Institut d'Investigació Biomèdica de Girona Dr. Josep Trueta

BACTERIOPHAGE FOR THE PREVENTION AND TREATMENT OF MENTAL DISORDERS

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.

COMMERCIAL OPPORTUNITY

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

THE TECHNOLOGY

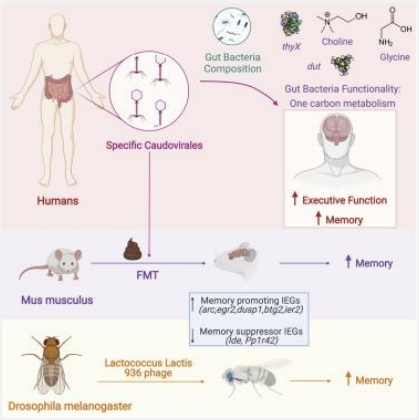
Caudovirales bacteriophages were associated with improved executive function and memory in humans. Faecal microbiota transplantation from humans with high Caudovirales increased memory of mice by up-regulating memory promoting immediate early genes (Arc, Egr2, Dusp1, Btg2, Ier2) and down-regulating memory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

Dr. José Manuel Fernández-Real (IDIBGI-CIBER)
Dr. Rafael Maldonado (UPF)
Dr. Andrés Moya (UV-FISABIO-CIBER)
Dr. Vicente Pérez (FISABIO-CIBER)

CONTACT

Innovation Dept.
T.+34.872.98.70.87
innovacio@idibgi.org

KEYWORDS

microbiome, cognition, memory, brain, Drosophila, mice, human, fecal transplantation, bacteriophages

MORE INFORMATION

DOI: https://doi.org/10.1016/j.chom.2022.01.013

SEE MORE TECHNOLOGIES AT:

www.idibgi.org

In collaboration with: ciber, upf. Universitat Pompeu Fabra Barcelona, Fundació Fisabio, Universitat de València, CSIC