HPGD dimer oxidises 18(S)-RvE1 to 18-oxo-RvE1

Hansen, TV., Jassal, B.

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

15/05/2024

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. ↗

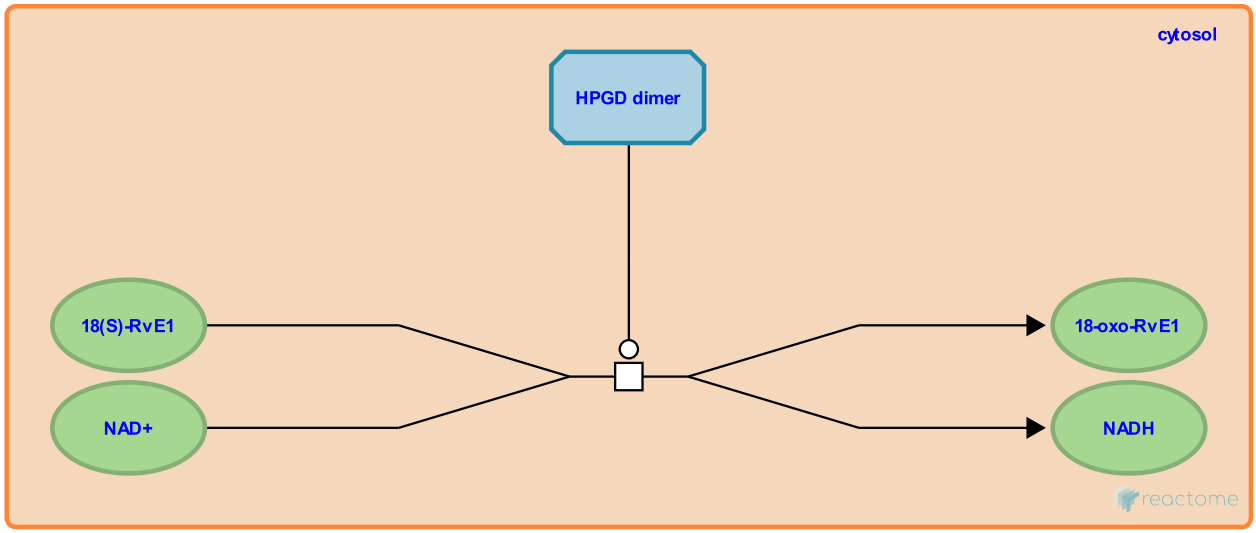
Fabregat, A., Korninger, F., Viteri, G., Sidiropoulos, K., Marin-Garcia, P., Ping, P. et al. (2018). Reactome graph database: Efficient access to complex pathway data. *PLoS computational biology, 14*, e1005968. ↗

HPGD dimer oxidises 18(S)-RvE1 to 18-oxo-RvE1 ↗

Stable identifier: R-HSA-9023968

Type: transition

Compartments: cytosol



In human blood, the major metabolic products of RvE1 are 10,11-dihydro-RvE1, 18-oxo-RvE1, and 20-hydroxy-RvE1 (Hong et al. 2008). 18-oxo-RvE1, formed by dimeric 15-hydroxyprostaglandin dehydrogenase (HPGD dimer) in the presence of NAD+, is also the major metabolite formed in murine lung and has been demonstrated to be devoid of activity, representing a mode of RvE1 inactivation (Arita et al. 2006). The exact enzymes that catalyze the formation of the other RvE1 metabolites mentioned here are currently unknown.

Literature references

Pillai, PS., Serhan, CN., Lu, Y., Oh, SF., Porter, TF., Hong, S. (2008). Resolvin E1 metabolome in local inactivation during inflammation-resolution. *J. Immunol., 180*, 3512-9. ↗

Serhan, CN., Arita, M., Oh, SF., Petasis, NA., Elangovan, S., Chonan, T. et al. (2006). Metabolic inactivation of resolvin E1 and stabilization of its anti-inflammatory actions. *J. Biol. Chem., 281*, 22847-54. ↗

Editions

2017-09-29	Authored, Edited	Jassal, B.
2018-02-21	Reviewed	Hansen, TV.