

Using Bacteria for Gut Health Improvement and Weight Management

Tech ID: 30449 / UC Case 2015-875-0

ABSTRACT

Researchers at the University of California, Davis have developed a method of using bacteriocin peptides to reduce gut inflammation, improve gut barrier function, and reduce obesity in humans.

FULL DESCRIPTION

Obesogenic diets, such as diets high in saturated fats and simple sugars, can result in excessive weight gain, an increased risk for Type 2 diabetes and cardiovascular diseases, and other negative health conditions. Symptoms of impaired physiologic function resulting from obesogenic diets result in part from decreased gut barrier integrity, or a “leaky” gut--a condition often observed in obese subjects. Decreased gut barrier integrity can lead to gut inflammation and its associated symptoms--including abdominal pain, vomiting, abdominal distension, and rectal bleeding, and low-grade systemic inflammation (endotoxemia) resulting in increased cardio-metabolic disease risk. In addition, compromised gut barrier function is associated with diseases such as inflammatory bowel disease, gastrointestinal viral and bacterial diseases, and colon cancer.

Strategies designed to improve intestinal barrier integrity have high potential to improve pathologies associated with obesogenic diets--even without radical dietary changes. The ingestion of living bacteria in probiotics is an emerging approach to prevent the effects of obesity. However, only a few effector compounds--such as proteins produced by the relevant bacteria--are required for significant physiological responses.

Researchers at the University of California, Davis have developed a method that uses bacteriocin peptides to reduce gut inflammation, improve gut barrier function, and reduce body weight. Two specific types of plantaricin--a specific bacteriocin family--have shown therapeutic potential to promote intestinal barrier integrity. Also, the peptide’s biosynthetic capacity may be used for improved selection of probiotic strains intended for body weight management and reducing gut inflammation. Researchers have tested these plantaricins and demonstrated that they promote cell barrier integrity in vitro and in vivo, as well as reduced weight gain in mice exposed to an obesogenic diet.

APPLICATIONS

- ▶ Reduce gut inflammation and improve gut barrier function
- ▶ Treatment for diseases associated with compromised gut barrier function
- ▶ Weight loss enhancer

FEATURES/BENEFITS

- ▶ Can administer peptides directly or indirectly
- ▶ Offer potential for treating or preventing autoimmune disorders associated with compromised gut health

PATENT STATUS

Country	Type	Number	Dated	Case
Patent Cooperation Treaty	Published Application	2019/213105	11/07/2019	2015-875

Additional Patent Pending

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ [On-Chip Platform for Single-Molecule Electrical Conductance Measurements](#)

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OTHER INFORMATION

KEYWORDS

Lactobacillus, bacteriocin,
plantaricin, weight, obesity,
obesogenic, endotoxemia,
autoimmune

CATEGORIZED AS

- ▶ **Medical**
 - ▶ Disease:
Autoimmune and
Inflammation
 - ▶ Disease: Digestive
System
 - ▶ Therapeutics

RELATED CASES

2015-875-0

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