Alzheimer’s disease (AD) is an age-related, progressive degenerative disorder characterized by the loss of synapses and neurons from the brain. Monomers of β-Amyloid aggregates to form Oligomers and oligomers aggregate to form fibrils. Our study is based on the assumption that soluble βA oligomers are the causative agents of AD, due to their toxicity to neuron cells in the brain.

We develop a five-dimensional discrete mathematical model for the aggregation of monomers into oligomers. The model establishes a theoretical mechanism to reduce the production of oligomers. We provide conditions for the stability of the aggregation of β-Amyloid. A formula for the number of monomers that is required for the producing oligomers has been established. A mechanism to prevent monomers from aggregating to oligomers is proposed for practitioners in the field of Alzheimer Disease. This provides health providers a method for the prevention of Alzheimer Disease. (Received September 26, 2017)