



Growth Factor Regulation in Blood Products for Improved Wound Healing

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing hydrogel microspheres that selectively remove VEGF from blood products prior to clinical use.

Overview

Growth factor regulation is a key function of the extracellular matrix and critical for proper blood vessel growth and maturation during wound healing. In particular, blood vessel sprouting is essential for effective healing and dependent on the well-regulated activity of vascular endothelial growth factor (VEGF). Research has shown that blood vessel sprouting can only occur within a limited VEGF concentration range *in vivo*.

The need to maintain VEGF activity within a particular concentration range during angiogenesis has motivated the search for therapeutic interventions when natural regulation is dysfunctional, such as during diabetic wound healing and tumor growth. Unregulated VEGF activity can result in hemangioma formation and is linked to poor musculoskeletal wound healing, ocular disease and other health concerns.

The Invention

UW–Madison researchers have developed hydrogel microspheres for sequestering problematic growth factors, specifically VEGF, in patient-derived blood products. The degradable microspheres are functionalized with peptide ligands that selectively bind and remove unwanted VEGF from platelet rich plasma and other blood products before they are used in clinical procedures.

Applications

- Medical device for the purification of autologous blood products and/or clinical delivery of products that have been selectively altered
- Common uses of platelet-derived growth factors include wound healing and recovery from sports-related injuries.

Key Benefits

- Lower cost and more convenient than existing antibody-based approaches
- Enables intraoperative processing of blood products prior to clinical use

Stage of Development

The researchers have fabricated poly(ethylene glycol) microspheres with VEGF-binding peptide and demonstrated their efficacy in

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Additional Information

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For More Information About the Inventors

- [William Murphy](#)

Tech Fields

- [Medical Devices : Other medical devices](#)

For current licensing status, please contact Rafael Diaz at rdiaz@warf.org or 608-960-9847

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