

Substrate-Independent Anticoagulant and Antibacterial Coatings

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Technology description

Short Description

Novel method for simple modification of various substrates to impart anticoagulant and antibacterial properties

Abstract

Northwestern scientists have developed a substrate-independent surface coating method that can enable production of anticoagulant and antibacterial coatings for medical device applications. This invention is a two-step dip-coating process that can be completed in less than one hour without using harsh chemicals or reaction conditions. This strategy depends on the chitosan primer layer, which is crosslinked by gallic acid. The resulting surface can be further modified to introduce other chemistries enhancing the range of uses for these types of coatings. In a laboratory setting this coating has been modified with heparin to produce an anticoagulant coating, as well as silver and quaternary chitosan to generate antibacterial coatings. This invention could have an impact the medical device industry by enabling coatings that are easy to deposit and customizable.

Application area

Antibacterial coatings

Anticoagulant coatings

Electroless metallization

Advantages

Simple and fast deposition process

Customizable

Surface-independent

Institution

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