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REGENERATIVE POTENTIAL OF CD45 NEGATIVE MARROW CELLS RELIES ON TWO SEPARATE SUBPOPULATIONS BEING EITHER ANTI-INFLAMMATORY OR PRO-ANGIOGENIC

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In solid organs, there are the cells with regenerative potential. They can start regeneration of the damaged tissue with a support coming from the bone marrow. In the early 2000s, we started a project in which the mononuclear cells of bone marrow (BMMC) were used to save the legs of patients with critical limb ischemia (CLI). Injection of the cells into the affected limb resulted in several following events which started with a pain release than healing of ulcerations and finally the shortening of a distance of claudication. 40% of 23 patients with CLI receiving BMMC enjoyed remission lasted up to 10 years or more. We learned that several subsets of BMMC may act in concert supporting each other in achieving the goal revascularization of the limb. Revascularization of the infarcted femur was achieved by implantation BMMC via the holes drilled in the head of the femur. It appeared that the cells

with the MSC markers played rather a moderate role in preventing the leg amputation as the main actors are endothelial progenitor cells (EPC, CD391+) which are present in the implant. Similarly to leukophoretic product BMMC also the marrow cells centrifuged in own plasma gradient (commercially available kit) is enriched in the cells having MSC and EPC markers. The cells of the latter composition injected intra-articularly into the hip or knee brought a relief in patients with osteoarthritis. We believe that the positive effect of this cellular therapy is due to the presence in a fresh fraction of BMMC a variety of progenitors including MSC and EPC which acting in concert exert the anti-inflammatory, tissue regenerative and angiopoietin effect.

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