

Antimicrobial Surface Coating

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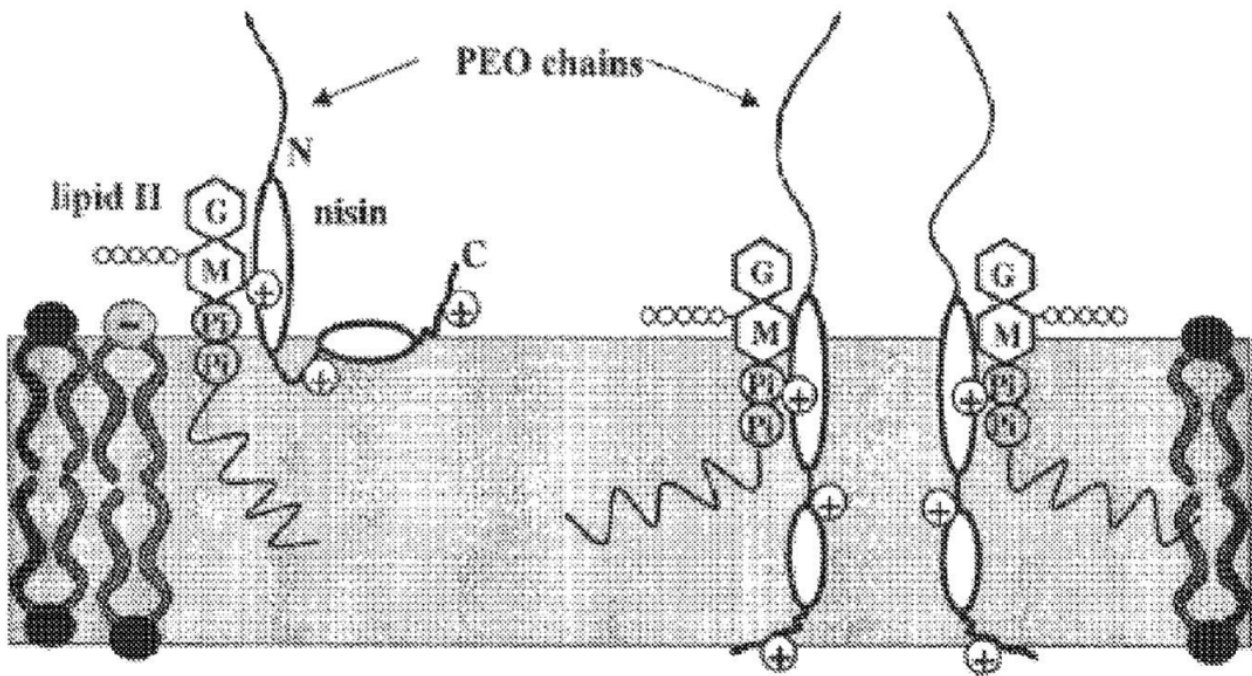
Technology description

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Some known antimicrobial compounds, such as nisin or other lantibiotics, which have highly surface active and bactericidal action, can be linked with a block polymer to form a long lasting antimicrobial surface coating. As for the block polymer, PLURONIC and end group activated polymers (EGAP) are used. Both of them can contact peptide and the substrate and form a strong hydrophobic bond with the material. They can form a flexible tether and entrap the antimicrobial compounds (peptide). The entrapped peptide provides longer lasting antimicrobial protection. This antimicrobial peptide containing block copolymers can also be used to prepare antimicrobial gels and foams.

Background of Invention

Advances in biomaterials engineering have led to numerous successful technologies in the medical field and have improved the quality of life for millions of people. However, there are still problems with blood coagulation, fibrosis, and infections associated with currently available materials. Most materials used in medical devices are susceptible to bacterial adhesion, which is very hard to remove once the bacteria forms a biofilm. Therefore, to reduce the chances of a medical device becoming infected, it is critical to prevent biofilm formation. In order to solve this issue, researchers at Oregon State University have developed an antimicrobial surface coating by linking a block polymer with a peptide. The resulting compound offers early antimicrobial action and long lasting antimicrobial protection.



Application area

Surface coating of medical devices/surgical equipment, such as Drug delivery pumps, Vascular access devices, and Feeding tubes

Attaching to food packaging materials or food products which will be ingested by the patient, such as Food additives and toothpaste/mouthwash

It can be placed in a cream, foam, powder or gel, which can then be applied to the skin or to a wound for antibacterial protection

Advantages

The antibacterial component is not likely to stimulate bacterial resistance

It combines surface properties that will help prevent fibrin formation and occlusion

It is biocompatible and can be interfaced directly with tissue

It can be applied to irregularly shaped objects

It is long lasting

It does not affect the potency of limited forms of antibiotics

Institution

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