



# **Development of Biotechnology Industry In Jiangsu**



# Development of Biotechnology Industry in Jiangsu

Pharmaceutical Biotechnology

Industrial Biotechnology

Agricultural Biotechnology

Environmental Biotechnology

Bio-information Technology

Total Output in 2007:  
**RMB150 billion**

# Development of Biotechnology Industry in Jiangsu

## Pharmaceutical Biotechnology

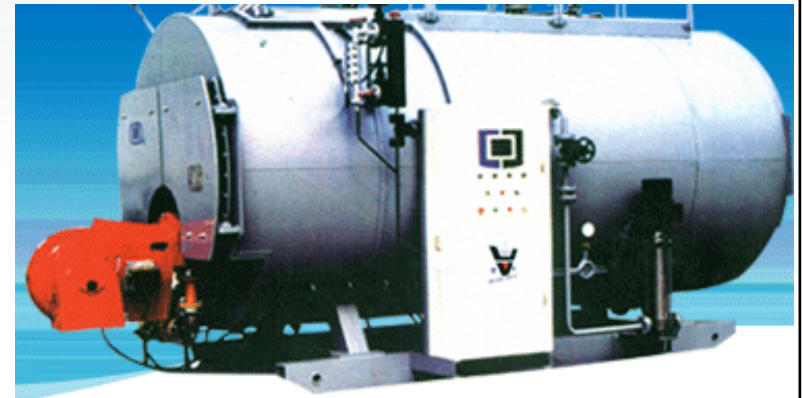
- ◆ Key economic indices have taken the leading position for consecutive 7 years in the country
- ◆ Sales revenue in 2007 reached RMB 73.5 billion, 11.5% of the national total
- ◆ Johnson & Johnson, GlaxoSmithKline, Roche, Wyeth, Lilly Pharmaceutical, etc. have established their local operation here
- ◆ Jiangsu enterprises have kept good momentum of development



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## Industrial Biotechnology

- ◆ The output of bio-butylalcohol ranks the top in the country
- ◆ The industry of bio-ethanol also has certain scale now
- ◆ The industrial chain of biomass power generation equipment manufacturing has taken shape
- ◆ The output of fermenting industry occupies 1/6 of the national total
- ◆ The market of industrial enzyme products ranks the first in the country



# Development of Biotechnology Industry in Jiangsu

## Agricultural Biotechnology

- ◆ Three enterprises have become national top 50 in the seed industry
- ◆ The market of bio-pesticide ranks the top in the country
- ◆ The scale of bio-products for animal takes the leading position in the country
- ◆ The output of the enterprises of marine bio-medicine occupies 37.4% of the national total



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## Environmental Biotechnology

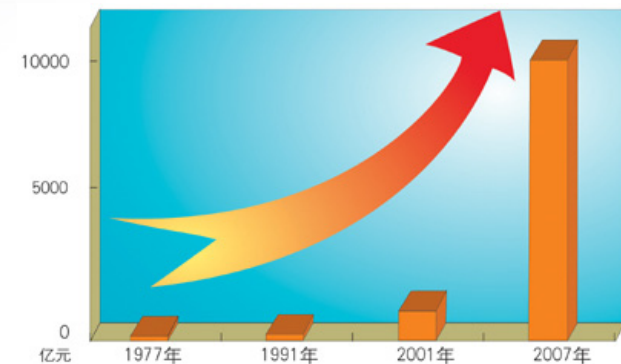
- ◆ One of the key bases of national environmental protection industry
- ◆ The technology and equipment of waste water bio-treatment is advanced in the country
- ◆ The market of high efficiency bio-treatment reactor ranks the first in the country



# Development of Biotechnology Industry in Jiangsu

## Bio-information Technology

- ◆ GE, Siemens, OMRON, etc. have established their local operation here
- ◆ A series of key products with independent intellectual property rights in color Doppler three-dimensional supersonic image diagnosis, upersonic treatment of tumor, sub-molecular laser human eye image difference rectification, etc. have been developed
- ◆ The market of high efficiency bio-treatment reactor ranks the first in the country



## Challenges of International Academy-Research-Industry Cooperation

- ◆ Spread of global financial crisis and major change in global economic environment
- ◆ Stepping up of global industrial restructuring
- ◆ More room for international cooperation in science and technology
- ◆ Jiangsu will promote international academy-research-industry cooperation in a wider range and at a higher level



# Suggestions on Future Cooperation in Biotechnology

## Strengthening international cooperation in Biotechnology

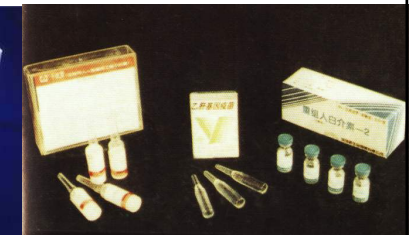
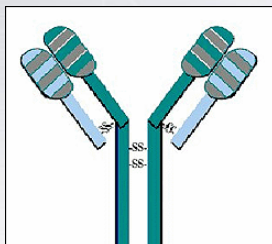
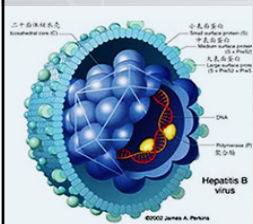
- ◆ Encouraging joint projects of Chinese and their foreign partners
- ◆ Promoting the overseas advanced technologies to transfer and be commercialized in Jiangsu
- ◆ Jiangsu will set up the initiative of industrial technology R&D and commercialization

# Suggestions on Future Cooperation in Biotechnology

## ◆ Medicine:

- Antibody for treatment
  - Synthetic peptide vaccine
  - Nucleic acid medicine
  - Genetic engineering medicine
  - Protein medicine
  - High-tech bio-reagent
  - Human source technology
- .....

- Cell expression technology
  - Technology of progressive release medicine
  - Large scale cell cultivating, separating and purifying technology
  - Tissue and cell engineering technology
  - Green manufacturing technology of pharmaceutical intermediates
- .....



# Suggestions on Future Cooperation in Biotechnology

## ♦ Industry:

- Biomass new type energy fuel
  - New type industrial enzyme products
  - High additional value bio-based fine chemicals
  - New bio-based materials
  - Industrial enzyme scale expression technology
- .....

- Industrial micro-organism quick selecting and modification technology
  - Micro-organism metabolizing control and fermenting optimization technology
  - Green producing technology of bio-based products
  - High efficiency separating technology
- .....



# Suggestions on Future Cooperation in Biotechnology

## ◆ Agriculture:

- Bio-seed industry
- Bio-pesticide
- Bio-organic fertilizer
- New type bio-feed and additives
- Food micro-state products
- Modern tissue cultivation and genetic engineering technology
- Embryo and animal genetic engineering technology

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- High efficiency extracting technology of natural active components
- Food enzyme catalyzing and transforming technology
- Molecular modification technology
- Bio-membrane separating and extracting technology

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# Suggestions on Future Cooperation in Biotechnology

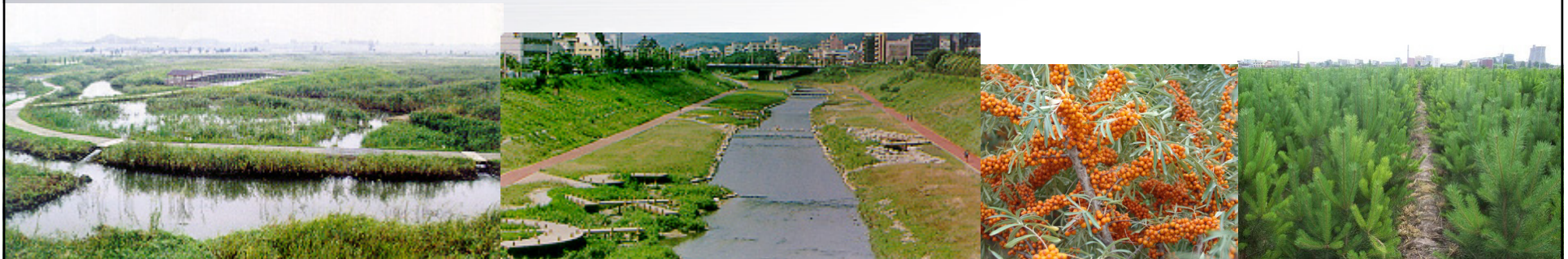
## ◆ Environment:

- Essential equipment of water pollution bio-treatment
- New type high efficiency compound reactor
- Plant material of eco-restoring function

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- High efficiency micro-organism enhancing technology
- Scale expansion and cultivation technology of functional plant
- Construction of polluted micro-organism gene bank

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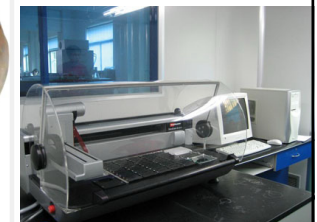
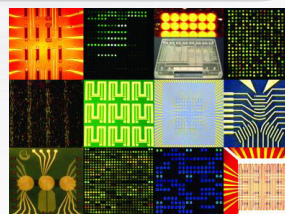


# Suggestions on Future Cooperation in Biotechnology

## ◆ Information:

- High quantitative bio-chip
  - Low cost quick DNA sequence testing tool
  - Molecular image probe
  - Digital high power ray treatment device
  - Network and system of life health monitoring
  - Contrast medium of medical image
  - Bio-compatibility material
- .....

- Bio-marking and functional molecule selecting
  - Single cell probing and testing
  - Gene and protein lattice
  - Bio-information sensor
  - Medical signal and image treatment
  - Outfield interfering technology
- .....



# Suggestions on Future Cooperation in Biotechnology

## Improve international technology transfer service

- ◆ To set up the platform of international technology transfer
- ◆ To establish the international technology transfer service network
- ◆ Welcome the overseas R&D institutions and technology transfer organizations to cooperate with Jiangsu
- ◆ To organize technical discussion and connecting activities regularly

# Suggestions on Future Cooperation in Biotechnology

## Consultation and talent service

- ◆ To encourage and support overseas scientists and experts to provide information and technical consultation for Jiangsu; to carry out various kinds of talent services
- ◆ To jointly tackle the technical difficulties in economic and social development and provide talent support for development



# Suggestions on Future Cooperation in Biotechnology

## To set up long-term mutually beneficial cooperation

- ◆ To expand the exchange and dialogue with overseas experts and institutions
- ◆ To give support through policy or fund to overseas scientists who have long and effective cooperation with Jiangsu
- ◆ To set up international S&T cooperation bases, joint research labs, technical centers, etc.
- ◆ To establish long-term and stable cooperation in technical joint development and commercialization



**Welcome to Jiangsu !**

