



## Using Phage-Display to identify post-translational modifications in Alzheimer's disease

Rodney Guttman

University of West Florida, FL 32514, USA

### Abstract:

Alzheimer's disease (AD) affects nearly 50 million people worldwide and as the average population ages, this number is expected to double by 2050. Currently, AD is diagnosed based mainly on cognitive impairment and clinical judgment, but over the last several years, the importance and significance of biomarkers in the diagnostic process have been recognized. We propose a novel and innovative study to use phage display libraries for the identification of phage that specifically and selectively bind to disease-relevant forms of protein metabolites that are either quantitatively or qualitatively different between AD and control patients. Initially, studies have focused on using cerebrospinal fluid to identify post-translational modifications (PTMs) of the microtubule-associated protein, tau associated with AD. The general approach is designed around a phage-based sandwich ELISA method comparing the tau PTM profile from individual patients. Preliminary results have identified several candidate phages that show promise to distinguish patients with AD from cognitively normal individuals. Based on these observations, future experiments using blood or other biofluids are planned. Additionally, these studies show the feasibility of the approach and may be applicable to identify additional PTMs to other proteins associated with the pathological process of AD. The development



of these biomarkers is part of a larger goal to develop an array-based approach designed to improve the ability to diagnose AD accurately.

### Biography:

Rodney Guttman has completed his PhD from the University of Alabama at Birmingham and postdoctoral studies from the University of Pennsylvania. He is the former director of the University of West Florida's Center on Aging. He has published more than 25 papers in reputed journals with funding support for his research from the National Institute on Aging, the National Institute of Neurological Disorders and Stroke, the American Heart Association and the Florida Department of Health.

Biomarkers & Drug Delivery Summit 2020; May 29-30, 2020; London, UK

**Citation:** Rodney Guttman; Using Phage-Display to identify post-translational modifications in Alzheimer's disease; Biomarkers & Drug Delivery Summit 2020; May 29-30, 2020; London, UK