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Supplementary Data

Potential Utility of Soluble p3-Alcadeinα Plasma Levels as a Biomarker for Sporadic Alzheimer's Disease

Kenji Kamogawa[a], Katsuhiko Kohara[a,c,*], Yasuharu Tabara[b,c], Rie Takita[a], Tetsuro Miki[a,c], Tomoko Konno[d], Saori Hata[d] and Toshiharu Suzuki[d]
[a]*Department of Geriatric Medicine, Ehime University Graduate School of Medicine, Ehime, Japan*
[b]*Department of Basic Medical Research and Education, Ehime University Graduate School of Medicine, Ehime, Japan*
[c]*Proteo-Medicine Research Center, Ehime University Graduate School of Medicine, Ehime, Japan*
[d]*Department of Neuroscience, Graduate School of Pharmaceutical Sciences, Hokkaido University, Hokkaido, Japan*

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*Correspondence to: Katsuhiko Kohara, MD, Clinical Professor, Department of Geriatric Medicine, Ehime University Graduate School of Medicine, Shitsukawa, Toon, Ehime 791-0295, Japan. Tel.: +81 89 960 5851; Fax: +81 89 960 5852; E-mail: koharak@m.ehime-u.ac.jp.

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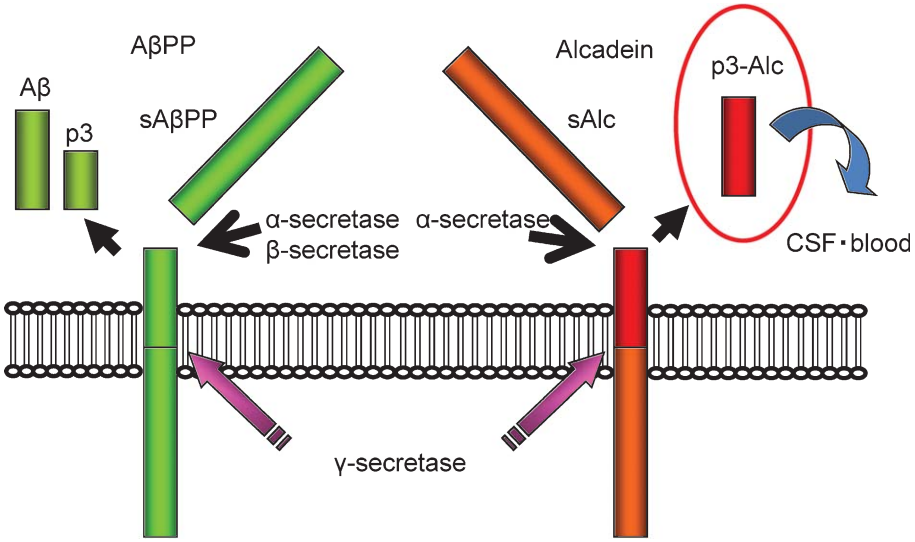
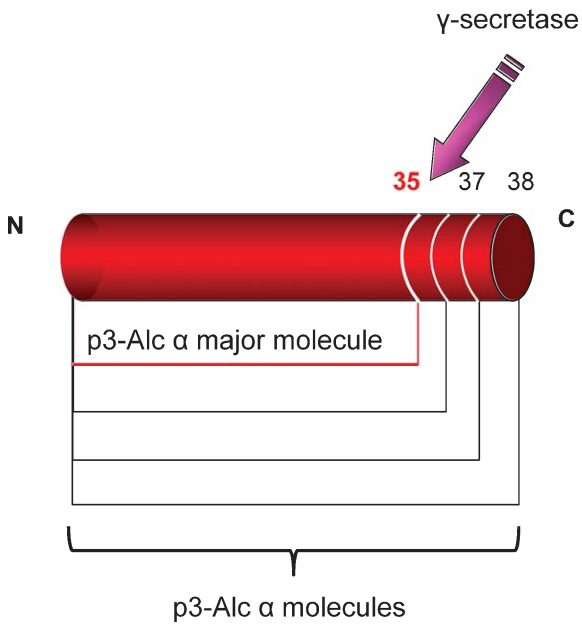


Supplementary Figure 1. Schematic diagram of amyloid-β precursor protein (AβPP) and Alcadeinα (Alcα) metabolisms. Alcα is cleaved successively by α-secretase followed by γ-secretase, resulting in the release of p3-Alcα. Since p3-Alcα is not aggregated like amyloid-β (Aβ), p3-Alcα is detectable in human cerebrospinal fluid (CSF) and blood [1, 2].



Supplementary Figure 2. Schematic diagram of p3- Alcadeinα fragments following γ-secretase cleavage. p3-Alcadeinα35 (p3-Alcα35), a peptide that includes the sequence from Ala817 to Thr852 of Alcadeinα1, is a major molecule of p3-Alcα γ-secretase cleavage. Functional alteration of the enzyme can increase minor molecules [1, 3].

REFERENCES

[1] Hata S, Fujishige S, Araki Y, Taniguchi M, Urakami K, Peskind E, Akatsu H, Araseki M, Yamamoto K, Martins RN, Maeda M, Nishimura M, Levey A, Chung KA, Montine T, Leverenz J, Fagan A, Goate A, Bateman R, Holtzman DM, Yamamoto T, Nakaya T, Gandy S, Suzuki T (2011) Alternative processing of γ-secretase substrates in common forms of mild cognitive impairment and Alzheimer's disease: Evidence for γ-secretase dysfunction. *Ann Neurol* **69**, 1026-1031.

[2] Konno T, Hata S, Hamada Y, Horikoshi-Sakuraba Y, Nakaya T, Saito Y, Yamamoto T, Yamamoto T, Maeda M, Ikeuchi T, Gandy S, Akatsu H, Suzuki T, Japanese Alzheimer's Disease Neuroimaging Initiative (2011) Coordinated increase of γ-secretase reaction products in the plasma of some female Japanese sporadic Alzheimer's disease patients: Quantitative analysis of p3-Alcα with a new ELISA system. *Mol Neurodegener* **6**, 76.

[3] Hata S, Fujishige S, Araki Y, Kato N, Araseki M, Nishimura M, Hartmann D, Saftig P, Fahrenholz F, Taniguchi M, Urakami K, Akatsu H, Martins RN, Yamamoto K, Maeda M, Yamamoto T, Nakaya T, Gandy S, Suzuki T (2009) Alcadein cleavages by amyloid β-precursor protein (APP) α-and γ-secretases generate small peptides, p3-Alcs, indicating Alzheimer Disease-related γ-secretase dysfunction. *J Biol Chem* **284**, 36024-36033.