HHAT G278V doesn't palmitoylate Hh-Np

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This is just an excerpt of a full-length report for this pathway. To access the complete report, please download it at the Reactome Textbook.

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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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Sidiropoulos, K., Viteri, G., Sevilla, C., Jupe, S., Webber, M., Orlic-Milacic, M. et al. (2017). Reactome enhanced pathway visualization. *Bioinformatics, 33*, 3461-3467. ↗

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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 pathway and 1 reaction (see Table of Contents)

HHAT G278V doesn't palmitoylate Hh-Np ↗

**Stable identifier:** R-HSA-5658034

Diseases: 46 XY gonadal dysgenesis

A loss-of-function mutation in HHAT that abrogates palmitoylation of Hh ligand is associated with Syndromic 46, XY Disorder of Sex Development, which results in testis dysgenesis (Callier et al, 2014).

Literature references

Rolland, A., Bernard, P., Callier, P., Antonarakis, SE., Nef, S., Faivre, L. et al. (2014). Loss of Function Mutation in the Palmitoyl-Transferase HHAT Leads to Syndromic 46,XY Disorder of Sex Development by Impeding Hedgehog Protein Palmitoylation and Signaling. *PLoS Genet., 10*, e1004340. ↗

Editions

2014-05-13	Authored	Rothfels, K.
2014-05-16	Reviewed	Liu, Y C.
2014-05-19	Edited	D'Eustachio, P.

HHAT G287V doesn't palmitoylate Hh-Np ↗

Location: HHAT G278V doesn't palmitoylate Hh-Np

Stable identifier: R-HSA-5483229

Type: transition

Compartments: endoplasmic reticulum membrane

Diseases: 46 XY gonadal dysgenesis
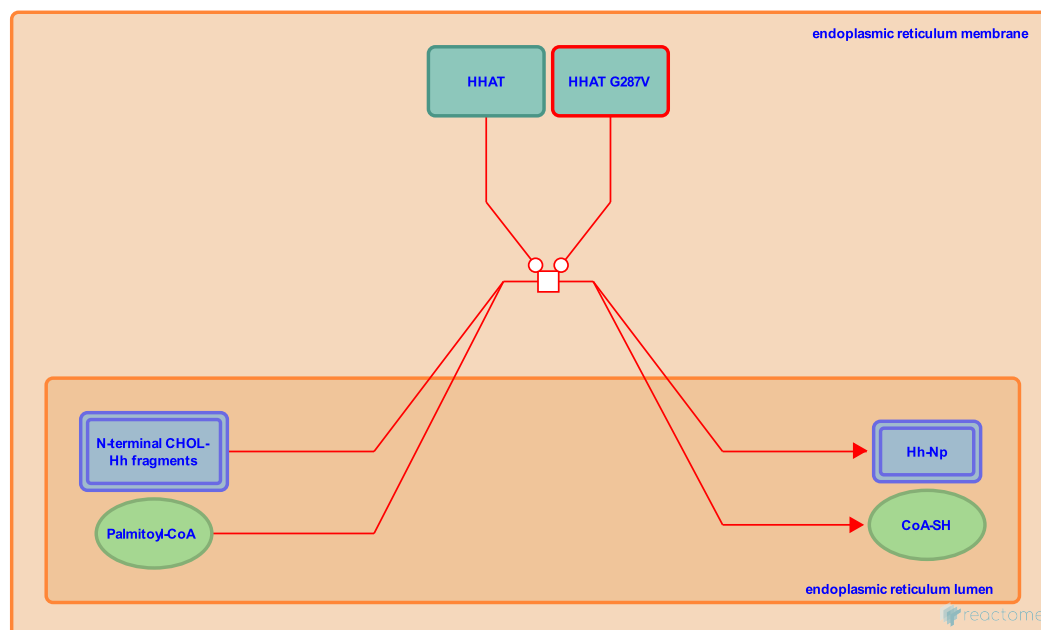
A G287V loss-of-function mutation in HHAT was identified in a rare case of Syndromic 46, XY Disorder of Sex Development, which results in testis dysgenesis. The mutation does not affect the stability, localization or expression level of the HHAT when expressed from a plasmid in COS-1 cells, but the mutant protein is unable to palmitoylate SHH or DHH in an in vitro assay and expression of the HHAT loss-of-function gene in mice recapitulates the phenotypes seen in the human patient (Callier et al, 2014). These findings support a role for DHH signaling in testis development, consistent with earlier reports (Umehara et al, 2000; Canto et al, 2004; Canto et al, 2005; Das et al, 2011).

Literature references

Rolland, A., Bernard, P., Callier, P., Antonarakis, SE., Nef, S., Faivre, L. et al. (2014). Loss of Function Mutation in the Palmitoyl-Transferase HHAT Leads to Syndromic 46,XY Disorder of Sex Development by Impeding Hedgehog Protein Palmitoylation and Signaling. *PLoS Genet., 10*, e1004340. ↗

Söderlund, D., Reyes, E., Méndez, JP., Canto, P. (2004). Mutations in the desert hedgehog (DHH) gene in patients with 46,XY complete pure gonadal dysgenesis. *J. Clin. Endocrinol. Metab., 89*, 4480-3. ↗

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Gawde, H., Idicula-Thomas, S., Vasudevan, L., Das, DK., Sanghavi, D. (2011). Novel homozygous mutations in Desert hedgehog gene in patients with 46,XY complete gonadal dysgenesis and prediction of its structural and functional implications by computational methods. *Eur J Med Genet, 54*, e529-34. ↗

Editions

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