



BIDMC 899: RNAi Therapeutic for Prevention of Vascular Graft Failure

> New use of MARCKS RNAi for inhibition of smooth muscle cell proliferation

While vein bypass grafting is an effective treatment for coronary and peripheral atherosclerosis, vein graft failure remains a common clinical occurrence where 20-30% of the grafts fail within 5 years of placement. Intimal hyperplasia is the most common cause of such delayed graft failure and is characterized by the migration of vascular smooth muscle cells (VSMC) from the media to the intima where they proliferate and produce excessive extracellular matrix.

The inventors demonstrate that the selective transfection of a human venous graft with silencing RNA (RNAi) targeting MARCKS mRNA blocks VSMC migration and proliferation with the potential to prevent vein graft failure.

Stage of Development:

Proof of concept demonstrated in human saphenous veins ex vivo and in cell culture. Animal studies are planned.

Inventors:

Thomas Monahan, Frank LoGerfo and Nick Andersen

Commercial Opportunity:

Potential use for all autogenous bypass operations including:

- Coronary artery bypass grafts
- Peripheral vascular bypass grafts
- Hemodialysis fistulae
- Organ transplants

Patent Status:

US application pending

Publications (available upon request):

FASEB J. 23 (2009): 557-564. J. Surgical Res. (2006) Abstract 425.

Competitive Advantage:

Transfection of autogenous vein grafts with MARCKS RNAi provides a safe, specific, localized therapy

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