# Methods for making Artificial Ligaments and Tendons

Over 800,000 injuries related to ligaments, tendons and joint capsules are reported annually in the US. Healing of such injuries depends heavily on the patients' blood revascularization rates. In event of healing impediments, autograft and allograft are commonly performed surgical interventions to facilitate faster recoveries. However, both surgical procedures present a high level of uncertainty towards faster recovery. For example, autograft often imparts additional risks and complicacies into healing, and allograft availability is limited and possesses the risk of acquiring infections and adverse immunological reactions from the donor.

Yet another method of reconstructive surgery consists in using artificial ligaments and tendons to avoid such healing problems as mentioned above. However, there exists a lack of proven biocompatible materials with mechanical properties that will resemble the natural tissues, and will allow regeneration or replacement of ligaments and tendons.

This invention presents a method for the production of ligament- or tendon-mimicking (LTM) nanofibers that may be used as artificial (prosthetic) ligaments or tendons. Such LTM nanofibers may optionally comprise carbon nanoparticles, graphene, graphene oxide, and/or other graphene derivatives, and may be designed to exhibit secondary structural features for improved biocompatibility and mechanical characteristics over similar other nanofibers materials presently available in the market.
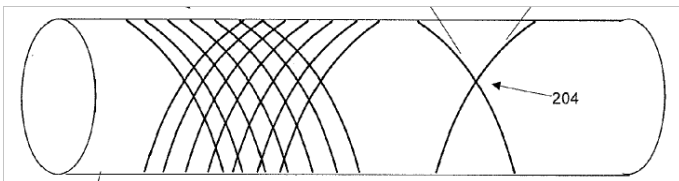
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For further information please contact:
Office of Research Translation
1201 W. University Drive
Edinburg, TX 78539
956-665-3032
ORT@utrgv.edu

Competitive Advantages
- Reduced risk of surgical failure
- Faster healing
- Scope to use variety of carbon nanoparticles
- Scope to design biocompatible "LTM nanofibers" materials with secondary structural and mechanical properties.

Commercial Applications
- Artificial ligaments- and tendons-mimicking materials
- Medical/Surgical re-associations

IP Status
- Patent available

Status of Development
- Seeking implementation and research advancement partners

Lead Inventor
Dr. Javier Macossay-Torres
Professor
Javier.Macossaytorres@utrgv.edu

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