

Milk study improves understanding of age-related diseases

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Professor John Carver in his lab, holding a beaker of UHT milk. Credit: Stuart Hay, ANU

A new study on UHT milk is helping scientists to better understand Alzheimer's, Parkinson's and type 2 diabetes, opening the door to

improved treatments for these age-related diseases.

About 500 million people worldwide suffer from these diseases, which cause millions of deaths each year.

Co-lead researcher, ANU Professor John Carver, said that two unrelated proteins aggregate in UHT [milk](#) over a period of months to form clusters called amyloid fibrils, which cause the milk to transform from a liquid into a gel.

He said the same type of [protein](#) clusters are found in plaque deposits in cases of Alzheimer's and Parkinson's.

"Parkinson's, dementia and type 2 diabetes are big problems for the ageing population in Australia and many other countries around the world," said Professor Carver from the ANU Research School of Chemistry.

"Our interest in [milk proteins](#) led to a discovery of the reason for this gelling phenomenon occurring in aged UHT milk."

"The research does not suggest UHT milk can cause these [age-related diseases](#)."

Professor Carver said milk proteins changed structurally when heated briefly to around 140 degrees to produce UHT milk, causing the gelling phenomenon with long-term storage.

He said normal pasteurised milk did not form [amyloid fibrils](#).

ANU worked with CSIRO, University of Wollongong and international researchers on the study, which is published in the journal *Small*.

Watch a video interview with Professor John Carver about the study.

More information: Jared K. Raynes et al, Coaggregation of κ -Casein and β -Lactoglobulin Produces Morphologically Distinct Amyloid Fibrils, *Small* (2017). [DOI: 10.1002/smll.201603591](https://doi.org/10.1002/smll.201603591)

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