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CHARACTERISTICS OF BONE MARROW PROGENITOR CELLS OF C57BL/6N MICE AFTER 30-DAY HINDLIMB SUSPENSION AND 12-HOUR READAPTATION TO THE LOADING

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Bone marrow (BM) progenitor cells provide hematopoiesis and homeostasis of bone tissue. Their functional state determines many processes during space flight (SF) and the subsequent readaptation to the gravity. It is known, that the SF factors and simulation of their effects do not cause irreversible damage of hematopoietic and stromal progenitor cells. Meanwhile, the alteration of BM progenitor cells functionality after simulating of SF effects was more pronounced, compared to the real flight. The aim of this study was to examine the recovery of functional activity of murine BM progenitor cells during readaptation to the loading after 30-day hindlimb suspension. The experiments were conducted using male mice of 3 groups: vivarium control, suspension, readaptation. Cellularity of BM, immunophenotype, proliferative activity of BM progenitors, number of hematopoietic colony-forming units (CFUs) and fi-

broblast CFUs, differentiation ability of hematopoietic and stromal precursors of BM were determined. Hindlimb suspension led to a decrease in the cellularity of BM, a decrease in the number of fibroblast CFUs and hematopoietic CFUs, alteration of spontaneous osteodifferentiation of stromal progenitors and a decrease in the expression of stromal markers. During readaptation, the functional activity of stromal precursors was restored, while the complete recovery of hematopoiesis was not observed.

Keywords: bone marrow stromal progenitors, hindlimb suspension, bone marrow hematopoietic progenitors, C57Bl/6N mice