NFE2 is a heterodimer

Akkerman, JW., Jupe, S., Ouwehand, WH.

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

15/10/2024

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.

The development of Reactome is supported by grants from the US National Institutes of Health (P41 HG003751), University of Toronto (CFREF Medicine by Design), European Union (EU STRP, EMI-CD), and the European Molecular Biology Laboratory (EBI Industry program).

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. ↗

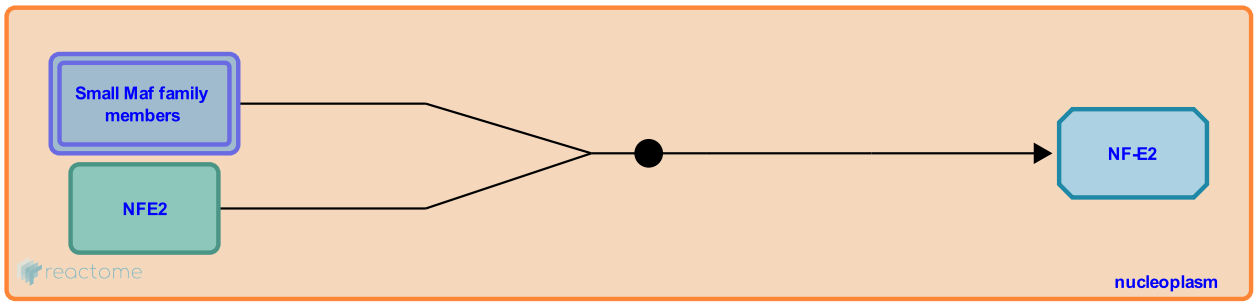
NFE2 is a heterodimer ↗

Stable identifier: R-HSA-1008240

Type: binding

Compartments: nucleoplasm

Inferred from: Small MAF family members dimerize with p45-NF-E2 (Mus musculus)



NF-E2 is a heterodimer consisting of a hematopoietic-specific subunit NFE2-p45, a member of the cap and collar (CNC) family, and a more widely expressed small subunit which can be any of the three small members of the Maf protein family MafF, MafG OR MafK (Motohashi et al. 1997). MafG and MafK are the predominant small Maf molecules in erythroid cells and megakaryocytes (Shavit et al. 1998). NF-E2 binds to an extended AP-1-like element, TGCTGA(G/C)TCA, which is found in the locus control regions (LCRs) of the alpha- and beta-globin genes and in the promoters of several heme biosynthetic enzyme genes (see Motohashi et al. 1997). NF-E2 binding sites in the DNase I hypersensitive site 2 (HS2) of the beta-globin LCR are essential for its enhancer activity (Ney et al. 1990, Talbot & Grosveld 1991). NFE2-p45 null mice have a mild defect in globin gene expression, suggesting that other members of the CNC protein family can substitute for function in vivo (Shivdasani & Orkin 1995).

Editions

2010-10-29	Reviewed	Akkerman, JW.
2010-11-12	Edited	Jupe, S.
2010-11-12	Authored	Ouwehand, WH.