**Protein identified that may lead to the prevention of Alzheimer’s and cancer.**

March 2011

Researchers at Ashland University, Miami University (Ohio), and the National Institues of Health have made a discovery that could lead to the prevention of diseases such as Alzheimer’s, lens cataracts and cancer.

Alpha A-crystallin is a member of the small heat shock protein family which has altered its ability to protect other proteins from damage periods of physiological stress.

“The findings provide a unique perspective on the function of these ‘stress proteins’ and suggest ways that they could be altered to modify their protective abilities,” said lead author Dr. Mason Posner, professor of biology at Ashland University.

Researchers studied the Alpha A-Crytallin protein in different species of fish. They were able to identify small changes in the structure of the protein that affected its ability to protect other proteins during times of stress.

The temperature correlated to the protective functionality of the protein. Three amino acids were found by the researchers while comparing protein structures in the different species of fish. These amino acids are likely responsible for the differences in protein function.

“With one small change we were able to produce a zebra fish protein that behaved more like a cold-adapted Antarctic fish protein,” said Posner.

The research was funded by the National Eye Institues of the National Institutes of Health; two of these co-authors being undergraduate research students from Ashland University.

The work will be published in an open access online journal called PLoS One on March 29th, 2012. Future projects will examine whether similar modifications can be used to alter human small heat shock proteins.