

ROBO1 gene expression is inhibited by LHX2

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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. [↗](#)

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

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](#))

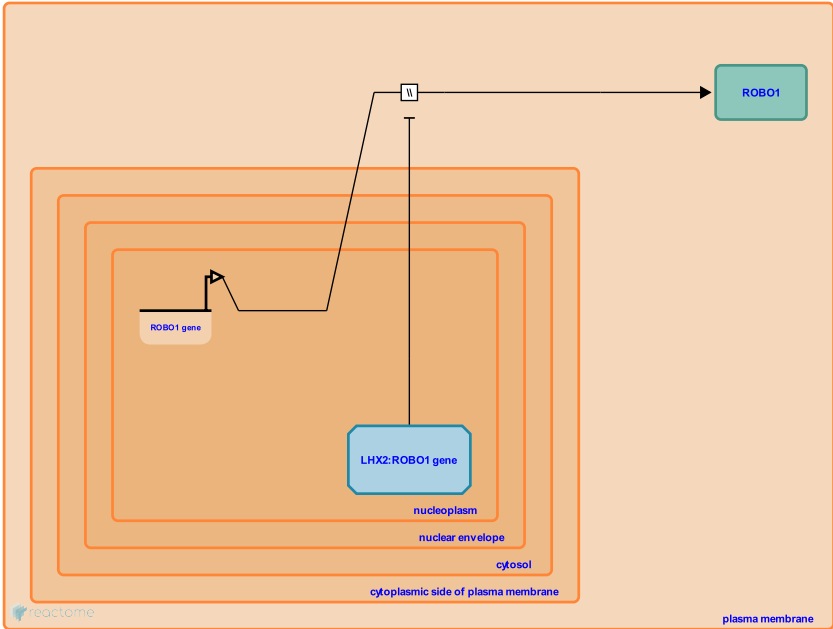
ROBO1 gene expression is inhibited by LHX2 ↗

Stable identifier: R-HSA-9011083

Type: omitted

Compartments: nucleoplasm, plasma membrane

Inferred from: [Robo1 gene expression is inhibited by Lhx2 \(Mus musculus\)](#)



Based on studies in mice, LHX2, a LIM-homeodomain transcription factor, directly represses transcription of the ROBO1 gene by binding to evolutionarily conserved LHX2 binding sites upstream of the ROBO1 gene promoter region. LHX2 is involved in thalamocortical axon guidance (Marcos-Mondejar et al. 2012). In commissural relay neurons of the dorsal spinal cord, however, ROBO1 expression is not affected by LHX2 (Wilson et al. 2008).

Transcription factors GBX2 and LMO3 may be indirectly involved in ROBO1 gene expression regulation by LHX2 (Chatterjee et al. 2012).

Editions

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