Development of New Drugs in Traditional Chinese Herbal Medicine Using Hi-Content

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Introduction

Traditional Chinese Medicine (TCM) has been widely used in China and other Asian countries for thousands of years to treat or prevent human disease. As one of the most important components of TCM, herbal medicines provide a variety of biological activities because of their diversity in their chemical composition. However, the pharmaceutical industry is facing a great challenge of developing a large number of new natural products or new drugs, and as a result of tremendous efforts, the discovery and productivity of a large number of new drugs cannot be achieved. Currently, more attention is being paid to the modernization of oriental medicine with cutting-edge technologies in drug development, especially high-throughput selection. High-Content Imaging is an image-based, high-throughput screening method for the large-scale capture and analysis of phenotypes using automated microscopy and image analysis software, and the simultaneous investigation of multiple biological features of biological complexes. Here, we describe the pipeline of state-of-the-art high-content imaging technology, summarize the application of high-content imaging technology for new drugs in traditional Chinese herbal medicine, and finally present challenges and future prospects regarding the development of high-throughput image-based screening technology. Explained about it. Research and discovery of new drugs.

Keywords: Biological; Technology; Screening

Traditional Chinese medicine

Traditional Chinese Medicine (TCM) has been widely used in China and other Asian countries for thousands of years to treat and prevent various human illnesses. Over the last few years, TCAM (Traditional, Complementary and Alternative Medicine) has been an integral part of the public health system, which has gained a great deal of worldwide attention. Traditional Chinese herbal medicine, which has been applied to the health care of millions of people around the world for thousands of years, is one of the most important components of TCM. Researchers have been of great interest in studying the role of many medicinal plants in combating numerous human diseases. Contains several phytochemical components such as herbs or officially alkaloids, terpenoids, tannins, sapiens, flavonoids, and cardiac glycosides. 1,2 These bioactive compounds alone or elsewhere It works with the ones to achieve the desired effect.

With its outstanding chemical diversity and multiple biological functions, Chinese herbal medicine is increasingly playing a very important role in modern drug development. With the progress of research and development of theoretical background, therapeutic principles, advanced biotechnology, and life science knowledge, the biologically active compounds of Chinese medicinal herbs and their pharmacology and the mechanisms of prevention and treatment of diseases have become increasingly understandable [1-3].

High throughput screening and high content imaging

High-throughput screening (HTS) technology was first introduced in the mid-1990s to facilitate drug discovery through the study of biological complexity.HTS technology is especially applied in drug development and biology or chemistry related fields and is being tested using automated equipment. Biological activity of thousands to millions of samples in various biological models. HTS is mainly based on automated digital microscopy. High-content imaging technology uses automated microscopy and image analysis software to simultaneously capture and analyze various biological phenotypes and features in large-scale biological complexes, according to image-based high It refers to the throughput screening system [4,5].

Conclusion

Combining TCM with modern drug discovery technology to discover new drugs has achieved significant results in the last few decades. High-content imaging and analytics technology provides flexible scalability and supports large-scale drug discovery applications with excellent throughput and simplified workflows. However, the discovery of traditional Chinese herbal medicines presents considerable challenges and requires an innovative approach to accommodate content-rich screening and identification. Despite these obstacles, there is growing interest in screening and identifying large composite inventories of traditional Chinese herbal medicines using high content imaging platforms.

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