

Status Report on Taiwan Biotech

Chung-Liang Chien, Ph.D.

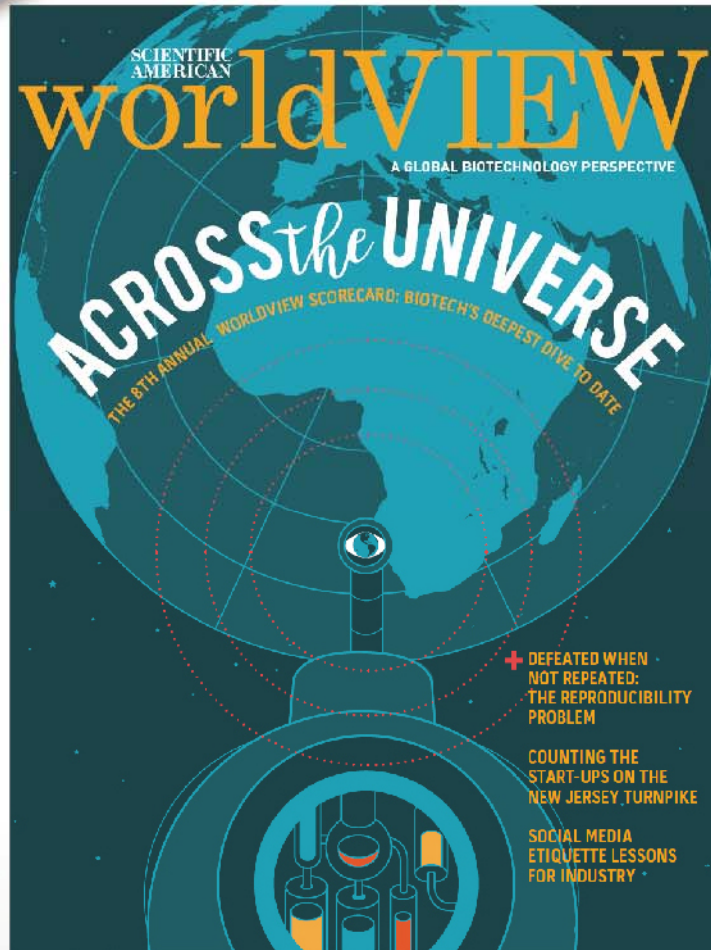
**Professor, College of Medicine,
National Taiwan University**

Deputy CEO, Institute for Biotechnology and Medicine Industry

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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.



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

Australia

SAVV SC rank: 5

Population: 22,751,014

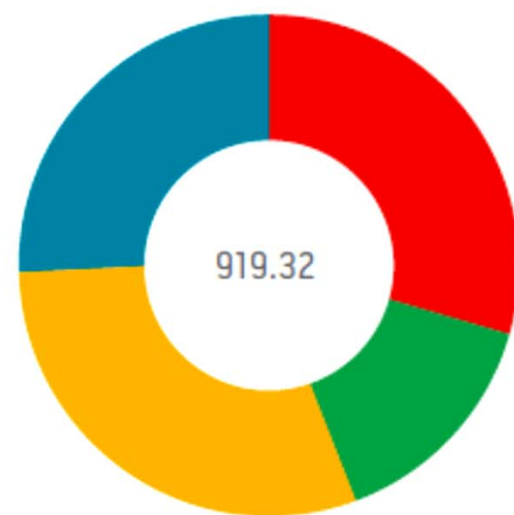
GDP: 1,506

R&D/GDP: 2.25

It might be down under geographically, but Australia finished in the SC top five for the past three years. It also produced the 12th highest output on the *Nature Index 2015 Global*. Experts around the world recognize the biotechnology opportunities in this country, as some events demonstrate. In October 2016, for example, Australia will host BioFest 2016, which is billed as “the largest-ever gathering in Australian life sciences, with three major conferences coming together in one week in one place as one integrated network.” The buildup for the meeting adds: “The event will be a cel-



bration of Australian and international life sciences and highlight Melbourne as one of the world's great biotech hubs.” The Australian government is also working to highlight the country's high-tech capabilities. In January 2016, Prime Minister Malcolm Turnbull announced a public-information plan that will include a US\$250 million Biomedical Translation



Fund to help publicize and commercialize the country's research successes. In an announcement of the plan, Minister for Industry, Innovation and Science, Christopher Pyne said, “Culture is one of the agenda's four pillars because Australia must make the cultural shift to being a nation that is more inclined to take a chance on its ideas.”

Melbourne is Australia's biotechnology capital

A strong focus on global biotechnology opportunities is helping Melbourne cement its position as Australia's leading location for medical technologies and pharmaceuticals. Its success can be attributed to a combination of its educated population, strong academic institutions, favourable regulatory and R&D environment, and a supportive government.

Melbourne is recognized for its world leading capabilities in:

- infectious disease and immunology;
- cancer;
- neurology;
- regenerative medicine;
- drug candidate identification;
- high quality clinical trials.

Taiwan,

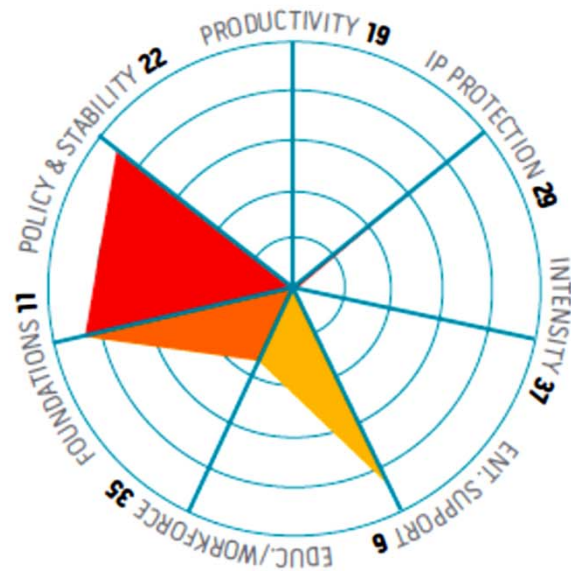
SAVV SC rank: 23

Population: 23,359,928

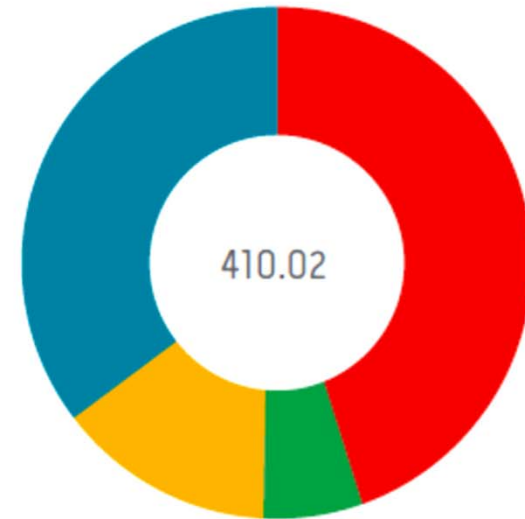
GDP: 489

R&D/GDP: 0

With an overall average of 22.4 on the SC, Taiwan's ranking of 23rd in 2016 is just about on par, and it performs even better on the *Nature Index 2015 Global*, with an 18th place overall ranking and its National Taiwan University landing in the top 100. Moreover, Taiwan advertises its biotechnology capabilities through international events, including BioTaiwan 2016. This will be the 14th annual event, and it will include presentations from companies around the world, as well as one-on-one partnering, seminars and workshops. A large exhibition is also expected, including more than 1,200 booths from 600 companies. On





August 20, 2015, *Taiwan Today* reported, "A wide-ranging development plan targeting Taiwan's biotechnology-based economy is set to kick off next year, according to Premier Mao Chi-kuo." The report continued: "Focusing on agriculture, biomedicine, food, health care and medical instruments, the 10 year initiative will potentially expand the scale of the local bioeconomy to



NT\$4 trillion (US\$123.2 billion) in 2026." With respectable scores on the SC's Foundations and Enterprise Support categories, Taiwan's commitment to innovation is clear. Like many other countries, however, Taiwan's Education/Workforce category shows room for improvement.

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

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**

Core Concepts in Promotion HealthCare Management Services

Bring the World to Taiwan
(Health Tourism)





社團法人

國家生技醫療產業策進會

Institute for Biotechnology and Medicine Industry

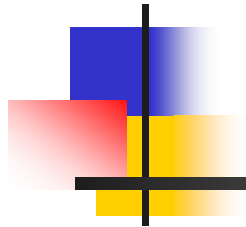


財團法人

生技醫療科技政策研究中心

Research Center for Biotechnology and Medicine Policy

Taiwan Healthcare⁺



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World-Class
Medical Care

Medical for All
Taiwan Healthcare⁺

Ex.

- Joint Replacement
- Artificial Reproduction
- (Living) Liver Transplantation
- Craniofacial and Microtia Surgery

Taiwan Healthcare⁺

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

Bio B2B
Taiwan Healthcare⁺

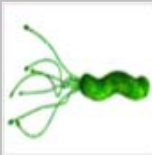







“Taiwan Healthcare+ will be of considerable assistance in promoting bilateral real-time cooperation in the future”

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

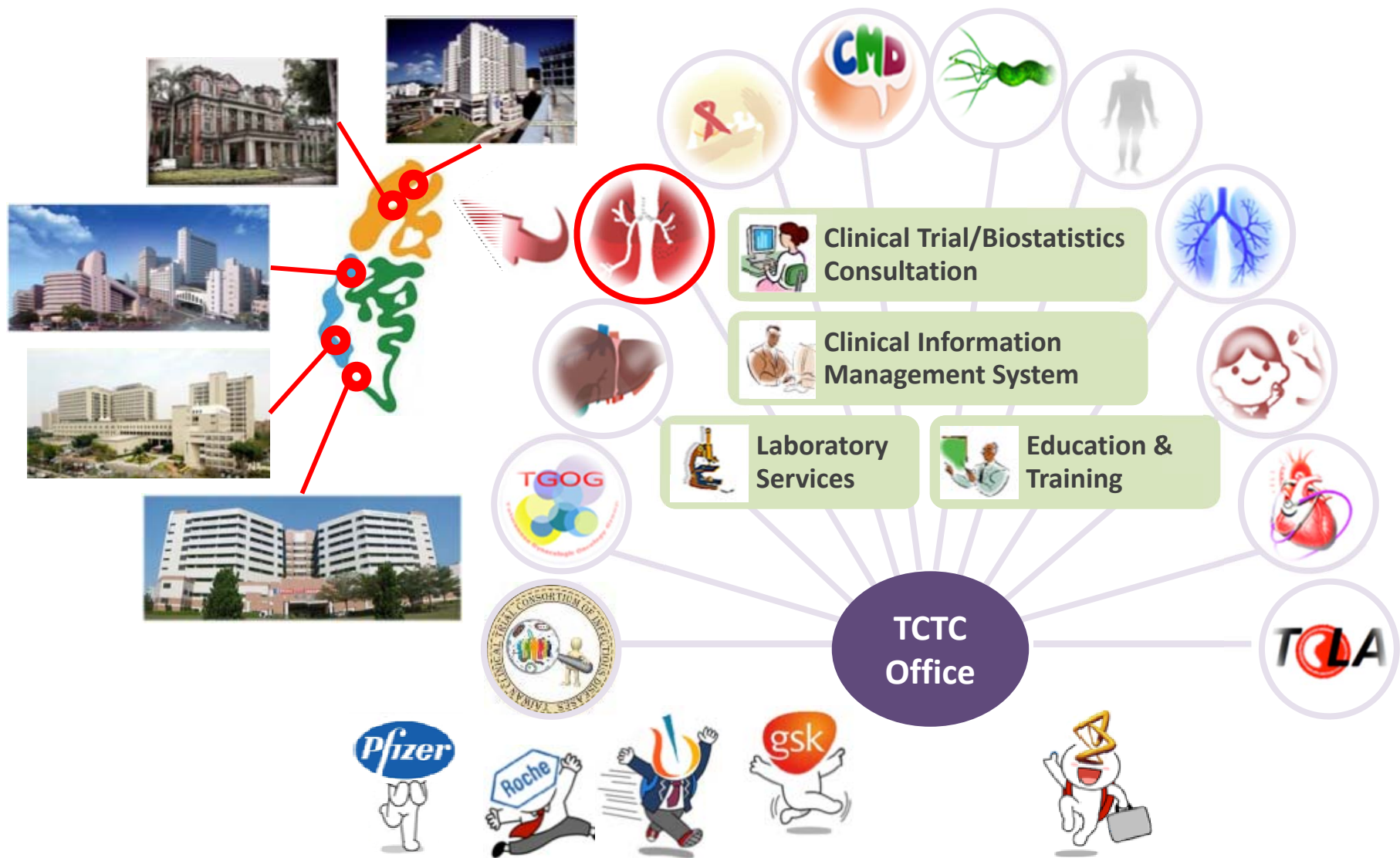
Taiwan Clinical Trial Consortium (TCTC)

Disease-specific consortia involving multiple hospitals

 <p>肺癌臨床試驗聯盟 Lung Cancer Consortium</p>	 <p>胃腸疾病與幽門桿菌合作聯盟 Gastrointestinal Disease And Helicobacter Consortium</p>	 <p>肝炎及肝癌臨床試驗聯盟 LiverNet Consortium</p>
 <p>乳癌臨床試驗合作聯盟 Breast Cancer Consortium</p>	 <p>高血壓相關疾病聯盟 Hypertension Associated Cardiac Disease Consortium</p>	 <p>慢性阻塞性肺病聯盟 COPD Consortium</p>
 <p>婦科癌症研究聯盟 GYN Oncology Group</p>	 <p>血脂和動脈粥樣硬化聯盟 Lipid and Atherosclerosis Consortium</p>	 <p>精神疾病臨床試驗聯盟 Mental Disorders Consortium</p>
 <p>癌症早期臨床試驗聯盟 Oncology Phase I Consortium</p>	 <p>小兒感染症聯盟 Pediatric Infectious Diseases Alliance</p>	 <p>成人感染症臨床試驗聯盟 Adult Infectious Diseases</p>
 <p>中風臨床試驗聯盟 Stroke</p>	 <p>腎臟疾病臨床試驗聯盟 Acute Kidney Injury & Renal Diseases</p>	

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

One-stop shop for your clinical trials



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



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, Medimmmune, 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



BRANDING TAIWAN

Thank you!