Israelis Make Progress in Treatment of Brain Diseases

Researchers at the Hebrew University of Jerusalem, in collaboration with the Israeli startup TyrNovo, have made exciting progress in the potential treatment of brain diseases such as Alzheimer's, Parkinson's and Huntington's.

"The researchers found that TyrNovo's novel and unique compound, named NT219, selectively inhibits the process of aging in order to protect the brain from neurodegenerative diseases, without affecting lifespan," according to the university website. "This is a first and important step towards the development of future drugs for the treatment of various neurodegenerative maladies."

This novel compound protects humans from age-onset, neurodegeneration-linked proteotoxicity.

The initial breakthrough was made by Dr. Ehud Cohen of the department of biochemistry and molecular biology at the Institute for Medical Research Israel-Canada in the university's faculty of medicine. It occurred when he discovered, working with worms, that reducing the activity of the signaling mechanism conveyed through insulin and the growth hormone IGF1 constituted a defense against the aggregation of the protein that is mechanistically linked with Alzheimer's disease.

Later, he found that the inhibition of this signaling route also protected Alzheimer's-model mice from behavioral impairments and pathological phenomena typical to the disease. In these studies, the path was reduced through genetic manipulation, a method not applicable in humans.

Cohen, together with TyrNovo CEO Dr. Hadas Reuveni, professor Alexander Levitzki of the department of biological chemistry

at Hebrew University and their research team, demonstrated that NT219 efficiently inhibits IGF1 signaling in both worms and human cells. The inhibition of this signaling pathway by NT219 protected worms from toxic protein aggregation that in humans is associated with the development of Alzheimer's or Huntington's disease.

The doctors "have filed a patent application that protects the use of NT219 as a treatment for neurodegenerative maladies through Yissum, the technology transfer company of the Hebrew University," the site continues. "Dr. Gil Pogozelich, chairman of Goldman Hirsh Partners Ltd., which holds the controlling interest in TyrNovo, says that he sees great importance in the cooperation on this project with the University, and that TyrNovo represents a good example of how scientific and research initiatives can further health care together with economic benefits."

Cohen's laboratory "obtained an ethical approval to test the therapeutic efficiency of NT219 as a treatment in Alzheimer's-model mice, hoping to develop a future treatment for hitherto incurable neurodegenerative disorders."

Cohen says, "At this point, it looks like a promising step in a totally new direction, in which research has been done in the field for less than a decade."

The Israeli *Ha'aretz* reports, "The findings of the study, funded by the British Rosetrees Trust, and published recently in the journal *Aging Cell*, reinforces the claim that blocking the signaling pathway of insulin and the growth hormone IGF1, a pathway known to be a central controller of the aging process in worms and mammals, can potentially be used as a treatment for degenerative brain diseases."

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