

Missing Link Connects Diabetes and Alzheimer's Disease

A gene called PGC-1 α is associated with the onset of Type 2 diabetes, but it has shown to decrease in Alzheimer's disease dementia cases. The gene is a potential target for regulating glucose, according to new research led by Giulio Maria Pasinetti, MD, PhD, the Aidekman Family Professor in Neurology, and Professor of Psychiatry and Geriatrics and Adult Development. The study was recently published in *Archives of Neurology*.

We may be able to link a gene—whose alteration may lead to diabetes—to a mechanism that would promote conditions associated with Alzheimer's disease.

— GIULIO MARIA PASINETTI, MD, PHD

Previous studies suggest that Type 2 diabetes is a risk factor for Alzheimer's disease. The relationship between the two conditions is "a fascinating new area of research," says Dr. Pasinetti.

"For the first time, we may be able to link a gene—whose alteration may lead to diabetes—to a mechanism that would promote conditions associated with Alzheimer's disease," he adds.

Dr. Pasinetti and his colleagues found that PGC-1 α decreased in the brains of patients with Alzheimer's disease. That decrease was

associated with dementia and an accumulation in the brain of an abnormal protein known as β -amyloid. This abnormal protein causes plaque buildup in the brain, which is linked to cognitive deterioration in Alzheimer's disease.

The PGC-1 α gene, which plays an important role in regulating glucose metabolism, is considered a potential target for treating Type 2 diabetes.

Using a mouse model of Alzheimer's disease, Dr. Pasinetti and his team also found that promoting PGC-1 α content in brain cells reduces the hyperglycemic-mediated production of β -amyloid.

The findings could help researchers identify potential pharmacological treatments that might promote PGC-1 α expression in the brain cells of Alzheimer's patients. "We need to discover new therapeutic approaches for Alzheimer's disease by looking at conditions that are unfavorable for the generation of β -amyloid," says Dr. Pasinetti.

"PGC-1 α can be easily regulated in the brain in response to caloric restriction," he adds. "Our goal is to identify potential drugs that may have an effect like caloric restriction, which can control glucose regulation and maybe reduce food intake and might help prevent cognitive deterioration."



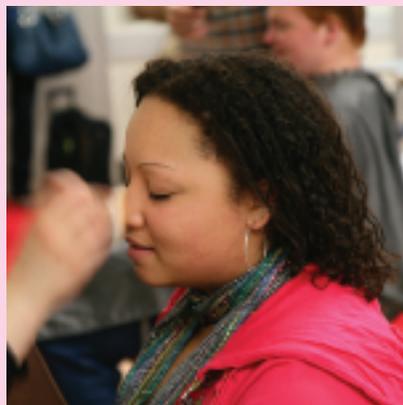
Giulio Maria Pasinetti, MD, PhD

Red Carpet Ready

Eight years ago, Abigail Trent, 18, was transferred to Mount Sinai for the first of three organ transplants. On April 20, she came back for a more lighthearted procedure—a makeover.

Abigail was one of 16 pediatric heart transplant patients and caregivers who received makeovers at the "VIP Red Carpet Makeover Event" sponsored by the Children's Heart Center.

"I love Mount Sinai," said the photography student, who suffers from Goodpasture's syndrome—an autoimmune disease. "The nurses and doctors are amazing. I wouldn't want to be treated anywhere else."



ABOVE: Abigail Trent gets her makeup and hair professionally done. **RIGHT:** Transplant patient Danny Collado poses for his glamour shot.



Other patients, like Donald Redfield, 23, were referred to Mount Sinai for its expertise in heart transplantation. Volunteer hairdressers and makeup artists pampered the patients and family members, and a professional photographer took before and after glamour shots. Estée Lauder and Sephora even provided cosmetics for the patients to take home.

"We know it can be hard for teens to recommit themselves each day to keeping their bodies and hearts healthy—by taking medicines and eating right—when looking good on the outside is also very important to them," says Anna Eckhardt, a social work intern who organized the event. "This special event communicates that they are beautiful and healthy on the inside and outside."