

Tail-anchored

protein:SGTA:BAG6:GET4:UBL4A:ASNA1:A

TP dissociates and ASNA1 hydrolyzes ATP

yielding Tail-anchored

protein:ASNA1:ADP

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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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Reactome database release: 88

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

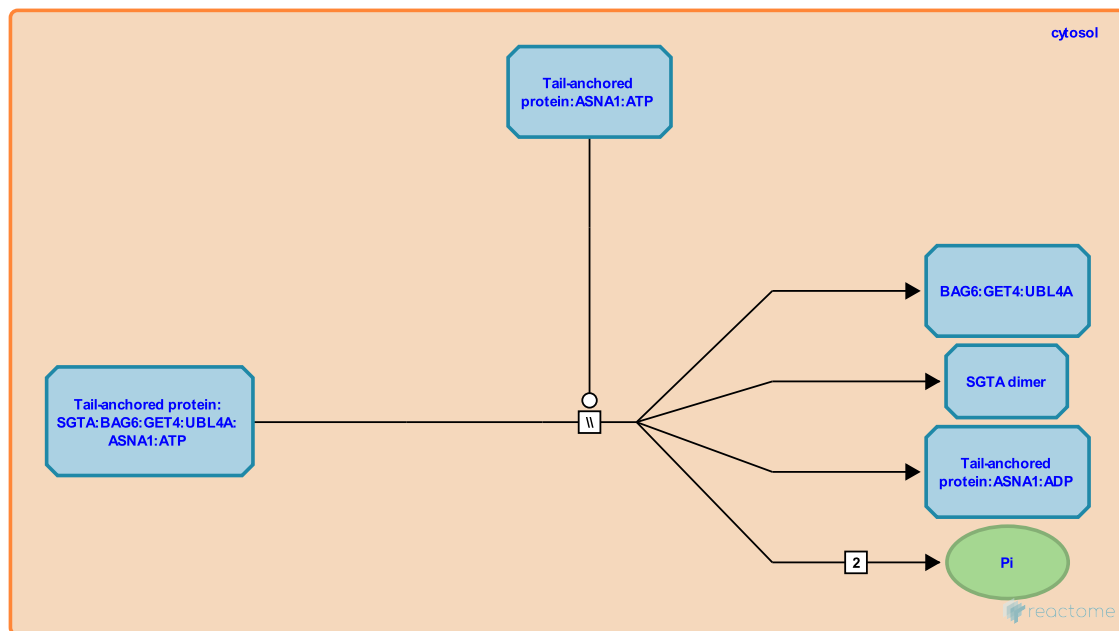
Tail-anchored protein:SGTA:BAG6:GET4:UBL4A:ASNA1:ATP dissociates and ASNA1 hydrolyzes ATP yielding Tail-anchored protein:ASNA1:ADP ↗

Stable identifier: R-HSA-9609860

Type: omitted

Compartments: cytosol

Inferred from: SBH1:GET3:ATP:GET4:MDY2:SGT2 dissociates and GET3 hydrolyzes ATP yielding SBH1:GET3:ADP (*Saccharomyces cerevisiae*)



A properly folded tail-anchored (TA) protein is transferred from SGTA to ASNA1 via the BAG6 complex (BAG6:UBL4A:GET4 also known as BAT3:GET5:TRC35) (Marriapan et al. 2010, Leznicki et al. 2011, Mock et al. 2015, Shao et al. 2017, Guna et al. 2018). The TA protein bound to ASNA1 is then presumed to dissociate from the BAG6 complex (inferred from yeast homologs). At some point during or shortly after dissociation, ASNA1 hydrolyzes bound ATP to yield ADP (inferred from yeast homologs).

Improperly folded proteins and improperly localized hydrophobic proteins are transferred from SGTA to BAG6 rather than to ASNA1 (Shao et al. 2017). BAG6 then recruits RNF126 and facilitates the ubiquitination and consequent degradation of the defective protein. The selection of transferring a substrate protein from SGTA to ASNA1 or to BAG6 thereby acts as a "molecular triage". Proteins with less hydrophobic tail-anchors appear to be inserted into the endoplasmic reticulum membrane by a separate system comprising calmodulin and the ER membrane protein complex (Guna et al. 2018).

Literature references

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Editions

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