

NANOFIBER SCAFFOLDS FOR DELIVERY OF HEPARIN BINDING GROWTH FACTORS.

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Background: Despite advanced surgical techniques and improved rehabilitation therapies, outcomes of tendon repairs are still highly variable. Current surgical interventions are perhaps unsuccessful due to the relatively few numbers of cells present at the repair site. An engineered delivery of stem cell and growth factors to the repair site may improve strength and stiffness of the tendon repair.

Technology Description: We have developed a nanofiber scaffold consisting of a combination of heparin-fibrin based growth factor delivery system (HBDS) and poly (lactici-co-glycolic acid) (PLGA) sheets for tendon repair and growth. In previously published research both components have been studied with mild success. HBDS has excellent growth factor delivery characteristics but poor handling characteristics. PLGA have excellent handling characteristics but an inability to deliver growth factors. It has been found that these two materials combination results in an optimal growth factor delivering scaffold. The number of layers can be modified for the size of the application and would be implanted in the wound site and stitched in place.