

BACTERIOPHAGUE FOR THE PREVENTION AND TREATMENT OF MENTAL DISORDERS

DESCRIPTION OF THE TECHNOLOGY

There are numerous clinical and preclinical studies which show that the gut microbiome is a key player in the regulation of neurodegenerative processes, modulation of cognition, and neurological disorders. Moreover, new evidences suggest that viruses can deeply affect host physiology and disease. Therefore bacteriophages could be considered as novel actors in the gut microbiome-brain axis.

Researchers from the Fundación para el Fomento de la Investigación Sanitaria y Biomédica de la Comunitat Valenciana (Fisabio), Universitat de València, Institut d'Investigació Biomèdica de Girona Dr. Josep Trueta, Universitat Pompeu Fabra, and Centro de Investigación Biomédica en Red (CIBER) have patented a caudoviral bacteriophage, *phage 936*, that may help in alleviating cognitive disorders.

It can become a treatment of cognitive disorders, caused by delirium, dementia, Alzheimer's disease, Huntington's disease, Lewy body disease, traumatic brain injury, amnesia, schizophrenia, Parkinson's disease, prion disease, neurocognitive problems due to HIV infection, autism spectrum disorders or those caused by an underlying brain pathology.

Lactococcus lactis phage 936 can also improve cognitive abilities in individuals who do not suffer any disease and/or cognitive alteration. It could also be a preventive treatment or delay the appearance of these cognitive alterations.

The active compound can be administered orally (capsules or syrup) or it could be used for stool transplantation.

MARKET APPLICATION SECTORS

Pharmaceutical sector, nutritional supplements sector and clinical diagnosis sector.

TECHNICAL ADVANTAGES AND BUSINESS BENEFITS

Increased memory capacities through the upregulation of the expression of genes involved in synaptic plasticity, neuronal development and memory.

It can be administered as a pharmaceutical composition, a stool preparation, and / or a food composition.

CURRENT STATE OF DEVELOPMENT

Pre-clinical studies have been performed.

Behavioural testing has been conducted in mice through novel object recognition (NOR) test and cued-induced fear conditioning.

INTELLECTUAL PROPERTY RIGHTS

A Spanish patent has been filed, priority date: August 13th 2021. It has been extended internationally via PCT.

COLLABORATION SOUGHT

We are looking for a partner for product development and clinical trials, and/or patent licensing.



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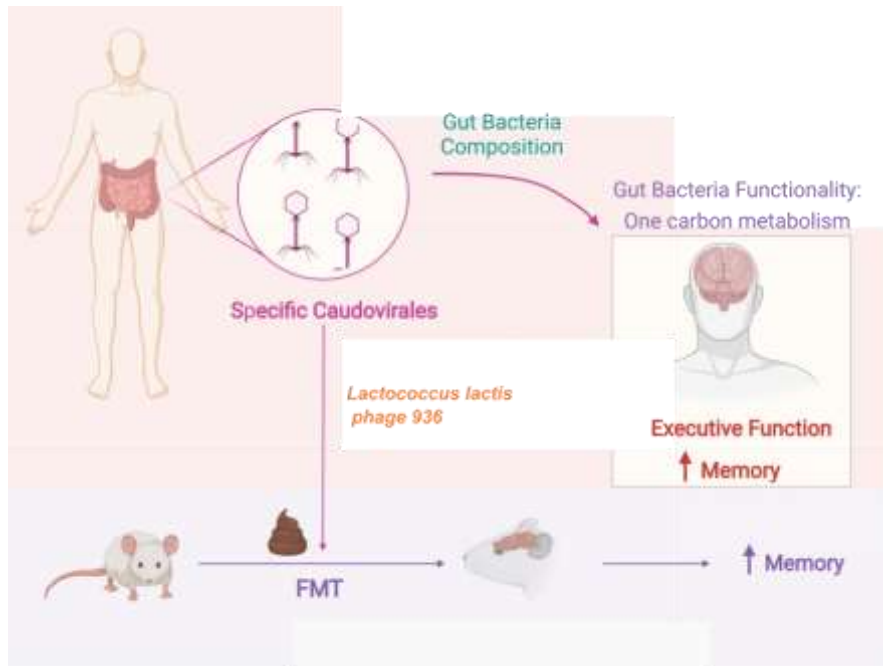


Figure 1: Scheme of action of the gut microbiome *Lactococcus lactis* phage 936 in a cognitive process.



Figure 2: Experimental procedure, step of the construction of the metagenomic libraries for sequencing of the stool microbiome, including *Lactococcus lactis* phage 936. ic libraries for sequencing of the stool microbiome, including *Lactococcus lactis* phage 936.

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