# Poly (ionic liquid) surgical and tissue adhesive

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## Technology description

Technology
Dr. Iman Noshadi in the Department of Chemical Engineering has developed a modified hydrogel to make antimicrobial, highly adhesive for surgical applications. This application details the engineering of a new class of electroconductive hydrogels (ECHs) through the functionalization of non-conductive polymers with a conductive choline-based bio-ionic liquid (Bio-IL). These conjugated hydrogels exhibited a wide range of adaptable physical properties, biocompatibility, and high electrical conductivity. These ECHs comprise a potential new class of biomaterials that combine electrical properties with biocompatible materials thus opening up the possibility of a new generation of smart materials for use in such things as medical devices. Previous work has shown this material could support the growth and function of cardiomyocytes, can be efficiently biodegraded, and possess low immunogenicity when implanted in rats.

## Application area

Hydrogels have a variety of used in the treatment of wounds and surgical sites. Hydrogels are inherently moist thus facilitating the healing process, can be packed into the wound spaces, and can be engineered to deliver antimicrobial molecules and other drugs.

## Advantages

This is a new method to improve the adhesion properties of any biomaterial. This method is very general and applicable with wide range of materials. This method is simple and easy to use.

## Institution

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