

SYSTEM TO ENGINEER VESICLE ENZYMATIC CARGO FROM GUT BACTERIA

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T-020642 System to Engineer Vesicle Enzymatic Cargo from Gut Bacteria

Technology Description

Researchers at Washington University in St. Louis have developed a novel bacterial delivery system that may be used to deliver enzymes to the gut via outer membrane vesicles (OMVs). This system identifies and characterizes a lipoprotein export signal (LES) that has been shown to target proteins to OMVs, which allows for the creation of higher concentrations of enzymes in the gut, depending on expression levels and OMV production.

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Stage of Research

Proof of Concept

Publications

Sartorio MG, Pardue EJ, Scott NE, Feldman MF. <u>Human gut bacteria tailor extracellular vesicle cargo for the breakdown of</u> <u>diet- and host-derived glycans</u>. Proc Natl Acad Sci U S A. 2023 Jul 4;120(27):e2306314120. doi: 10.1073/pnas.2306314120. Epub 2023 Jun 26. PMID: 37364113; PMCID: PMC10319031.

Applications

• Delivery of therapeutic proteins in the gut in engineered microbiota bacteria

Key Advantages

- OMVs are produced by bacteria in the gut
- Highly stable and biocompatible
- Targets beneficial payload to the gut

Patents

Patent application filed

Related Web Links - Mario Feldman Profile; Feldman Lab