Bifidobacterial Probiotic Supplements for Infants

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ABSTRACT

Researchers at the University of California, Davis have isolated strains of Bifidobacterium that can metabolize oligosaccharides containing sialic acid to aid in probiotic supplements for infants.

FULL DESCRIPTION

Bifidobacterium bacteria found in infant's gut microbiome have the unique ability to metabolize human milk oligosaccharides (HMO), unlike the microbiome of Bifidobacterium found in adults. One of the most common types of Bifidobacterium is B. breve. Most B. breve strains cannot process the sialic acid found in sialyl-HMO, bovine milk oligosaccharides (BMO), and other sugars, creating difficulties when introducing certain foods into an infant's diet. The addition of bacteria that can break down sialic acid to infant probiotics would improve nutrition during weaning.

Researchers at the University of California Davis have isolated B. breve strains that grow on sialyl-lactose and BMO and can be added to probiotic supplements for infants. These unique strains contain a gene for sialidase that in turn can metabolize sialic acid found in sialyl-HMO and BMO, facilitating the metabolization of a variety of oligosaccharides contained in human milk and infant formula. Enhanced metabolization of multiple sugar groups leads to higher nutritional utilization and improves digestion. To supplement their nutritional needs during weaning, these strains can be implemented in probiotics for both breast-fed infants and formula-fed infants.

APPLICATIONS

- Addition to probiotics to aid in infant weaning
- Nutritional supplements for both breast-fed and formula-fed infants

FEATURES/BENEFITS

- Unique ability to consume the sialylated oligosaccharides typically found in HMO and BMO
- Improves utilization of HMO and BMO in digestion

INVENTORS

- Barile, Daniela
- Mills, David A.
- Wickramasinghe, Saumya

OTHER INFORMATION

KEYWORDS

Bifidobacterium, Human milk oligosaccharides, Probiotic

CATEGORIZED AS

- **Agriculture & Animal Science**
  - Nutraceuticals
- **Biotechnology**
  - Food
  - Other
- **Medical**
  - Disease: Digestive System
  - New Chemical Entities, Drug Leads
  - Other

RELATED CASES

2022-575-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Prebiotic Oligosaccharides
- Bifidobacterial Probiotics for Nursing and Weaning
- Reducing Free Milk Glycan Monomers Generated by the Neonate Gut Microbiota Eliminates Colonization by Dysbiotic Microbiome Members
- Additional Glycosyl Hydrolase is Critical to Bacteria's Ability to Consume HMOs
- Increased Microorganism Alcohol Tolerance Via Transformation of its pntAB Locus

▶ Glycoprotein Cleaving Enzyme Isolated from Bifidobacteria

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