Type II Diabetes and the Alzheimer's Connection: Scientists study interactions between two molecules thought to play critical roles in these diseases

Philadelphia, Pa. – 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 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).

Presentation #2008-Pos, "Investigating the interactions between Aβ 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: http://tinyurl.com/a7y6seh

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This news release was prepared for the Biophysical Society (BPS) by the American Institute of Physics (AIP).

ABOUT THE 2013 ANNUAL MEETING

Each year, the Biophysical Society Annual Meeting brings together over 6,000 research scientists in the multidisciplinary fields representing biophysics. With more than 3,900 poster presentations, over 200 exhibits, and more than 20 symposia, the Annual Meeting is the largest meeting of biophysicists in the world. Despite its size, the meeting retains its small-meeting flavor through its subgroup meetings, platform sessions, social activities, and committee programs.

The 57th Annual Meeting will be held at the Pennsylvania Convention Center (1101 Arch Street, Philadelphia, PA 19107). For maps and directions, please visit: http://www.paconvention.com/explore-philadelphia/directions-and-parking.

QUICK LINKS

Meeting Home Page:
http://www.biophysics.org/2013meeting/Main/tabid/3523/Default.aspx
Housing and Travel Information:
http://www.biophysics.org/2013meeting/AccommodationsTravel/HotelInformation/tabid/3621/Default.aspx
Program Abstracts and Itinerary Planner:
http://www.abstractsonline.com/plan/start.aspx?mkey=%7B763246BB-EBE4-430F-9545-81BC84D0C68C%7D

PRESS REGISTRATION

The Biophysical Society invites credentialed journalists, freelance reporters working on assignment, and public information officers to attend its Annual Meeting free of charge. For more information on registering as a member of the press, contact BPS Director of Public Affairs and Communications Ellen Weiss at eweiss@biophysics.org or 240-290-5606, or visit http://www.biophysics.org/2013meeting/Registration/Press/tabid/3619/Default.aspx. Press registration will also be available onsite at the Pennsylvania Convention Center in the Biophysical Society's meeting office, Room 304VIP.

ABOUT BPS

The Biophysical Society (BPS), founded in 1958, is a professional scientific society established to encourage development and dissemination of knowledge in biophysics. The Society promotes growth in this expanding field through its annual meeting, monthly journal, and committee and outreach activities. Its 9000 members are located throughout the U.S. and the world, where they teach and conduct research in colleges, universities, laboratories, government agencies, and industry. For more information on the Society or the 2013 Annual Meeting, visit www.biophysics.org.

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