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# 中药及复方全成分群快速高通量测定技术的现状及免疫芯片综合法

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中文摘要：中药及复方成分的定性定量分析可分为化学与仪器分析法,其中仪器分析法占主流,主要有HPLC,HPLC-MS,HPLC-NMR,GC,GC-MS,生化及生物效应等方法。因中药及复方成分复杂,化学方法专属性不强,少用或慎用;而仪器分析因其专属性强,适用于复杂体单成分的分析,对于中药及复方多成分,目前已兴起了以指纹图谱为主要手段的分析技术,但这些分析方法均受到"需先分离才能分析"、"缺乏通用的检测器"的限制,难以实现中药及复方全成分的测定。自然界的生物对"异、己"成分是通过"抗原与抗体"决定簇的特异与非特异性进行识别,如将中药成分直接或化学合成抗原,注入到动物体内,产生特异性抗体,先获取诸成分对特异抗体的交叉反应信息,对于没有交叉反应者,依标记抗体抗原特异性竞争反应抑制率曲线直接读出该成分的含量;对于有交叉反应者需建立交叉抑制率矩阵,再进行抗体与中药及复方成分半抗原标记免疫竞争反应,建立成交叉成分浓度或浓度对数与抑制率的多元线性方程,求解获得各成分的浓度,两者结合就能建立起中药及复方成分群免疫芯片综合法。

中文关键词：中药 复方 全成分群 高通量 定性定量分析 标记免疫法 中药化学 芯片

## Current development of rapid high-throughout determination technology for total components of traditional Chinese medicines and formula and synthetic immunity chip method

**Abstract:** The qualitative and quantitative analysis on traditional Chinese medicine and formula components can be made by chemical and instrumental analysis methods. Of both,the instrumental analysis methods play a dominant role, including HPLC, HPLC-MS, HPLC-NMR, GC, GC-MS, biochemical and biological effect. But because traditional Chinese medicines and formula have complicated components, chemical methods are so unspecific that they shall be used less or with caution. While instrumental analysis methods are so specific that they are appropriate for analyzing complicated single component. The analysis techniques for multiple components of traditional Chinese medicines and formula focus on fingerprints, but all of these analysis techniques are limited by the prerequisite of separation and the lack of general-purpose detectors and therefore being hard to realize the determination of all components of traditional Chinese medicines and formula. In the natural world, however, organisms identify native and alien components through specificity and non-specificity of clusters decided by antigens and antibodies. For example, components of traditional Chinese medicines are directly or indirectly synthesized into antigens and injected into animals, in order to generate specific antibodies and then collect cross reaction information of these components to specific antibodies. As for components without cross reaction, their contents shall be directly read out on the basis of the inhibition rate curve of competitive reaction for specificity of antigens and antibodies. Besides, a cross inhibition rate matrix shall be established first, and them a multiple regression linear equation between cross component concentration or concentration logarithm and inhibition rate by labeling the immunity competitive reaction between antibodies and haptens of traditional Chinese medicine and compound components, and then solved to obtain concentration of each component. The two results are combined to establish the synthetic immunity chip method for traditional Chinese medicine and formula components.

**keywords:** traditional Chinese medicine formula all components high throughout qualitative and quantitative analysis labeled immunity method chemistry of traditional Chinese medicine

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