

The panaxadiol saponin components promoting proliferation, inducing differentiation and corresponding gene expression profile in megakaryocytes

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We have identified the biological active components, panaxadiol saponins components (PDS-C) isolated from Chinese ginseng extract with 92.44% in purity. PDS-C promotes proliferation of megakaryocytic progenitor cells (CFU-MK) and increases colony formation of CFU-MK by $28.9\pm 2.7\%$, $41.0\pm 3.2\%$ and $40.5\pm 2.6\%$ at concentration of 10, 20 and 50 mg/L compared with no PDS-C controls in human bone marrow culture. In addition, PDS-C was effective to induce differentiation of megakaryocytic CHRF-288 and Meg-01 cell lines, after being treated by PDS-C for 2 weeks. The flow cytometry analysis showed both CHRF-288 cells and Meg-01 cells treated by PDS-C significantly increased CD42b, CD41, TSP and CD36 positive ratio respectively. PDS-C induced 29 genes up regulated more than two fold commonly in both cells which were detected by human gene expression microarray representing 4000 known genes which were mainly involved in transcription regulation such as: cell cycle, apoptosis, receptors, and intracellular signaling protein etc. The western blot results show that the protein expression levels of ZNF91, c-Fos, BTF3a, GATA-1, RGS2 were increased in correspond to microarray results. Meanwhile, differentiation-related NDRG2 and RUNX1 transcription factors were enhanced by PDS-C treatment as well. Therefore, our *in vitro* results provide evidence for PDS-C as the effective components, playing the role to enhance proliferation and differentiation of megakaryocytes, and up-regulating expression of proliferation and differentiation related genes and proteins.

Biography

Xin Sun has completed her master degree at the age of 25 years from School of Medicine, Zhejiang University. She is a resident doctor, works in Zhejiang Provincial People's Hospital.

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