

2-Phospho-D-glycerate \rightleftharpoons Phosphoenolpyruvate + H₂O

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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

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Reactome database release: 75

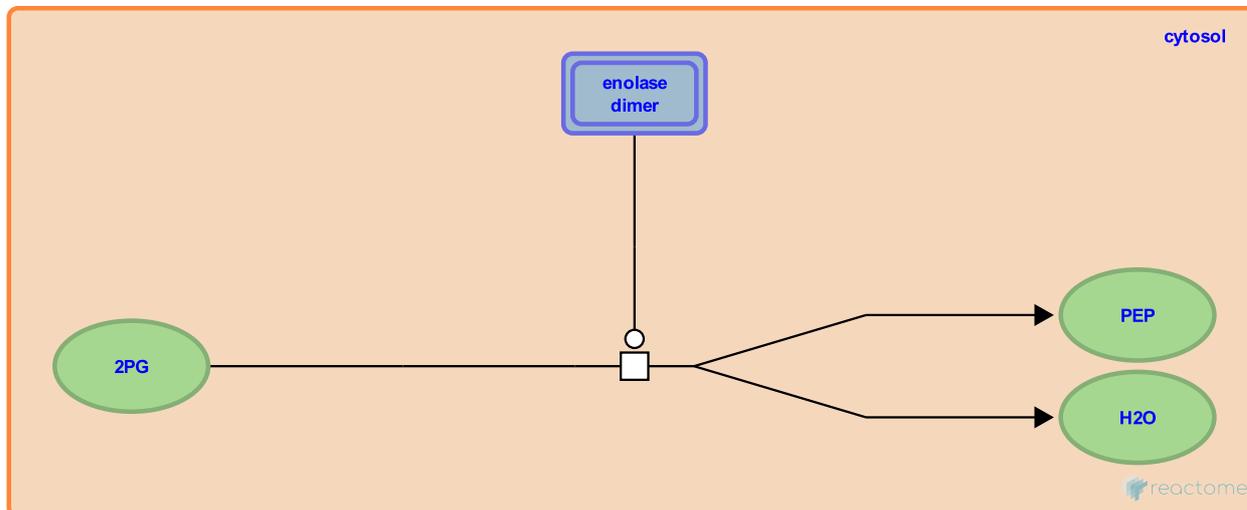
This document contains 1 reaction ([see Table of Contents](#))

2-Phospho-D-glycerate <=> Phosphoenolpyruvate + H2O ↗

Stable identifier: R-HSA-71660

Type: transition

Compartments: cytosol



Cytosolic enolase catalyzes the reversible reaction of 2 phosphoglycerate to form phosphoenolpyruvate and water, elevating the transfer potential of the phosphoryl group.

Enolase is a homodimer and requires Mg^{++} for activity. Three isozymes have been purified and biochemically characterized. The alpha isoform is expressed in many normal human tissues (Giallongo et al. 1986). The beta isoform is expressed in muscle. Evidence for its function in vivo in humans comes from studies of a patient in whom a point mutation in the gene encoding the enzyme was associated specifically with reduced enolase activity in muscle extracts and with other symptoms consistent with a defect in glycolysis (Comi et al. 2001). The gamma isoform of human enolase is normally expressed in neural tissue and is of possible clinical interest as a marker of some types of neuroendocrine and lung tumors (McAleese et al. 1988). Biochemical studies of the homologous rat proteins indicate that both homo- and heterodimers of enolase form and are enzymatically active (Rider and Taylor 1974).

Literature references

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Editions

2004-09-21	Authored	D'Eustachio, P.
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