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**BASIC FIBROBLAST GROWTH FACTOR EFFECTS ON MESENCHYMAL
STEM/STROMAL CELL PHENOTYPE AND SHEET FABRICATION**

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Mesenchymal stem/stromal cells (MSC) are well-recognized for their ability to promote tissue regeneration via immune system modulation and multipotent differentiation. Despite these promising therapeutic properties, decades of clinical trials for MSC therapies have yielded marginal benefits and often highly variable results. These challenges can be attributed to a number of factors including MSC population heterogeneity and inefficient MSC delivery, necessitating new approaches to produce and deliver MSCs for therapeutic applications. Cell sheet technology has been proposed as a novel delivery method for MSC therapies, involving the implantation of a 3-dimensional tissue-like patch of MSCs onto target tissues. Regardless of the delivery method, MSC therapies require large-scale MSC production using *in vitro* culture systems. Basic fibroblast growth factor (bFGF) is the most common growth stimulant added to MSC culture media, yet its effects on MSCs remain under characterized. Thus, we characterized the effects of bFGF on (1) intrinsic MSC phenotype and (2) MSC sheet fabrication. Human bone marrow-derived MSCs (hBMSCs) were cultured with or without bFGF supplementation and analyzed via flow cytometry, differentiation assays, and sheet fabrication. We found that bFGF has a noticeable impact on MSC proliferation, tri-lineage differentiation potential, and cell surface marker expression. Despite the advantages of using bFGF to enhance *in vitro* hBMSC proliferation for cell manufacturing, our results suggest that bFGF may adversely affect hBMSC therapeutic potential by upregulating human leukocyte antigen DR (HLA-DR) surface expression. These findings may have practical implications for the development of future MSC therapeutics.