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Hematopoietic Cells of Rat Bone Marrow after Intravenous Application of Chitosan Modified Nanomagnetite

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Chitosan modified nanomagnetite are basis for the development of new diagnostic and therapeutic drugs. We studied cells of erythroid, granulocytic, monocytic, lymphocytic and platelet differentiation lines of bone marrow of mature rats for 120 days after single intravenous injection of suspension chitosan modified nanomagnetite (Fe₃O₄) (dose of 0.14 g/kg of body weight). Structure of hematopoietic cells is described and morphometric study of smears of bone marrow stained by the Romanovsky-Giemsa method is performed: the cell size (μ m) and their relative number (%) are determined. The biological effects of unmodified and chitosan modified nanomagnetite on bone marrow hematopoietic cells are compared. Chitosan modified nanomagnetite does not affect on structure of rat bone marrow hematopoietic cells. The injection of chitosan modified nanomagnetite induces temporary increase of relative number of monocytes, nonsegmented and segmented neutrophils, polychromatophilic and oxyphilic normoblasts.

Keywords: modified chitosan of nanomagnetite, hematopoietic cells, bone marrow of rats