

# 2016投資台灣商機研討會-生技醫藥



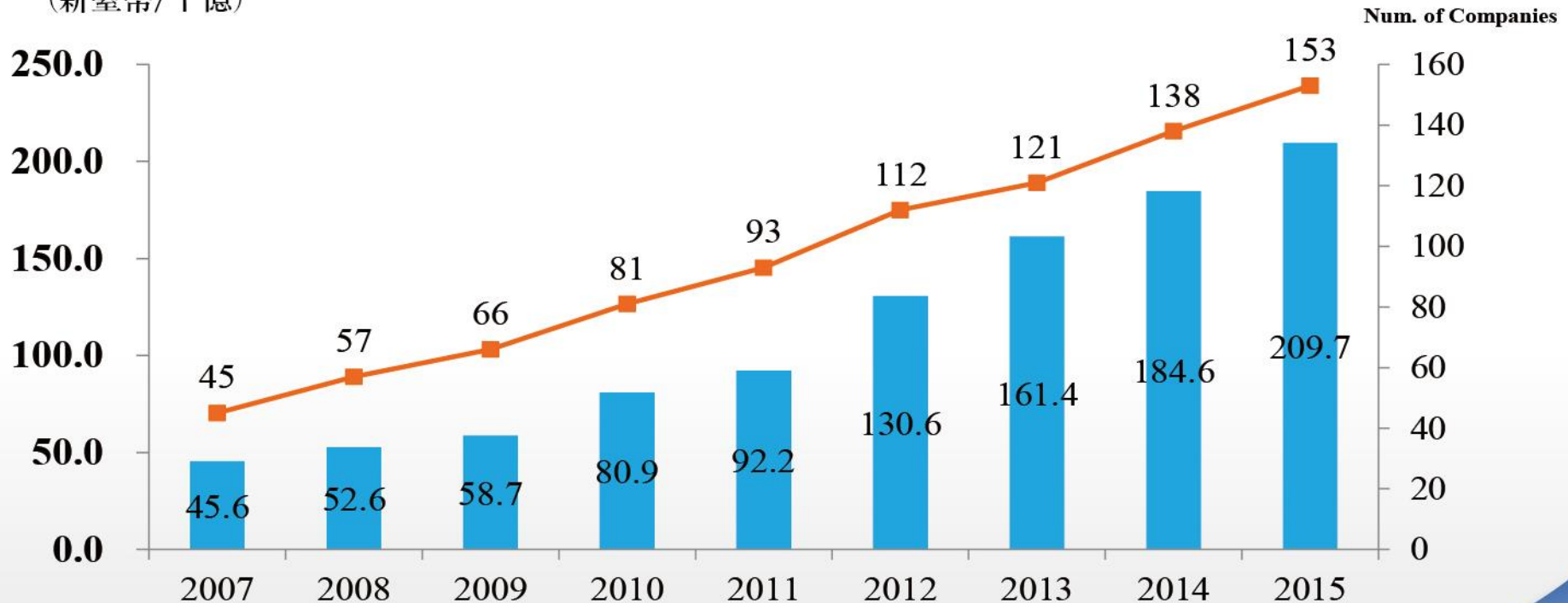
# Strength of Taiwan in Biotech Development

- **Representative Population** in East Asia
- Excellent **Health Care System**, National Health Insurance:  $\geq 99\%$
- **Strong R&D Activities** and **Manufacturing Capabilities** in Computer Sci., Electric Engineering, Clinical Medicine, *etc.*
- **Government's Investment** and **Support**
- **Integrated Government-Industry-Academia-Hospital**, **Transparent Regulatory Environment**
- **Center of Excellence for Clinical Trials** in East Asia  
*Pfizer, GSK, BI, MSD, Novartis, Eli Lilly, Roche, AZ, Bayer, etc.*

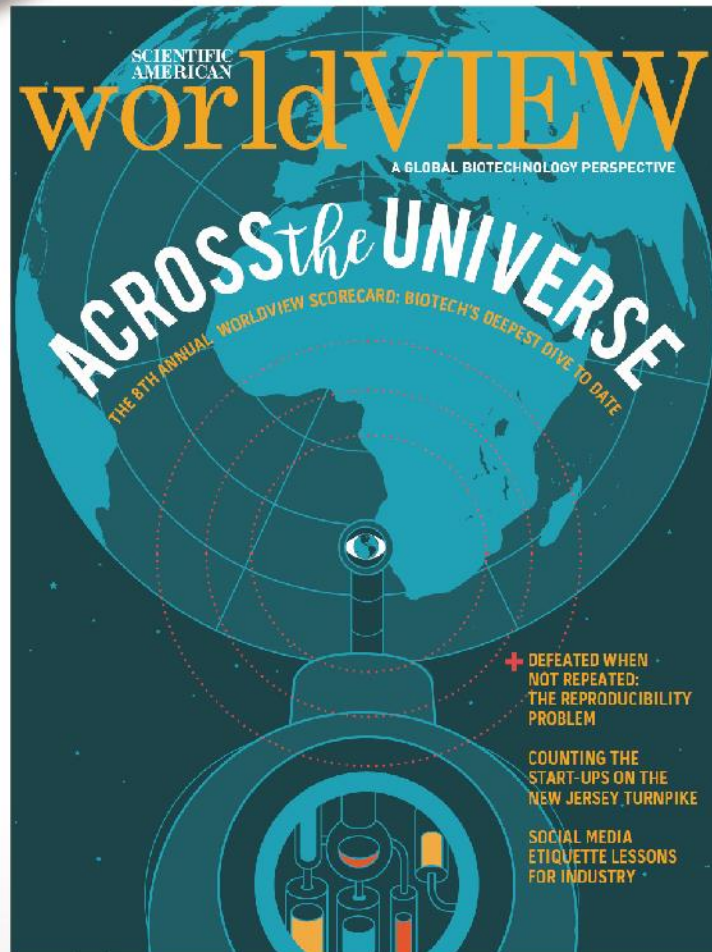
## 2015 Overview of Publicly Traded Companies

- Publicly Traded Companies **153**
- Total Revenue **2097** 億(新臺幣)
- Employees **54427** (位)
- R&D Investment **177** 億(新臺幣)
- Sales per Capita **385** 萬(新臺幣)

(新臺幣/十億)



(Source: MOPS, collated by I.B.M.I.)



## 2016 Scientific American

### WORLDVIEW SCORECARD

- PRODUCTIVITY
- IP PROTECTION
- INTENSITY
- ENTERPRISE SUPPORT
- EDUCATION/WORKFORCE
- FOUNDATIONS
- POLICY & STABILITY



*Enhanced with a new guidebook and region-specific ratings, the 2016 Scorecard ventures deeper than ever to track down the latest in biotech innovation*

## 2016 Scientific American Worldview -A Global Biotechnology Perspective

### Asian Countries' Performance

Country	Global Ranking	Productivity	IP Protection	Intensity	Enterprise Support	Education/ Workforce	Foundations	Policy & Stability
Singapore	2	---	8.3	3.8	9.2	4.5	6.6	9.6
Hong Kong	11	0.0	7.1	1.6	8.6	1.6	6.7	9.0
Japan	15	0.1	9.2	0.6	4.5	3.6	7.9	8.0
Taiwan (Score/Rank)	23	0.0/19	5.8/29	0.1/37	7.0/6	2.6/35	6.9/11	7.2/22
South Korea	24	---	5.6	0.6	4.8	3.9	8.3	6.3
Malaysia	27	---	5.5	1.1	8.0	2.1	4.9	5.9
China	41	0.1	4.7	0.6	4.5	1.3	4.0	2.9
Thailand	45	---	2.3	3.0	3.4	2.7	3.0	1.8
India	49	0.0	4.3	0.8	3.5	0.2	1.6	2.0

Source: 2016 Scientific American Worldview

## #4 ENTERPRISE SUPPORT Business environment and capital availability

**7.0**

4.1 Business friendly environment(higher=better)

7.9

4.2 Biotech VC,2007(\$mm)

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4.3 VC availability

6.9

4.4 Capital availability

6.2

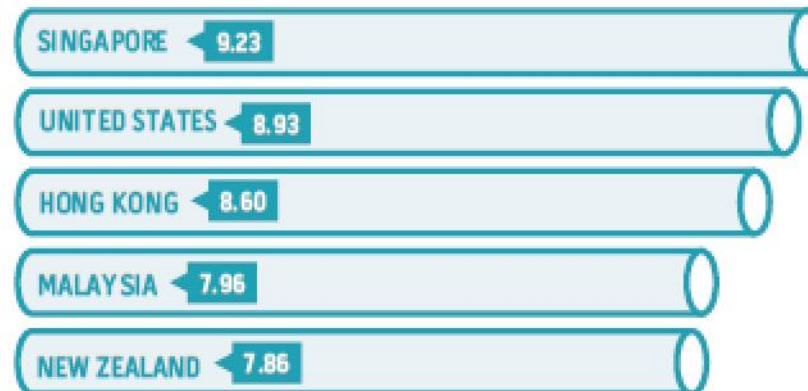
**Taiwan Score**

### GREATEST ENTERPRISE SUPPORT:

Singapore  
United States  
Hong Kong

### GREATEST VENTURE CAPITAL AVAILABILITY:

Qatar  
Malaysia  
Singapore



# Enterprise Support

The only industry to benefit from specially legislated R&D investment incentives

- **Biotech and New Pharmaceutical Development Act**

Taiwan features a unique listing regime and capital market environment

- **Go Incubation Board for Startup and Acceleration Firms (GISA)**
- **Emerging Stock Board System (ESB)**
- **IPOs of Technology-Based Enterprises**
- **IPOs of Evergreen VC Firm**

Active VC funds from the government and private sector

- **National Development Fund**
- **Diamond BioFund**
- **Taiwan-Silicon Valley Technology Fund**

## #6 FOUNDATIONS Infrastructure and R&D drivers

- 6.1 Business expenditures on R&D (% of GDP)
- 6.2 Gross domestic expenditure on R&D (% of GDP)
- 6.3 Infrastructure quality (roads, ports, electricity, etc.)
- 6.4 Entrepreneurship and opportunity

**6.9**

6.4

---

7.2

7.1

**Taiwan Score**

### GREATEST BUSINESS EXPENDITURES ON R&D

(% of GDP):

Israel  
 South Korea  
 Japan

### GROSS EXPENDITURES ON R&D (% of GDP):

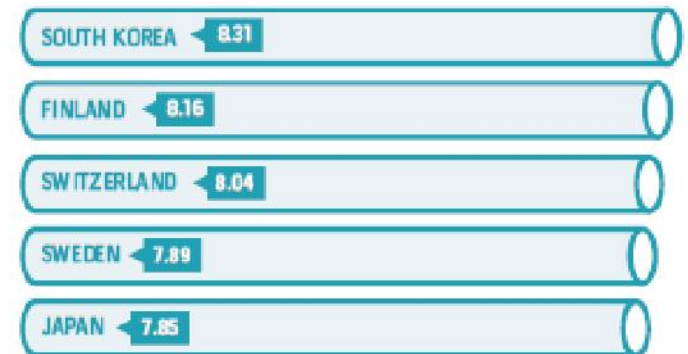
Israel  
 South Korea  
 Finland

### BEST INFRASTRUCTURE QUALITY:

Switzerland  
 Hong Kong/Singapore/  
 United Arab Emirates

### STRONGEST PERCEIVED ENTREPRENEURSHIP CLIMATE:

Sweden  
 Denmark  
 Switzerland





# **Connecting, Syndicating and Collaborating with Taiwan**

- **Leveraging Taiwan's Strengths**
- **Managing the Challenges**
- **Seeking Opportunities and Partnerships**

# Core Concepts in Promoting Pharmaceuticals and Medical Devices

Basic R&D at Academic & Research Institutions



Pharmaceuticals/ Medical Devices Commercialization



Pharmaceuticals/ Medical Devices Clinical Trials



Product Reaches the Market

**Industrialization R&D Center Builds on Upstream R&D (MOEA)**

- Establishment of Biotech Pharmaceuticals Pre-clinical Core Platform
- Establishment of Medical Devices Rapid-Prototyping Center

**Establishment of BVC to Attract Private Funding matching with National Development Fund**

- Capital will be introduced into the biotech industry, with the capital make-up of the BVC being on a 40:60 basis (government 40%, private sector 60%)

**Promotion of the SI<sup>2</sup>C to Provide an Integrated Service Platform (MOST)**

- Provides legal, IPR, technical, and operations commercialization services
- Hardware resources for factory incubation: Hsinchu Biotech Park (medical devices), South Taiwan Science Industry Park (medical devices), National Biotechnology Research Park in Nangang (pharmaceuticals), experimental animal center

**Foster International Harmonization (MOHW)**

- Establishment of an integrated and transparent evaluation process of medical products
- Greater efficiency in the evaluation process of medical products
- Promotion of regional regulatory harmonization
- Assistance in the industry's development

# Core Concepts in Promotion HealthCare Management Services

**Bring the World to Taiwan  
(Health Tourism)**



# A Portal Leads to World-Class Medical Teams and Excellent Bio Companies in Taiwan

Taiwan Healthcare 

*International Portal*

[About THP](#) | [Medical for All](#) | [Bio B2B](#) | [Hot Topic](#) | [Login](#) | [Language](#) ▼

## Advancing to a Better Life Together with Taiwan Healthcare +!

A portal leads to world-class medical teams and excellent bio companies in Taiwan.

Welcome to connecting and partnering with us.

**I'm Interested in**

**World-Class Medical Teams**

**Excellent Bio Companies**

Looking for the best in Taiwan

Find Top Medical Institutes and Specialties, Excellent Bio-Medical Companies and more!



Sudden flight medical information

# Taiwan Healthcare<sup>+</sup>

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- R&D Pipelines
- Diversified Products
- Contract Services
- Investment Targets

**Bio B2B**  
Taiwan Healthcare<sup>+</sup>



*“Taiwan Healthcare<sup>+</sup> will be of considerable assistance in promoting bilateral real-time cooperation in the future”*

*Dr. Horst Domdey, the CEO of Bavarian Biotechnology Cluster, Germany.*

# Taiwan Clinical Trial Consortium (TCTC)

## Disease-specific consortia involving multiple hospitals



肺癌臨床試驗聯盟

Lung Cancer Consortium



胃腸疾病與幽門桿菌合作聯盟

Gastrointestinal Disease  
And Helicobacter Consortium



肝炎及肝癌臨床試驗聯盟

LiverNet Consortium



乳癌臨床試驗合作聯盟

Breast Cancer Consortium



高血壓相關疾病聯盟

Hypertension Associated  
Cardiac Disease Consortium



慢性阻塞性肺病聯盟

COPD Consortium



婦科癌症研究聯盟

GYN Oncology Group



血脂和動脈粥樣硬化聯盟

Lipid and Atherosclerosis Consortium



精神疾病臨床試驗聯盟

Mental Disorders Consortium



癌症早期臨床試驗聯盟

Oncology Phase I Consortium



小兒感染症聯盟

Pediatric Infectious Diseases Alliance



成人感染症臨床試驗聯盟

Adult Infectious Diseases



中風臨床試驗聯盟

Stroke



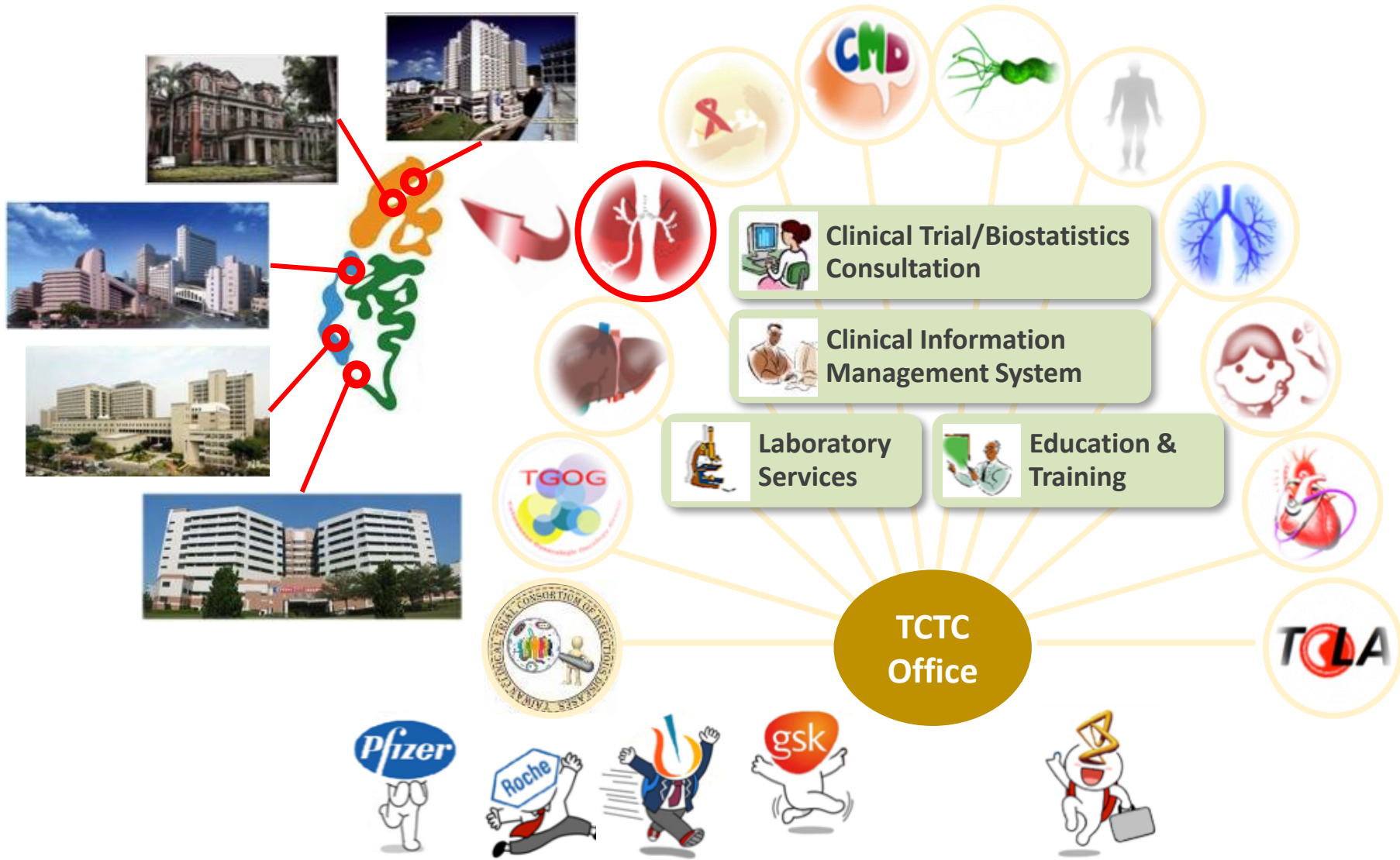
腎臟疾病臨床試驗聯盟

Acute Kidney Injury & Renal Diseases

Taiwan Clinical Trial Consortium (TCTC): <http://tc2.ntu.edu.tw/>

# Taiwan Clinical Trial Consortium (TCTC)

## One-stop shop for your clinical trials



# Taiwan as an Asian partner for UK-/Swiss based giant pharma

The China Post

TAIWAN



Wednesday, May 8, 2013

Photo 1 of 1011

[GSK pharmaceutical partnership to help patients 'do more, feel better, live longer'](#)

Officials from the National Research Program of Biopharmaceuticals (NRPB) and GlaxoSmithKline (GSK) pose in Taipei yesterday. They are, from left, Andrew H.J. Wang, co-director of the NRPB; Dr. Pan-Chyr Yang, director of the NRPB; Dr. Emilio Ledesma, vice president of GSK Vaccines Asia Pacific; and Thomas Willemsen, general manager of GSK Taiwan.



NRPB is to collaborate with Novartis on Translational Medicine.

Ongoing discussion for collaboration on open innovation with several big Pharmas, incl. Roche, Medimmune, JPMA (Japan Pharmaceutical Manufacturing Association) and others

Includes over 20 intra-hospital clinical research projects, ranging from vaccine, rare diseases, NSCLC therapeutics, TB, quadrivalent influenza



# 生技聚落規劃

• 醫療器材為主  
(醫療器材+ICT)

新竹生物醫學園區  
(竹北)

新竹科學工業園區  
(新竹、竹南)

中部科學工業園區  
(台中、后里、二林、  
虎尾、南投)

臺灣蘭花生物科技園區  
(台南)

南部科學工業園區  
(台南、高雄園區)

• 醫療器材為主  
(骨科、牙科材料)

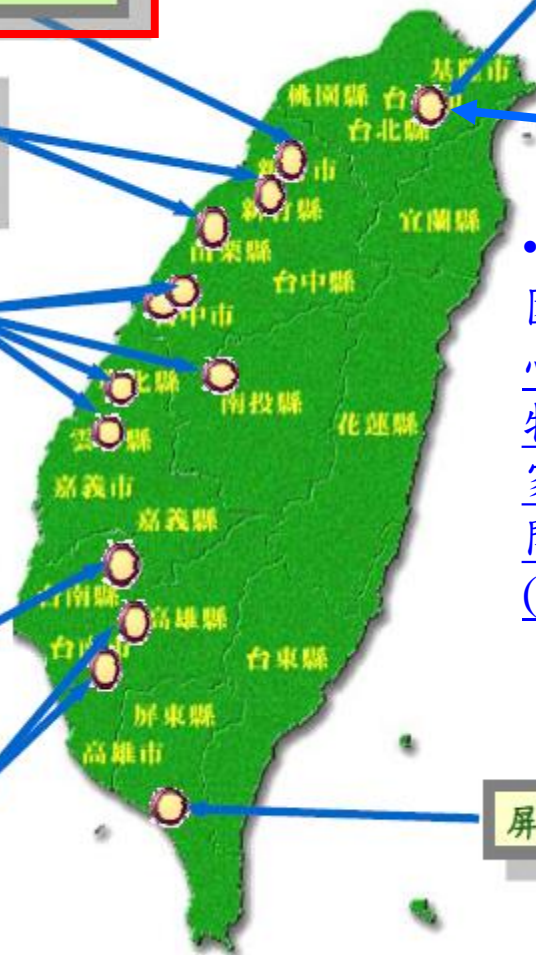
南港生物科技園區

南港國家生技研究園區  
(中研院統籌)

• 新藥研發為主

園區包括：生醫轉譯研究中心、核心主題研究中心、生物資訊中心、育成中心、國家實驗動物中心、生物技術開發中心、食品藥物管理局  
(預計106年10竣工)

屏東農業生物科技園區



# Hsinchu Biomedical Science Park

**Total Area: 38.1 hectares**

- Establish biomedical devices industry cluster
- Emphasize on an interdisciplinary approach – ICT-Biotechnology-Healthcare Convergence



TAIWAN HIGH SPEED RAIL

2018



**HBSP Hospital**

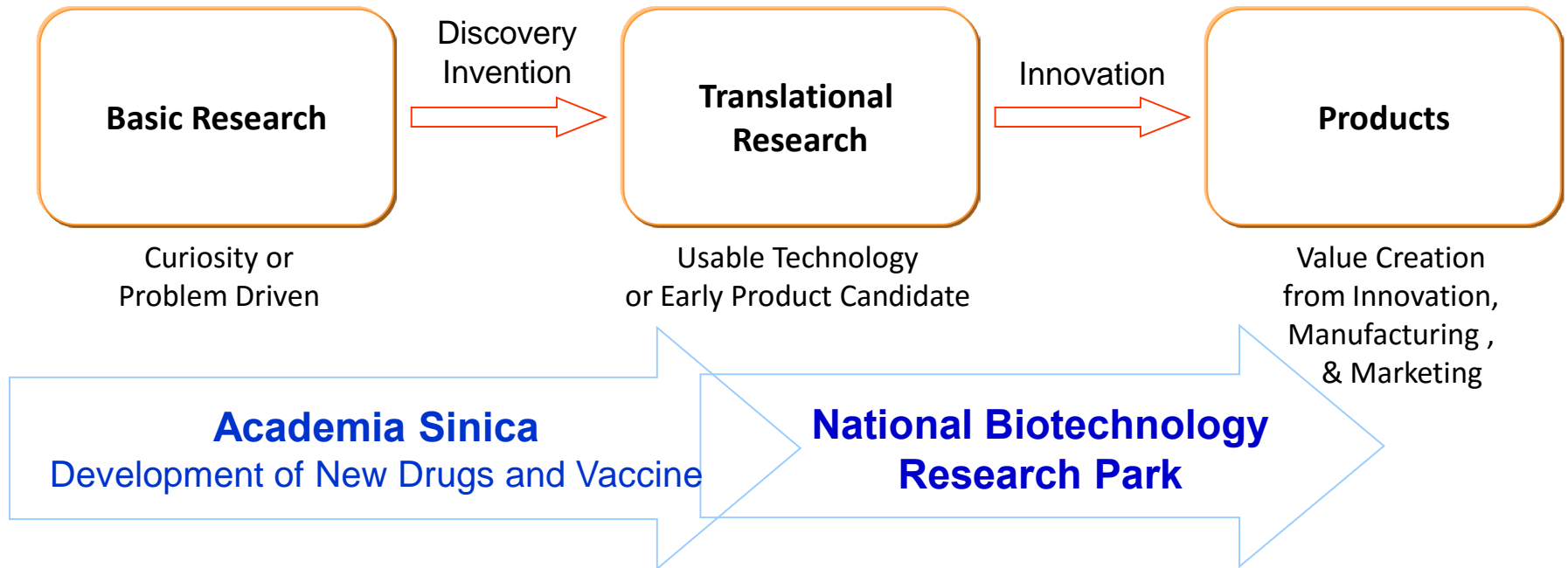


**Biomedical R&D Centers  
Incubation Center**



**Biotech Building**

# Major Bio-medicine Research Plans in Academia Sinica



## Three areas of focus

### • **Cancers**

liver cancer, breast cancer, lung cancer, pancreatic cancer, etc

### • **Infectious diseases**

G(-) bacteria, Mycobacterium tuberculosis, Influenza, viral hepatitis, dengue, etc

### • **Regenerative medicine**

cancer stem cell, iPSC, etc



# 台北南港·國際級生技產業廊帶



## 臺北市生技產業聚落計畫

補足國家生技研究園區在生技產業發展價值鏈臨床試驗「臨床試驗」階段之缺口，整合南港忠孝營區(原址)暨西側市有地、僑泰興麵粉廠工業區都市計畫變更回饋土地、南港轉運站東側第三種商業區(特)等可利用基地，發展生技產業聚落中心。忠孝營區基地已提供生技企業臨床試驗研發實驗室(wet lab)，小型試量產工廠(pilot plant)為主；僑泰麵粉廠及商三特等2基地，則規劃提供生技企業暨其他支援性服務產業之辦公空間(dry lab)使用。

南港可成為台灣生技產業驅動核心  
預計提供**7000**名就業人口  
帶動生技產業產值**500**億元/年