (Korea Institute of Toxicology)	A research center to be opened
	Nano biotechnology	Joint Research Center (Korea University)	A research center to be opened
	-	Battelle Korea (Independent Corporation)	Opened a research center in 2006
Fred Hutchinsom Cancer Research Center (FHCRC), USA	Biotechnology (Cancer)	Joint Research Center (Korea Research Institute of Bioscience and Biotechnology)	Opened a research center in 2005
The Scripps Research Institute, USA	Biotechnology	Joint Research Center (Kangwon University)	A research center to be opened

Generous Incentives Offered

Category	Contents
Cash Grant	• R&D Centers with foreign investment (over $5M) - Cost of materials and equipment to be used in the research - Cost of recruitment and training ※ Actual support is determined by the investment size and negotiation.
Tax Reduction	• Corporate tax and income tax reduction • Duty, special consumption tax, and VAT • Acquisition tax, registration tax, property tax, and land synthesis tax • Income tax exemption for foreign engineers and advanced technology providers
Land Offering	• Dedicated foreign company complex: Free or 75% reduction of rent • Foreign investment zone: 100% exemption • Free trade zone: Up to 100% exemption • Duty free zone: Up to 100% exemption
Financial Support	• Participation in national R&D projects • Financial support from the Science and Technology Promotion Fund and the informatization promotion fund • Financial support for technology development and incubation from venture capital • Support of technology development fund from KIBO Technology Fund
Research Staff Support	• Exemption from military service for research staff with Master or PhD degrees • Partial support of labor costs when hiring new research staff (100% for the first 5 years)

KICOS, a Partner for International Cooperation

The Korea Foundation for International Cooperation of Science and Technology (KICOS, www.kicos.or.kr) was established by the Korean Ministry of Education, Science and Technology (MEST) to support international cooperation activities in science and technology, including the recruitment of the world's foremost R&D centers to Korea.

Korean Leading Players & Organizations

04.

Major Research Institutes

Associations & Related Agencies

Major Companies

Clinical Trial Centers and
Contract Research Organization (CRO)

Major Research Institutes

Korea Research Institute of Bioscience and Biotechnology **(KRIBB)**

- Founded in 1985, the KRIBB conducts fundamental research into the origins of living phenomena, as well as cutting edge biotechnology research into new biomaterials, environmental cleaning, the development of new energy sources, and increased food production
- For more information, please visit the homepage (www.kribb.re.kr)

Korea Research Institute of Chemical Technology **(KRICT)**

- Founded in 1976, the KRICT is leading the advancement of chemical technology and industry in Korea. The institute recently selected four key research areas for concentrated investment: development of green growth chemical technology; development of cutting · edge chemical substances and original technologies; acquisition of a global new drug pipeline; and advancement of chemistry-based convergence/composite technology
- For more information, please visit the homepage (www.krict.re.kr)

Korea Institute of Oriental Medicine **(KIOM)**

- Founded in 1994, the KIOM conducts research into original technologies for oriental medicine, and fundamental theory and clinical research. Key national projects concerning acupuncture, four-phase constitution, brain vasculature disease and diabetic complicated disease. The KIOM supports the development of various oriental medical resources and research staff, as well as materials inspection and oriental medicine policy research
- For more information, please visit the homepage (www.kiom.re.kr)

National Cancer Center **(NCC)**

- Founded in 2000, the NCC is a government center dedicated to overcoming cancer. The center strives to reduce the national burden inflicted by cancer through cancer research and support, effective treatment of cancer patients, cancer management projects, and professional cancer training
- For more information, please visit the homepage (www.ncc.re.kr)

Mogam Biotechnology Research Institute **(MBRI)**

- Mogam Biotechnology Research Institute (MBRI) is the first non-profit research foundation approved by Korean Government. Green Cross Corporation, a leading pharmaceutical company in Korea and maker of world best selling hepatitis B vaccine, Hepavax B, donated fund to found MBRI in 1984
- For more information, please visit the homepage (www.mogam.re.kr)

Associations & Related Agencies

Category	Contents
Korea Biotechnology Industry Organization	• In order to gain more power and coordination to enhance bioindustry sector, November, 2008 three major associations- Bioindustry Association of Korea (BAK), Korea Bio Venture Association (KoBioVen) and Korea Biotechnology Research Association (KBRA) - decided to merge to form one association. The new united association is the **Korea Biotechnology Industry Organization (Korea BIO)**. Korea BIO will be operational from April 2009 with about 300 member organizations
Korea Drug Research Association	• Founded by law in 1986 as a non-profit organization, the KDRA represents Korea's R&D-oriented, innovative companies. The KDRA supports the development of new and advanced medicines by promoting information sharing as well as outsourcing, and by addressing regulatory difficulties ※ For more information, visit http://www.kdra.or.kr
Korea Pharmaceutical Manufacturers Association	• KPMA has played its central role for the advancement of pharmaceutical industry in Korea since its foundation in 1945. The goals of KPMA are the development of new drugs through R&D and the supply of good pharmaceutical products that contribute to healthier human life ※ For more information, visit http://www.kpma.or.kr
Korea National Enterprise for Clinical Trials	• KoNECT was founded with the support of the Ministry of Health, Welfare and Families to develop an advanced infrastructure for clinical trials. It carries out various programs intended to support regional clinical trial centers, train professionals, and develop new clinical trial technology ※ For more information, visit http://www.konect.or.kr

Major Companies

Bio Venture

Biomedicines

Company	Homepage
Binex Co., Ltd.	http://www.bi-nex.com
Cho-A Pharm Co., Ltd.	http://www.choa.co.kr
Choongang Vaccine Laboratory	http://www.cavac.co.kr
CreaGene, Inc.	http://www.creagene.com
Crystalgenomics, Inc.	http://www.crystalgenomics.com
Deasung Microbiologycal Labs. Co., Ltd.	http://www.dsmbio.com
Equispharm	http://www.equispharm.com
EstechPharma Co., Ltd.	http://www.estechpharma.com
Genebiotech	http://www.genebiotech.co.kr
Genexel-Seil	http://www.genexel.com
HANSEOPHARM. Co., Ltd.	http://www.hanseoph.co.kr
HepaHope Korea, Inc.	http://www.hepahope.co.kr
HUONS Co., Ltd.	http://www.huons.com
hwail co., Ltd.	http://www.hwail.com
Innocell	http://www.innocell.com
Jinyang Pharm.Co., Ltd.	http://www.jinyangpharm.com
kolmar, Korea	http://www.kolmar.co.kr
Komipharm International Co., Ltd.	http://www.komipharm.com
Lifecord	http://www.lifecord.co.kr
Medifron	http://www.medifron.com
Medipost Co., Ltd.	http://www.medi-post.co.kr
MEGABION, Inc.	http://www.megabion.co.kr
NeoPharm	http://www.neo-pharm.co.kr
Neurotech Pharmaceuticals Co., Ltd.	http://www.neurotech-pharma.com
Oscotec, Inc.	http://www.oscotec.com
Polyplus	http://www.polyplus.biz
Regen Biotech, Inc.	http://www.regenbiotech.com
Sky New Pharm Co., Ltd.	http://www.skynewpharm.co.kr
ViroMed Co., Ltd.	http://www.viromed.co.kr

Biochmistry

Company	Homepage
Bioland	http://www.biolandkorea.com
Sansung P&C Co., Ltd.	http://www.sansung.co.kr
Sesil Co., Ltd.	http://www.sesilipm.co.kr
Standard Diagnostics, Inc.	http://www.standardia.com

Biofood

Company	Homepage
Cell Biotech Co., Ltd.	http://www.cellbiotech.com
Dodlesem	http://www.dodlesem.co.kr
Easy Bio System, Inc.	http://www.easybio.co.kr
RexGene Biotech Co., Ltd.	http://www.rexgenebio.co.kr

Agriculture

Company	Homepage
Cheilbio Co., Ltd.	http://www.cheilbio.com

Agricultural Biotechnology

Company	Homepage
Choong Ang Biotech Co., Ltd.	http://www.choongangbio.com
CTC BIO, Inc.	http://www.ctcbio.com
Daehan New Pharm Corporation	http://www.dhnp.co.kr
Dodram B&F, Inc.	http://www.dodrambnf.co.kr
Eaglevet	http://www.eaglevet.com
Inbionet, Co., Ltd .	http://www.inbionet.com
nongwoobio	http://www.nongwoobio.co.kr
PWG Genetics Korea, Ltd.	http://www.spfpig.com

Bioassay and Information

Company	Homepage
Suprema, Inc.	http://www.supremainc.com/korean
BIOTOXTECH	http://www.biotoxtech.com
Macrogen, Inc.	http://www.macrogen.co.kr
Bioneer Co., Ltd.	http://www.bioneer.co.kr
Biospase Co., Ltd.	http://www.biospace.co.kr
IlShinLab	http://www.ilshinlab.co.kr
Infopia Co., Ltd.	http://www.infopia21.com
Jawon Medical	http://www.jawon.co.kr
Ko Biotech	http://www.kobiotech.com
Osstem Implant	http://www.osstem.com
Seoulin Bioscience Inc.	http://www.seoulin.co.kr
Solco Biomedical Co., Ltd.	http://www.solco.co.kr
ECO Solutions Co., Ltd.	http://www.ecosol.co.kr

Bio Companies

Biochmistry

Company	Homepage
Amorepacific	http://www.amorepacific.co.kr
Chem Tech Research, Inc.	http://www.c-tri.co.kr
Etec E&C Limited.	http://www.etecenc.com
Genic Co., Ltd.	http://www.genic21.com
Micro Science Tech Co., Ltd.	http://www.mstltd.co.kr
OCI Co., Ltd.	http://www.oci.co.kr
Samsung Find Chemicals Co., Ltd.	http://www.sfc.samsung.co.kr
Korea Kumho Petrochemical Co., Ltd.	http://www.kkpc.co.kr

Biofood

Company	Homepage
CJ Co., Ltd.	http://www.cj.co.kr
Daesang Co., Ltd.	http://www.daesang.co.kr
Easy Bio System, Inc.	http://www.easybio.co.kr
Eugene Science, Inc.	http://www.eugene21.com
Kimjungmoon Aloe Co., Ltd.	http://www.aloe.co.kr
Pulmuone Co., Ltd.	http://www.pulmuone.co.kr
TS Corporation Co., Ltd.	http://www.ts.co.kr

Agricultural Biotechnology

Company	Homepage
Cargill Agri Purina, Inc.	http://www.purinafeed.co.kr
Dongbu HiTek	http://www.dongbuhitek.co.kr
Doosan	http://www.doosanfeed.com

Biomedicines

Company	Homepage
Aminogen	http://www.aminogen.co.kr
Aprogen	http://www.aprogen.co.kr
Boryung Co., Ltd.	http://www.boryung.co.kr
Celltrion, Inc.	http://www.celltrion.com
Chong Kun Dang	http://www.ckdpharm.com
Choongwae Pharma Co., Ltd.	http://www.cwp.co.kr
CKD Bio, Inc.	http://www.ckdbio.com
Daewoong Co., Ltd.	http://www.daewoong.co.kr
Dong Wha Pharm Co., Ltd.	http://www.dong-wha.co.kr
Dong-A Pharmaceutical	http://www.donga.co.kr
Dongkook Co., Ltd.	http://www.dkpharm.co.kr
FCB-Phamicell Co., Ltd.	http://www.fcbpharmice.com
ForHumanTech	http://www.forhumantech.com
Genexel-Sein, Inc.	http://www.genexel.com
Genexine Co., Ltd.	http://www.genexine.com
Green Cross Co., Ltd.	http://www.greencross.com
Hanmi Pharm. Co., Ltd.	http://www.hanmi.co.kr
Hanwha Cemical	http://hcc.hanwha.co.kr
Ildong Pharm Co., Ltd.	http://www.ildong.com
iNtRON Biotechnology	http://www.intron.co.kr
Isu Abxis	http://www.abxis.com
Koreavaccine Co., Ltd.	http://www.koreavaccine.com
LG Life Sciences Co., Ltd.	http://www.lgls.co.kr
MedExGen, Inc.	http://www.medexgen.com
Medy-Tox, Inc.	http://www.medy-tox.co.kr
Newgex, Inc.	http://www.newgex.com
Orient Bio, Inc.	http://www.orient.co.kr
POSTECH Biotech Center	http://www.biotechcenter.org
RNL Bio, Inc.	http://www.rnl.co.kr
Samchully Pharm Co., Ltd.	http://www.samchullypharm.com
Samyang Genex Co., Ltd.	http://www.genex.co.kr
SK chemicals	http://www.skchemicals.com
STR Biotech Co., Ltd.	http://www.strbiotech.co.kr
Woogene B&G	http://www.woogenebng.com
Yuhan Co., Ltd.	http://www.yuhan.co.kr

Bioassay and Information

Company	Homepage
BioCore Co., Ltd.	http://www.bio-core.co.kr
Dinona, Inc.	http://www.dinona-inc.com
Cellgenomics	http://www.cellgenomics.com
NanoEnTek, Inc.	http://www.nanoentek.com
BIOTEL Co., Ltd.	http://home.moatv.com/biotel1
Interface Engineering Co., Ltd.	http://www.interfaceit.co.kr
Millipore Korea	http://www.millipore.com/kr
NOVA Bio Greentek Co., Ltd.	http://www.enova.co.kr
Sartorius Korea Biotech Co., Ltd.	http://www.sartorius.or.kr
Takara Korea Biomedical, Inc.	http://www.takara.co.kr
Technomart, Inc.	http://www.technomartinc.com

Bioenvironment

Company	Homepage
Polystar	http://www.pmo.co.kr

Clinical Trial Centers and Contract Research Organization (CRO)

Company	Homepage
Clinical Trials Center, Seoul National University Hospital	http://cri.snuh.org/ctc
Clinical Trials Center, Inje University Pusan Paik Hospital	http://www.paikctc.ac.kr
Clinical Trials Center, Kyungpook National University Hospital	http://ctc.knu.ac.kr
Clinical Trials Center, Ajou University Medical Center	http://rctc.ajoumc.or.kr
Clinical Trials Center, Yonsei University Health System	http://sev.iseverance.com
Clinical Trials Center, Chonnam National University Hospital	http://www.cnuhctc.com
Clinical Research Coordinating Center, Catholic Medical Center of the Catholic University of Korea	http://cmccrcc.catholic.ac.kr
Clinical Research Center, Asan Medical Center	http://crc.amc.seoul.kr
Clinical Trials Center, Chonbuk National University Hospital	ttps://www.jbctc.co.kr
ClinicalTrials Center, SamsungMedical Center	http://ctc.samsunghospital.com
Clinical Trials Center, Inha University Hospital	http://www.inha.com
Clinical Trials Center, Chungnam National University Hospital	http://www.cnuh.co.kr
DreamCIS, Inc.	http://www.dreamcis.com
Acrovan Co., Ltd.	http://www.acrovan.com
LSK Global PS	http://www.lskglobal.com
C&R Research, Inc.	http://www.cnrres.co.kr
Quintiles Transnational Korea	http://www.quintiles.com
PAREXEL APEX International (Korea) Co., Ltd	http://www.parexel.com

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www.bioin.or.kr