Medical Xpress

Shedding light on Alzheimer's

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Cardiff researchers have uncovered a molecular interaction that could not only help understand the causes of Alzheimer's, but also shed light on how life began.

The team, led by Professor Trevor Dale at the School of Biosciences, is studying fibers formed between amyloid, a protein aggregate, and nucleic acids, the building blocks of DNA. Abnormal accumulation of amyloid in organs is thought to play a role in a number of neurogenerative diseases, including Alzheimer's.

The Cardiff team has now discovered that interactions between these two components assists the growth of ANA fibers (Amyloid-Nucleic Acid Fibres).

Professor Dale said: "Some types of ANA fibres form plaques in the brain where they are toxic to nerve cells, causing damage and the symptoms of dementia. Our findings have importance for Alzheimer's

disease because it may be that we can find a way to stop the ANA fibres forming and protect the brain from harm."

Other forms of ANA fibres may also have been present on the early earth as life first began to emerge. "We think that these fibres may have actually been the first entities subject to Darwinian evolution", Professor Dale explained.

The research was published in the journal *PLOS One* and was funded by Alzheimer's Research UK and the Leverhulme Trust.

Dr. Simon Ridley, Head of Research at Alzheimer's Research UK, said: "If we can understand how amyloid forms and becomes toxic, we may be able to find out how to stop it, opening the door to developing new treatments for Alzheimer's and other diseases. Research in Cardiff is making great progress towards defeating dementia."

Provided by Cardiff University