

# PET TRACERS FOR DETECTION OF EARLY STAGE ALZHEIMER'S DISEASE

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## Technology Description

Researchers at Washington University in St. Louis have developed PET radiotracers to image amyloid beta (A-beta) at early stages of Alzheimer's Disease (AD). For AD treatment to be effective, it may have to be administered during the preclinical stage. As such, there is a great need to identify biomarkers for the disease that are present during the early stage. A-beta is thought to play a starting role in the AD pathogenic cascade. Thus, it would be beneficial to investigate the temporal relationship between amyloid deposition, neuronal loss and cognitive decline. However, tools to image A-beta are suboptimal. To overcome the limitations, the inventors have generated new A-beta radiotracers for use with PET imaging. This technology provides PET tracers with enhanced sensitivity and specificity and the potential to enable A-beta imaging at early stages of AD.

## Stage of Research

*In vivo* imaging and pharmacological studies show the tracers are effective and have good specificity for imaging diffuse plaque associated with early stage AD.

## Publications

- Sundaram GS, Dhavale DD, Prior JL, Yan P, Cirrito J, Rath NP, Laforest R, Cairns NJ, Lee JM, Kotzbauer PT, Sharma V. [Fluselenamyl: A Novel Benzoselenazole Derivative for PET Detection of Amyloid Plaques \(A \$\beta\$ \) in Alzheimer's Disease](#). Sci Rep. 2016 Nov 2;6:35636.
- Bhandari, T. [Earlier Alzheimer's diagnosis may be possible with new imaging compound](#). The Source- A Washington University in St. Louis publication. 2016 Nov. 2.

## Applications

- A-beta targeted PET tracer:
  - Image early stage AD
  - Monitor efficacy of A-beta modifying therapeutics

## Key Advantages

- Can be used to determine A-beta burden in early stages of AD
- Targets diffuse and fibrillar forms of A-beta
- High initial brain penetration
- Facile clearance from non-targeted regions

- High radiochemical yield

## Patents

- Issued US Patent- [Heterocyclic molecules for biomedical imaging and therapeutic applications.](#)  
Patent number 10,335,504

## Related Web Links

- [Dr. Sharma profile](#)