These studies constitute the fastest attempt to develop a clinically relevant diagnostic test to identify patients at risk for developing AD

**Background**

Alzheimer's disease (AD) is the most common form of dementia in the elderly and it is estimated that 2.6-5.2 million Americans have the disease. If no therapeutic cure is found, projections estimate that as many as 16 million Americans will be afflicted with AD by 2050. Researchers at Stony Brook University have discovered a brain-wide waste removal pathway which shares many features with the classical lymphatic drainage system in other body organs. Their studies constitute the fastest attempt to develop a clinically relevant diagnostic test to identify patients at risk for developing AD or other dementias in an effort to prevent these diseases.

**Technology**

Dr. Benveniste, Professor at the Department of Anesthesiology at Stony Brook University have discovered a waste removal system they've named the 'glymphatic' pathway because it is dependent on aquaporin 4 water channels specially expressed by glia cells. Importantly, their studies have showed that soluble amyloid-B (AP) and tau proteins are cleared from the brain interstitial space along this newly discovered glymphatic pathway. Given that Aβ plaque formation (a hallmark of AD) is a result of an imbalance between the creation and clearance of Aβ, it is proposed to develop clinically relevant imaging platforms to track glymphatic pathway transport and functionality in the live brain.

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**Advantages**

- Combined testing of glymphatic pathway function with simultaneous assessment of plaque burden and other pathology
- Able to study waste system in 3D and real time.

**Applications**

- Alzheimer’s Disease and other neurodegenerative conditions.

**Sean Boykevisch, PhD**
Assistant Director
Office of Technology Licensing and Industry Relations
N5002 Melville Library
Stony Brook University
Stony Brook, NY 11794-3369
631-632-6952
Sean.boykevisch@stonybrook.edu
www.stonybrook.edu/research/otlir