Conclusions: Ferex can be used as an in-vivo tracking agent of MSCs in PAAA models.

Author Disclosures: K. Briley-Saebo: Nothing to disclose; P. Faries: Nothing to disclose; Z. Fayad: Nothing to disclose; R. Hajjar: Nothing to disclose; M. Marin: Nothing to disclose; D. O'Connor: Nothing to disclose; B. Rawal: Nothing to disclose; R. Tadros: Nothing to disclose.

PS198.

Vascular Endothelial Growth Factor-C Derived from CD11b Positive Macrophages Induces Therapeutic Improvements in a Murine Model of Hind Limb Ischemia

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Objectives: Bone marrow cells (BMCs) that include stem and progenitor cells are widely accepted to apply to patients suffering with peripheral arterial disease (PAD) as a therapeutic approach to induce neo-vascularization. However, the critical paracrine effects are still unclear to administrate BMCs. We focused macrophages that regulate VEGF, especially in VEGF-C.

Methods: Male C57BL/6 mice were administered intramuscular injections of PBS control, unselected BMCs, CD11b+, CD11b- cells from BMCs, and recombinant VEGF-C to ischemic model of hind limb. As the evaluations, perfusion was measured with a laser Doppler scanning that were collected on days 0, 1, 3, 7, 14, 21, and 28 including a functional assay such as catwalk in parallel. Capillary density was determined by direct counting vessels positive with Von Willebrand factor at individual time points. Moreover, lymphangiogenesis was assessed as LYVE-1 positive cells.

Results: Post-ischemic recovery of hind limb perfusion was significantly improved in BMCs, CD11b+ and VEGF-C group to compare with control group as the result of laser Doppler scanning. In the functional assay, VEGF-C group dramatically recovered compared to control group. The capillary/myofiber ratio in the thigh muscle was higher in BMCs and VEGF-C group than in control group same as LYVE-1 positive cells. Furthermore, the expression of VEGF, VEGF-C, their receptors of mRNA and Protein were involved predominantly in CD11b+ cells.

Conclusions: CD11b+ macrophages play the critical role for angiogenesis and lymphangiogenesis in the murine model of hind limb ischemia. Consequently, recombinant VEGF-C accelerates the recovery and may be a promising therapeutic strategy for PAD patients.

Author Disclosures: S. Kodama: Nothing to disclose; G. Kuwahara: Nothing to disclose; H. Nishinakamura: Nothing to disclose; T. Tashiro: Nothing to disclose.

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PS200.

Performance of a Nanocomposite Polymer Small Diameter Bypass Graft in a Long-term Sheep Model

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Objectives: To evaluate in vivo performance of small diameter grafts (5 mm) made from a compliant, thrombo-resistant, bio-durable POSS-PCU polymer in a challenging ovine model.

Methods: POSS-PCU grafts were implanted in 12 sheep as interposition grafts in left common carotid artery (LCA) (GLP Regulations; all had daily 75 mg aspirin). Duplex imaging was performed on days 1, 7, 14 and then monthly. Comparison was made with 5mm ePTFE grafts as control (n=6 sheep) and in all animals with the unoperated right common carotid artery (RCA). Flow rates and graft compliance were measured in all target vessels/grafts. Patent grafts were explanted after 9 months. Following explantation, all grafts were assessed independently by histological analysis.

Results: Animal 8 did not survive the anaesthetic and grafts 1 and 9 thrombosed immediately; these two carotids exhibited irreversible spasm during surgery. Animal 7 had tortuous LCA with gross diameter mismatch and thrombosed on day 14. Graft 4 blocked on day 15 and Graft 3 on day 59. Six grafts were patent for 9 months. Following explantation, all grafts were assessed independently by histological analysis.

Author Disclosures: S. Kodama: Nothing to disclose; G. Kuwahara: Nothing to disclose; H. Nishinakamura: Nothing to disclose; T. Tashiro: Nothing to disclose.