

UPDATE ON PHASE I CLINICAL TRIALS UTILIZING PLACENTA DERIVED MESENCHYMAL-LIKE STROMAL CELLS (PLX-PAD) FOR THE TREATMENT OF CRITICAL LIMB ISCHEMIA

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Introduction Pluristem Therapeutics, Inc. is extracting mesenchymal-like stromal cells from the parenchyma of the placenta and expanding them via a three dimensional manufacturing technology in bioreactors. The resultant cells are termed PLacental eXpanded (PLX) cells. Results of in vivo and in vitro animal studies have demonstrated that PLX cells exhibit low immunogenicity suggesting that these cells can be used off-the-shelf with histocompatibility matching not necessary prior to administration. An emerging body of data suggests that paracrine and immunomodulatory activities play an important role in their therapeutic properties. Critical limb ischemia is the first therapeutic indication pursued by Pluristem using these cells (PLX-PAD). In the hind-limb ischemia animal model, the administration of PLX-PAD has significantly improved blood flow via angiogenesis and reduced endothelial inflammation and oxidative stress.

Methods, Two phase I studies are being performed in parallel in the EU and USA. These phase I, open-label, dose-escalation studies enroll Rutherford Category 4-5 critical limb ischemia patients. PLX-PAD is administered intramuscularly to multiple sites above and below the knee of the affected leg. In the USA trial, the intramuscular administration of the lower dose is injected during one session, whereas the higher dose will be administered during two sessions (two recurrent administrations, two weeks apart). In the EU trial, the doses are administered in a single session using a higher volume per injection of PLX-PAD. The safety endpoints will include the incidences of amputation, death and rehospitalization at three months post treatment as well as immunological reactions and adverse events. Data and Safety Monitoring Committees (DSMB) will be responsible for safeguarding subjects' safety and monitoring the benefit of these cells. All patients will be followed for the occurrence of tumorigenicity for 24 months in the EU and 12 months in the USA. Hemodynamic measurements will be accessed periodically via the ankle-brachial pressure index (ABI), toe brachial index (TBI) and transcutaneous oxygen pressure (TcO₂). Wound assessment will be performed utilizing the Wagner Scale, pain assessment will be performed utilizing the Visual Analog Scale (VAS) and the King's College VascuQoL Questionnaire will be administered. Descriptive statistics, dose-response modeling, and endpoints analysis will be conducted at the conclusion of the study.

Results Additional information and an update on the ongoing studies will be presented during MSC2009 Cleveland August 17-19, 2009