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TITLE: Development of Novel Amyloid Imaging Agents in Alzheimer's Disease

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Objective: To develop novel amyloid imaging agents in Alzheimer's disease suitable for both preclinical and clinical studies.

Methods: We designed and synthesized a series of derivatives as amyloid-binding agents. These derivatives, remotely related to Pittsburgh Compound-B (PIB) previously developed, will be evaluated for their binding affinity and specificity towards amyloid deposits in Alzheimer diseased (AD) brain sections. We conducted an *in vitro* florescent staining of well defined AD brain sections to evaluate the compounds' specificity for binding to amyloid deposits. After florescent staining, we will conduct a radioligand-based binding assay to quantitatively determine the binding affinities of successful compounds to amyloid deposits. The compounds with high binding affinity will be evaluated for brain permeability quantitatively following C-11 labeling.

Results: Several small-molecule agents have been designed and synthesized. These derivatives are now being evaluated by *in vitro* fluorescent staining. Some compounds have shown promise for further evaluation. Once satisfied with the results from florescent staining, we will determine the binding affinity of the successful compounds quantitatively and subsequent *in vivo* studies.

Conclusion: Novel amyloid-imaging compounds have been synthesized and are now in the evaluation phase to determine their binding affinity and specificity towards amyloid deposits in the brain. Further studies have been planned to determine if they can be potentially used as novel amyloid imaging agents.