



Bezwada Biomedical, LLC

We're excited to share that Bezwada Biomedical has been awarded a National Science Foundation (NSF) Phase II grant for the Development of a Bioabsorbable Tissue Adhesive!

We're so grateful for NSF's support to continue the development of our bioabsorbable polyurethane TissueBond™ surgical tissue adhesive and evaluate its safety and efficacy in vivo so that we can bring it to patients in need.

Abstract

The broader impact/commercial potential of this Small Business Innovation Research (SBIR) Phase II project is advancement in the development of an effective wound closure product for internal gastrointestinal (GI) surgical applications. Anastomotic leaks resulting from ineffective GI surgical wound closures are associated with significant healthcare and economic costs. Effective closure of wounds decreases the likelihood of complications that significantly impact patient outcomes and increases the cost of care. Development of an enhanced tissue adhesive to address the limitations of current products has the potential to offer a reliable wound closure product to support improved patient outcomes. Successful development and commercialization of the enhanced GI wound closure product will provide surgeons with an effective tissue adhesive that is easy to use and can be safe for the closure of internal GI wounds, thus ensuring safe and reliable closure, decreasing anastomotic leaks, and allowing for enhanced patient outcomes. Additionally, this project has the potential to support additional product development to generate improved tissue adhesives/sealants for a wide range of surgical applications that will have the potential to decrease surgical complications related to ineffective wound closure.

This Small Business Innovation Research (SBIR) Phase II project will advance the development of an enhanced tissue adhesive to improve surgical wound care specific to gastrointestinal (GI) tract surgeries. Gastrointestinal tract surgical wounds have a high rate of anastomotic leaks resulting from incomplete and sub-optimal surgical closures. These leaks put the patients at an increased risk of infection and creates an estimated \$28.6 million in hospitalization and readmission costs per 1000 patients. Current tissue adhesives for GI applications are biologically derived, which are amenable for internal use but pose a risk of infection. The technology being developed is a polyurethane-based adhesive that is biodegradable, easy to use, and biocompatible. The overall goal of this SBIR Phase II project is to demonstrate in vivo efficacy for the use of the surgical adhesive in GI surgical wound care. To meet this goal, the surgical adhesive formulation developed from Phase I will be refined to identify the ideal formulation for GI use and a lead formulation will be assessed for in vivo performance. The results from this project have the potential to identify a safe, easy-to-use, and effective lead tissue adhesive for implementation in GI surgical applications to prevent anastomotic leaks and improve GI surgical wound closures.