# Isolation of osteoprogenitors from murine bone marrow by selection of CD11b negative cells



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| Résumé en anglais | Selection of cells having the most osteogenic potential is a strategy used in bone tissue engineering. Preclinical studies using murine bone marrow cells must consider the large amount of hematopoietic cells in the adherent fraction. The aim of this study was to enrich a murine bone marrow cell population with osteoprogenitors by using a simple and reliable method. Bone marrow from C57Bl/6 mice was extracted and cells which adhered onto plastic were expanded in primary culture for 14 days. Immunolabeling of the CD11b surface antigen was performed and the CD11b− cell fraction was isolated by FACS. Sorted and unsorted populations were analyzed for gene expression of osteoblast differentiation, alkaline phosphatase (AlkP) activity and matrix mineralization capacities. Selection of CD11b− cells increased the number of AlkP+ cells from the plastic adherent fraction from 6.3% ± 0.8 to 56% ± 3.3 with a sevenfold increase in AlkP activity. mRNA analysis revealed a significant increase in the CD11b− fraction for Osterix (41-fold), RANKL (17-fold), M-CSF (8-fold) and Runx-2 (8-fold). An osteogenic population was obtained with improved capacities to produce a mineralized extracellular matrix in vitro, independently of the presence of glucocorticoids in the culture medium. |
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