GLI:SUFU translocates to the ciliary tip in response to Hh signaling

Gillespie, ME., Liu, Y C., Rothfels, K.
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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GLI:SUFU translocates to the ciliary tip in response to Hh signaling

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Activation of the Hh pathway causes the GLI:SUFU complex to concentrate in the primary cilium (Humke et al, 2010; Tukachinsky et al, 2010; Kim et al, 2009). The net movement of the GLI:SUFU complex into the cilium occurs downstream of SMO phosphorylation and activation, and requires the Cos2 homologue KIF7, but how the signal is transmitted from the SMO:EVC complex is not clear (Chen et al, 2009; Chen et al, 2010; Pusapati et al, 2013; Endoh-Yamagami et al, 2009; Liem et al, 2009; Cheung et al, 2009). SUFU appears to be a major regulator of the ratio of full length:repressor forms of GLI proteins in vertebrate cells, and the GLI:SUFU interaction is required for the production of GLIR. Dissociation of the GLI:SUFU complex after ligand stimulation diverts GLI from the degradation pathway and allows the full-length form to be activated (Humke et al, 2010; Tukachinsky et al, 2010; Pan et al, 2006; Kim et al, 2009; Wen et al, 2010; Chen et al, 2009; reviewed in Briscoe and Therond, 2013). This represents another major point of divergence between the fly and the vertebrate Hh pathways. In Drosophila, absence of SUFU has no effect on Hh signaling, and the scaffolding protein Cos2 may play the key inhibitory role (Varjosalo et al, 2006; reviewed in Briscoe and Therond, 2013).

Literature references


## Editions

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