

## UTILITY OF A NEW STRAIN FOR THE CONTROL OF HEPATIC AND INTESTINAL INFLAMMATION

### DESCRIPTION OF THE TECHNOLOGY

Gut microbiota has a direct role in the progression and development of chronic and metabolic inflammatory complications. Although the microbiota contains commensal bacteria that are beneficial for the maintenance of health, in patients with an altered inflammatory state it can lead to a dysbiosis or deregulation that affects the passage of bacteria or their products into the blood, worsening their clinical evolution.

In particular, it has been shown that the dysbiosis of the gut microbiota plays a crucial role in the pathogenesis and progression of various hepatic and gastrointestinal diseases through the "liver-gut" communication axis.

The usual treatment of this type of complications is the use of antibiotics, which in medical practice means a massive alteration of the gut microbiota that is associated, for example, with the emergence of antibiotic resistances. In patients with inflammatory bowel disease, inflammatory outbreaks frequently require the use of biologic therapies that in some cases have been associated

with increased risk of infections or even cancer.

To cope with this growing increase in resistance to antibiotics and complications, the research group in collaboration with the IATA presents a new bacterial strain that naturally helps to restore the situation of intestinal homeostasis by improving the symbiotic interaction between the microbiota and the immune system experimental models of liver and digestive disease.

The use of this new strain as a probiotic can result in an effective supplement for the treatment and/or prevention of chronic pathologies, both intestinal and hepatic, that lead to inflammation, and especially in the development of cirrhosis.

In addition, given its commensal origin, its use as a probiotic can lead to a functional food that goes beyond the nutritional intake; or to dietary solutions that lead to the prevention of such diseases and chronic disorders.

### MARKET APPLICATION SECTORS

Companies in the pharmaceutical and/or biotechnology sector with an interest in the development and manufacture of probiotics in the form of medicines.

Companies in the food sector interested in using the strain as a bioingredient for a new or existing food product.

It is not only applicable to humans, but also to animals, so it is interesting for the health sector as well as the veterinarian sector.

### TECHNICAL ADVANTAGES AND BUSINESS BENEFITS

The probiotic use of this new bacterial strain would allow the reduction of hepatic and intestinal inflammation for the treatment and/or prevention of pathologies with inflammation, especially in patients with cirrhosis.

On the other hand, its use can restore intestinal dysbiosis associated with bacterial complications of clinical relevance or avoid the non-selective eradication of microbiota associated with the use of antibiotics and the emergence of resistance, the main problems that occur with the use of antibiotics.

### CURRENT STATE OF DEVELOPMENT

Preclinical tests have been performed on cholestasis murine model of liver damage and on model of intestinal inflammation. Furthermore, this strain exerts its effect without inducing an in vitro proinflammatory response in isolated liver cells as well as in isolated macrophages of intestinal wall.

### INTELLECTUAL PROPERTY RIGHTS

The technology has been filed under patent application to the Spanish Patent and Trademark Office (OEPM), with priority date 5/OCT/2018 and in co-ownership with the Institute of Agrochemistry and Food



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Technology depending of the CSIC (IATA-CSIC), the Miguel Hernández University of Elche (UMH) and the Consorcio Centro de Investigación Biomédico en Red around the thematic research area of Liver and Digestive Diseases (CIBEREHD).

The international expansion is expected during the priority year through via PCT.

### COLABORATION SOUGHT

License agreement, manufacturing or marketing agreement with companies whose area of activity is functional ingredients.

Co-development agreement with companies specialized in the development of probiotics and nutraceutical products for the pharmaceutical and food sectors.

R&D project to develop the technology at a clinical level.

### CONTACT

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