Synthesis of Capsular Polysaccharides

Tech ID: 32402 / UC Case 2019-554-0

ABSTRACT

Researchers at the University of California, Davis have developed a more cost effective and consistent method for producing capsular polysaccharides, a component of certain types of vaccines.

FULL DESCRIPTION

Current methods for obtaining capsular polysaccharides rely on purifying them from pathogens. Purification techniques are not exact, and often lead to impurities in the sample. Additionally, bacterial polysaccharides have an inherent heterogeneity that make them difficult to produce in a uniform manner. Some chemical synthesis methods exist that try to address these issues, but they require multiple steps and yields are not very high.

Researchers at the University of California, Davis have developed a more cost effective and consistent method for producing capsular polysaccharides. This enzymatic synthesis circumvents the need for purification techniques, since it inherently creates a nearly pure sample. Additionally, this is a one-pot technique, so it requires less steps than other synthesis processes and is simpler to implement. It also allows for production at a preparative scale. This method can be applied to create more consistent bacterial polysaccharide vaccines.

APPLICATIONS

- Synthesis of capsular polysaccharides

FEATURES/BENEFITS

- Creation of pure polysaccharide samples without the need for imprecise purification techniques
- Homogeneous, uniform population of polysaccharides
- One-pot technique requires less steps than other synthesis methods

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	20220145343	05/12/2022	2019-554

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Purification of Glycosphingosines and Glycosphingolipids
- A Photobacterium Sp. Alpha2-6-Sialytransferase 9Psp2.6St) A366g Mutant With Increased Expression Level And Improved Activity In Sialylating Tn Antigen

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OTHER INFORMATION

KEYWORDS

Bacterial polysaccharides, Synthetic capsular polysaccharide, Vaccines

CATEGORIZED AS

- **Materials & Chemicals**
  - Biological
  - Polymers
- **Medical**
  - Vaccines

RELATED CASES

2019-554-0

- Legionaminic Acid Glycosyltransferases for Chemoenzymatic Synthesis of Glycans and Glycoconjugates
- Using Escherichia coli to Produce Human Milk Oligosaccharide Lactodifucotetraose
- 4-N-Derivatized Sialic Acids and Related Sialosides
- Substrate And Process Engineering For Biocatalytic Synthesis And Facile Purification Of Human Milk Oligosaccharides (HMOs)
- O-Acetyl Glycosphingosines and Gangliosides, as well as Their N-Acetyl Analogs
- Stable N-acetylated analogs of Sialic Acids and Sialosides
- Alpha1–2-Fucosyltransferase for Enzymatic Synthesis of Alpha1–2-linked Fucosylated Glycans
- Engineering Pasteurella Multocida Heparosan Synthase 2 (Pmhs2) For Efficient Synthesis Of Heparosan Heparin And Heparan Sulfate Oligosaccharides
- One-Pot Multienzyme Synthesis of Sialidase Reagents, Probes and Inhibitors
- Novel Methods For Chemical Synthesis Of Lactosyl Sphingosines, Glucosylsphingosines, Galactosylsphingosines, And 3-O-Sulfogalactosylsphingosines

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