

Taiwan - Asia's Hub for the Life Sciences

*Your partner of choice in the
biotechnology, pharmaceutical and
medical device industries*

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The Executive Yuan (Cabinet)
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The Ten Emerging Industries to Drive the Next Wave of Economic Growth

Ten emerging industries to drive the next wave of economic growth

Technology Policies in Taiwan

Green Energy

Tourism

Cultural Creativity

Biotech

Healthcare

Quality Agriculture

Cloud Computing

Smart Electric Cars

Intelligent Green Buildings

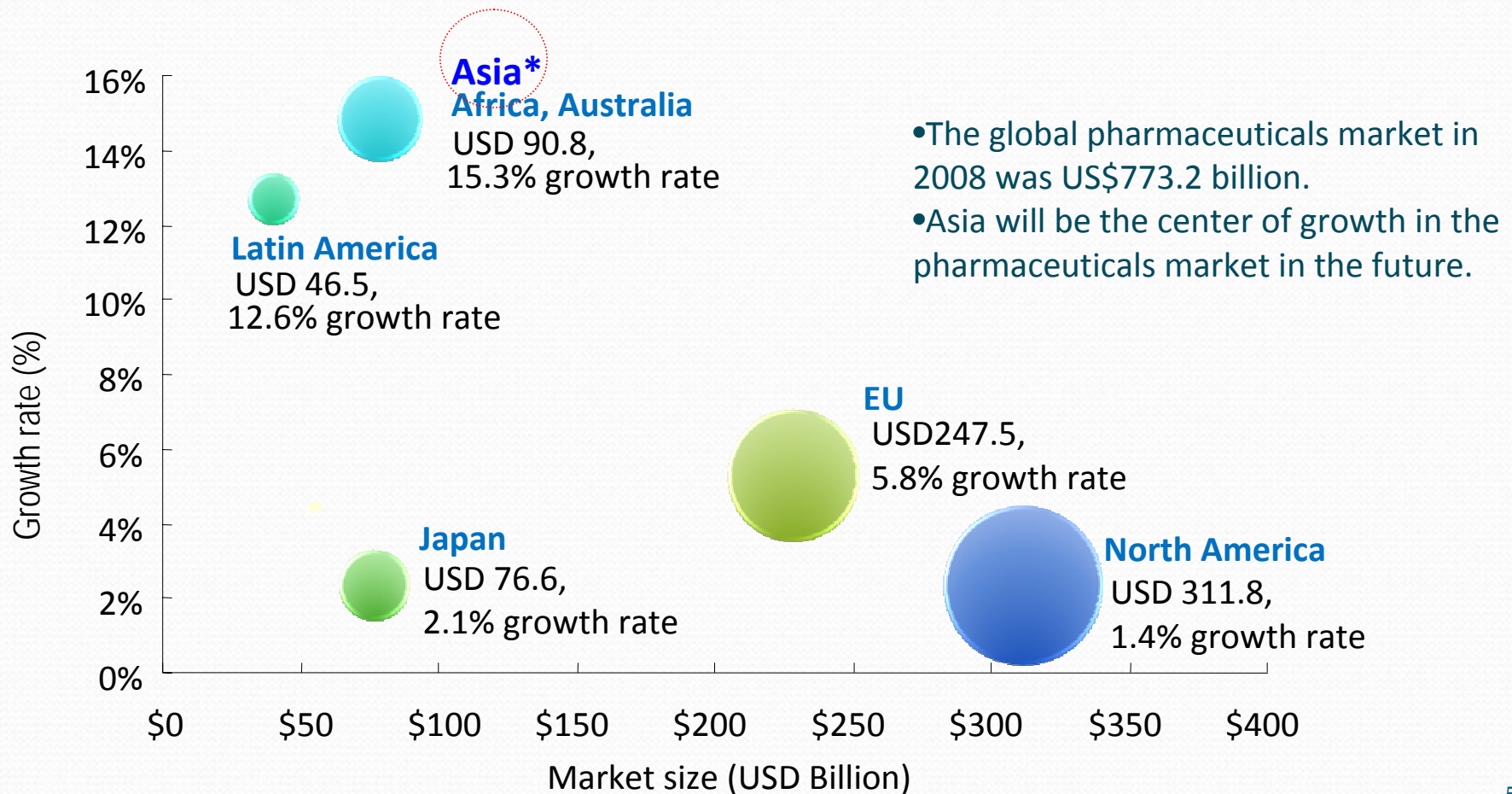
Patents & Innovation



Taiwan's Biotech Industry Status

- Trends in the Global Biotech Industry
- Developmental Status of Taiwan's Biotech Industry

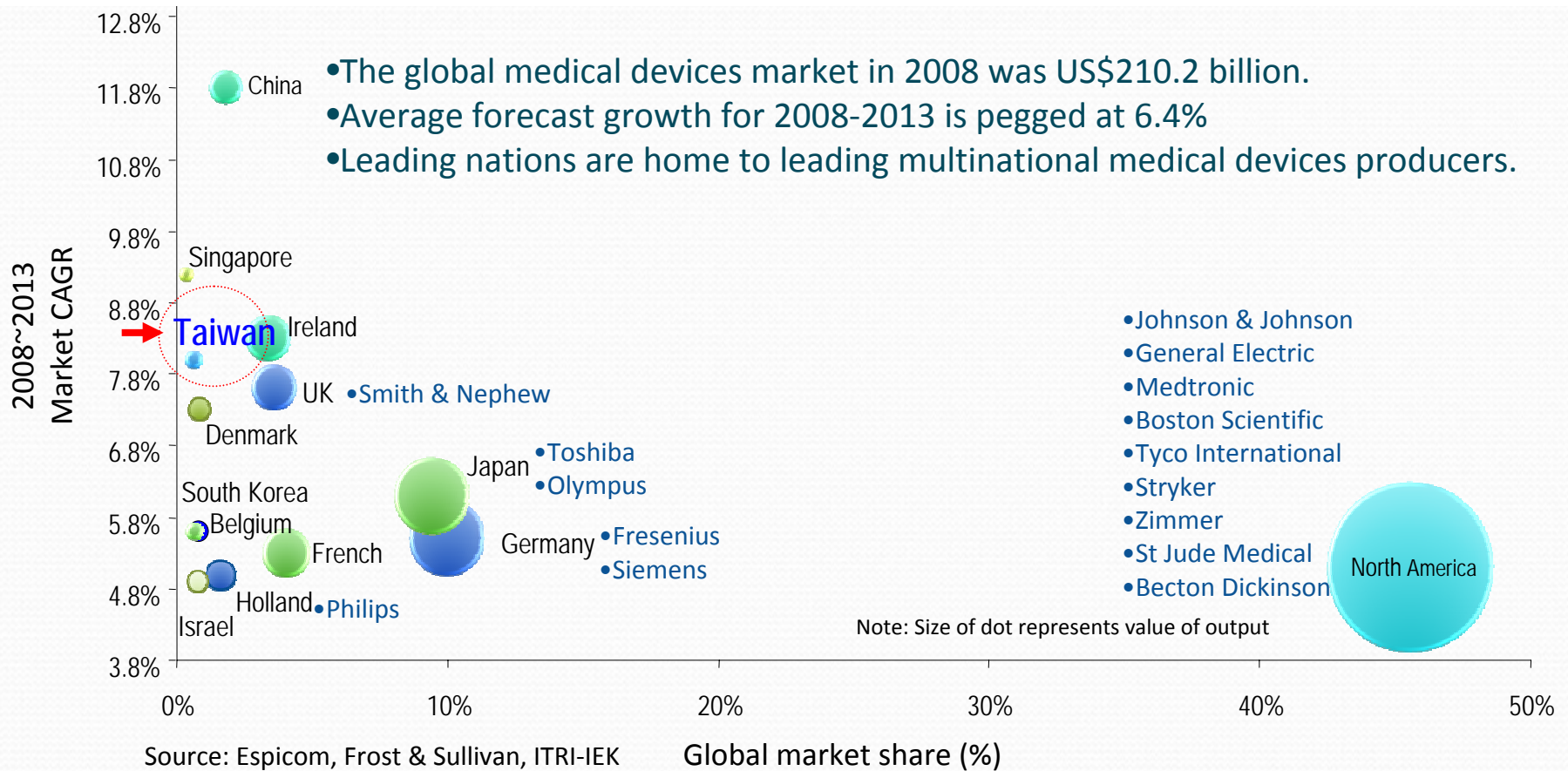
Global Pharmaceutical Market



Reference: IMS, IT IS, DCB

* Exclusive Japan

Global Medical Devices Market



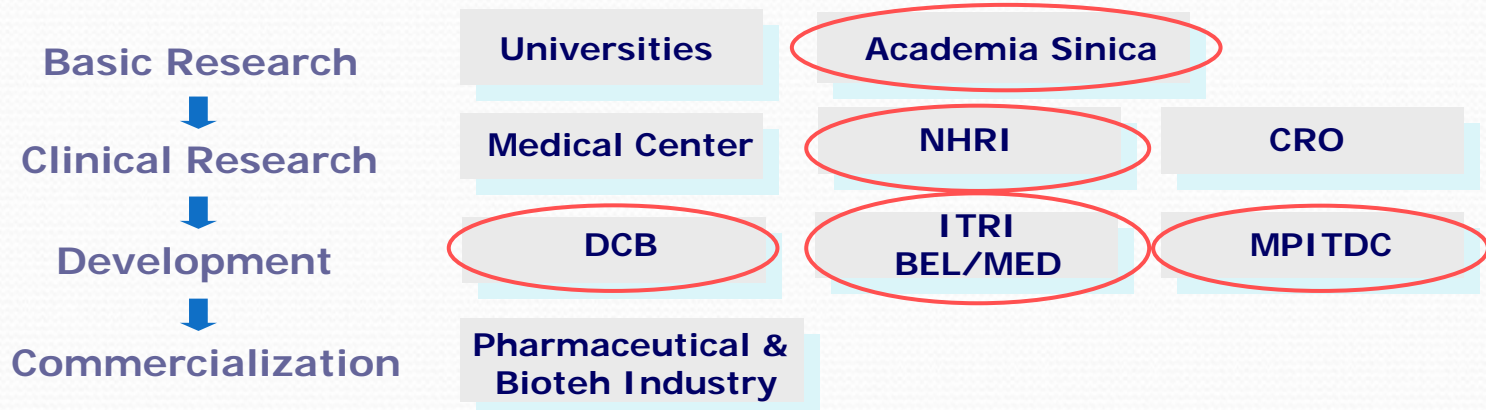
- Johnson & Johnson
- General Electric
- Medtronic
- Boston Scientific
- Tyco International
- Stryker
- Zimmer
- St Jude Medical
- Becton Dickinson

Taiwan's Strengths in Biotech Development

~ Well Positioned Major Research Institutes ~

Major life science-focused research institutes include:

- Academia Sinica and Universities
- National Health Research Institutes (NHRI)
- Development Center for Biotechnology (DCB)
- Industrial Technology Research Institute (ITRI)
 - Biomedical Engineering Research Laboratories (BEL)
 - Medical Electronics & Device Technology Center (MED)
- Medical and Pharmaceutical Industry Technology and Development Center (MPITDC)



Taiwan's Strengths in Biotech Development

~ Unique Bioclusters ~

Focus on Pharmaceutical

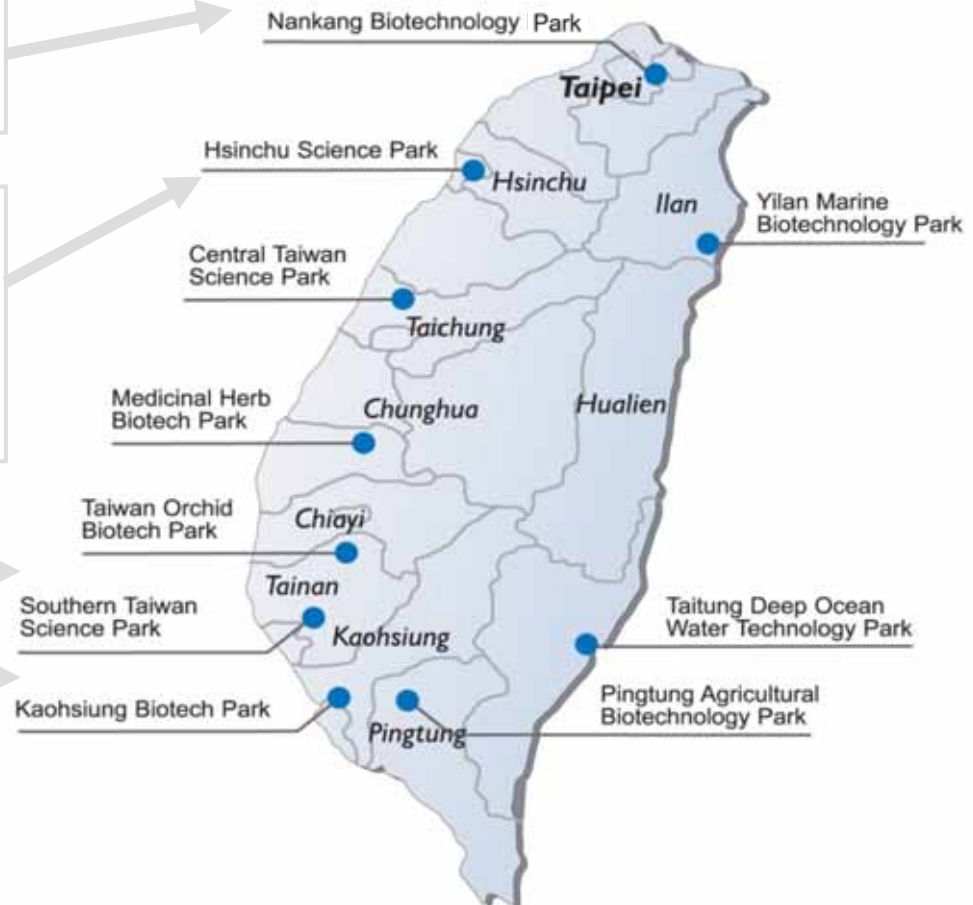
New Drug, translational research, genomics, incubators

Focus on Medical Device

Leveraging ICT industry, biotechnology R&D centers, incubators, & hospitals to develop medical device

Integrated the existing mini-clusters to form a value chain

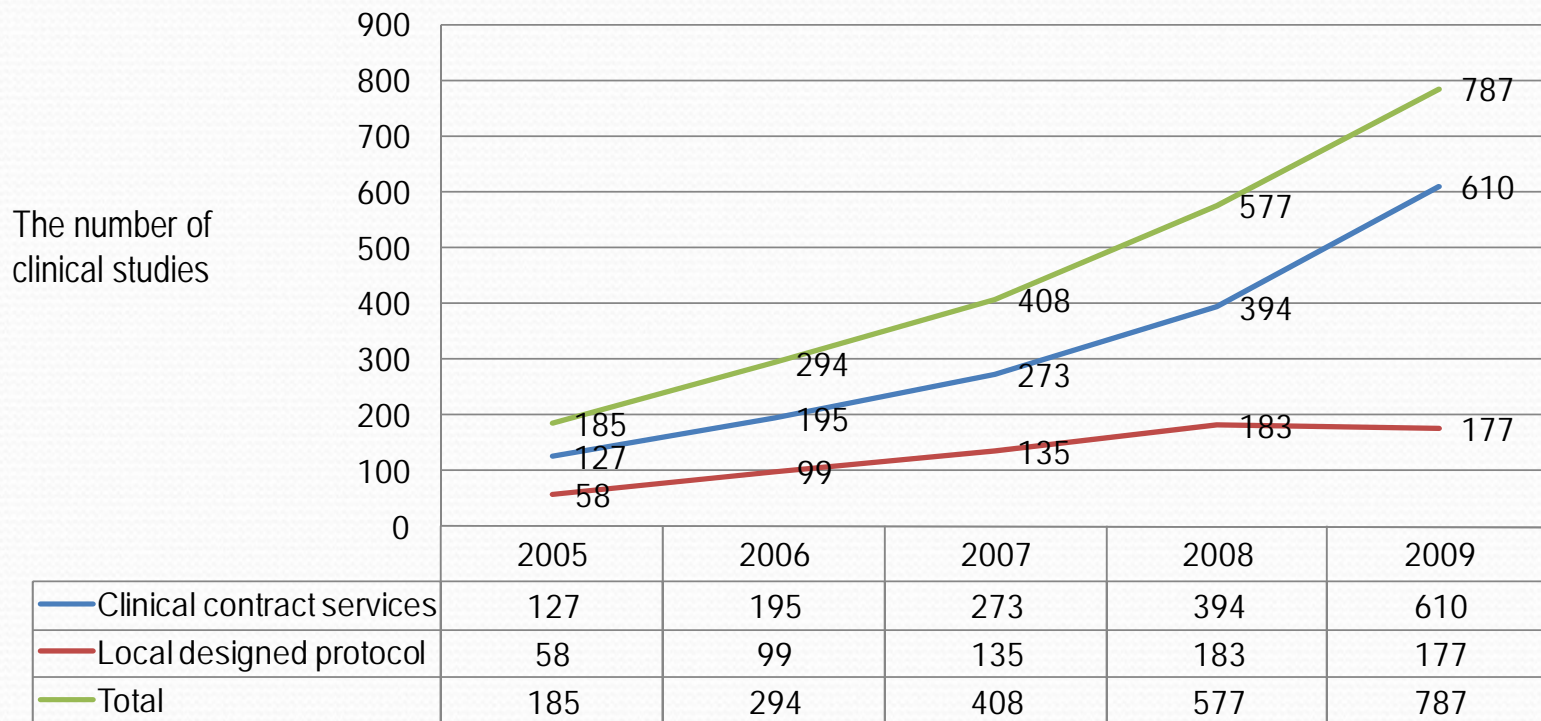
Dental & orthopedics tools and instrumentations



Taiwan's Strengths in Biotech Development

~ Centers of Excellence for Clinical Trials ~

- Top Performance in Global Clinical Trials: leading pharmaceutical firms like Novartis, GSK, Boehringer Ingelheim, Merck, and Pfizer have drawn up plans to conduct clinical trials at centers of excellence such as NTUH.



Taiwan makes headway in drug development(1)

- **TTY Biopharm-** the Taxotere generic drugs received European approval. (Sep 2009)
- **GlycoNex Inc-** has recently signed an agreement with the Japanese pharmaceutical company Otsuka Pharmaceutical for technology transfer . The potential colorectal cancer treatment drug will be able to rake in about US\$500 million (NT\$16.2 billion) in royalties annually.
- **Adimmune-** H1N1 vaccine received DOH marketing certification. It shows domestic industry has in-house capability to produce its own vaccine.
- **PhytoHealth-** PG2[®] was approved by Taiwan FDA being the “first approval” under the category of Botanical New Drugs in the form of Injectables. US FDA IND approved PG2[®] for the Phase II clinical trial among idiopathic thrombocytopenic purpura (ITP) patients. (Apr 2010)

Taiwan makes headway in drug development(2)

IMPAX Lab. Taiwan

- Impax Laboratories formed a R&D center in Jhunan Science Park Taiwan, and has recently passed the first US FDA inspection of manufacturing facility. (Jun 2009)

Anchen Pharmaceuticals Taiwan

- Dr. Chen Chih-Ming (former president of *Andrx* Pharmaceuticals, Inc.) has go back invested in Tawian biotech sector and formed Anchen Pharmaceuticals Inc.

Watson

- Allen Chao (president of Watson Pharmaceuticals) has invested Taiwan domestic companies ScinoPharm , Mithra Bioindustry, and collaborated with Impax Labs, CCP and Purzer to develop new formulation generics.

Opko

- Dr. Jane H. Hsiao (a founder of Ivax and Chief technical officer of Opko Health) donated NT 10 million to National Taiwan University, and promoted Opko setting up a subsidiary in Taiwan to collaborate closely with Academia Sinica in the development of a universal flu vaccine.

Taiwan Biotech Industry has become more attractive

Domestic venture capital industry gets more interested to invest biotech sector. In 2009, several biotech companies have successfully raised capital through initial public offerings of common stock.

Excellent share price performance in biotech sector

Stock Code	Company	Description	Stock Price (2009.12.18)
1565	St. Shine Optical	Contract lens manufacturing and private label production	187.0
4105	TTY Biopharm-	Development of anti-cancer drugs	107.0
4133	Abnova	The world's largest antibody manufacturer	136.0
4736	Taidoc Technology	Designing & manufacturing of blood glucose monitoring systems, blood pressure monitoring systems, ear & forehead thermometers	131.0
4911	G&E Herbal biotech	Development of new botanic drugs	143.0



Taiwan Biotechnology Takeoff Diamond Action Plan

Resource integration, cross-ministry coordination

Promotion Framework

Supra Incubator Center

Software resources --

- To provide legal, IPR, technical, and operations services and assistance
- To bridge the gap between academic and industrial communities, and offer a specialized technology assessment mechanism

Hardware resources —

- Hsinchu Biomedical Science Park (medical devices)
- Southern Taiwan Science Park (medical devices)
- National Biotech Development Park in Nangang (pharmaceuticals)
- National Laboratory Animal Center

Associated plans —

- The southern Taiwan biomedical devices industry cluster development plan

Regulatory process (transparency & efficiency)

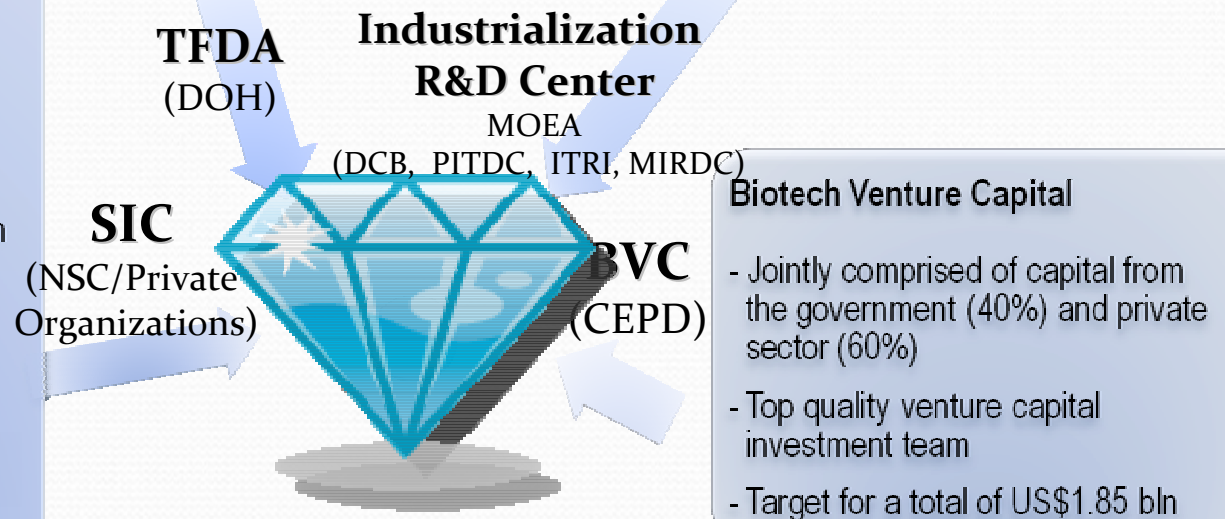
- Accelerating the commercialization processes
- Regional regulatory harmonization

Strengthening of translational research --

- Establishing pre-clinical research platform (toxicology, PK and other translational research)
- Establishing rapid prototyping center of medical devices

Associated plans and resources —

- National science & technology program for biotech
- Medical Devices cross-division development project



Biotechnology Takeoff Diamond Action Plan

Anticipated Results

- Strengthen pharmaceutical translational research and medical devices prototype production.
- Establish SIC to commercialize biotech inventions into developed products and license to private sector, hence to create a strong domestic biotech industry.
- Set up of a biotech venture capital fund to help promote funding of early stage inventions.
- Establish TFDA to expedite the approval process for new drugs and foster a regulatory framework toward harmonization to expand the international market.

Perspective

- Promote Taiwan as a R&D partner for the international biotech community.
- Encourage the collaboration between the field of biotechnology and ICT to construct a modern healthcare system.
- Attract private capital into the biotech sector to help promote funding of early stage inventions.
- Promote a more efficient review system and a drug regulatory environment in line with international standards.
- Approach to entering China market and elaborate the opportunities in cross strait biotech development.
- Recruit overseas elites to work on domestic biotech industry

Conclusion

- Taiwan's biotech industry has established:
 - a top-notch clinical research and health-care system
 - comprehensive R&D and manufacturing climate
 - well protection of intellectual property rights
- With these advantages in mind, the biotech sector here is poised to become the perfect Asian R&D partner for the international biomedical community.
- It is hoped that the Taiwan government and Biotechnology Takeoff Package Diamond Action Plan will hasten the development of Taiwan's biotech industry.



End of the Presentation
Thank you for your attention!