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A very good place to start: The methodology of reverse pharmacology

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Abstract

In reverse pharmacology, agents that have a history of therapeutic activity are used as a starting point for drug discovery. However documented natural-product drugs from traditional medicine are generally the mixtures of compounds having a variety of pharmacological effects. It is extremely difficult to identify their active components and clarify their pharmacological mechanism due to the complex relationship between the pharmacological effect of traditional drug itself and that of its components.

In response to this situation, the key idea used in solving the problem is that traditional medicine-inspired approaches to drug discovery should start with the relevance between identifying material basis for the efficacy and clarifying pharmacological mechanism of traditional drug.

Based on the above understanding and under the background of the analgesic effect of Dragon's Blood, the methodology of reverse pharmacology was proposed, which takes the pharmacological effect of traditional drug itself as the reference. The effects of the components and/or the combinations of components are compared with that of the traditional drug itself to obtain lead compounds with certain chemical structures. According to the principle above, the operational definition of the material basis for the efficacy of traditional drug was established. Searching for the material basis of the efficacy of traditional drug was converted to detecting, expressing and analyzing of the relationship between pharmacological effects of the components and/or combinations of components and the traditional drug itself. Thus the research framework of the pharmacology and the material basis of traditional drug was built up. The analgesic effect of Dragon's Blood could be due to the synergistic effect of its three components.

Biography

Xiangming Liu received his PhD (Bio-Medical Engineering) in 2001 from Huazhong University of Science & Technology. Then he joined South-Central University for Nationalities and worked as dean of Pharmacy College. Professor Liu was honored by the World Congress Arts, Sciences and Communications in 2011 with the Lifetime Achievement Award for his outstanding academic achievements in the modern study of traditional medicines.

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