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Designer vascular graft takes hold  
[Diagnostic Imaging]

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Author: C.P. Kaiser

University of Pittsburgh researchers found preclinical success with an artificial blood vessel engineered from muscle-derived stem cells and a biodegradable polymer. Results could benefit the treatment of heart and kidney diseases, which need new sources of blood vessels for vascular grafts.

According to Alejandro Nieponice, Ph.D., and colleagues, saphenous vein coronary artery bypass grafts often fail, and arterial grafts, while less prone to become obstructed, are in limited supply as many patients require multiple grafts. Thus, a need exists for a small-caliber arterial substitute for revascularization procedures.

Results of the study, presented at the 2007 Tissue Engineering and Regenerative Medicine International Society meeting, showed that cell-seeded grafts in rats had significantly less blockage than controls and exhibited extensive remodeling consistent with a mature artery. Researchers said that grafts made from a patient's own stem cells could be ready almost immediately, which "suggests that we could make these available 'off-the-shelf,' an essential element for clinical translation."

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