APS celebrates the 90th anniversary of SIMM

Acta Pharmacologica Sinica (2022) 43:3013–3014; https://doi.org/10.1038/s41401-022-01008-z

Acta Pharmacologica Sinica (APS) proudly celebrates the 90th anniversary of the establishment of Shanghai Institute of Materia Medica (SIMM) by publishing a special issue commemorating this special event. SIMM was established in 1932 and launched APS, the official journal of Chinese Pharmacological Society in 1980. SIMM is a reputable and comprehensive pharmaceutical research institution with a wide range of disciplines. With each passing decade, SIMM continues to garner outstanding achievements, and recruit the top talents in each field, becoming one of the most innovative drug research facilities in China, leading the way in novel pharmaceutical research. To better understand the research progress of SIMM in the past decade and providing insight into the exciting and innovative drug research and development in China, APS has organized this special issue including reviews and original articles that highlight the contributions of principal investigators from SIMM in various disciplines.

SIMM has continued to strive for excellence in its 90-year history in fundamental research and original innovation. These researches have contributed to development of new theories, methods, and technologies with emphasis on novel drug discovery and research into disease mechanisms. In the past ten years, SIMM has made extensive progress in terms of novel targets discovery and drug discovery based on analysis in secondary metabolites, structure genomics, mass spectrometry imaging, molecular imaging, and proteomics-based post-translation modification technologies. SIMM combines innovative drug discovery methodology, pharmacological mechanism, pharmacokinetics, drug safety, and other technical methods to discover new theories in drug discovery. For example, the 3D structures of ADGRD1 and ADGRF1 complexes bound to G proteins were discovered. Furthermore, SIMM was the first to report the near-atomic resolution structures of three different 5-HT receptors. SIMM were also the first to clarify that the alternative splicing mechanism of RNA in steady state are influenced by the environmental factors in the mitochondrial and established an original animal model of autism that possessed immune characteristics shown in autistic children. Researchers at SIMM also established a tertiary treatment strategy of tumor with immune characteristics shown in autistic children. Researchers at SIMM also established a tertiary treatment strategy of tumor with high expression of biomarkers for EZH2 based on the guidance of MLL1. Furthermore, SIMM researchers systematically constructed protein panorama and molecular subtype characteristics in patients with lung adenocarcinoma for the first time in large-scale settings.

In the past ten years, a series of major achievements in basic research have inspired novel drug discovery. Many outstanding pharmaceutical scientists have developed a number of new drugs that have made their mark in the international arena. SIMM has many new drug research and development projects that have achieved gratifying results. A total of 45 new drug molecules have been approved for clinical trial. At the same time, the approval time for clinical application has been greatly shortened, from 2–3 years to 2–3 months. This rapid clinical approval has greatly improved the competitiveness of new drug molecules on the market. The new drug molecules currently under clinical research involve various types of diseases such as tumors, metabolic diseases, infections, autoimmune, respiratory, mental, allergic, neurological, Hematologic, digestive, cardiovascular, and urinary diseases [1–11]. Researching these different types of disorders, SIMM has developed 13 new drugs and 1 generic drug that have been approved for clinical and international registration in the United States, Japan, Europe, and many other countries around the world. One of the drugs has even received the orphan drug designation granted by the FDA. Among them, sodium oligomannate (GV-971) is the first patented marine algae-derived oral oligosaccharide agent developed by SIMM for the treatment of Alzheimer’s disease (AD). Sodium oligomannate received its first approval in November 2019 for the treatment of mild to moderate AD to improve cognitive function in China. SIMM also discovered a safe and effective oral nucleoside drug VV116 to combat the rapid spread of SARS-CoV-2 and it is placed on fast track for clinical use [1, 10].

I hope this issue will appeal to a broad readership with an interest in novel pathogenic mechanism research, new target discovery, and original drug discovery and development. In this issue, we can get a glimpse at the booming development of new drug discoveries over the past decade in China. We can look at the prospects forward to the new drug development in decades. Thus, join us in celebrating the 90th anniversary of SIMM and enjoy the articles in this special issue.

ADDITIONAL INFORMATION

Competing interests: The author declares no competing interests.

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Received: 22 September 2022 Accepted: 22 September 2022
Published online: 23 November 2022
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