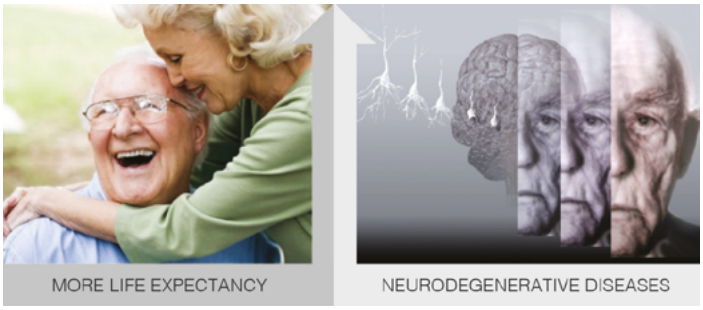
Chitosan nanofibers for the prevention and treatment of neurodegenerative diseases

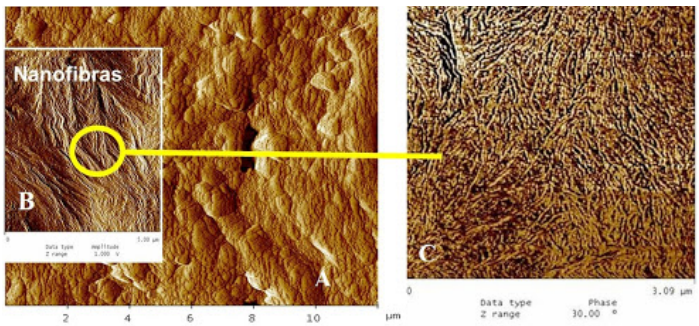
DESCRIPTION

Self-assembled chitosan nanofibers containing bioactive, safe and biodegradable compounds, useful as nutraceuticals or drugs.

These nanofibers are absorbed mainly at the level of the small intestine and cross the blood-brain barrier, increasing the bioavailability of bioactive compounds in different organs, including the brain, where it acts as a controlled release system (SLC). Nanofibers, as they contain antioxidant bioactive compounds, are especially useful in the treatment or prevention of neurodegenerative diseases, such as Alzheimer's, Parkinson's, Huntington's, Amyotrophic Lateral Sclerosis (ALS); as well as strokes and other diseases related to aging or associated with oxidative stress.



▲ The increase in life expectancy of people brings with it the increase in neurodegenerative diseases



▲ As nanofibres contain bioactive antioxidant compounds, they are especially useful in the treatment or prevention of neurodegenerative diseases

ADVANTAGE

1. Increases the bioavailability of the active ingredients 7 times.
2. Consisting only of natural, non-toxic ingredients.
3. Simple and low-cost production method.

APPLICATIONS

Drug to prevent and treat neurodegenerative diseases, for oral use.

Nutraceutical for the prevention of neurodegenerative diseases.

DEVELOPMENT STATUS

The technology is laboratory-tested, including preliminary tests on animals and cell cultures.

It is in the process of validation.

OPPORTUNITY

The world's population is aging and with this, diseases that account for the aging of the human body becoming more prevalent every day. In particular, patients with pathologies derived from neuronal cell deterioration, such as Alzheimer's, Parkinson's, or ALS, have become more common.

Until now, patients with these pathologies are treated with drugs that turn out to be only palliative, given their low efficiency and bioavailability of their active ingredients, since they cannot efficiently reach their target destination, an example of this is the brain, as they do not achieve to cross the blood-brain barrier.

INTELLECTUAL PROPERTY

Protected by patent application:

- INAPI N° Registro 57307
- PCT CL2016 / 050030

Dueños de la tecnología:

- Universidad de Valparaíso (UV), together with:

  - Universidad Metropolitana de Ciencias de la Educación (UMCE)

  - Universidad de Santiago de Chile (USACH)

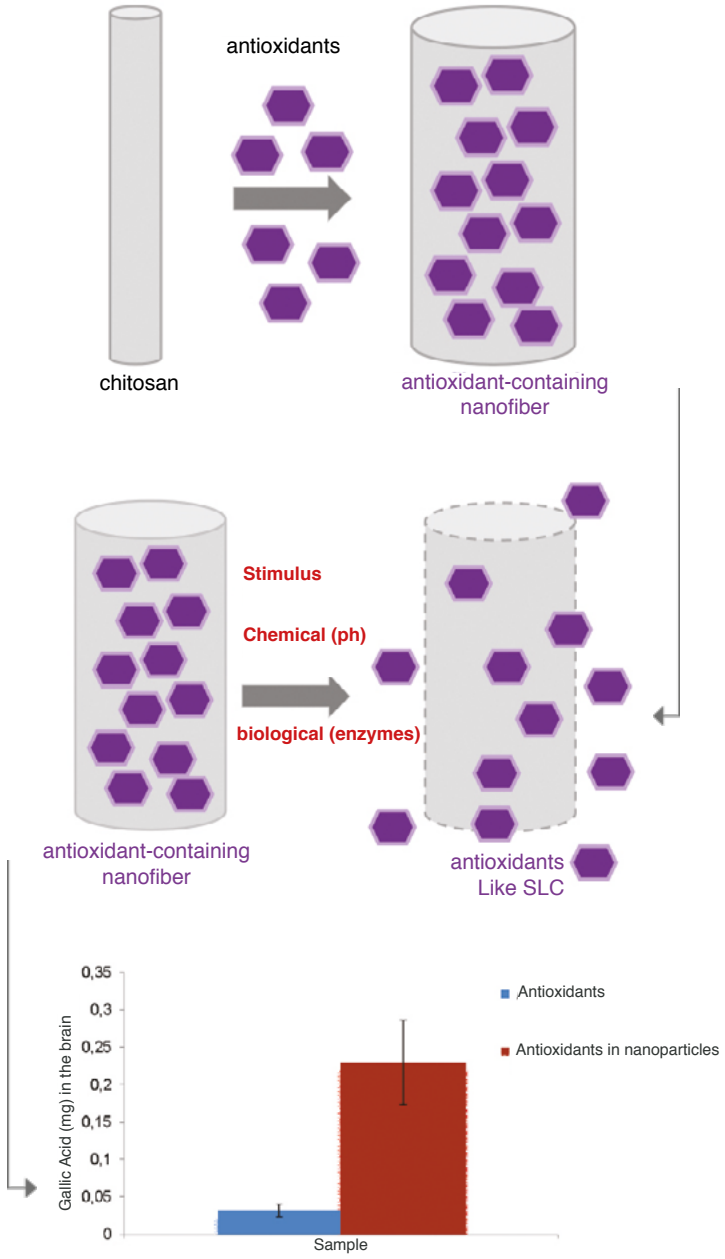
  - BIOTEX S.A.

- Fundación COPEC-UC

NVENTORS

Elisa Zúñiga Garay
Dr. In Chemistry, USACH
Project Manager 8C055.
Professor Faculty of Basic Sciences, UMCE, Chile.
elisa.zuniga@umce.cl

Pablo Muñoz Carvajal
Dr. in Neuroscience,
Universidad de Chile
Professor Faculty of Medicine,
UV, Chile
pablo.munoz@cinv.cl



▲ Bioavailability in the brain

FOR MORE INFORMATION

Fundación Copec-UC

Atilio Ziomi
Commercial Manager
aziomi@uc.cl
+56 2 2354 1942

Universidad de Valparaíso

Cristian Oyanedel
OTL Director
e-mail: cristian.oyanedel@uv.cl
Fono: +56 32 260 3183