

PGM2:Mg²⁺ isomerises R1P to R5P

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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. [↗](#)
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Reactome database release: 74

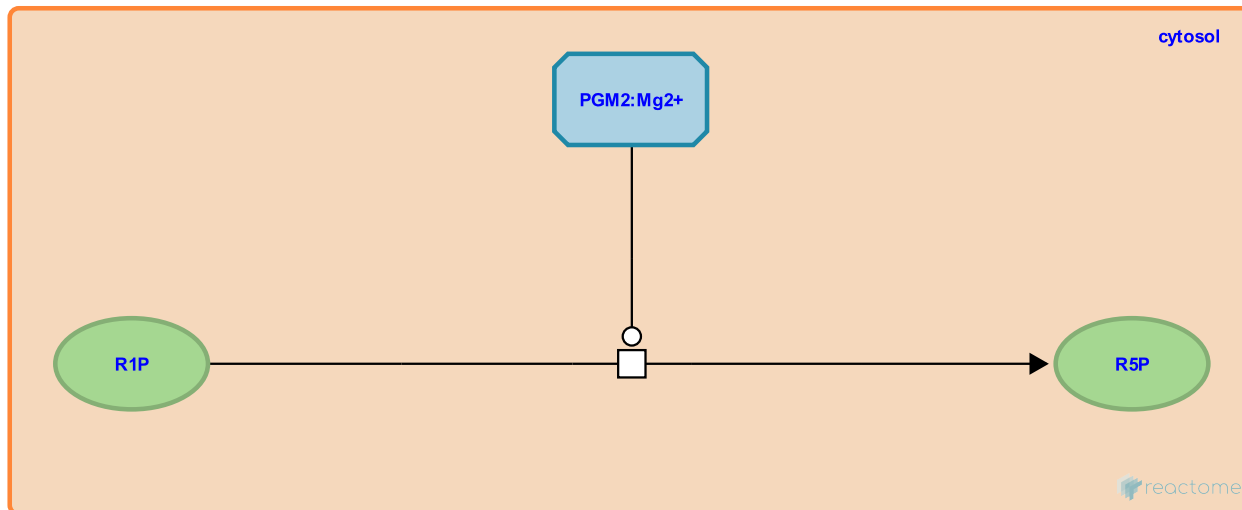
This document contains 1 reaction ([see Table of Contents](#))

PGM2:Mg2+ isomerises R1P to R5P ↗

Stable identifier: R-HSA-6787329

Type: transition

Compartments: cytosol



The nucleoside breakdown product ribose-1-phosphate (R1P) can be used to produce energy during oxidative or mitochondrial stress to minimize or delay stress-induced damage. Two steps connect this nucleoside breakdown product to central carbon metabolism in mammals. In the first step, R1P is isomerised to the corresponding 5-phosphopentose, R5P, mediated by phosphoglucomutase-2 (PGM2). PGM2 is a cytosolic, M²⁺-dependent enzyme that acts ten times better as a phosphopentomutase (both on R1P and dR1P) than as a phosphoglucomutase (on glucose-1-phosphate) (Maliekal et al. 2007).

Literature references

Maliekal, P., Sokolova, T., Vertommen, D., Veiga-da-Cunha, M., Van Schaftingen, E. (2007). Molecular identification of mammalian phosphopentomutase and glucose-1,6-bisphosphate synthase, two members of the alpha-D-phosphohexomutase family. *J Biol Chem*, 282, 31844-51. ↗

Editions

2015-07-13	Authored, Edited	Jassal, B.
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