Improving Memory and Combating Alzheimer's Disease: Drug Development to Improve Cognitive Functioning (Carmel)

Researcher: Prof. Kobi Rosenblum

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Background

Alzheimer's Disease is one of the most common forms of dementia. It is generally diagnosed in people over the age of 65 years, although early onset is possible. It is a progressive and terminal disease, for which there is currently no cure.

The ability to form new and stable memories deteriorates with age and is a clear hallmark of different neurodegenerative diseases, including Alzheimer's Disease (AD) and frontotemporal dementia. The vast majority of AD cases have complex etiology with multiple genetic and environmental factors influencing the development of the disease. Indeed, different animal models are used to study the complex biology underlying AD.

Alzheimer's Disease International has stated that in 2015 some 47 million people worldwide were living with Alzheimer's or related dementia and this number is expected to reach 131.5 million in 2050. The organization notes that Alzheimer's and other dementias are the top cause of disabilities in later life.

Drug Development for Improving Cognitive Impairment

Studies have shown that phosphorylation levels of a protein known as PKR are elevated in Alzheimer's Disease. Prof. Kobi Rosenblum, Head of the University of Haifa's Laboratory for Research of Molecular and Cellular Mechanisms Underlying Learning and Memory, is working towards the development of a memory-enhancing drug that is based on manipulation of the PKR protein in order to help combat the devastating memory loss and other cognitive abilities that affect people with AD and mild cognitive impairment.

Research Status
Earlier studies have shown that protein synthesis is connected to creating memory in the brain. Rapid production of proteins leads to stronger and long-term memory capabilities, while slower protein production results in weaker memory that does not consolidate into long-term memory and leads to memory loss.

Prof. Rosenblum and his research team have managed to maneuver the activity of the PKR protein molecule, without harming normal brain functioning. The team have been able to inhibit PKR activity in laboratory rats, resulting in a 30% improvement of memory.

This research is establishing an opportunity to develop medications that can improve cognitive functioning, slowing the progress of AD and other forms of dementia.

IP Status
US patent granted - Improving cognitive function (8334262 B2)

Market potential
Carmel established a company, MemoFit [link to company page] to advance and commercialize this technology, with a seed investment from the Carmel Innovations Fund and other partners. It is now a

portfolio company at FutuRx biotech incubator and renamed Protekt Therapeutics Ltd.

Investment & partnership opportunities

Contact us for further information.

Related pages

Protekt Therapeutics Ltd.

Kobi Rosenblum, Prof. - Researcher page

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