

SKP1:FBXL5:CUL1:NEDD8 ubiquitylates

IREB2

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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

- Fabregat, A., Sidiropoulos, K., Viteri, G., Forner, O., Marin-Garcia, P., Arnau, V. et al. (2017). Reactome pathway analysis: a high-performance in-memory approach. *BMC bioinformatics*, 18, 142. [↗](#)
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- Fabregat, A., Jupe, S., Matthews, L., Sidiropoulos, K., Gillespie, M., Garapati, P. et al. (2018). The Reactome Pathway Knowledgebase. *Nucleic Acids Res*, 46, D649-D655. [↗](#)
- 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

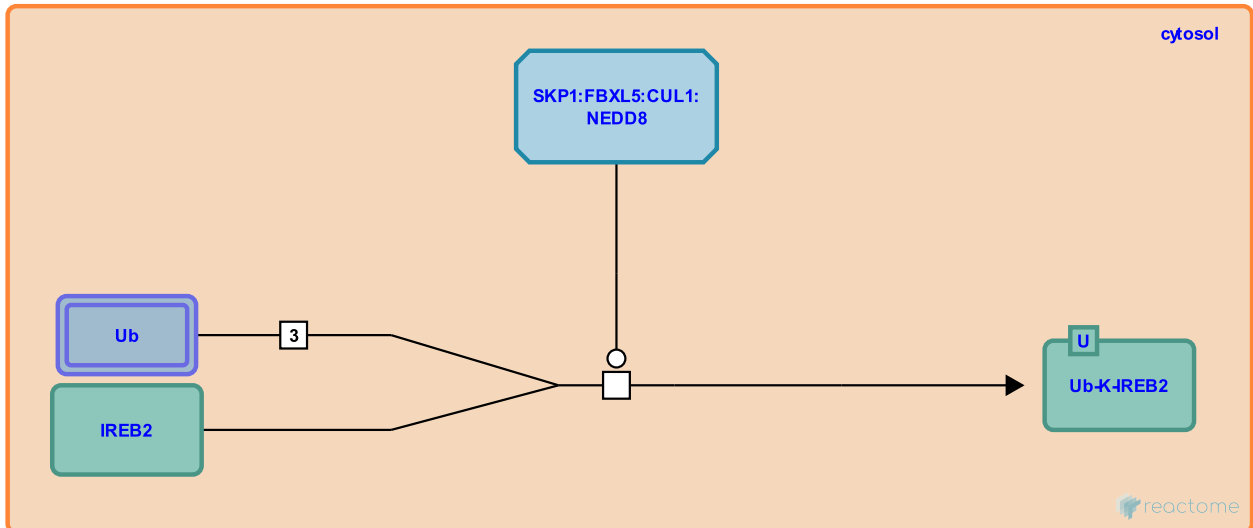
This document contains 1 reaction ([see Table of Contents](#))

SKP1:FBXL5:CUL1:NEDD8 ubiquitinylates IREB2 [↗](#)

Stable identifier: R-HSA-5691108

Type: transition

Compartments: cytosol



Cellular iron homeostasis is maintained by the coordinate posttranscriptional regulation of iron metabolism genes. The E3 ubiquitin ligase complex containing the F-box/LRR-repeat protein 5 (FBXL5) protein (SKP1:FBXL5:CUL1:NEDD8) targets iron-responsive element-binding protein 2 (IREB2) for proteasomal degradation in iron-replete cells (Vashisht et al. 2009, Salahudeen et al. 2009). Cullin-1 (CUL1) is in neddylated form (NEDD8) which allows it to associate with this complex.

Literature references

Leibold, EA., Sun, D., Sangfelt, O., Bhaskaran, N., Powers, DN., Huang, X. et al. (2009). Control of iron homeostasis by an iron-regulated ubiquitin ligase. *Science*, 326, 718-21. [↗](#)

Ma, HW., Salahudeen, AA., Kinch, LN., Ruiz, JC., Li, Q., Grishin, NV. et al. (2009). An E3 ligase possessing an iron-responsive hemerythrin domain is a regulator of iron homeostasis. *Science*, 326, 722-6. [↗](#)

Editions

2015-05-05	Authored, Edited	Jassal, B.
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