

Type II diabetes and the Alzheimer's connection

1 February 2013

A research team in Israel has devised a novel approach to identifying the molecular basis for designing a drug that might one day decrease the risk diabetes patients face of developing Alzheimer's disease. The team will present its work at the 57th Annual Meeting of the Biophysical Society (BPS), held Feb. 2-6, 2013, in Philadelphia, Pa.

A recent study suggests that people who suffer from [type 2 diabetes](#) face twice the risk of developing Alzheimer's disease later in life compared to those who do not have diabetes. The link these diseases share relates to the formation of two types of peptide deposits that aggregate, or clump together. Peptides are chains of [amino acids](#); longer chains form proteins. One type of peptide, called amyloid beta, is found in Alzheimer plaques in neurons of the brain. The other type, amylin, is found in the pancreas and the brain. Two years ago, researchers found both molecules in the pancreas of diabetic patients, and in both diseases their presence has been linked to the progression of the disease state.

To explore the hypothesis that interactions between the two molecules might play a critical role in the self-assembly of peptides that leads to protein aggregation, Yifat Miller, assistant professor from Ben-Gurion University of the Negev, Beer-Sheva, Israel, characterized the way the two [protein molecules](#) interact with each other through an examination of their structure. It was the first analysis of its kind.

"By identifying the specific 'hot regions' of these peptides that strongly interact with each other, our study may provide insight into the link between type 2 diabetes and Alzheimer's disease," Miller says. "We believe that preventing these interactions by developing a drug will decrease the risk that type 2 [diabetes patients](#) face of developing Alzheimer's disease later life."

Collaborator Aphrodite Kapurniotu of Technische Universität München, Freising-Weihenstephan, Germany, performed the molecular experimental examination of the interactions between these two peptides. Miller's research received funding from the European Union Seventh Framework Programme (FP7/2011).

More information: Presentation #2008-Pos, "Investigating the interactions between A β and amylin: Insight into the link between Alzheimer's and type II diabetes," will take place at 1:45 p.m. on Tuesday, Feb. 5, 2013, in the Pennsylvania Convention Center, Hall C. ABSTRACT: tinyurl.com/a7y6seh

Provided by American Institute of Physics

APA citation: Type II diabetes and the Alzheimer's connection (2013, February 1) retrieved 18 May 2021 from <https://medicalxpress.com/news/2013-02-ii-diabetes-alzheimer.html>

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