

Blocking formation of toxic plaques implicated in type 2 diabetes

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Amid growing evidence that the same abnormal clumping of proteins in Alzheimer's disease also contributes to type-2 diabetes, scientists in New York are reporting discovery of a potent new compound that reduces formation of those so-called amyloid plaques. Their study is scheduled for the Sept. 5 issue of the *Journal of the American Chemical Society*.

The report cites evidence correlating increases in amyloid formation in the pancreas with increases in severity and rate of progression of type-2 diabetes, which affects almost 20 million Americans and is rapidly rising worldwide. Deposits of the abnormal protein damage and destroy insulin-producing "islet" cells in the pancreas. Researchers have been seeking potential new medicines that block formation of an abnormal, misfolded protein called islet amyloid polypeptide (IAPP), which may play a key role in the cell destruction.

In the new study, Daniel Raleigh, Andisheh Abedini and Fangli Meng found that changing a single amino acid in human IAPP's structure transformed it from one of the most potent amyloid-forming substances into a powerful inhibitor of amyloid formation. In laboratory studies, they showed that the mutant IAPP significantly reduced the amount of amyloid formed.

In addition to opening the door for better IAPP inhibitors in type-2 diabetes, the findings provide potentially important insights into the formation and treatment of amyloid plaques in Alzheimer's disease, Parkinson's disease, and other conditions, the researchers say.

Source: American Chemical Society

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