

# Unique structure of brain blood vessel amyloid latest clue to Alzheimer's development?

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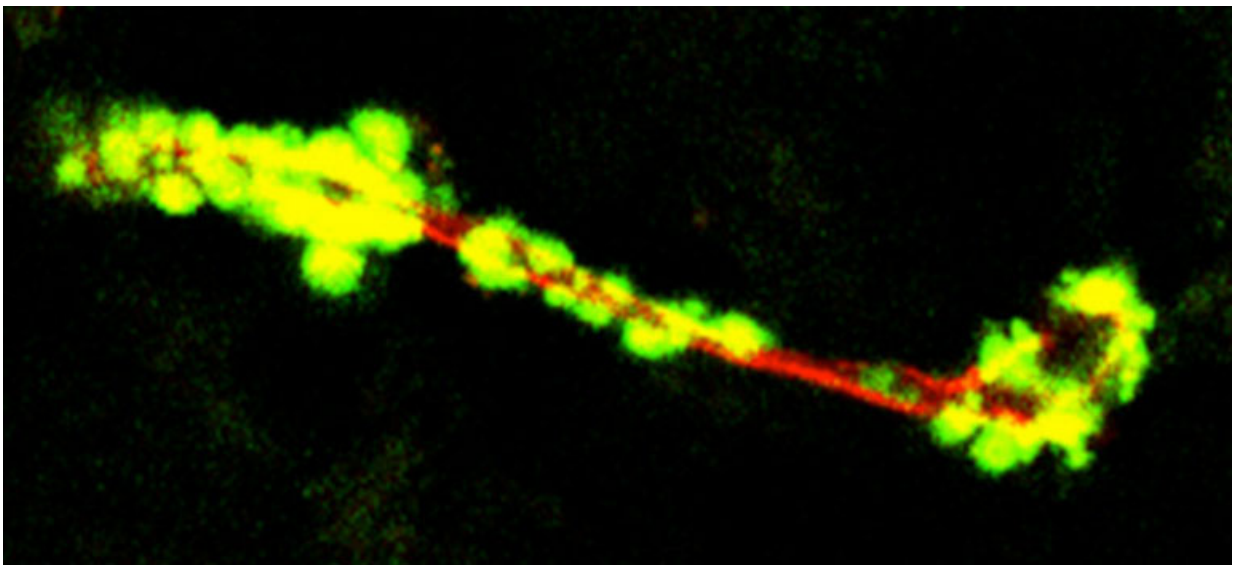


Image of a cerebral blood vessel shown in red. The green deposits on this cerebral blood vessel are the vascular amyloid. The amyloid fibrils that comprise these deposits exhibit the newly found signature that is unique to vascular amyloid. Credit: Stony Brook University

Accumulating amounts of amyloid, which is a fragment of a larger protein, in the brain have been associated with the development of dementia, including Alzheimer's disease. Now a team of neuroscience and biochemistry researchers at Stony Brook University have made a

novel discovery that illustrates for the first time the difference between amyloid buildup in brain blood vessels and amyloid buildup around brain neurons. Their findings, which may provide a new path to research on Alzheimer's disease and its cause, will be published November 21 in *Nature Communications*.

Lead investigator William Van Nostrand, PhD, a Professor in the Department of Neurosurgery, says the findings stem from collaborative work with Steven Smith, PhD, a Professor in the Department of Biochemistry & Cell Biology. They, along with colleagues, mapped out the structural signature of amyloid that accumulates in [brain blood vessels](#) and compared it to the known structure of amyloid that accumulate in plaque around [brain neurons](#).

The team found that the subunits of the amyloid that accumulates in vessels line up uniquely and in alternating patterns, which presents in a near opposite pattern of amyloid buildup in plaque around neurons.

"This discovery may help guide us to the development of a new diagnostic tool or therapeutic intervention for [dementia patients](#) who display this vessel pathology," summarized Dr. Van Nostrand.

They hypothesize that the unique structure of this brain blood vessel amyloid could promote different pathological responses, ie, inflammation, which likely contributes differently to cognitive impairment and dementia than neuron amyloid.

Provided by Stony Brook University

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