

NAT8,8B acetylate BACE1

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Introduction

Reactome is open-source, open access, manually curated and peer-reviewed pathway database. Pathway annotations are authored by expert biologists, in collaboration with Reactome editorial staff and cross-referenced to many bioinformatics databases. A system of evidence tracking ensures that all assertions are backed up by the primary literature. Reactome is used by clinicians, geneticists, genomics researchers, and molecular biologists to interpret the results of high-throughput experimental studies, by bioinformaticians seeking to develop novel algorithms for mining knowledge from genomic studies, and by systems biologists building predictive models of normal and disease variant pathways.

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Literature references

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- Fabregat, A., Korninger, F., Viteri, G., Sidiropoulos, K., Marin-Garcia, P., Ping, P. et al. (2018). Reactome graph database: Efficient access to complex pathway data. *PLoS computational biology*, 14, e1005968. [↗](#)

Reactome database release: 88

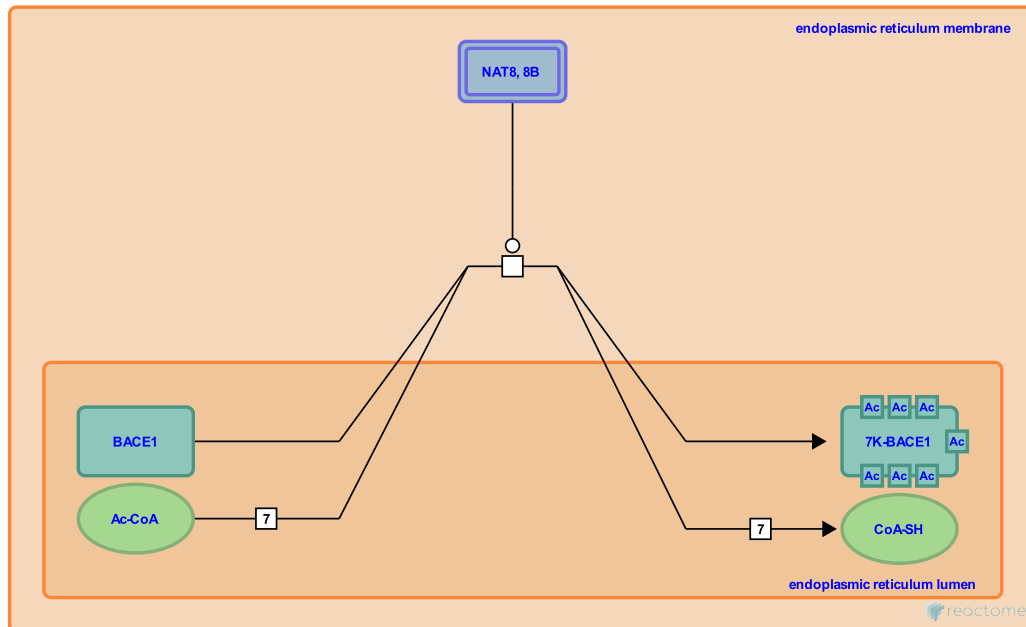
This document contains 1 reaction ([see Table of Contents](#))

NAT8,8B acetylate BACE1 [↗](#)

Stable identifier: R-HSA-5693001

Type: transition

Compartments: endoplasmic reticulum lumen, endoplasmic reticulum membrane



N-acetyltransferase 8 and 8B (NAT8, 8B) can mediate the molecular stabilisation of BACE1, the membrane protein that acts as the rate-limiting enzyme in the generation of the Alzheimer disease amyloid beta-peptide. Specifically, nascent BACE1 is transiently acetylated on seven lysine residues in the ER lumen which protects the nascent protein from degradation in the ER Golgi intermediate compartment (ERGIC) and allows it to reach the Golgi apparatus (Ko & Puglielli 2009, Costantini et al. 2007). Lysine-acetylated BACE1 (7K-BACE1) is deacetylated in the Golgi apparatus.

Literature references

Ko, MH., Costantini, C., Puglielli, L., Jonas, MC. (2007). A reversible form of lysine acetylation in the ER and Golgi lumen controls the molecular stabilization of BACE1. *Biochem. J.*, 407, 383-95. [↗](#)

Ko, MH., Puglielli, L. (2009). Two endoplasmic reticulum (ER)/ER Golgi intermediate compartment-based lysine acetyltransferases post-translationally regulate BACE1 levels. *J. Biol. Chem.*, 284, 2482-92. [↗](#)

Editions

2015-05-13	Authored, Edited	Jassal, B.
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