

Nanopore characterization of glycans

Invention

Current methods for characterizing complex carbohydrates like glycans, such as mass spectrometry and nuclear magnetic resonance, often struggle with larger or highly branched molecules. The invention provides a method and system using biological nanopores embedded in lipid membranes for characterizing glycans and lipopolysaccharides. It involves a fluidic chamber divided by a lipid membrane with embedded nanopores. Glycans or LPS are introduced into the chamber, and an electric voltage drives the molecules through the nanopores, allowing for real-time analysis. The method achieves real-time high-resolution analysis through the careful selection of electrolyte solutions and engineered nanopore proteins that enhance interaction with specific carbohydrate structures.

Features & Benefits

- **High Resolution:** Provides detailed structural information about complex glycans, distinguishing subtle differences that are critical to their biological function.
- **Real-time Analysis:** The nanopore system enables real-time monitoring and characterization, significantly reducing analysis time compared to traditional methods.
- **Enhanced Sensitivity:** The system's design improves sensitivity for detecting structural variations in glycans and LPS.
- **Versatile Applications:** Applicable to a wide range of glycans and bacterial LPS, aiding in diverse research fields from drug development to diagnostics.

Intellectual Property

Patent: Nanopore system and method for glycans and/or lipopolysaccharides characterization

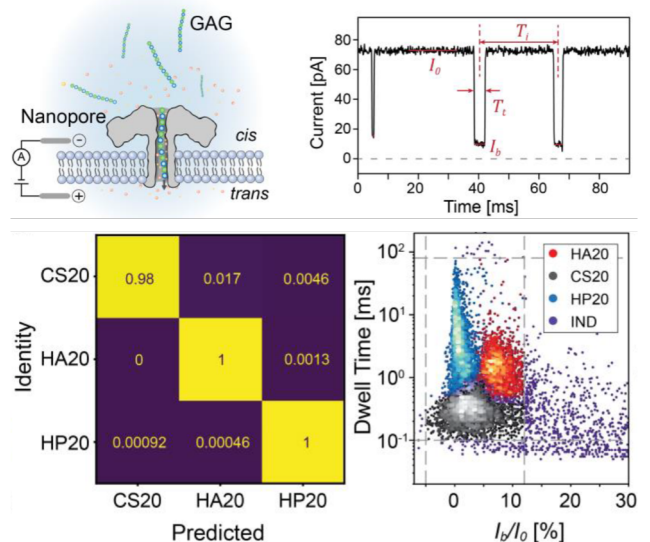
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Technology Readiness Level

Proven *in vitro* ability of the method to distinguish between complex carbohydrates. A wide variety of analytes have been successfully tested.

Key data



Applications

- **Pharmacological quality control:** Provides an alternative to the Limulus Amebocyte Lysate test for bacterial endotoxin detection. The method can also be used to determine the purity of heparin as well as a sensitive purity test for oversulfated chondroitin sulfate.
- **Diagnostics:** The method provides a method for disease screening of glycan metabolism alterations, such as Mucopolysaccharidosis type I.
- **Biomedical Research:** Enables precise study of glycan structures, important for understanding cellular communication and disease mechanisms.

Partnership sought

Exclusive licensing and optionally R&D collaboration.

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