



Three Tiers in Pharmacological Research of Chinese Medicine

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Editorial

Chinese Medicine is a science and art of traditional medicine in China and has spread to the world as complementary and alternative medicine. Medication in Chinese Medicine is Chinese Medicines (plants, animal parts and minerals) which provide valuable resources for drug discovery. However, many of the Chinese Medicines still lack scientifically proven remedies. Investigating whether these therapies have scientific evidences are essential issue in Chinese medicine research.

Although the modern human society has devised and established a comprehensive, effective and Evidence-Based system of healthcare, there are a variety of traditional medical systems that are still vivid and working well in some countries of the world. Chinese medicine, as one of the oldest medical systems that are still being operated for the health benefit of human beings, has revealed its elicited power in the past thousands year. Being the dominant and unique healthcare system of Chinese people in ancient and modern times, Chinese Medicine is not only reserved to be the two major and parallel approaches taking care people's health in present China, but also trying to propagate its internal thoughts for disease treatment throughout the world. Compared with some ancient medical systems that has been diminished from the modern society, practitioners and professionals of Chinese Medicine have trying to survive by chasing up the trend of current healthcare system in terms of promoting pre-clinical and clinical researches at recognizable standard. Besides evaluating the efficacy and safety of Chinese Medicine with randomized clinical trials (RCT), lab scientists have been contributing to the sustainable development of Chinese Medicine by conducting thorough biomedical study on the pharmacology of Chinese Medicine.

Pharmacological researches of Chinese Medicine define any forms of biomedical study to decipher the action and mechanism of action of Chinese Medicine with human body. The narrow definition of pharmacological research of Chinese Medicine delineates research activities that are trying to understand how Chinese Medicine acts to prevent and treat human diseases, but its role extends to any topics related to the interactions between human body and Chinese Medicine, which not only includes efficacy and safety of the treatment, but also embodies the translation of ancient diagnosis with modern terms. The pharmacological researches of Chinese Medicine is purposed to connect the ancient wisdom with modern world to inspire the development of current treatment of human diseases, indeed, contemporary people have been benefited from the ancient intelligence of healing. A lot of currently used therapies were originally discovered with inspiration of antique use of medical plants [1]. In particular, some excellent cases have revealed the success of Chinese Medicine in contributing modern healthcare of human beings. Arsenic discovered in 1970s from the ethno medical use of Pi-Shuang (majorly contains arsenic trioxide) for the acute promyelocytic leukemia (APL) [2] and we can understand the mechanism of the action [3]. Moreover, recognition and respect of modern world was given to the contribution of ancient wisdom by awarding Nobel Prize to Professor Tu Youyou, who was inspired by classic record of use of sweet wormwood to treat fever in Wai-Tai-Mi-Yao, and managed to extract a substance, artemisinin benefiting the treatment of malaria [4].

As a matter of fact, go back to 100 years ago, Western medicine and Chinese medicine have almost the same treatment materials: plants, animals and minerals. Nowadays, speaking drugs, they are mainly single pure compound no matter small molecules or big molecules, so main difference between Western medicines (single pure compound) and Chinese medicines (multiple components) is materials. We so call Chinese medicines, their ingredients are multiple components ranging from modern meaning's food, functional food, drugs and toxicants (Figure 1).

To study Chinese medicines, multidisciplinary knowledge and technologies have been introduced such as molecular technology, Omics technologies, informatics, nanotechnology, system

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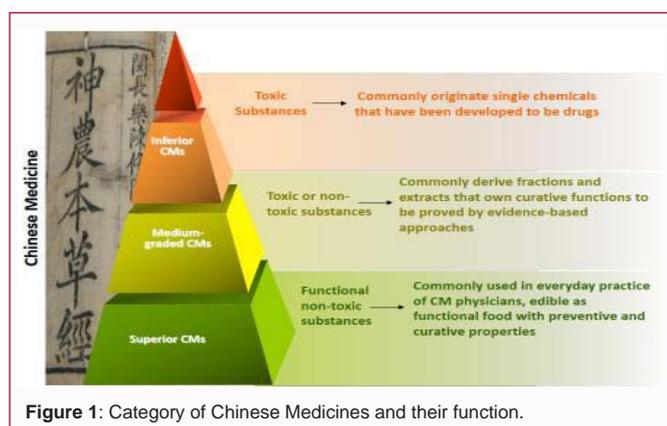
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biology, integrative medicine, individual medicine, translational medicine and Evidence-Based medicine etc. Based on accumulated a lot of research in pharmacological research in Chinese medicine, we sort out three tiers of the researches [5]. Fundamentally, a large part of studies have been focused to delineate the science and art of Chinese Medicine in treating human diseases with newly developed technologies and platforms, which would eliminate unscientific elements in Chinese Medicine and highlight the ancient wisdoms; Evidence-based approaches as the second tiers will provide useful

complementary and alternative treatments derived from Chinese Medicine; elicited cases in evidence Chinese Medicine will facilitate new drug discovery and development at national and international level (Figure 2).

To be concluded, pharmacological researches of Chinese Medicine have been programmed to ultimately develop new therapy for treatment of human diseases. However, a large amount of effort has to be made to build up the solid foundation of science and art of Chinese Medicine, so that scientifically sound treatment could be selected for the critical evaluation using Evidence-Based approaches. The continuous efforts made by researchers and scientists of pharmacology of Chinese Medicine will definitely bring the ancient wisdom to the modern era, when people would benefit from the intangible treasures left by our ancestors. In addition to effects of the Chinese medicines, we are able to understand the mechanism of action by such pharmacological studies. In the coming future, the essence and excellence of pharmacological research will made Chinese Medicine no longer lack scientific base and know why it works in clinical setting.

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