BLOCKING NEUROINFLAMMATION DUE TO COMPLEMENT ACTIVATION BY AMYLOID WITH VACCINIA VIRUS COMPLEMENT CONTROL PROTEIN (VCP), A BETTER ALTERNATIVE TO ADUHELM IN ALZHEIMER'S DISEASE (AD) DUE TO APOE4 PREDISPOSITION

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Statement of the Problem: Alzheimer's disease (AD) is primarily a progressive neurodegenerative disease accompanied with memory loss that is primarily due to aging although recently AD is considered to be due to genetic predisposition resulting from the presence of ApoE4 allele. AD is caused by abnormal accumulation of beta amyloid and tau proteins in and around neurons in the brain, affecting synaptic junctions. Both beta amyloid and tau activate complement pathways which then results in neuro inflammation. AD related dementia affects 30+ million people globally and the annual cost of care is estimated at half a trillion.

Methodology & Theoretical Orientation: DNA was isolated from saliva of 2 individuals. The sequence of ApoE allele was determined. VCP was purified from overexpression in the yeast system. It was delivered to the brain by 2 routes and found to be effective in transgenic mice in achieving memory protection.. A human trial with a select cohort of about 40 subjects (20 male and 20 female) with homozygous ApoE4 allele above age 55 would be selected. 20 of the subjects

Daly were the first to demonstrate a cause and effect relation between abeta fibrils that contribute to amyloid plaques and neurodefeneration resulting in memory loss and symptoms of AD. He was the first to propose that complement mediated inflammation can be blocked by vaccinia virus complement control protein (VCP).