

GENISTEIN APPLICATION IN THE TREATMENT OF ALZHEIMER'S DISEASE

Authors

Prof. dr hab. Grzegorz Węgrzyn
Magdalena Podlacha, PhD
Dorota Myślińska, PhD
Irena Majkutewicz, PhD
Karolina Pierzynowska
Lidia Gaffke

Department of Biology
University of Gdańsk

Commercialization opportunities

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- Licensing agreement
 - Transfer of ownership
 - Partnership in order to further research or commercialization

IP Status



The invention was submitted for patenting according to Polish (P.425832) procedures and international EP19177784.6

Implementation progress



TRL 4
Technology validated under laboratory conditions

Alzheimer's disease (AD) is a progressive neurodegenerative disease that is characterized by memory loss (the most common symptom), cognitive impairment, and functional decline - it is a looming endangerment to global health, and a threat to the world economy. AD is the most common cause of dementia in people age 60 years and older, and accounts for approximately 75% of the total dementia cases worldwide. In 2015, there were 46.8 million people in the world living with dementia (with one new case in every three seconds), including: 22.9 million in Asia, 10.5 million in the Europe, 9.4 million in the US, and 4 million in Africa. One in every three seniors in the US dies with AD or another form of dementia. It is the sixth leading overall cause of death in the US, and ranks as the fifth leading cause of death among those age 65 years old or older. In the severe stages, patients with AD require permanent observation, either by a home care professional or a family member. The rapidly declining status of patients with AD results in a drastic reduction in quality of life for both patients and their caretakers. As the world's population is rapidly aging, AD will clearly pose a major health problem in the near future. The currently available therapies for AD provide only symptomatic relief, and will not cure the disease or prevent it from worsening over time. Without therapies that effectively stop or reverse the course of the disease, a large area of opportunity exists for the development of an effective pharmacologic approach. With a rapidly accelerating worldwide prevalence, AD has been identified as a major global health threat by the international medical community.*

The invention relates to the innovative application of genistein, a bioactive isoflavone and its medical use in the treatment of AD, which was discovered by UG scientists. Due to the process of autophagy, induced by usage of genistein, the brain cells are stimulated to degrade toxic forms of proteins (beta-amyloid and hyperphosphorylated tau protein) accumulated in the brain. Thus, the application of genistein leads to the reduction of the main cause of the disease, instead of treating only symptoms.

The effectiveness of the therapy is affected by the fact that genistein exceeds the blood-brain barrier. A key element of the developed technology is a proper dosage of genistein used for the treatment of Alzheimer's. The dosage was carefully selected so that the autophagy process was strong enough to remove toxic forms of proteins, and at the same time, it was mild enough to prevent healthy forms of proteins from being destroyed by the organism.

* Source: Global Data

Technology Transfer Office



tto@ug.edu.pl



+48 58 523 33 74

+48 58 523 33 75



ul. Jana Bażyńskiego 1a
80-309 Gdańsk