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Glycosides as scaffoldings for antibacterial pharmaceuticals

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With the increasing development of resistance by bacterial species to the action of classical antibiotics, there has developed a necessity for new approaches toward the control of bacterial regulation and treatment. Efforts of our laboratories have resulted in the generation of a series of surface modifications that result in the destruction of bacterial species of both Gram positive and Gram negative types rapidly and without the development of resistance to the action. These modified surfaces involve the incorporation of cationic lipids either covalently bound to the surface or embedded within the surface such that the cationic lipid portion protrudes and is able to interact with the bacteria. Our current efforts have been directed toward the development of material that could be used as treatments for bacterial infection and not simply the prevention of transmission of such pathogens. Glycosides, in several forms, have been demonstrated to be of particular value in the construction of such antibacterial agents. We herein report on several of these glycoside scaffoldings and their ability to hold cationic lipids useful for the treatment of bacterial diseases.

Biography

Robert Engel is a Professor of Chemistry and Biochemistry at Queens College of the City University of New York, USA. He has earned his PhD in Chemistry in 1966 from The Pennsylvania State University in Chemistry. He has also served in several administrative roles at CUNY, in addition to his teaching and research. His current research efforts are particularly directed toward the regulation of pathogens without the use of antibiotics.

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