投稿學會：中華民國細胞及分子生物學學會	收件編號：	分類編號：

第二十八屆生物醫學聯合學術年會 **ABSTRACT FORM** （正本）

探討活血化瘀藥物對間質幹細胞存活，更新，多能分化性之影響

Effects of Promoting Blood Circulation compounds on survival self renewal and multilineage differentiation of mesenchymal stem cells

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Backgrounds:

Human mesenchymal stem cells (hMSC) are self-renewing precursor cells that can be expanded in vitro and differentiated towards osteogenic, chondrogenic or adipogenic lineages. However, the limit number and inefficient hMSCs differentiation are the major barriers in hMSC-based therapy. It would be extremely beneficial if a naturally occurring agent could be identified that could induce hMSCs to undergo specific lineage differentiation. In the present study, we investigated the role of promoting blood circulation compounds on hMSC proliferation and differentiation.

Materials and Methods:

Markers of hMSCs were measured using flow cytometry. hMSCs differentiated into adipocytes were analyzed by r Oil-Red O staining. Osteogenic differentiation was identified by the mineralization of calcium deposits using von Kossa staining. hMSCs induced into endothelial cells were analyzed by tube-formation assay. The proliferations of hMSCs were analyzed based on cell counting.

Results:

hMSCs used in these experiments expressed high levels of CD90, HCAM, MCAM and STRO-1 surface markers when analyzed by flow cytometry, thereby confirming their MSC phenotype. hMSCs undergo osteogenic differentiation displayed calcium deposition was indicated by von Kossa staining. Adipogenic differentiations of hMSCs were positive for Oil Red O staining. Matrigel angiogenesis assay displayed that endothelial differentiated hMSCs were able to form the capillary network. Additionally, the proliferation ability of hMSCs was inhibited by salvianolic acid B.

Conclusion:

The results demonstrate hMSCs has multilineage differentiation potential. The proliferations of hMSCs were inhibited after salvianolic acid B treatment. Future mechanistic studies will demonstrate the effect of compounds on multipotential differentiation of hMSCs.

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