CSNK1A1 phosphorylates SMO dimer

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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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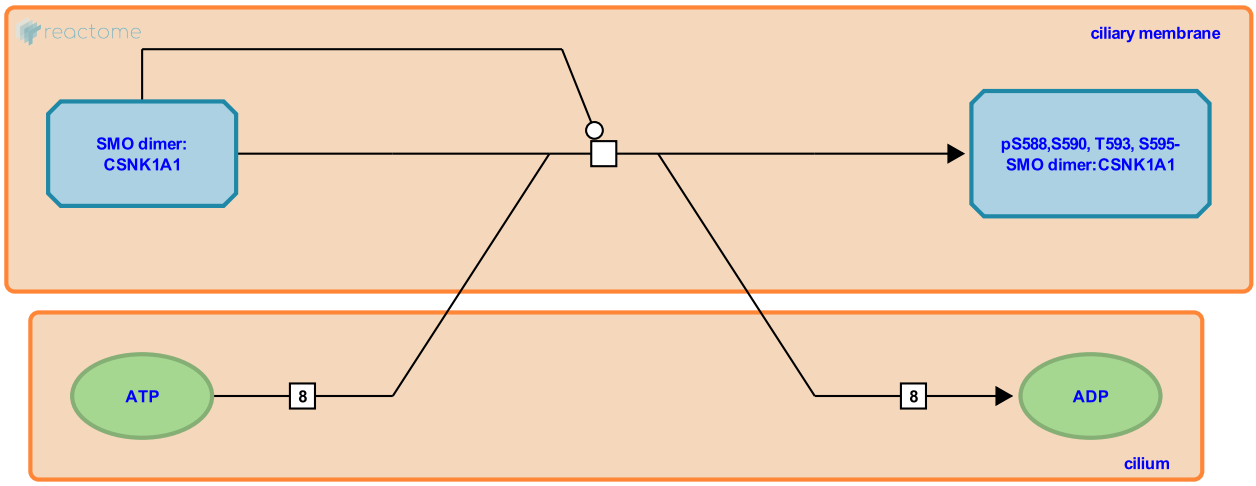
CSNK1A1 phosphorylates SMO dimer ↗

Stable identifier: R-HSA-5632670

Type: transition

Compartments: ciliary membrane

Inferred from: Csnk1a1 phosphorylates Smo dimer (Mus musculus)



Initial activation of SMO in response to HH occurs with the CSNK1A1-mediated phosphorylation of serine and threonine residues in the C-terminal tail. While many potential CSNK1A1 target residues have been identified in in vitro assays, residues S588, S590, T593 and S595 in the S0 region appear to be the most critical for function (Chen et al, 2011). Initial phosphorylation increases the affinity of the C-terminal tail for both CSNK1A1 and ADRBK1/GRK2, establishing a positive feedback mechanism that promotes further phosphorylation. CSNK1A1 and ADRBK1-mediated phosphorylation is thought to promote an open, activated conformation of the C-terminal tails, analogous to that in Drosophila Smo upon pathway activation (Chen et al, 2011; Chen et al, 2010; Zhao et al, 2007).

Literature references

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Editions

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