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.

WARF: A Leader in Technology Transfer Since 1925

Since its founding as a private, nonprofit affiliate of the University of Wisconsin–Madison, WARF has provided patent and licensing services to UW–Madison and worked with commercial partners to transform university research into products that benefit society. WARF intellectual property managers and licensing staff members are leaders in the field of university-based technology transfer. They are familiar with the intricacies of patenting, have worked with researchers in relevant disciplines, understand industries and markets, and have negotiated innovative licensing strategies to meet the individual needs of business clients.

The University of Wisconsin and WARF – A Single Location to Accelerate Translational Development of New Drugs

UW–Madison has the integrative capabilities to complete many key components of the drug development cycle, from discovery through clinical trials. As one of the top research universities in the world, and one of the two best-funded universities for research in the country, UW–Madison offers state-of-the-art facilities unmatched by most public universities.

These include the Small Molecule Screening Facility at the UW Comprehensive Cancer Center; the Zeeh Pharmaceutical Experiment Station, which provides consulting and laboratory services for developing formulations and studying solubility, stability and more; the Waisman Clinical Biomanufacturing Facility; the Wisconsin Institute for Medical Research, which provides UW–Madison with a complete translational research facility; and the innovative, interdisciplinary Wisconsin Institutes for Discovery, home to the private, nonprofit Morgridge Institute for Research and its public twin, WID, part of the university's graduate school. The highly qualified experts at these facilities are ready to work with you to create a library of candidates for drug development.
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

For current licensing status, please contact Emily Bauer at emily@warf.org or 608-960-9842.