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(54) **Title:** A METHOD FOR OSTEOGENIC DIFFERENTIATION OF BONE MARROW STEM CELLS (BMSC) AND USES THEREOF

(57) **Abstract:** The invention provides a method for obtaining osteoprogenitors, osteoblasts or osteoblast phenotype cells, as well as cell populations comprising such, from human bone marrow stem cells in vitro or ex vivo, comprising contacting the bone marrow stem cells with human serum or plasma and a growth factor or a biologically active variant or derivative thereof. In addition, the invention provides novel osteoprogenitor or osteoblast phenotype cell types and cell populations comprising such, wherein such cell populations may comprise further cell types, such as preferably endothelial cells or progenitors. In related aspects, the invention provides uses, in particular in the field of therapy, preferably bone therapy, of the above methods, cells and cell populations obtainable using the methods, and of the cell types and cell populations specifically described herein.

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