"Phytochemistry and pharmacogenomics of natural products derived from traditional chinese medicine and chinese materia medica with activity against tumor cells"

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Abstract
The cure from cancer is still not a reality for all patients, which is mainly due to the limitations of chemotherapy (e.g., drug resistance and toxicity). Apart from the highthroughput screening of synthetic chemical libraries, natural products represent attractive alternatives for drug development. We have done a systematic bioactivitybased screening of natural products derived from medicinal plants used in traditional Chinese medicine. Plant extracts with growth-inhibitory activity against tumor cells have been fractionated by chromatographic techniques. We have isolated the bioactive compounds and elucidated the chemical structures by nuclear magnetic resonance and mass spectrometry. By this strategy, we identified 25-O-acetyl-23,24-dihydro-cucurbitacin F as a cytotoxic constituent of Quisqualis indica. Another promising compound identified by this approach was miltirone from Salvia miltiorrhiza. The IC50 values for miltirone of 60 National Cancer Institute cell lines were associated with the microarray-based expression of 9,706 genes. By COMPARE and hierarchical cluster analyses, candidate genes were identified, which significantly predicted sensitivity or resistance of cell lines to miltirone. [Mol Cancer Ther 2008; 7(1):152–61]