ULK3 phosphorylates GLI

Gillespie, ME., Liu, Y C., Rothfels, K.

European Bioinformatics Institute, New York University Langone Medical Center, Ontario Institute for Cancer Research, Oregon Health and Science University.

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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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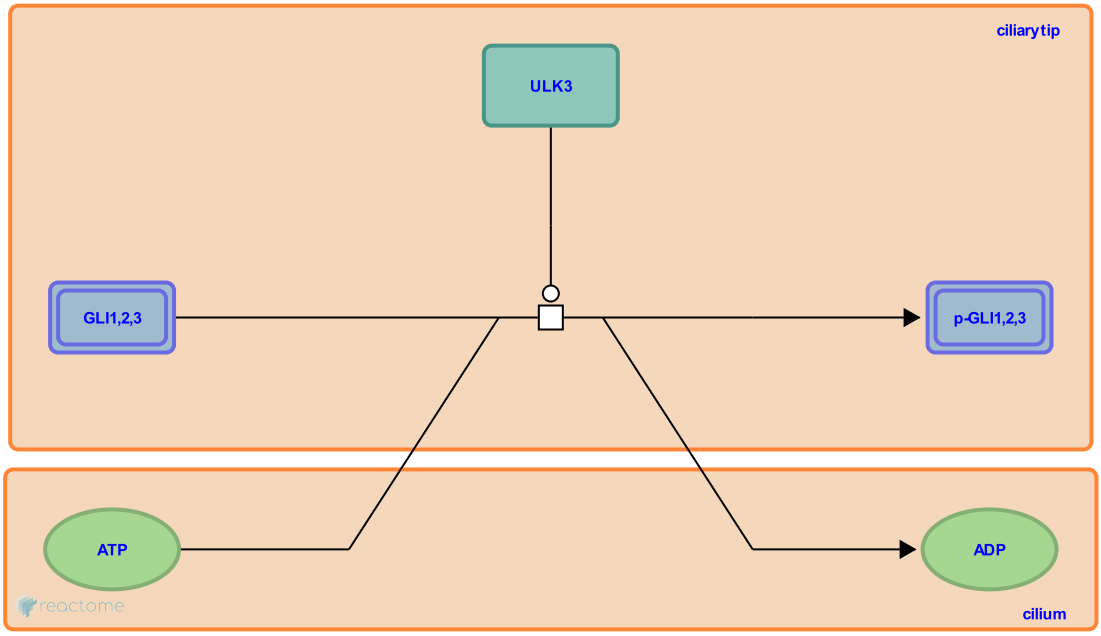
Stable identifier: R-HSA-5635842

Type: transition

Compartments: ciliary tip



Dissociation from SUFU allows the STK36/dFu homologue ULK3 to phosphorylate full-length GLI proteins. Phosphorylation promotes the nuclear translocation of the proteins and stimulates the transcription factor activity as assessed by a GLI-responsive reporter gene. In vitro, ULK3 phosphorylates GLI2 with the highest efficiency, but the kinase is also able to phosphorylate GLI1 and GLI3 (Maloverjan et al, 2010a; Maloverjan et al, 2010b). ULK3 is only one of a number of kinases that have been implicated in the regulation of GLI proteins in response to pathway stimulation, and how all the putative regulators interact to control GLI transcriptional activity remains to be elucidated (Evangelista et al, 2008; Mao et al, 2002; Varjosalo et al, 2008; reviewed in Marjosalo and Piirsoo, 2012).

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Editions

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