

## **Investigation of inorganic-organic hybrid materials for tissue engineered vascular grafts**

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Blood vessel replacements are frequently necessary to treat a range of cardiovascular diseases. In the US alone, roughly 1.4 million patients undergo operations requiring arterial prostheses annually. Tissue engineering (TE) represents a potential means to construct functional small diameter vascular grafts in situations where autologous tissue is unavailable and conventional synthetic materials fail. While initial results with many of the TE vascular grafts (TEVGs) constructed to date are very encouraging, potential for clotting and mechanical failure have limited their success. We are seeking to characterize the effects of a series of novel inorganic-organic hybrid scaffolds on smooth muscle (SM) cell differentiation extracellular matrix (ECM) production. Associated REU students would engage in materials synthesis and characterization and tissue culture and learn a variety of biochemical and cytochemical assays critical to the field of tissue engineering.