Use of Neuropeptides for Ligament Healing

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a method of using neuropeptides to shorten the healing period and increase the strength of ligaments damaged by traumatic injury, disease or disuse.

OVERVIEW

Ligament healing is a complex problem that is influenced by inflammatory cell responses, extracellular matrix remodeling and chemical mediators. Healing potential varies widely among ligaments, with the anterior cruciate ligament (ACL) having very little healing potential. And even with ligaments that heal well, alterations in the ligament persist for years.

THE INVENTION

UW-Madison researchers have developed a method of using neuropeptides to shorten the healing period and increase the strength of ligaments damaged by traumatic injury, disease or disuse. The researchers demonstrated that several neuropeptides play a role in ligament healing. To treat ligament damage, one or more of these neuropeptides, which include calcitonin gene-related peptide (CGRP), cholecystokinin (CCK), dynorphin, enkephalin, galanin, neuropeptide Y (NPY), neurotensin, somatostatin, substance P (SP), thyrotropin-releasing hormone (TRH) and vasoactive intestinal peptide (VIP), are delivered directly to the damaged ligament. Experiments in rats showed that damaged medial cruciate ligaments (MCLs) treated with the neuropeptides were as strong as or stronger than uninjured MCLs.
APPLICATIONS

• Prevention and treatment of connective tissue disease, including both acute and chronic joint disease
• Treatment of typical peripheral neuropathies associated with diseases such as diabetes, including joint disease, poor tissue healing and compromised immune response

KEY BENEFITS

• Strengthens both damaged and intact ligaments
• Greatly shortens the healing period for damaged ligaments
• Promotes healing in damaged or grafted connective tissues
• Increases strength and integrity of connective tissues, even in the absence of neural regeneration or stimulation

ADDITIONAL INFORMATION

Publications

Tech Fields
Pharmaceuticals & Vitamin D - Skin & connective tissue
Pharmaceuticals & Vitamin D - Musculoskeletal

CONTACT INFORMATION

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