

Reporting to all Minnesotans:

Cardiovascular diseases are both common and deadly. For example, peripheral artery disease affects more than 10M Americans resulting in more than 150,000 limb amputations each year in the U.S. In addition, more than 300,000 patients have coronary artery bypass grafting (surgical revascularization). These diseases collectively are amplified by the rising incidence of diabetes, obesity and cardiovascular disease. Importantly, these complications result in considerable morbidity and mortality. Current medical therapies for vascular disease include limb amputation, vascular bypass grafting (using the patient's diseased vasculature) or vascular grafts--all these therapeutic interventions have significant limitations. These diseases are chronic, debilitating, lethal and they warrant novel therapies. The results of our studies performed in the first year of funding allowed us to engineer a novel large animal model that will serve as an important platform to engineer blood vessels. Given the tremendous morbidity and mortality of cardiovascular diseases in our society, the potential impact of this research is tremendous.