## Prevention and/or treatment of mental disorders by using microbiota bacteriophage

### BACKGROUND

There are numerous clinical and preclinical studies which show that the gut microbiome is a key player in the regulation of neurogenerative 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.**

### THE TECHNOLOGY

Caudovirales bacteriophages were associated with improved executive function and memory in humans. Faecal microbiota transplantation from humans with high Caudovirales increased memory of mice by up-regulating memory promoting immediate early genes (Arc, Egr2, Dusp1, Btg2, Ier2) and down-regulating memory suppressor genes (Ide, Ppp1r42).

Supplementation of Lactococcus 936 bacteriophages increased memory and the expression of activity-regulated genes in flies (Sr, puc, kay, Sik2, Arc1).

Treatment with the phage 936 may help in alleviating cognitive disorders, even in the general population.

**Innovative Aspects:**
- 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.

### STATE OF DEVELOPMENT

Pre-clinical studies have been performed.

### INTELLECTUAL PROPERTY

A Spanish patent has been filed, priority date: August 13th 2021.

### MARKET OPPORTUNITY

Pharmaceutical sector, nutritional supplements sector and clinical diagnosis sector.

### RESEARCH TEAM

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### MORE INFORMATION

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**COMMERCIAL OPPORTUNITY**

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