عنوان مقاله:

Classic Herb Pair Sculellaria Barbata and Hedyotis Diffusa for Breast Cancer: Potential Mechanism with Method of Network Pharmacology

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خلاصه مقاله:

Background: Although with diverse treatments and relative long survival times, the recurrences and metastasis are still prevalence after regular therapies, making breast cancer the most serious threatening disease for women all over the world. As empirical medicine, TCM are frequently and widely used for efficacy enhancing and toxicity reducing in the treatment of cancer. The combination using of scutellaria barbata and hedyotis diffusa is a classic herb pair SH prescribed by many famous Chinese oncologists. With the help of SH after western medicine therapeutics, recurrence reduction, metastasis reduction and even the decline of tumour markers can be observed in clinical cases. However, the underlying mechanism of SH for breast cancer is unclear. TCM network pharmacology approach provides a new research paradigm for translating TCM from an experience-based medicine to an evidence-based medicine system, potential mechanisms of TCM may be revealed with network pharmacology method. Based on clinical effectiveness observations, we did in vitro experiments and mined the network pharmacology of SH to analyse the role of SH and its potential mechanisms. Methods: On the basis of TCM decoction process, lyophilized powder of SH is prepared. Both human-derived and mouse-derived breast cancer cells were used to evaluate the efficacy of SH. The active ingredients in SH lyophilized powder were identified by high performance liquid chromatography (HPLC). Cell proliferation test and cell scratch test were used to assess the effect of SH on breast cancer cells proliferation and migration. Then corresponding potential target genes were extracted from Swiss Target Prediction and SEA databases. For breast cancer, disease target genes were searched with breast cancer as keywords from databases

Therapeutic Target Disease, Drug bank, Disease Gene NET and Genetic Association Database. In addition, with intersection genes of SH and breast cancer were mapped, the Protein-Protein Internetwork (PPI) network of shared genes was constructed with String Database. In the last, Gene Oncology (GO) and Kyoto Encyclopaedia of Genes and Genomes (KEGG) functional annotation clusters were acquired from String database and presented as top 30 pathways. Results: SH lyophilized powder inhibited the proliferation and migration of both human-derived and mouse-derived breast cancer cells. Further, 75 active ingredients and 180 target genes were extracted for SH, simultaneously, 1305 related genes were extracted for breast cancer. Then 86 intersection genes of SH and breast cancer were mapped. With ...

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