

# Expression of FABP4 (aP2)

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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

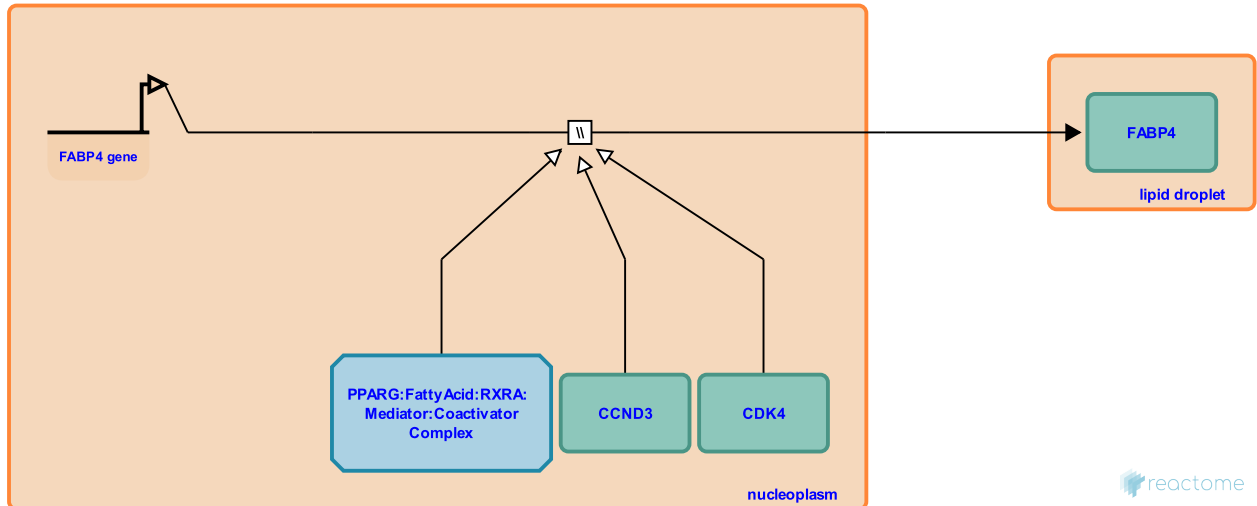
This document contains 1 reaction ([see Table of Contents](#))

## Expression of FABP4 (aP2) ↗

**Stable identifier:** R-HSA-560510

**Type:** omitted

**Compartments:** nucleoplasm, lipid droplet



As inferred from mouse, Cdk4 interacts with PPARG and enhances transcription. Binding of the two factors was tested on the FABP4 (aP2) promoter.

The PPARG:RXRA heterodimer bound to fatty acids activates transcription of FABP4 (aP2). In mouse the Pparg:Rxra heterodimer directly binds the promoter of the Fabp4 gene (Grontveld et al. 2010, Ge et al. 2008, Lefterova et al. 2008)

As inferred from mouse, CyclinD3 interacts with PPARG and enhances transcription. Binding of the two factors was tested on the FABP4 (aP2) promoter.

The FABP4 gene is transcribed to yield mRNA and the mRNA is translated to yield protein. Expression of FABP4 is activated during adipogenesis.

## Literature references

Wu, P., Morganstein, DL., Fisk, NM., Parker, MG., White, R., Mane, MR. (2010). Human fetal mesenchymal stem cells differentiate into brown and white adipocytes: a role for ERRalpha in human UCP1 expression. *Cell Res.* ↗

Rival, Y., Patoiseau, JF., Cathala, C., Lestienne, F., Wurch, T., Dupont-Passelaigue, E. et al. (2004). Human adipocyte fatty acid-binding protein (aP2) gene promoter-driven reporter assay discriminates nonlipogenic peroxisome proliferator-activated receptor gamma ligands. *J Pharmacol Exp Ther*, 311, 467-75. ↗

Plissonnier, ML., Bittard, H., Fauconnet, S., Lascombe, I., Roche, E., Clairotte, A. et al. (2009). A-FABP, a candidate progression marker of human transitional cell carcinoma of the bladder, is differentially regulated by PPAR in urothelial cancer cells. *Int J Cancer*, 124, 1820-8. ↗

Pelton, PD., Burris, TP., Demarest, KT., Zhou, L. (1999). PPARgamma activation induces the expression of the adipocyte fatty acid binding protein gene in human monocytes. *Biochem Biophys Res Commun*, 261, 456-8. ↗

## Editions

2009-05-27	Reviewed	D'Eustachio, P.
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