

Probiotics for the prevention and treatment of obesity and related metabolic diseases

CSIC has patented a strain of the genus *Bifidobacterium* CECT 7765, a commensal bacterium of the human intestine, with beneficial properties to prevent and treat obesity and the associated disorders (e.g. metabolic syndrome, diabetes, dyslipemia, cardiovascular diseases). It can also contribute to the normal immune function, reducing inflammation and improving the defences against infections. Effects have been proven in pre-clinical and clinical trials in humans. The strain can be applied in the manufacture of pharmaceutical formulations and dietary supplements. Industrial partners interested in co-developing and exploiting this technology under a patent license, are sought.

PREBIOTIC DISACCHARIDES AND THEIR INDUSTRIAL PRODUCTION

Obesity and overweight constitute major problems of public health due to their high prevalence and the pathologies associated, such as metabolic syndrome, diabetes, fatty liver disease (FLD), hypertension, hyperglycaemia. Therapies based on changes in lifestyle have a partial success because weight losses are mild and temporary. Moreover, pharmacological strategies developed so far have side effects and only address one aspect of the problem.

As an alternative to prevent and treat these pathologies, CSIC has patented a strain from the genus *Bifidobacterium* (CECT 7765) with activity on new key targets. Studies performed on cell cultures and on obese mouse models have shown that the strain has multiple mechanisms of action that act together on the metabolic and immune dysfunction associated with obesity.

The strain is resistant to technological treatment (cold storage, freezing, freeze-drying, fermentation), ensuring its viability as a component of pharmaceutical or nutritional compositions. An explorative human intervention trial also indicates that the bifidobacteria reduces the HOMA index, a marker of insulin resistance and risk factor for type-2 diabetes.

MAIN INNOVATIONS AND ADVANTAGES

- Reduction in body weight and adipocyte size
- Reduction of dietary fat absorption and its further accumulation in liver, thus being useful in the prevention and/or treatment of hepatic steatosis (fatty liver disease).
- Positive effects on metabolic functions: improvement of glucose tolerance and insulin sensitivity and decrease in triglyceride and cholesterol serum concentrations. Useful in the treatment and prevention of insulin resistance, diabetes and dyslipemia.
- Positive effects against systemic inflammation associated with obesity, reducing concentration of leptin and pro-inflammatory cytokines (IL-6, MCP1, etc.) and increasing the anti-inflammatory cytokine IL-4. Useful for infectious diseases by improving the immune function. It also restores intestinal microbiota composition and reduces the concentrations of potential pro-inflammatory and pathogenic bacteria.



PATENT STATUS

National Phase



FURTHER INFORMATION

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