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From traditional materials to modern drug: How Chinese medicines contribute to new drug discovery

Yibin Feng

The University of Hong Kong, China

Facing complicated diseases and unmet medical needs, drug discovery and development from Chinese medicines should have new strategy. There are about 25% modern drugs inspired from traditional medicine including Chinese Medicine. The way of drug discovery and development in past 100 years is from natural resources to chemical synthesis, but no matter whether it is natural compound or synthesized compound drug discovery and development are more and more difficult. Not only experience in natural materials, but also wisdom and knowledge in traditional medicine may help form new strategy to discover new drug. It is known that 25% modern drugs were inspired from traditional medicine. It has been intensively studied a lot about natural resource in terms of chemical and pharmacological profiles. So far, over 10000 single compounds were isolated from Chinese medicines (Chinese medicinal plants, animal parts and minerals) among which some have been identified as new drugs such as ephedrine, artemisinin and arsenic trioxide etc., while others are promising drug candidates suggesting that Chinese medicines are still an important resource for new drug discovery. It is more amazing, if we watch composite formulae, they are over 100000 in total. Clinically, Chinese medicines mainly use composite formulae to treat various diseases, especially complicated diseases. Recently, both experimental and clinical studies showed Realgar-indigo naturalis, qili qiangxin capsules and compound danshen dripping pills are promising formulae for treatment of acute promyelocytic leukemia, chronic heart failure and coronary heart disease. Actually, Western medicines also often use combination therapy for disease treatment in clinical setting, such as cancer, hypertension and AIDS etc. To this goal, we developed a comprehensive, dynamic and specific strategy for drug discovery for cancer and metabolic diseases as one attempt. This presentation will talk about drug discovery from single compounds to multiple components as drug candidates in Chinese medicine by recent developed technologies.

yfeng@hku.hk

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