

Harnessing Gut Microbes for Glycan Detection and Quantification

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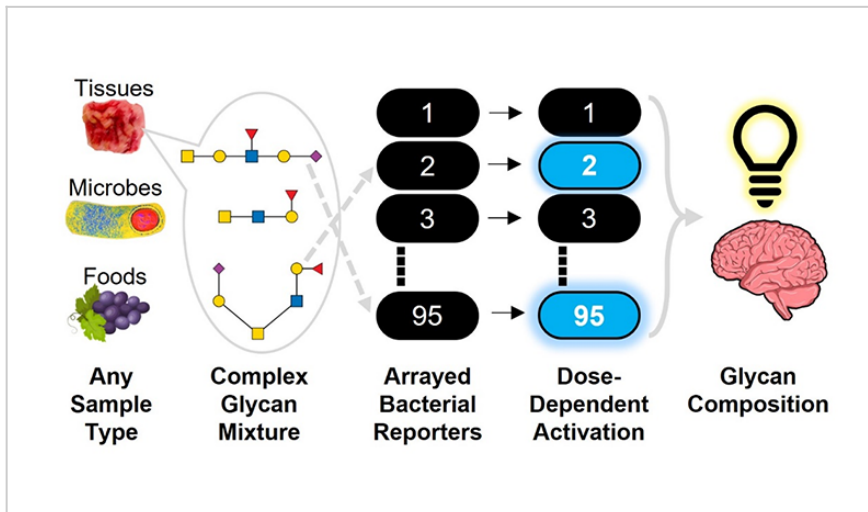


Figure 1. General illustration depicting glycan composition

Technology Summary

A plasmid was developed that specifically and sensitively indicates the presence of structurally distinct glycans when present within bacterial strains derived from the mammalian intestine. Cloning bacterial promoters into the plasmid enables specialized sensor proteins possessed by these bacteria to direct increased bioluminescence in response to specific glycan ligands. These bacterial responses can be genetically tuned to narrow target specificity or extend the linear range of detection and are dose-dependent, producing quantifiable results that can estimate target glycan concentrations.

Application & Market Utility

The proposed technology overcomes the past methods of characterizing glycans such as by using lectins, nuclear magnetic resonance, or liquid or gas chromatography followed by mass spectrometry. These previous methods are extremely expensive and require major investments unlike the proposed invention. For that reason, the invention has an opportunity to be effective in the current market for glycan analysis which is estimated to be worth approximately \$1.8 billion as of 2022. The market for glycan analysis is expected to reach \$3.7 billion by 2027.

Next Steps

Researchers are further optimizing and developing this technological innovation and are currently looking for licensing partners within the current working field of glycan characterization.

TECHNOLOGY READINESS LEVEL

4

Seeking

Investment | Licensing | Research

Keywords

- Cancer
- Therapy
- Dual Switch Selection

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