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Effect of APS on Recoverable Ability from Cryopreservation Damage of UCB Hematopoietic Cells

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Hematopoietic stem cell transplantation (HSCT) is an effective method to treat malignant blood diseases. The advantage of umbilical cord blood (UCB) as a source of hematopoietic stem cells for transplantation have become clear. To widely carry out HSCT and establish UCB banks, we must long-term cryopreservate hematopoietic cells. Angelica is an important Chinese traditional medicine to nourish the blood and promote blood flow. Angelica polysaccharides (APS) is one of the main chemical composition in it. The past researches discovered that APS with hemopoietic growth factors (HGFs) could promote expansion of mononuclear cells (MNC), CFU-GM, CFU-E of UCB in vitro. The present study was designed to investigate the effect of APS on recoverable ability from cryopreservation damage of UCB hematopoietic cells and APS with HGFs on expansion of UCB hematopoietic cells after thawed. Methods involve cell counting assay, typan blue exclusion assay, colorimetric MTT assay for cell proliferation, colong-forming assay and flow cytometry. The number of MNC, the rate of trypan blue exclusion, the proliferation of MNC and the colony production of CFU-Mix of APS groups (100 μg/ml and 200 μg/ml) were significantly enhanced. The percentage of $CD34^+$ cells of APS 100 μg/ml group was markedly higher than that of control group. APS groups (100 μg/ml and 200 μg/ml) combined with HGFs could promote significantly the expansion and the colony production of CFU-Mix of thawed UCB hematopoietic cells. So APS could raise the post-freezing recoverable ability of hematopoietic cells. And APS combined with HGFs could promote expansion of hematopoietic cells after thawed.

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Relationship between Expression of Senescence Marker Protein 30 and Liver Diseases

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With SEREX (serological identification of antigens by recombinant expression cloning) Marker Protein 30 (SMP-30) was identified as a antigen related to the hepatocellular carcinoma (HCC) in our previous study. For further study we recombinated the C-end of SMP-30 The fusion protein of SMP-30 was expressed in *Ecoli* and used to immune rabbit for preparation of anti-SMP-30 polyclonal antibody. With this antibody the expression of SMP-30 was detect in a panel of liver tissues, including 30 cases of normal liver, 10 cases of virus hepatitis liver tissue, 49 cases of hepatic cirrhosis, 48 cases of HCC with corresponding paracancerous tissues. Results showed that SMP-30 was found in the cytoplasm and nucleus of all hepatocytes. The level of the protein expression in HCC paracancerous tissues was higher than that in other tissues tested, which showed the great difference ($P<0.05$). Although the expression of SMP-30 in HCC had no correlation with tumor size and pathological grade, it was correlative to the progression of other liver diseases. From this study we suggested that higher expression of SMP-30 protein may be an early protective event in HCC.