

25c Baculovirus Transduction of Human Mesenchymal Progenitor Cells Is Dependent on Differentiation Lineages

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Mesenchymal stem cells (MSCs) have drawn considerable attention as vehicles for cell- or gene-based therapies, yet various problems still exist for current gene delivery vectors. In this study, we demonstrated for the first time that human MSCs derived from umbilical cord blood (uMSC) or bone marrow (bMSC) could be transduced by baculovirus with high efficiencies (up to 72.8 % and 41.1 %, respectively) and significantly elevated transgene expression. These baculovirus-transduced MSCs were able to differentiate into adipogenic, chondrogenic and osteogenic lineages while maintained transgene expression after differentiation. Moreover, the progenitor cells differentiated into these 3 lineages exhibited varying susceptibilities to baculovirus transduction and varying durations of transgene expression. Taken together, baculovirus may be a useful vector for MSCs of clinical or therapeutic applications.