



We are pleased to announce that the below study using our DL-amino acid labeling kit, made in collaboration with Professor Hideaki Kakeya from Graduate School of Pharmaceutical Sciences, Kyoto University, was selected for inclusion in *HOT Articles 2023* by the Royal Society of Chemistry journal *Analyst*.

**Paper:** Separation of amyloid  $\beta$  fragment peptides with racemised and isomerised aspartic acid residues using an original chiral resolution labeling reagent

**Author:** Makoto Ozaki<sup>1</sup>, Motoshi Shimotsuma<sup>1</sup>, Takefumi Kuranaga<sup>2</sup>, Hideaki Kakeya<sup>2</sup>, Tsunehisa Hirose<sup>1</sup>

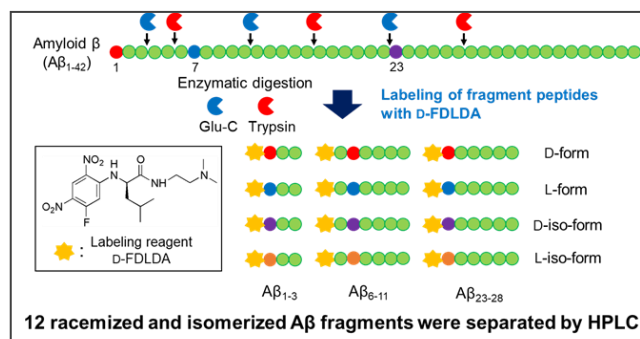
**Affiliation:** <sup>1</sup>Research and Development Department, Purification Section, Nacalai Tesque, Inc.,

<sup>2</sup>Department of System Chemotherapy and Molecular Sciences, Division of Medicinal Frontier Sciences, Graduate School of Pharmaceutical Sciences, Kyoto University

**Article:** *Analyst* (Accepted manuscript)

\*Before technical editing, formatting and proof reading.

**Overview:** Amyloid  $\beta$  ( $A\beta$ , a total length of 42 residues) is a causal substance of Alzheimer's disease (AD), caused by the accumulation of senile plaques in the brain and resulting in cognition function decline. It is reported that  $A\beta$  shows cytotoxicity and is highly cohesive by the racemisation and isomerisation of residues 1, 7, and 23 of aspartic acid (Asp) in  $A\beta$ . This study shows the development of a method to separate and identify racemised and isomerised Asp residues in  $A\beta$  by using a labeling reagent D-FDLDA and liquid chromatography–mass spectrometry (LC-MS) with an ordinary C18 column. We believe that the method in this study will contribute to the early diagnosis of or the elucidation of AD and could be used to identify racemisation and isomerisation of disease-causing proteins and peptides.



**Previous study:** M. Ozaki, T. Kuwayama, T. Hirose, M. Shimotsuma, A. Hashimoto, T. Kuranaga, H. Kakeya

Separation and identification of the DL-forms of short-chain peptides using a new chiral resolution labeling reagent  
*Anal. Bioanal. Chem.*, 414, 4039-4046 (2022).

<https://doi.org/10.1007/s00216-022-04048-w>

**Product information:** [DL-Amino Acid Labeling Kit](#)

<https://www.nacalaiusa.com/products/view/528/dl-amino-acid-labeling-kit>