



**2022**

**Introduction to Biotechnology and  
Pharmaceutical Industries  
in Taiwan (R.O.C.)**

臺灣

TAIWAN

TAIWAN, Your Best Partner in Asia

# Preface

Due to the outbreak of the COVID-19 epidemic, in order to prevent the spread of the pandemic and develop related vaccines and anti-COVID products and equipment, Taiwan's biomedical industry together with the government agencies, R&D institutes and academia have teamed up to develop various innovative products and services for test, detection, prevention and treatment of/for the pandemic. In addition, the biomedical technologies are also applied to the environmental sector. Furthermore, the increasing application of technologies such as artificial intelligence and big data in the biomedical field has spawned the development of new medical technologies. These new technologies facilitate more precise treatments as well as early prediction and prevention of potential diseases, thus accelerating the evolution of the biomedical sector.



Under the Ministry of Economic Affairs' Act for the Development of Biotech and New Pharmaceuticals Industry, 163 companies have been reviewed and certified as biotech and new pharmaceutical companies as of October 2021, with 50 out of their 429 products have received marketing approval in and beyond of Taiwan. Furthermore, various products are licensed to international enterprises, contributing to Taiwan biomedical sector's growth in revenue. To continue to promote the development of Taiwan's biomedical sector, the Executive Yuan has passed a plan in September 2021 encouraging the integration of Taiwan's strengths in both medical and information communication technologies to accelerate new biomedical products development (e.g., regenerative medicine, precision medicine, and digital health). This plan also encourages the biomedical sector to place more incentives in research and development with manufacturing, to attract

more innovative investment, and startups and young talents as well as experts retention. The efforts made by the Executive Yuan are expected to turn the biomedical sector into a leading sector driving Taiwan's economic transformation.

In 2020, Taiwan's biomedical sector reached a revenue of NTD601.1 billion (USD20.32 billion), marking an increase by 7.4% from 2019. Such a growth in revenue is due to the high sales of biomedical devices used to combat the COVID-19 pandemic, such as testing kits and forehead thermometers. Investment from the private sector has also reached NTD69.7 billion (USD2.36 billion). As of August 2021, 129 biomedical companies are listed in the Taipei Exchange or Taiwan Stock Exchange, 65 are registered for trading in the emerging stock market, and 18 are registered for trading through the Go Incubation Board for Start-up and Acceleration Firms.

The post-pandemic era presents new opportunities for new economic development worldwide. Interdisciplinary integration and application, particularly the incorporation of digitalization, will create new market opportunities for the biomedical sector. Taiwan is ready to tap into its strengths in information communications and medical technologies and utilizes the abundant medical data to accelerate technological integration and innovation, as well as the coordination of medical data for more applications to propel the development of Taiwan's precision health industry. With these actions implemented, Taiwan is in full gear to turn its biomedical sector into a trillion-worth sector.



Director General  
Industrial Development Bureau, Ministry of Economic Affairs  
November, 2021

# Bravo! Taiwan



Jade Mountain (Yushan) is the highest peak in Northeast Asia.



Sun Moon Lake - is the largest alpine lake in Taiwan.

*(Photo by Sun Moon Lake National Scenic Area Administration, Tourism Bureau, Ministry of Transportation and Communication)*

Taiwan is at the southernmost tip of Northeast Asia. It is in the center of the East Asian island arc and on the western edge of the Pacific Ocean. Japan and the Ryukyu Islands are to the north and the Philippines is to the south. Taiwan is not only a crucial Asia-Pacific trade and logistics hub but also a major defense strategic base. Across its 36,197 km<sup>2</sup> territory are diverse natural elements and rich cultures.

## Temperature

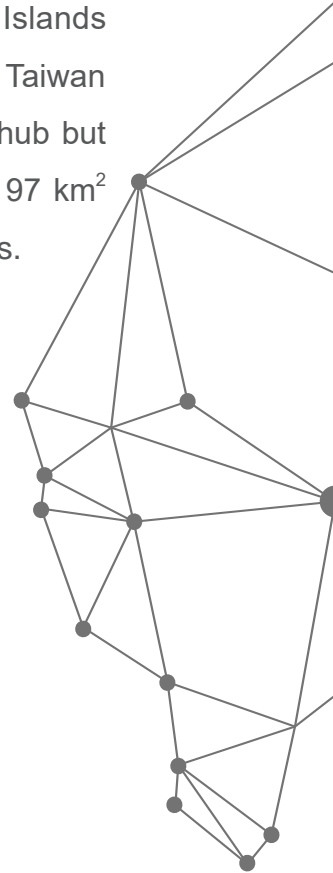
22 °C (18 °C to 29 °C)

## Population (Aug. 2021)

23.45 million

## Languages

Mandarin (Chinese)  
Holo (Taiwanese)  
Hakka and Austronesian languages





### **Capital**

Taipei (TPE)

### **Currency**

New Taiwan Dollar  
(TWD)

### **Electricity**

AC 110 V / 60 Hz

### **Time zone**

UTC +8 hours

### **Exchange rate**

TWD:USD = 29.52:1  
(Aug. 2021)



The Dome of Light - Kaohsiung Formosa Boulevard Station has been named the second most beautiful MRT station in the world.

*(Photo by Tourism Bureau, Ministry of Transportation and Communication.)*



New Taipei City Pingxi Sky Lantern Festival was once voted by TripAdvisor as “the most recommended cultural activity for international travelers in Taiwan.”

*(Photo by Tourism and Travel Department, New Taipei City.)*

## Asia-Pacific Hub

Taiwan serves as an Asia-Pacific transportation hub connecting Northeast and Southeast Asia. Its first-rate international airports enable convenient travel averaging only 2.55 hours to five major western Pacific cities (Tokyo, Seoul, Shanghai, Hong Kong, and Manila), and world-class Kaohsiung Port facilitates goods shipment averaging only 53 hours to five major regional ports (Manila, Singapore, Hong Kong, Shanghai, and Tokyo).

Taiwan is not only a crucial link between Europe, America, Japan and the emerging Asia-Pacific markets, but also a preferred location for multinational companies to establish their regional headquarters.



## Stable Economic & Trading System

Taiwan is currently a member of several international economic organizations, including the World Trade Organization, the Asia-Pacific Economic Cooperation group and the Asian Development Bank, and engages in regular trade and exchanges with over 140 countries worldwide. As global economy becomes more liberal and develops more rapidly, Taiwan continues to adjust its development industrial strategies such as easing regulations, removing investment restrictions, and reinforcing intellectual property measures to be in line with international trends.

### Major Economic Indicators, Taiwan 2020



#### GDP

USD 669.03 billion

#### Economic growth

3.12 %

#### Foreign exchange reserves

USD 543.58 billion (August 2021)



#### Export value

USD 345.13 billion

#### Import value

USD 286.15 billion



#### Unemployment

4.21 % (August 2021)

#### Labor participation rate

58.98 % (August 2021)

\*Sources: National Statistics, R.O.C. (Taiwan)

# Why Taiwan

Taiwan holds an important position in the global economy. In addition to being a top player in the world's information and communication technology industry, it is also a major supplier.

wistron



中華電信  
Chunghwa Telecom



英業達  
Inventec

acer



FOXCONN®  
鴻海科技集團



Quanta Computer

UMC

ASUS®



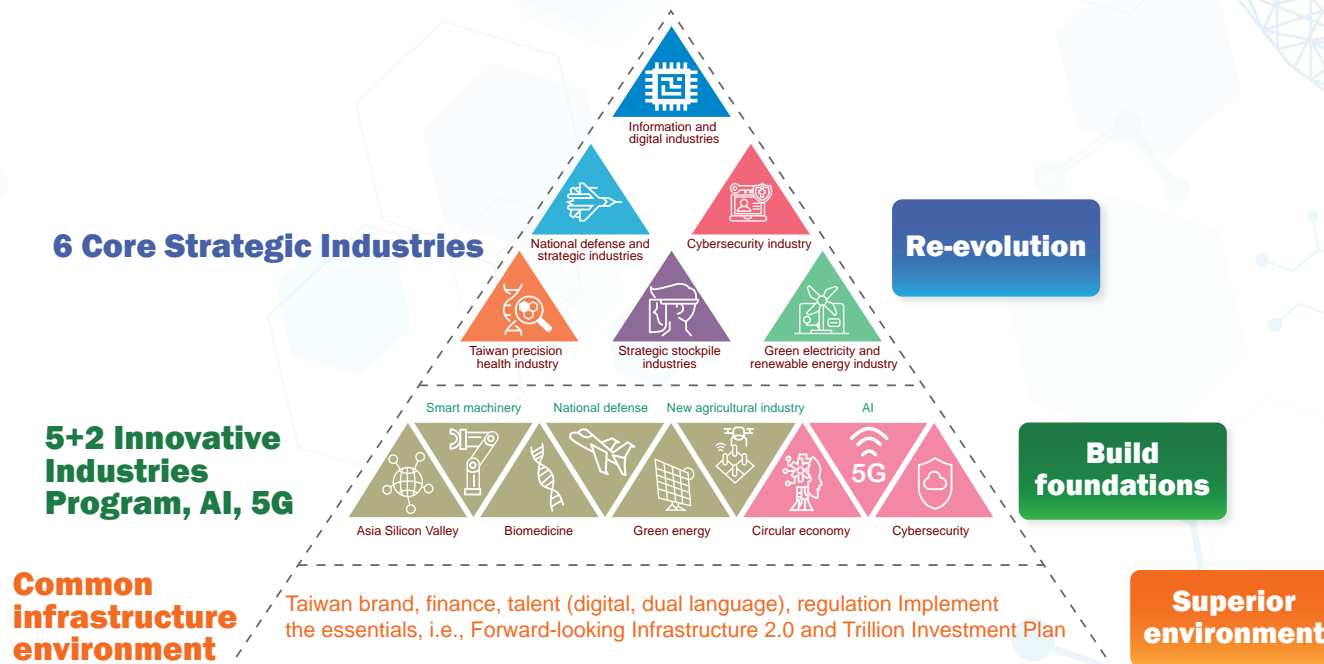
ASE GROUP  
日月光集團

MEDIA TEK

聯發科技

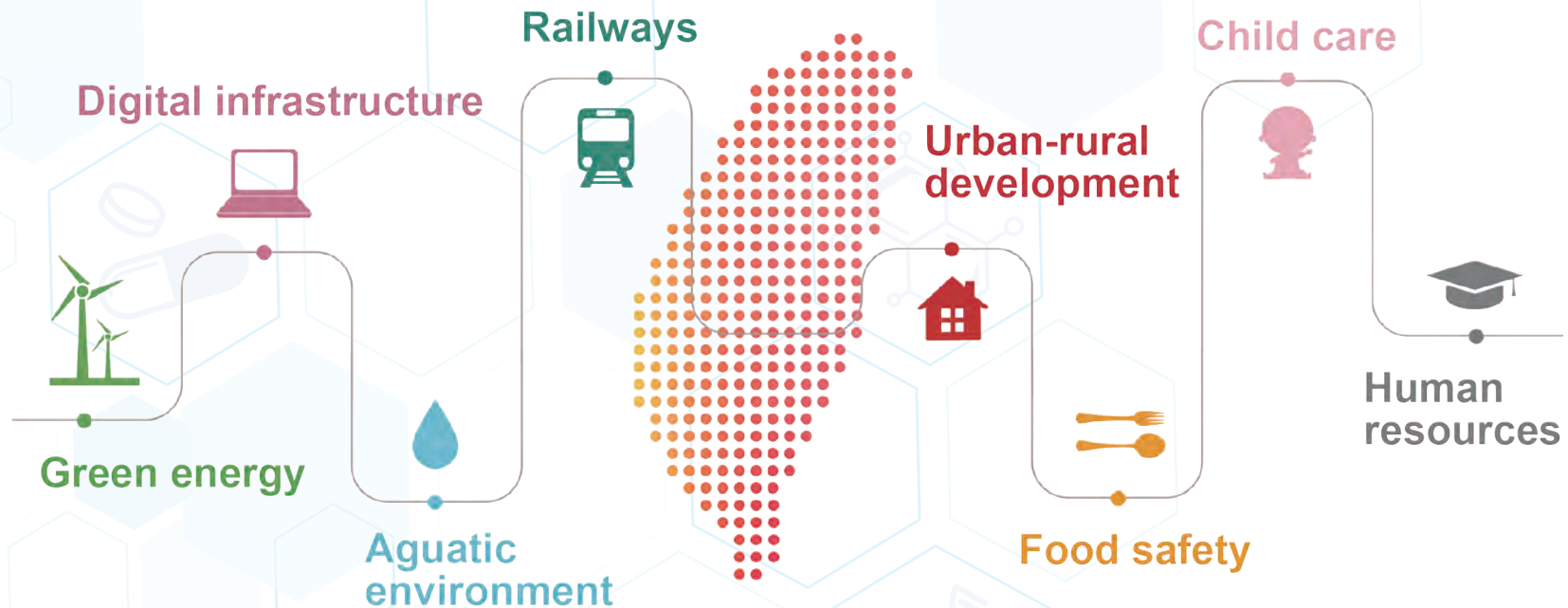
The promotion of Six Core Strategic Industries was announced by President Tsai in her inaugural address on May 20, 2020. These industries include information and digital industries, cybersecurity industry, precision health industry, green and renewable energy industry, national defense and strategic industries, and strategic stockpile industries. By moving early with preparations and building on the foundations of the 5+2 Innovative Industries Program, Taiwan will gain a first-mover advantage to capitalize on opportunities in the post-pandemic era of reshuffling of global supply chains.

For the precision health industry, a platform integrating materials of the Taiwan Biobank and National Health Insurance Research Database will be established, systems for precision prevention, diagnosis, treatment and care will be built, precision epidemic prevention products will be developed, and international biomedical business opportunities will be explored. These approaches will promote Taiwan as a role model in epidemic prevention around the world.



## Forward-looking Infrastructure Development Program

The government also has a Forward-looking Infrastructure Development Program to meet national infrastructure needs for the next 30 years. This program contains 8 major elements: green energy, digital infrastructure, aquatic environment, railway development, urban-rural development, food safety, boosting birth rates and child care facilities, and nurturing talent and employment.



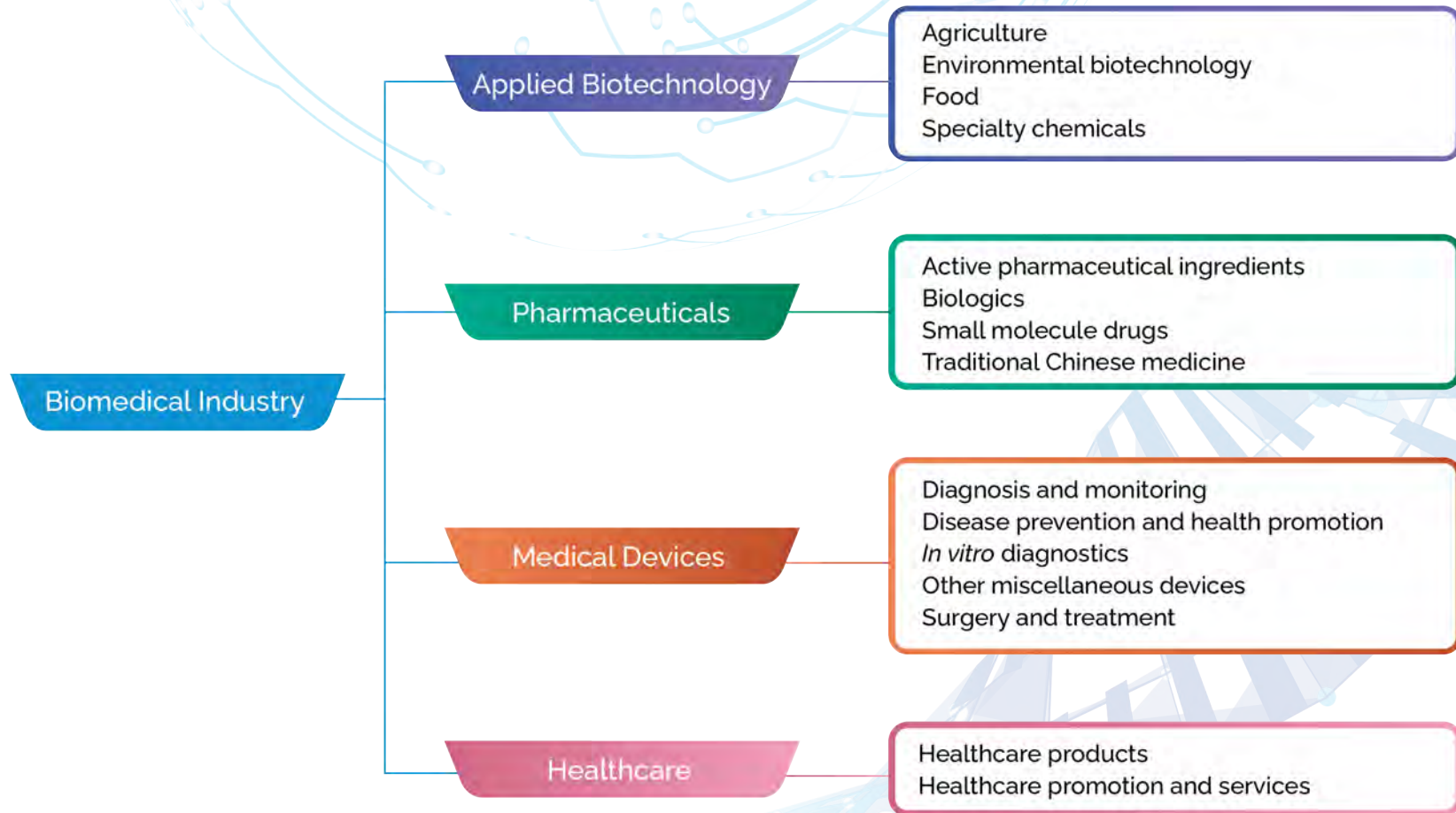
\*Source: National Development Council

As it works to advance innovative industries, the government is also committed to protecting the environment. With this in mind, our new economic model aims to fully integrate industrial restructuring, national land-use planning, and regional growth strategies to foster sustainable development while promoting the use of green energy resources.



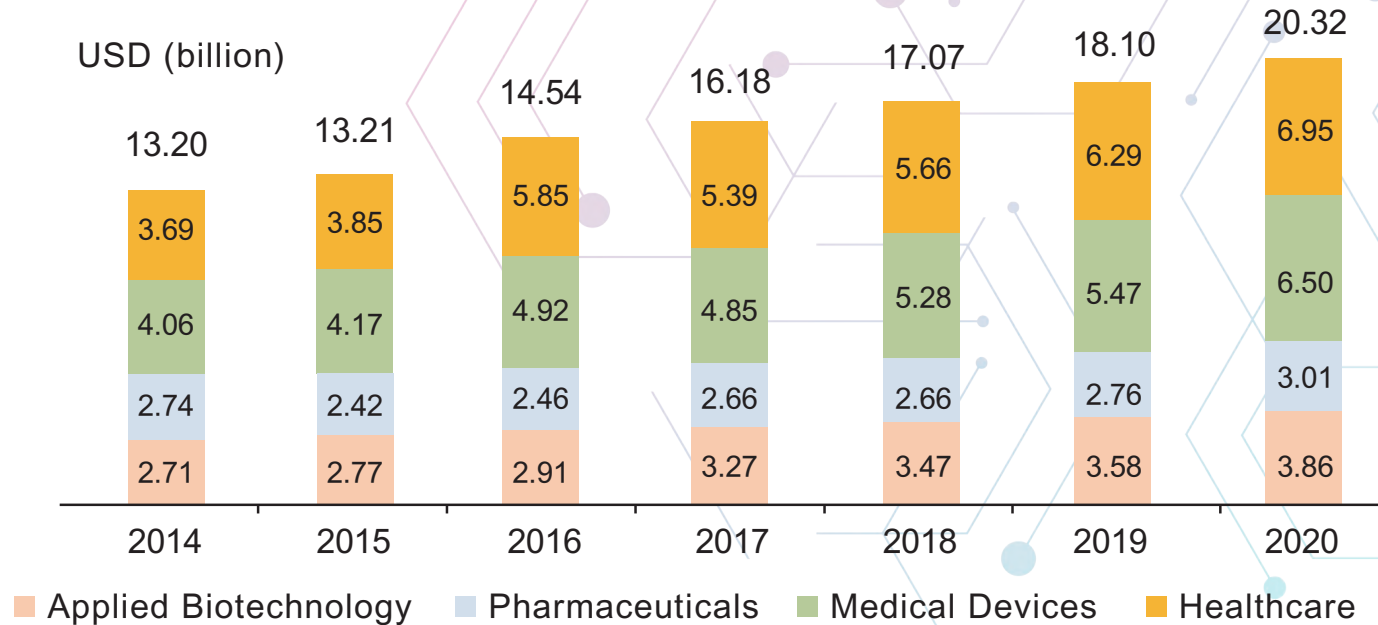
# Overview of Taiwan's Biomedical Industry

Taiwan's biomedical industry comprises 4 major sectors: applied biotechnology, pharmaceuticals, medical devices and healthcare.



In 2020, Taiwan's biomedical industry reached to USD20.32 billion in revenue, representing a growth of approximately 12.26% from 2019 (USD18.10 billion).

While healthcare represents the largest subsector in Taiwan's biomedical industry, with revenue of USD 6.95 billion in 2020 or 34.20 % of the total revenue in this industry, medical devices ranks 2<sup>nd</sup> with revenue of USD 6.50 billion in 2020 or 31.99 % of the total revenue.



\* Source: Biotechnology Industry in Taiwan 2020. Industrial Development Bureau, Ministry Of Economic Affairs.



**2,356.8**  
(million USD)

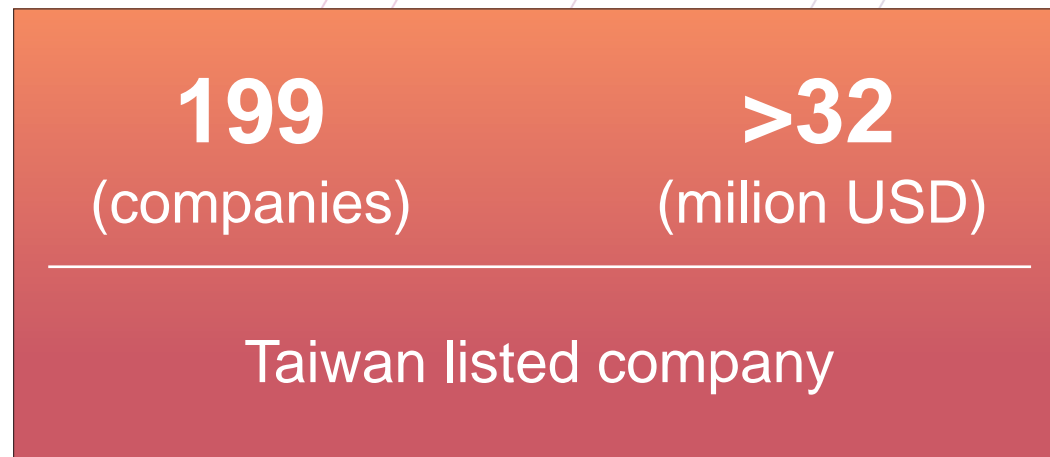
Enterprise

**469.3**  
(million USD)

Government\*

\*Investment by government is the National Development Fund (NDF) which includes Important Emerging Industries Investments, Special Project Investments, Venture Capital Investments, and Business Angel Investment Program.

Through diverse capital market fundraising channels for operation and R&D, the value of Taiwan's biomedical market continues to increase. As of November 2021, Taiwan has 199 listed biotech and health care companies, with a combined value beyond USD 32.65 billion.



# Taiwan's Competitiveness

IMD World Competitiveness Yearbook, 2021



2021 overall ranking  
**8<sup>th</sup>** of 64  
countries & regions

Economic  
performance **16<sup>th</sup>**

**8<sup>th</sup>** Government  
efficiency

Business  
efficiency **7<sup>th</sup>**

**14<sup>th</sup>** Infrastructure

**1<sup>st</sup> Rank 2020**



- Taiwan in Economic Growth Rate (IMF)
- Taiwan in Health Care Index (Ceoworld)
- Taiwan in Emerging Markets Ranking (Bloomberg)
- Taipei in Quality of Urban Living (InterNations Expat City Ranking)

Successful International Big Pharma Investment in Taiwan



## Taiwan's Biomedical Investment Advantage - I

### PIC/S GMP Since 2013

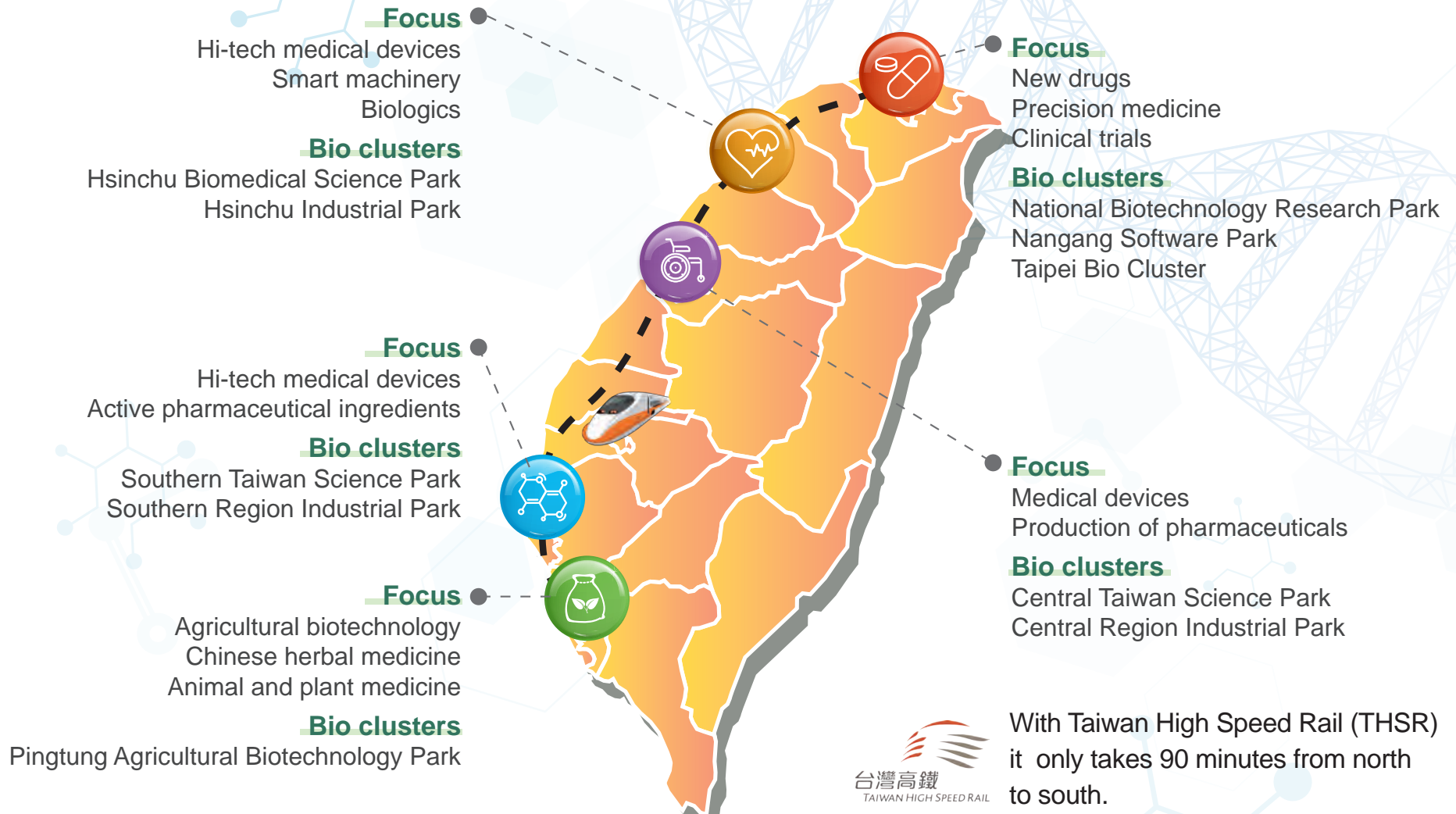
Taiwan is a member of the Pharmaceutical Inspection Co-operation Scheme (PIC/S). Taiwan's pharmaceutical production and management are in compliance with PIC/S specifications, and strict quality management has been achieved in sales to European and American countries with ability to accept international orders.

### Reliable Clinical Trial Sites

Taiwan has 23 medical centers and 143 clinical trial hospitals receiving international accreditations as high-quality clinical trial sites for new drugs or medical devices.

Additionally, Taiwan Clinical Trial Consortium (TCTC) works to promote Taiwan as an Asia-Pacific regional leader in, clinical trial and facilitates the development and commercialization of international and domestic biomedical products.

## Comprehensive Bio-industrial Clusters



## Taiwan's Biomedical Investment Advantage - II

### Excellent Labor Force

Taiwan's excellent labor force is supported by its universal education system. There are more than 300,000 new graduates with college degrees or above.

**6.35 million**  
**(53.08%)**

College degree holders  
(2020)

### Fully - developed Infrastructure

Taiwan has a dense, comprehensive transportation network and relatively inexpensive water, electricity, and telecommunication utilities.

**4**

Airports

**7**

Int'l harbors



### **Reliable Legal Environment**

Taiwan has a mature and well-established legal system. Additionally, regulations for commercialization are timely adjusted to be in line with changing international norms; foreign investors enjoy substantial protection under the Statute for Investment by Foreign Nationals.

### **Well - protected Intellectual Properties**

Taiwan adheres to international treaties and norms on the protection for intellectual property rights; relevant policies and laws are open and transparent in Taiwan.

### **Friendly Toward Fundraising and Financing**

Abundant capital, stable exchange rates, relatively low-interest rates and capital costs make Taiwan a friendly environment for fundraising and financing. Policies to attract foreign investments include relaxing restrictions on foreign enterprises that seek to raise capital and simplifying fundraising administrative processes.

# One-Stop-Shop for Biomedical Industry

The Biotechnology and Pharmaceutical Industries Promotion Office (BPIPO) is the first point of contact for Taiwan biomedical industries. The office provides business development assistance to companies of all sizes at all stages of development worldwide.

Every year, BPIPO assists more than 100 companies in their business growth. Over the past few years, it has even helped Taiwan's biomedical industry to receive investments of more than USD1,500 million per year.

**BPIPO aims to be the global partner for business development in Taiwan's biomedical industry. We love to help.**



The assistance provided by BPIPO include financial support, personnel training and recruitment, R&D collaboration, technology transfer, regulatory issues, commercialization, marketing, promotion activities, stock listing, strategic alliances and others.



# Contacts for Taiwan's Biomedical Industry



## Industrial Development Bureau, MOEA

(+886 2) 2754 1255

<https://www.moeaidb.gov.tw>

[service@moeaidb.gov.tw](mailto:service@moeaidb.gov.tw)



## Biotechnology & Pharmaceutical Industries Promotion Office, MOEA

(+886 2) 2655 8135

<https://www.biopharm.org.tw>

[services@biopharm.org.tw](mailto:services@biopharm.org.tw)



## InvestTaiwan Service Center, MOEA

(+886 2) 2311 2031

<https://investtaiwan.nat.gov.tw>

[dois@moea.gov.tw](mailto:dois@moea.gov.tw)





**Development Center for Biotechnology**

(+886 2) 7700 3800

<https://www.dcb.org.tw>



**ITRI**

Industrial Technology  
Research Institute

**Industrial Technology Research Institute**

(+886 2) 6625 1166

<https://www.itri.org.tw>



**Medical and Pharmaceutical Industry  
Technology and Development Center**

(+886 2) 6625 1166

<http://www.pitdc.org.tw>



**Metal Industries Research & Development  
Center**

(+886 7) 351 3121

<https://www.mirdc.org.tw>

Ottawa, Ontario, Canada  
(+1 613) 231 5080  
can@mofa.gov.tw

Los Angeles, U.S.A.  
(+1 213) 389 1215  
teca@mofa.gov.tw

Washington, U.S.A.  
(+1 202) 895 1800  
usa@mofa.gov.tw

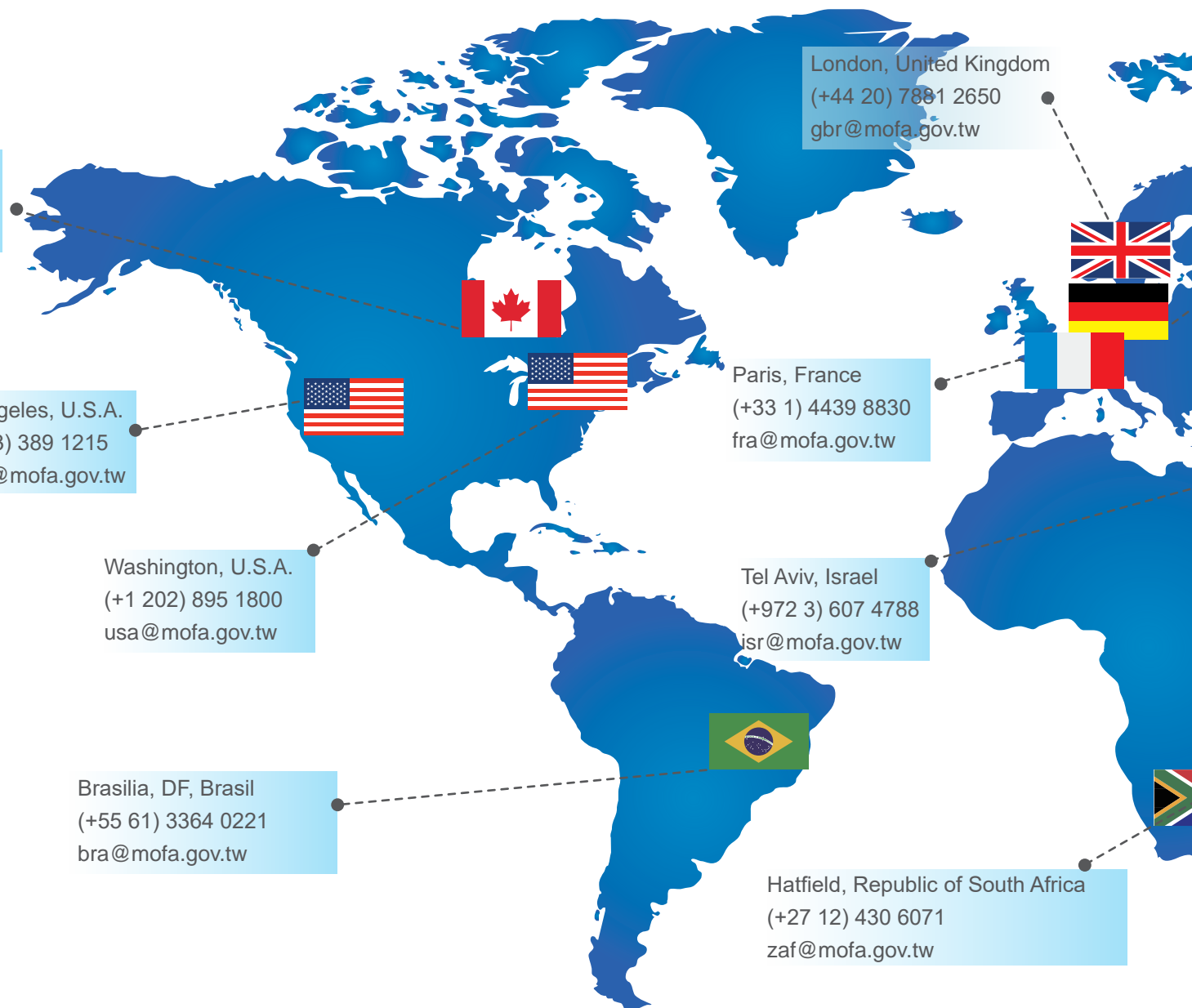
Brasilia, DF, Brasil  
(+55 61) 3364 0221  
bra@mofa.gov.tw

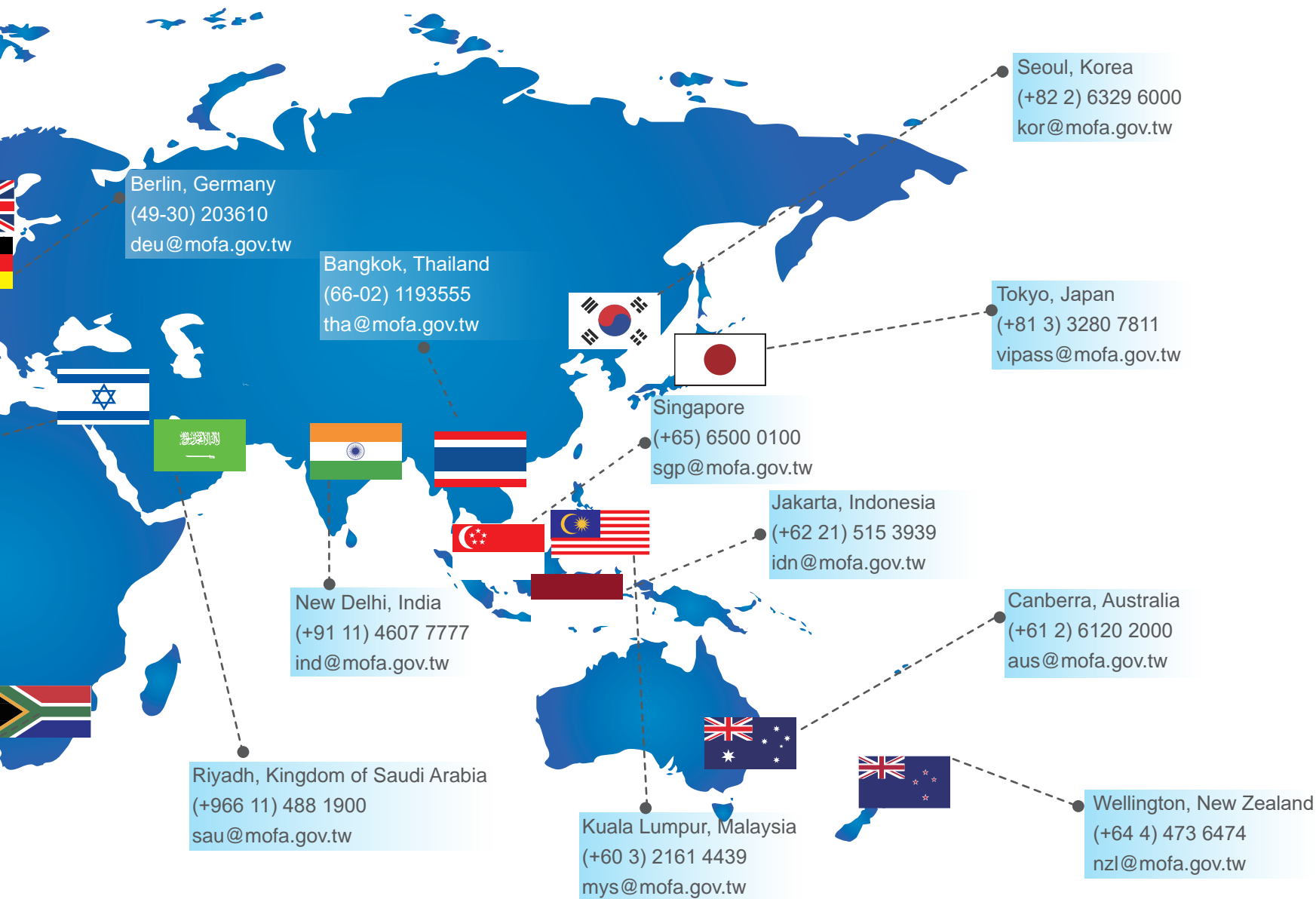
London, United Kingdom  
(+44 20) 7881 2650  
gbr@mofa.gov.tw

Paris, France  
(+33 1) 4439 8830  
fra@mofa.gov.tw

Tel Aviv, Israel  
(+972 3) 607 4788  
isr@mofa.gov.tw

Hatfield, Republic of South Africa  
(+27 12) 430 6071  
zaf@mofa.gov.tw





A person in a dark suit and blue tie is shown from the chest up, slightly out of focus. They are pointing their right index finger towards a large, glowing gear that contains a map of Taiwan. This central gear is part of a larger system of interconnected gears. Other gears contain various icons: a line graph, a target with an arrow, a dollar sign, a person in a suit, and a person at a computer. The background is a light blue gradient with soft, glowing light effects emanating from the gears.

**Taiwan, Your Best Collaborator on  
Healthcare for all Ages!**

# 2022 Introduction to Biotechnology and Pharmaceutical Industries in Taiwan (R.O.C.)

Publisher: Industrial Development Bureau, Ministry of Economic Affairs

Address: No. 41-3, Sec. 3, Xinyi Road, Da'an District, Taipei City 106, Taiwan

<https://www.moeaidb.gov.tw>

Tel: (+886 2) 2754 1255

Fax: (+886 2) 2706 1933

Editor: Biotechnology & Pharmaceutical Industries Promotion Office, Ministry of Economic Affairs

Address: Room A, 17F, No. 3, Park Street, Nankang District, Taipei City 11503, Taiwan

<https://www.biopharm.org.tw>

Tel: (+886 2) 2655 8135

Fax: (+886 2) 2655 8134

Publication Date: Nov. 2021

Revision: First Edition

Price: TWD 100

Electronic copy can be downloaded from <https://www.biopharm.org.tw>

ISBN: 978-986-533-202-0

GPN: 1011001719

The Industrial Development Bureau, Ministry of Economic Affairs, reserves all rights. Those who wish to use this book, in its entirety or in portions, must seek the consent or written authorization from the Industrial Development Bureau, Ministry of Economic Affairs.

Contact Information: (+886 2) 2754 1255 ext. 3916



ISBN:978-986-533-202-0



9 789865 1332020