Tissue Repair Cells: Autologous Stem Cell Therapy for Bone and Tissue Regeneration

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Tissue Repair Cells (TRC) are an autologous bone marrow-derived product generated through a proprietary single-pass perfusion culture process in 12 days. The final product is characterized by increased numbers of stem and progenitor cells representing several lineages including mesenchymal, hematopoietic, and endothelial. *In vitro* data show a high degree of genomic stability and cell cycle regulation. TRC can differentiate *in vitro* into cells of blood, bone, cartilage, adipose, and vascular tissues. In separate animal models, TRC form ectopic bone and can improve blood flow in ischemic limbs.

TRC have been administered to 167 patients by systemic infusion and to over 60 patients by local delivery. No serious TRC-related adverse events have been reported to date. Clinical data for long bone fracture indicate that TRC participate in bone remodeling and callus formation. Bone matrix material is rapidly absorbed and replaced by functional bone tissue, facilitating bone healing. TRC can also be used at high concentrations in small volumes for local delivery into delicate target areas, e.g. for intramyocardial or intraspinal applications. Clinical trials have been initiated in patients with critical limb ischemia, and clinical trial protocols are in development for chronic cardiac disease.