

# HNF1a regulates Hnf4a

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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: 82

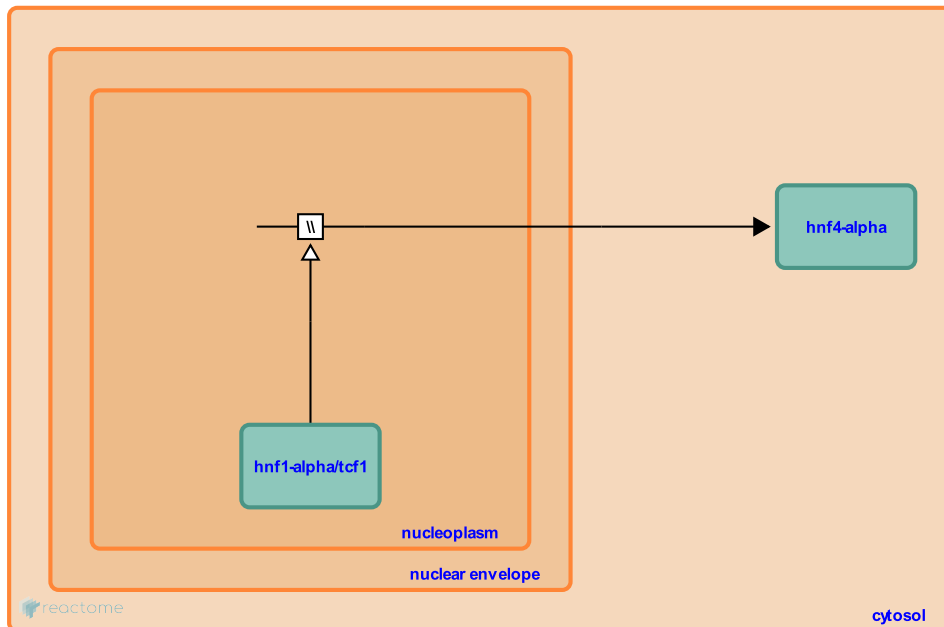
This document contains 1 reaction ([see Table of Contents](#))

## HNF1a regulates Hnf4a [↗](#)

**Stable identifier:** R-MMU-186663

**Type:** omitted

**Compartments:** nucleoplasm, cytosol



Hnf1a was shown to bind the Hnf4a promoter by chromatin immunoprecipitation (Boj et al, 2001). Genetic evidence exists that Hnf1a regulates Hnf4a in Hnf1alpha <sup>-/-</sup> mice (Boj et al, 2001, Shih et al 2001). This is supported by human genetic evidence that a mutation in the Hnf1 binding site of the Hnf4a P2 promoter causes a similar subtype of diabetes as mutations in the coding region of Hnf4a (Hansen et al, 2002).

### Literature references

Pontoglio, M., Philipson, L., Polonsky, KS., Yaniv, M., Screenan, S., Stoffel, M. et al. (2001). Loss of HNF-1alpha function in mice leads to abnormal expression of genes involved in pancreatic islet development and metabolism. *Diabetes*, 50, 2472-80. [↗](#)

Parrizas, M., Maestro, MA., Ferrer, J., Boj, SF. (2001). A transcription factor regulatory circuit in differentiated pancreatic cells. *Proc Natl Acad Sci U S A*, 98, 14481-6. [↗](#)

Johansen, A., Maestro, MA., Eiberg, H., Rivera, F., Andel, M., Pruhova, S. et al. (2002). Genetic evidence that HNF-1alpha-dependent transcriptional control of HNF-4alpha is essential for human pancreatic beta cell function. *J Clin Invest*, 110, 827-33. [↗](#)

### Editions

2006-12-20	Edited	Tello-Ruiz, MK.
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