WashU

Office of Technology Management

CANDIDATE PROBIOTIC STRAINS FOR IMPROVING INFANT HEALTH T-020134 & T-019665

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T-020134

Value Proposition: Human microbe strains with robust colonization efficacy and potent *in vivo* harvesting of beneficial metabolites involved in infant health.

Technology Description

Researchers from the laboratory of Dr. Jeffrey Gordon at Washington University in St. Louis have discovered strains of human derived *Bifidobacterium infantis & Prevotella copri* with probiotic applications that can be useful in the treatment and prevention of acute malnutrition in infants and young children.

Stage of Research

All strains were identified and cultured from a clinical trial of the Evivo infant probiotic *B. infantis* EVC001 targeting malnutrition in Bangladeshi infants. **While EVC001 supplementation is effective at improving severe acute malnutrition, overall levels of *B. infantis* is considerably lower than in healthy controls. Identifying strains with robust metabolic capabilities and improved colonization capability is therefore needed to enhance the beneficial effects of prospective probiotics and gut microbe-based nutraceuticals.**

B. infantis strain Bg2D9 & others (T-019665): **Bg2D9 can replicate positive effects on health outcomes such as weight gain in a germ-free mouse model designed to mimic infant acute malnutrition.**

*P. copri strains (*T-020134*)*: Colonization of *P. copri* significantly improves weight gain and enhances metabolism of dietary glycans, lipids, and other biomarkers associated with intestinal health.

Publications

Hibberd (2024). Bioactive glycans in a microbiome-directed food for children with malnutrition. Nature.

Chang (2024). *Prevotella copri*-related effects of a therapeutic food for malnutrition. Nature Microbiology.

Barratt(2022). *Bifidobacterium infantis* treatment promotes weight gain in Bangladeshi infants with severe acute malnutrition. Sci. Transl. Med.

Applications

- Treatment of acute malnutrition

Key Advantages

- **Bg2D9 has similar effects on body weight gain relative to EVC001 *in vivo*, but possess superior colonization efficiency, uptake, and utilization of plant and milk derived carbohydrates in a germ-free mouse model fed a diet representative of Bangladeshi infants.**
- **In combination, Bg2D9 improves the colonization capabilities of other strains such as *P. copri*, the effects of which on the host is diet dependent and strain specific. For instance, *P. copri*'s effects on weight gain was not observed *in vivo* on mice fed a "conventional" Bangledeshi diet and was only revealed on diets that included specific prebiotic material formulated from other WashU/ICDDRB IP.**

Patents

Applications pending.

Related Web Links – Gordon Lab **Website**