

# Next steps toward preventing cancer and Alzheimer's

August 3 2016

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Credit: University of Warwick

A new generation of drugs that prevent cancer and Alzheimer's could be developed, thanks to research from the University of Warwick.

Dr Ioannis Nezis at the School of Life Sciences has led a research team to identify, and create a database of, the proteins needed for an essential cellular process, autophagy, which keeps our bodies healthy, but which declines as we age.

Better understanding of how these proteins work could lead to the development of drugs to stop this decline, and keep cells healthy for longer - thus preventing major age-related conditions, such as cancer, Crohn's disease, neurodegenerative conditions, as well as viral and bacterial infections.

Dr Nezis' research team has identified over 700 previously undiscovered proteins that are related to autophagy, and has created a database containing them. This will enable the scientific community to experiment and find ways to activate autophagy inside human cells.

Autophagy is an essential process, during which our cells consume and destroy any parts of themselves which are harmful or damaged, and which could cause serious illnesses if left alone. This cellular process naturally declines as we age, so that humans are less able to eject harmful infections and mutations, leaving us more prone to illness and degeneration.

Dr Nezis explained how this research could impact the pharmaceutical world:

"Our novel database resource will open a lot of new avenues in basic and translational science. Identifying novel selective autophagy-related proteins will help for the development of novel pharmaceutical drug targets for a large variety of diseases like cancer, neurodegeneration and other ageing-related diseases, infections, diabetes, obesity and Crohn's disease."

"Importantly, understanding the molecular mechanisms of selective autophagy will help researchers to find interventions to activate the autophagic pathway to prevent ageing and promote healthy well-being during the life course," Dr Nezis continued.

The School of Life Sciences at the University of Warwick is a pioneer of key research in this field.

As well as creating this crucial database of autophagy-related proteins, the laboratory here founded the Autophagy UK Network, a group dedicated to bringing together experts of this [cellular process](#) from across the country.

**More information:** iLIR database—a web resource for LIR motif-containing proteins in eukaryotes: [wrap.warwick.ac.uk/80160/](http://wrap.warwick.ac.uk/80160/)

Provided by University of Warwick

Citation: Next steps toward preventing cancer and Alzheimer's (2016, August 3) retrieved 7 May 2024 from <https://medicalxpress.com/news/2016-08-cancer-alzheimer.html>

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