displayed increasing proliferative potential but no considerable change in the expression of CD29, CD34, CD45, CD105, CD117, CD166 and SSEA-4. Furthermore, in vitro migration assay using Transwell filters demonstrated that hMBSCs showed increasing migration potential after pre-cultured in N2B27 medium plus IGF and bFGF. When transplanted into animal models with myocardial infarction, hMBSCs pretreated in CDM showed great migration potential into various tissues including spleen, lung and heart of peri-infarcted zones. The increase of migration potential in hMBSCs may be due to the up-regulation of MMP-2, MMP-9, MMP-14 and SDF-1 α-CXCR7 axis.

Conclusions Our findings suggest that N2B27 medium plus IGF and bFGF could be used for in vitro expansion of hMBSCs prior to in vivo transplantation.

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A NOVEL CHEMICALLY DEFINED CONDITION FOR HUMAN MENSTRUAL BLOOD-DERIVED STEM CELLS

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Objectives The successful establishment of stem cell-based therapies for the repair of damaged myocardium after myocardial infarction (MI) requires an optimal stem cell resource that will offer benefits to a large number of patients with minimal complications. Recently, human menstrual blood-derived stem cells (hMBSCs) attract great attention for such therapies because of their vast source and multipotency to differentiate toward various cell lineages. To greatly facilitate the application of hMBSCs in cellular therapy, an improvement of their proliferation, survival and directed migration potential is required prior to in vivo transplantation.

Methods We developed a chemically defined N2B27 medium combined with different groups of growth factors (IGF and PDGF/bFGF) for short-term cultivation of hMBSCs.

Results After cultivated for 4 to 5 days, hMBSCs showed higher cell viability, maintained their original fibroblastic morphology and