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(54) **Title:** MESENCHYMAL CELLS AND OSTEOBLASTS FROM HUMAN EMBRYONIC STEM CELL

(57) **Abstract:** This invention provides populations of mesenchymal cells obtained from pluripotent stem cells by differentiating them ex vivo. Multipotent mesenchymal cells can in turn be differentiated into more specialized cell types such as osteoblasts, with properties that make them suitable for reconstituting musculoskeletal cell function in an individual. The compositions, methods, and techniques described in this disclosure can be used for a variety of commercially important diagnostic, drug screening, and therapeutic applications.