

## Big Health Research and Technology Transfer: Seminar On Trends and Prospects Report Release and Round Table Discussion

### 【Basic Information】

#### Hosts:

Addresses and report release:	He Qing	Moderator of Digital Media Center of Shanghai Media Group
Round table discussion 1:	Yu Jianrong	Director of Shanghai Information Center for Life Sciences, Shanghai Institute of Nutrition and Health (SINH), Chinese Academy of Sciences (CAS)
Round table discussion 2:	Lin Hui	Division Head of S&T Management Department, Institutes of Science and Development, Chinese Academy of Sciences

#### Addresses:

Sheng Qiuping	Vice Minister of Commerce of the People's Republic of China, Director General of China International Import Expo Bureau, Secretary General of Hongqiao International Economic Forum
Gao Hongjun	Vice President and Academician of the Chinese Academy of Sciences

#### Report release:

Pan Jiaofeng	President of Institutes of Science and Development, Chinese Academy of Sciences
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#### Panel Discussion:

##### Round table discussion

##### Topic 1: Scientific Breakthroughs Empower the Development of the Big Health Industry

Chen Kaixian	Academician of the Chinese Academy of Sciences, former Director of Shanghai Institute of Materia Medica, Chinese Academy of Sciences
Wang Enduo	Academician of the Chinese Academy of Sciences, Professor at the Center for Excellence in Molecular Cell Science, Chinese Academy of Sciences

Duan Shumin	Academician of the Chinese Academy of Sciences, Fellow of The World Academy of Sciences for the Advancement of Science in Developing Countries (TWAS), Professor and Director of the Faculty of Medicine and Pharmaceutical Sciences, Zhejiang University
Li Bin	Professor at School of Medicine, Shanghai Jiaotong University, Professor at Shanghai Institute of Immunology
Fu Daxu	President of Shanghai Institute for Biomedical Pharmaceutical Technologies, President of Shanghai Biopharmaceutics Industry Association
Fan Yuelei	Professor of Shanghai Information Center for Life Sciences, Shanghai Institute of Nutrition and Health (SINH), Chinese Academy of Sciences (CAS)
Wang Liqian	Editor of Nature biopharmaceutics Engineering

## Topic 2: Technological Innovation Reconstructs the Big Health Industry Structure

Poo Muming	Academician of the Chinese Academy of Sciences, Science Director of the Center for Excellence in Brain Science and Intelligence Technology, Chinese Academy of Sciences
Li Lin	Academician of the Chinese Academy of Sciences, Science Director of Shanghai Institute of Nutrition and Health (SINH), Chinese Academy of Sciences
Ge Junbo	Academician of the Chinese Academy of Sciences, Director of the Department of Cardiology, Zhongshan Hospital, Fudan University
Ge Zhaohui	Deputy Division Director, Shanghai Association for Science and Technology
Zhang Jingyi	Vice President of Wonders Information Co., Ltd.
Daisuke Tsuchiya	Yakult (China) Investment Co., LTD.

## Summary and outlook:

Pan Jiaofeng	President of Institutes of Science and Development, Chinese Academy of Sciences
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## 【Brief Introduction】

On the afternoon of November 7, 2022, the Big Health Research and Technology Transfer: Seminar On Trends and Prospects Report Release and Round Table Discussion, hosted by the Ministry of Commerce of the People's Republic of China and organized by the Institute of Science and Development of the Chinese Academy of Sciences and the Secretariat of the Hongqiao International Economic Forum, was held at the National Exhibition and Convention Center (Shanghai). Sheng Qiuping, Vice Minister of Commerce of the People's Republic of China, Director General of China International Import Expo Bureau and Secretary General of Hongqiao International Economic Forum, attended the event and delivered an opening address, and Gao Hongjun, Vice President and Academician of the Chinese Academy of Sciences, made a speech via video links. Pan Jiaofeng, President of Institutes of Science and Development, Chinese Academy of Sciences, released the Report entitled Big Health Research and Technology Transfer: Trends and Prospects. The Chinese Academy of Sciences, Zhejiang University, Shanghai Jiaotong University, Fudan University and other scientific research institutions, as well as some technology companies participated in the discussion. People's Daily Online broadcast the press conference live with pictures and texts.





**【Addresses】**

Sheng Qiuping, Vice Minister of Commerce of the People's Republic of China, Director General of China International Import Expo Bureau, Secretary General of Hongqiao International Economic Forum, attended the Big Health Research and Technology Transfer: Seminar On Trends and Prospects Report Release and Round Table Discussion in Shanghai and delivered an opening address.

Sheng Qiuping, Vice Minister of Commerce of the People's Republic of China, Director General of China International Import Expo Bureau, Secretary General of Hongqiao International Economic Forum, pointed out in his speech that the Hongqiao Forum has made healthcare a key topic, with the goal of promoting cooperation, development and innovation through openness, and promoting the high-quality and sustainable development of the healthcare industry. Healthcare is directly related to people's livelihood and is a key area for international cooperation. To facilitate the high-quality and sustainable development of the healthcare industry, it is necessary to strengthen international cooperation, promote common development and enhance the well-being of people; it is necessary to strengthen the transformation of scientific research, promote the deep integration of industry, academia, research and medicine, and drive the high-quality development of the healthcare industry; it is necessary to strengthen technological integration, and promote the integrated development and transformation and upgrading of the industry through digital technology empowerment. He said that enjoying health is the common pursuit of all human beings, and hoped that this forum would provide ideas for research, commercialization and innovation in healthcare, and contribute Hongqiao's wisdom to the building of a community of health for all.



Gao Hongjun, Vice President and Academician of the Chinese Academy of Sciences, attended the Big Health Research and Technology Transfer: Seminar On Trends and Prospects Report Release and Round Table Discussion and delivered a video speech.

Gao Hongjun, Vice President and Academician of the Chinese Academy of Sciences, pointed out that the concept of big health is deeply rooted in people's minds, and a large number of new technologies have been developed and applied, creating new models of health services and new products to meet the needs of health protection, which has promoted the rapid development of the healthcare industry. The Report Big Health Research and Technology Transfer: Trends and Prospects has examined the development trends and breakthrough directions of health research and transformation from the perspective of the laws of science and technology, and studied the major issues of promoting the development of healthcare industry and ensuring the safety of life and health from the perspective of the impact of science and technology, which is of great scientific significance and social value.

## 【Report Release】



Pan Jiaofeng, President of Institutes of Science and Development, Chinese Academy of Sciences, released the Report on Big Health Research and Technology Transfer: Trends and Prospects.



## Report on Big Health Research and Technology Transfer: Trends and Prospects

From the perspective of scientific research output, the report takes the Dimensions database (a big data platform of comprehensive scientific research information) of Digital Science (a consulting platform of NPG, a Nature publishing group) as the source, and combines bibliometric analysis with expert interviews to systematically analyze the global big health industry from 2002 to 2021, in a bid to reflect the development status, research trends, industrial transformation potential and development trend of the global big health industry. The other research focus is on the technology development and research competitiveness of China's big health industry. A comparative analysis is made in the research competitiveness between China and other major countries and regions.





He Qing, Moderator of Digital Media Center of Shanghai Media Group, attended the Big Health Research and Technology Transfer: Trends and Prospects Report Release Conference and Round Table Discussion in Shanghai and hosted the opening session and the achievement release.

**【Round Table Discussion】****Topic 1: Scientific Breakthroughs Empower the Development of the Big Health Industry**

Chen Kaixian, Academician of the Chinese Academy of Sciences, former Director of Shanghai Institute of Materia Medica, Chinese Academy of Sciences, attended the Big Health Research and Technology Transfer: Seminar On Trends and Prospects Report Release and Round Table Discussion in Shanghai and participated in the round table discussion.

Chen Kaixian, Academician of the Chinese Academy of Sciences, former Director of Shanghai Institute of Materia Medica, Chinese Academy of Sciences, put forward four suggestions for the future development of China's biopharmaceutical industry: First, we must work hard to enhance the development ability through innovation, strengthen original innovation, pay more attention to the strategic, forward-looking and pioneering original research in drug innovation, and strive for a number of breakthroughs and original achievements from scratch. Of particular note, it is necessary to carry out basic study and research translation in new targets, mechanisms, strategies, technologies and methods, and achieve breakthroughs in cutting-edge research and disruptive technology fields. Second, it is crucial to aim at clinical value and patient needs, focus on major diseases, and carry out high-level clinical research. Third, breakthroughs should be made to address the technical constraints that may arise in international competition, including weak links and constraints in the R&D chain and industrial chain. Fourth, we must speed up the transfer and translation of research output.





Wang Enduo, Academician of the Chinese Academy of Sciences, Professor at the Center for Excellence in Molecular Cell Science, Chinese Academy of Sciences, attended the Big Health Research and Technology Transfer: Seminar On Trends and Prospects Report Release and Round Table Discussion in Shanghai and participated in interactive discussions.

Wang Enduo, Academician of the Chinese Academy of Sciences, Professor at the Center for Excellence in Molecular Cell Science, Chinese Academy of Sciences, believes that the development of big health cannot be separated from cutting-edge technologies, of which an important part is biotechnology. The research achievements of the biopharmaceutical industry and the application of new technologies can ultimately relieve the pain of the patients, save the life of the patients, and benefit the mankind. For those who conduct basic research, it is necessary to understand the principles that affect health in order to obtain original innovative breakthroughs from 0 to 1. We should pay attention to the research of non-coding RNA and understand its biological function, especially the relationship between small molecule non-coding RNA and diseases. These RNAs can be used as molecular targets for certain diseases, and targets for treating diseases. Therefore, a thorough understanding of non-coding RNAs will be the ultimate breakthrough in revealing the mysteries of life.



Duan Shumin, Academician of the Chinese Academy of Sciences, Fellow of The World Academy of Sciences for the Advancement of Science in Developing Countries (TWAS), Professor and Director of the Faculty of Medicine and Pharmaceutical Sciences, Zhejiang University, attended the Big Health Research and Technology Transfer: Seminar On Trends and Prospects Report Release and Round Table Discussion in Shanghai and participated in interactive discussions.

Duan Shumin, Academician of the Chinese Academy of Sciences, Fellow of The World Academy of Sciences for the Advancement of Science in Developing Countries (TWAS), Professor and Director of the Faculty of Medicine and Pharmaceutical Sciences, Zhejiang University, shared his research experience in brain science. Duan Shumin pointed out that the damage to neurons caused by aging is often irreparable and will cause very serious effects, which poses a great challenge to brain science. The development of brain science has a great demand for the input of interdisciplinary subjects. Because brain science is very complex and the amount of data involved is huge, it requires the participation of experts in the field of information and physics. The development of artificial intelligence and that of brain science can reinforce each other.



Li Bin, Professor at School of Medicine, Shanghai Jiaotong University, Professor at Shanghai Institute of Immunology, attended the Big Health Research and Technology Transfer: Seminar On Trends and Prospects Report Release and Round Table Discussion in Shanghai and participated in interactive discussions.

Li Bin, Professor at School of Medicine, Shanghai Jiaotong University, Professor at Shanghai Institute of Immunology, expressed his views on how to promote the research and development of cutting-edge technologies such as immunotherapy, gene therapy, and cell therapy. Li Bin believes that for cell gene therapy, first of all, basic scientific research is crucial, especially on the study of how the drug changes after entering the human body, so that it is possible to make better use of drug therapy. Secondly, immune cells are equivalent to our "best guards". The cell has a feature that it can move in the body and interact with other cells after entering the body. In this field, there are still unknowns to be explored. Thirdly, the research on drugs needs to be strengthened, which requires the joint efforts of basic researchers, clinicians, entrepreneurs, investors, government managers and patients. Finally, it is necessary to boost popular science education and improve people's health awareness.





Fu Daxu, President of Shanghai Institute for Biomedical Pharmaceutical Technologies, President of Shanghai Biopharmaceuticals Industry Association, attended the Big Health Research and Technology Transfer: Seminar On Trends and Prospects Report Release and Round Table Discussion via video links and participated in interactive discussions.

Fu Daxu, President of Shanghai Institute for Biomedical Pharmaceutical Technologies, President of Shanghai Biopharmaceuticals Industry Association, shared his suggestions for better promoting the research and development of innovative drugs in China from the perspective of research output translation. First, strengthen the in-depth integration of industry, education, research and medicine; second, promote the cross-disciplinary efforts of innovation in life sciences, integrate pharmacology, artificial intelligence, and big data to boost drug innovation; third, build more innovative R&D platforms to better serve SMEs, so that SMEs can enjoy more R&D resources; at the same time, gather more clinical resources to give full play to China's abundant disease resources and clinical resources for innovative research and development; fourth, strengthen capital investment and introduce supporting policies for new drug application, drug payment, insurance, etc., to create an environment conducive to innovation.



Fan Yuelei, Professor of Shanghai Information Center for Life Sciences, Shanghai Institute of Nutrition and Health, Chinese Academy of Sciences, attended the Big Health Research and Technology Transfer: Seminar On Trends and Prospects Report Release and Round Table Discussion in Shanghai and participated in interactive discussions.

Fan Yuelei, Professor of Shanghai Information Center for Life Sciences, Shanghai Institute of Nutrition and Health, Chinese Academy of Sciences, as a member of the research team of "Big Health Research and Technology Transfer: Trends and Prospects", shared her feelings about the research process. Fan Yuelei pointed out that the advancement of the threshold emphasized by the big health is not only at the policy level, but more importantly, it is about the reshaping and transformation of concepts and values at the scientific, industrial and social levels. Changing from the concept of "curing the existing disease" to the concept of "preventing the potential disease" is not just a slogan, but more importantly, it lies in practical actions.





Wang Liqian, Editor of Nature biopharmaceutics Engineering, attended the Big Health Research and Technology Transfer: Seminar On Trends and Prospects Report Release and Round Table Discussion in Shanghai and participated in interactive discussions.

Wang Liqian, Editor of Nature biopharmaceutics Engineering, expressed her views on China's scientific research achievements and future growth potential in the global health industry. She said that from 2017 to 2022, Chinese scholars and scientific research institutes have published about 50 original papers in Nature biopharmaceutics Engineering. This proportion is relatively high, and the main fields involved are cancer immunotherapy, artificial intelligence, bioimaging and the treatment of diabetes, etc. There is much room for China to develop in the field of big health, and it is believed that there will be more important research achievements from China in the future.



Yu Jianrong, Director of Shanghai Information Center for Life Sciences, Shanghai Institute of Nutrition and Health (SINH), Chinese Academy of Sciences (CAS), attended the Big Health Research and Technology Transfer: Seminar On Trends and Prospects Report Release and Round Table Discussion in Shanghai and chaired the first session of Round Table Discussion.

## Topic 2: Technological Innovation Reconstructs the Big Health Industry Structure



Poo Muming, Academician of the Chinese Academy of Sciences, Science Director of the Center for Excellence in Brain Science and Intelligence Technology, Chinese Academy of Sciences, attended the Big Health Research and Technology Transfer: Seminar On Trends and Prospects Report Release and Round Table Discussion in Shanghai.

Poo Muming, Academician of the Chinese Academy of Sciences, Science Director of the Center for Excellence in Brain Science and Intelligence Technology, Chinese Academy of Sciences, shared the significance of innovation in brain science and intelligent technology for the development of the big health industry. He pointed out that under the framework of big health, it is necessary to pay special attention to the diagnosis of early Parkinson's disease and the clinical research and development of intervention methods for disease treatment in animal models the field of brain health. This is a very competitive direction, and China can become a world leader in this sector.





Li Lin, Academician of the Chinese Academy of Sciences,  
Science Director of Shanghai Institute of Nutrition and Health (SINH), Chinese Academy of Sciences,  
attended the Big Health Research and Technology Transfer: Seminar On Trends and Prospects Report Release  
and Round Table Discussion via video links.

Li Lin, Academician of the Chinese Academy of Sciences, Science Director of Shanghai Institute of Nutrition and Health (SINH), Chinese Academy of Sciences, believes that promoting the interactive development of standardization and technological innovation in the field of health is an important path to drive the all-round and in-depth development of the health sector. We must attach importance to the role of standardized achievements in the diversified technological achievements evaluation index systems, and integrate standardization into the whole process of technological innovation and achievement transfer in project establishment and implementation of national key research and development plans, as well as in the evaluation of scientific research institutions and technological talents.



Ge Junbo, Academician of the Chinese Academy of Sciences, Director of the Department of Cardiology, Zhongshan Hospital, Fudan University, attended the Big Health Research and Technology Transfer: Seminar On Trends and Prospects Report Release and Round Table Discussion via video links.

Ge Junbo, Academician of the Chinese Academy of Sciences, Director of the Department of Cardiology, Zhongshan Hospital, Fudan University, shared his views on promoting the deep integration of industry, education, research and medicine in the big health industry. He pointed out that in recent years, China has produced original products in the fields of cardiovascular disease diagnosis, ultrasound, optical imaging, and cardiovascular development, which can be easily transformed into clinical practice through artificial intelligence to provide patients with more convenient treatment. However, once a track or a device emerges, ten or thirty similar companies will be born within a short period of time, and innovation will enter a dead end. Therefore, it is necessary to pay attention to the innovation of medical devices to avoid copying existing technologies.





Ge Zhaohui, Deputy Division Director, Shanghai Association for Science and Technology, attended the Big Health Research and Technology Transfer: Seminar On Trends and Prospects Report Release and Round Table Discussion in Shanghai.

Ge Zhaohui, Deputy Division Director, Shanghai Association for Science and Technology, shared Shanghai's practices and experience in enhancing the ability of source innovation in the field of biomedicine. He pointed out that Shanghai has rolled out a series of policies covering the entire industrial chain of clinical treatment, research and development, and application, and an industrial structure has been established with Zhangjiang as the core. Shanghai should conduct a sound top-level design on the basis of the entire industrial chain technology, especially around the biopharmaceutical industry, and speed up the formulation of Shanghai's industrial development map and a technical roadmap for industrial development.



Zhang Jingyi, Vice President of Wonders Information Co., Ltd.,  
attended the Big Health Research and Technology Transfer:  
Seminar On Trends and Prospects Report Release and Round Table Discussion in Shanghai.

Zhang Jingyi, Vice President of Wonders Information Co., Ltd., believes that artificial intelligence and big data in the field of big health industry feature wider, faster and more accurate applications. "Wider" means that the development of big data has reached an unprecedented level and has a very solid foundation; "faster" means that artificial intelligence has entered a mature stage of transformation from academic research to the industrial application, and governments have also introduced policies to support its acceleration; "more precise" means that the "Healthy China" strategy is implemented with the focus shifted from disease prevention to health management, which is a step beyond the original stage.



Daisuke Tsuchiya Yakult (China) Investment Co., LTD.,  
attended the Big Health Research and Technology Transfer:  
Seminar On Trends and Prospects Report Release and Round Table Discussion in Shanghai.

Daisuke Tsuchiya, Yakult (China) Investment Co., LTD. pointed out the future development direction of the health food industry. He believes that the role of probiotics has been proved by the innovation of industry, academia and research institutes, and consumers' awareness and demand for probiotics are also increasing, which has become a strong driving force for the continued vigorous development of China's probiotics market. In the future, Yakult will conduct scientific research on *Lactobacillus casei* Shirota strain (LcS) to drive the development of the big health industry.





Lin Hui, Division Head of S&T Management Department,  
Institutes of Science and Development, Chinese Academy of Sciences,  
attended the Big Health Research and Technology Transfer: Seminar On Trends and Prospects Report Release  
and Round Table Discussion in Shanghai and chaired the second session of Round Table Discussion.

### 【Summary and Outlook】



Pan Jiaofeng, President of Institutes of Science and Development, Chinese Academy of Sciences, attended the Big Health Research and Technology Transfer: Seminar On Trends and Prospects Report Release and Round Table Discussion in Shanghai, and gave a summary and an outlook at the end of the event.

Pan Jiaofeng, President of Institutes of Science and Development, Chinese Academy of Sciences, pointed out that the Hongqiao Forum, as an important part of the CIIE, has served as a platform for international political, business and academic circles to conduct high-end dialogues, share China's development opportunities and experience, and plan open, mutually beneficial and win-win cooperation. The Report on Big Health Research and Technology Transfer: Trends and Prospects released at the conference aims at an international and authoritative forward-looking analysis report in the field of science and technology, and the report series will continue to be released to the public as annual reports in the future.