Release of SEPT4 from mitochondria

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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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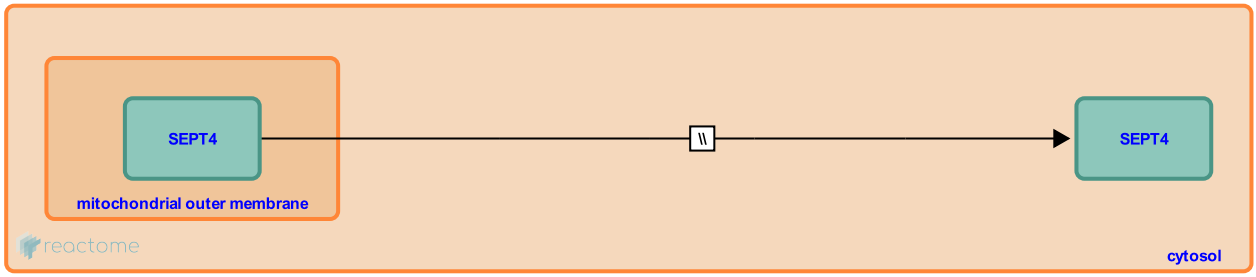
Stable identifier: R-HSA-6805811

Type: omitted

Compartments: cytosol, mitochondrial outer membrane



Septin 4 gene (SEPT4) encodes several protein isoforms including SEPT4_i2 (also known as apoptosis-related protein in the TGF-beta signaling pathway (ARTS)) (Larisch S et al. 2000).

ARTS (SEPT4_i2) is a mitochondrial pro-apoptotic tumor suppressor protein (Larisch S et al. 2000; Elhasid et al. 2004; Gottfried Y et al. 2004; Lotan R et al. 2005). Following induction of apoptosis, ARTS rapidly translocates to the cytosol where it binds and inhibits X-linked inhibitor of apoptosis protein (XIAP). ARTS is thought to induce apoptosis by promoting the proteasome-mediated degradation of XIAP and blocking its ability to inhibit caspases (Gottfried Y et al. 2004; Bornstein B et al. 2011; Garrison JB et al. 2011; Reingewertz TH et al. 2011). The release of ARTS from mitochondria and its accumulation in the cytosol appears to be a caspase-independent event (Gottfried Y et al. 2004). The protein level of ARTS is tightly regulated through ubiquitin mediated degradation (Lotan R et al. 2005). The translocation of ARTS (SEPT4) from mitochondria precedes the release of both cytochrome c (CYCS) and SMAC (DIABLO) and leads to degradation of XIAP before the release of SMAC (Edison N et al. 2012).

Literature references

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Editions

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