Researchers at the University of South Florida have developed novel methods for the diagnosis, prevention and treatment of diseases associated with amyloid deposits of amyloid beta (Aβ) in the brain of a human patient. Alzheimer’s disease (AD), Down’s syndrome and cognitive impairment are among the diseases included that could be potentially treated. The process involves profiling, modeling, and therapeutic targeting of functional Aβ-reactive autoantibodies in numerous ways.

Diseases like Alzheimer’s are becoming more prevalent among the elderly population, with a reported four million Americans currently living with the condition. While ongoing research is being conducted in efforts to halt its progression and damaging effects, there is presently no cure for the disease and limited approaches for early diagnosing and prevention.

This invention proposes a novel manner in which the aforementioned amyloid based diseases can be treated through the elimination of functional autoantibodies in a unique process. APP/Aβ-reactive autoantibody profiles can be further used as tools for early diagnostic testing for AD. There is also potential for the development of a therapeutic screening assay that can identify compounds that are efficient at blocking Aβ production. In addition, an alternative embodiment of APP/Aβ-reactive autoantibody profiles can be utilized to determine the efficacy of immunomodulatory treatments being investigated for their ability to treat or prevent AD and related disorders.

Advantages:
- Safe and efficient approach
- Multiple disease applications
- Broad therapeutic value

Figure a: Autoantibodies against Aβ peptide-17 measured in concentrated sera. Figure c: Densitometry analysis