


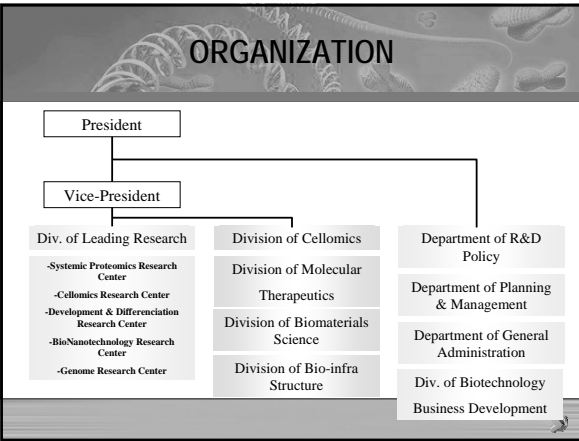
## KRIBB's Experiences on International Cooperation & Technology Transfer

27~28<sup>th</sup>, April 2006  
Manila, Philippines



## OVERVIEW

- Founded in 1985 as one of GRIs, dedicated to biological sciences and biotechnology
- Mission
  - to develop and diffuse advanced and core biotechnology
  - to provide nation-wide infrastructure
- Budget Size: US\$ 99 mil. in 2005(US\$ 77 mil for R&D)
- About 900 research scientists, 200 Ph.Ds
- Under the Ministry of Science and Technology (MOST)

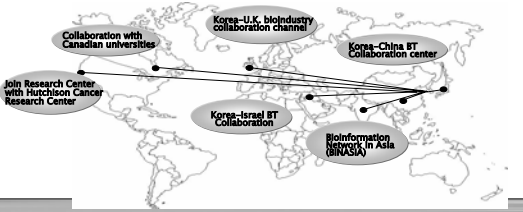
## INTERNATIONAL COOPERATION

- *Scientific research is becoming*
  - More “globalized” - increasing numbers of countries are building their scientific capabilities and participating in world science;
  - More “collaborative” - a growing proportion of projects and the publications they produce result from international collaborations; and
  - More “distributed” - scientific teams are collaborating across greater distances and involve more widely dispersed expertise.

➡ National boundaries have diminishing significance for scientific activities

## GLOBAL COLLABORATION NETWORK

- ◆ Global collaboration network with 70 institutions in 20 countries
  - Fred-Hutchison Joint Cancer Research Center
  - Bioresources Collaboration Centers with Malaysia, China, South Africa, Costa Rica
  - Bioinformation Network in Asia (BINASIA) including APCTT in India



## INTERNATIONAL COOPERATION

- *Establishment of KRIBB-FHCRC Joint Research Center*
  - Mission: contribution to the prevention, early detection, diagnosis and treatment of cancer and other related diseases that are health concerns in Korea.
  - MOU among the City of Daejeon, KRIBB, and FHCRC is to be signed in Feb., 2005.
- Main Projects
  - Biomarker Project: to identify blood-serum protein markers that can distinguish individuals with early stage cancers (Daejeon City US\$4.5m, KRIBB US\$800,000 annually for 5 years)
  - Last Cohort Project: to implement a large epidemiological study using a Korean cohort of study subjects to establish a specimen and database that could be used for identifying the causes of cancer and other diseases


## INTERNATIONAL COOPERATION


- ***Korea-UK Bio-Industry Collaboration Program***
  - to collaborate in R&D and training program in the field of bio-nanotechnology and bioinformatics
  - Counterparts: Bio-Nanotechnology IRC and HGMP-RC
  - Period: 2003 – 2004
  - Budget: US\$450,000 per year
  - Activities
    - Joint research projects
    - Fact-finding mission
    - Joint workshops



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## INTERNATIONAL COOPERATION

- ***Korea-China Bioscience and Biotechnology Cooperation Center***
  - to promote S&T cooperation in biotechnology between two countries on behalf of their government agencies
  - In 1997, Science and Technology vice-ministers of the two countries exchanged an MOU on the establishment of the center
  - Counterpart: SIBS, CAS 
  - Period: 1999 – Present
  - Budget: US\$300,000 per year
  - Activities
    - Joint research projects
    - Fact-finding mission
    - Joint workshops



<http://kcbbcc.kribb.re.kr>

## INTERNATIONAL COOPERATION


- ***Korea-Israel Biotechnology Collaboration Program***
  - Mission: Promotion of bilateral collaboration in biotechnology
    - to generate collaborative networks of scientists and researchers
    - to act as a focal point for mutual collaboration
  - Counterpart: Weizmann Institute of Science
  - Period: 2000 – 2004
  - Budget: US\$300,000 per year
  - Activities
    - Joint research projects
    - Fact-finding mission
    - Joint workshops



<http://israel.kribb.re.kr>

## INTERNATIONAL COOPERATION

- ***Korea-ASEAN Biotechnology Information Network***
  - to exchange information on biotechnology among the ASEAN member countries and Korea for the promotion of regional cooperation 
  - In collaboration with ASEAN-COST
  - Successfully finished in 2000
  - Major Activities
    - workshop
    - e-networking



<http://asean.kribb.re.kr>

## TECHNOLOGY TRANSFER(1)

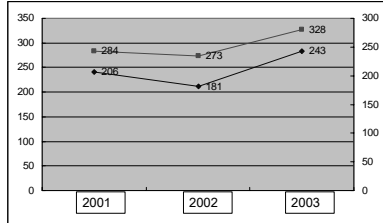
- ***Governmental Policies***
  - In Korea, the public-to-private transfer of technology has been of growing policy interest since late 1960s.
  - The New Economic Five Year Plan(1993-1997) directed the government to fully utilize its domestic R&D capabilities by facilitating R&D collaboration among GRIs, universities, and industrial firms, thereby promoting global technological and economic competitiveness.
  - To comply with the Plan, in late 1990s, MOST started to encourage transfer of government-owned technologies to SMEs.
  - In 2000, Technology Transfer Promotion Law was enacted for systematic facilitation of the technology transfer to SMEs.

## TECHNOLOGY TRANSFER(2)

- ***KRIBB's Policy***
  - KRIBB is a steward of governmental funds.
  - Actively encourages to license inventions for commercial development which are in the public interest.
  - Increased incentives to PIs, who transferred technologies, to 70% of the total income from 50%.
  - Technology Transfer Office: to provide a bridge between KRIBB and industry to facilitate the conversion of intellectual property to useful commercial products
  - Mechanisms: Assignment Agreements, Confidential Disclosure Agreements, Research Contracts, Material Transfer Agreements, License Agreements

## TECHNOLOGY TRANSFER(3)

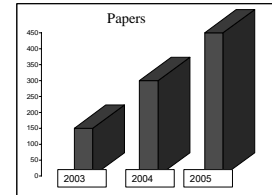
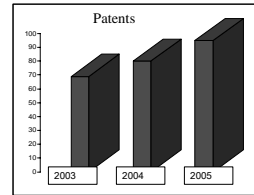
- Publication (2003): total=328, SCI=243



## TECHNOLOGY TRANSFER(4)

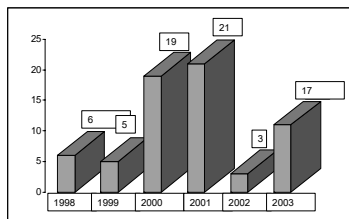
### • Patents (2003-2005)

- Patents in 2005; 95
- Papers in 2005; 411



## TECHNOLOGY TRANSFER(5)

- From 1987 to 2003, a total of 93 R&D results have been transferred to industry. (total income = US\$ 1.2bil.)
- 15 cases in 2005



## TECHNOLOGY TRANSFER(6)

### • Bio-Venture Center (BVC)

- Opened in June, 2000
- Mission
  - to incubate bio-venture companies
  - to provide assistance in technology, capital, and management
  - to promote technology transfer of KRIBB's research outcomes
- Designated as the best business incubation center by SMBA in 2001
- Designated as a Training Center for industrial workforce by MOCIE
- Award-winner of the SME Technology Innovation by MOCIE in 2003
- Since 1992, 19 companies have been spun off from KRIBB



## TECHNOLOGY TRANSFER(7)

### • Bio-Venture Center (BVC)

- Currently incubating 22 venture companies in various biotechnology areas

 NeoPharm, Ltd.	 BioR&Ds Co., Ltd.	 Ace Biotech Inc.	 enP Inc.	 ProBionic Corp.
 Dae Sung Microbio Labs. Co., Ltd.	 Pogen Co., Ltd.	 Aprogen, Inc.	 DaeWoong Pharmaceutical Co., Ltd.	 KAM Biotechnology Asia
 Lee's Biotech Co., Ltd.	 BioHoldings Inc.	 EntBioeng Co., Ltd.	 Eugentech Inc.	 Ani Chem
 BioNUTRIGEN	 VaccTech Corp.	 ENZBANK, Inc.	 Bio-Dreams Co., Ltd.	 HanBiotech, Ltd.

## TECHNOLOGY TRANSFER(8)

### • Success Stories

- Commercial mass production of potato microtubers
  - Disease-free
  - Dramatically decrease handling cost of seed potatoes
  - Enables seed potatoes to reach market earlier than conventional methods, so reducing costs and risks for growers
  - Patent is registered in 32 countries
  - Technology Transferred to Penn Biotech, Canada
- Novel High Efficient Protease HY-3 from a Spider
  - Isolated from the gut of a spider, Nephila clavata
  - Showing high level of activity even in low temperature, high concentration of salt, and broad range of pH
  - Can be used for detergent, pharmaceuticals etc.
  - Technology transferred to Insect Biotech, Korea



## TECHNOLOGY TRANSFER(9)

### • *Success Stories (cont.)*

- Anti-Cancer Medicine MESIMA
  - Extracted pure mycelium from fruit body of Sang-Whang (mushroom)
  - Enhance the anti-cancer immunological activities containing protein bounded polysaccharide
  - Technology Transferred to *Hankook Sinyak*, Korea
- Large-Scale Production of Levan
  - Levan is a kind of polysaccharide that exists in nature at very small amounts
  - First developed the technology for mass production in the world
  - Can replace antibiotics, medical drugs, cosmetics.
  - Patents registered in 7 countries
  - Technology transferred to *Real Biotech*, Korea



## TECHNOLOGY TRANSFER(10)

### • *Success Stories (cont.)*

- Natural Anti-Asthma Medicine
  - From a compound from magnolia bud
  - Shows little side-effects caused by the existing drugs such as steroids and smooth muscle relaxants
  - Significantly improve breathing difficulties and the spread of inflammation
  - Under clinical trial on the third stage
  - Technology Transferred to *Hankook Sinyak*, Korea



*Thank You !*