GENETIC TOOLS FOR THE ENGINEERING OF BACTEROIDES

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The Invention

UW-Madison researchers have developed a CRISPR-based genome editing tool to study and modify PULs in B. uniformis. The B. uniformis PULs show distinct glycan-degrading functions and transcriptional coordination that enables the population to adapt upon loss of other PULs. The inventors utilize a B. uniformis mutant barcoding strategy to demonstrate in vitro fitness and B. uniformis colonization in the (murine) gut is affected (enhanced) by deletion of specific PULs and modulated by glycan availability. Essentially, the observed effect of PULs on mediating glycan-dependent interactions (particularly with butyrate producing strains) provides an opportunity to modulate/control community dynamics by providing a selective advantage or disadvantage depending on the available nutrients.

Additional Information

For More Information About the Inventors

- Ophelia Venturelli

Publications

- Feng J. et al. 2022. Polysaccharide utilization loci in Bacteroides determine population fitness and community-level interactions. Cell Host & Microbe 30 (2), 200-215.e12.

Tech Fields

- Research Tools : Microbial technologies

For current licensing status, please contact Jennifer Gottwald at jennifer@warf.org or 608-960-9854