MPST transfers sulfur atom from 3MPYR to HSO3- to form S2O3(2-) and PYR

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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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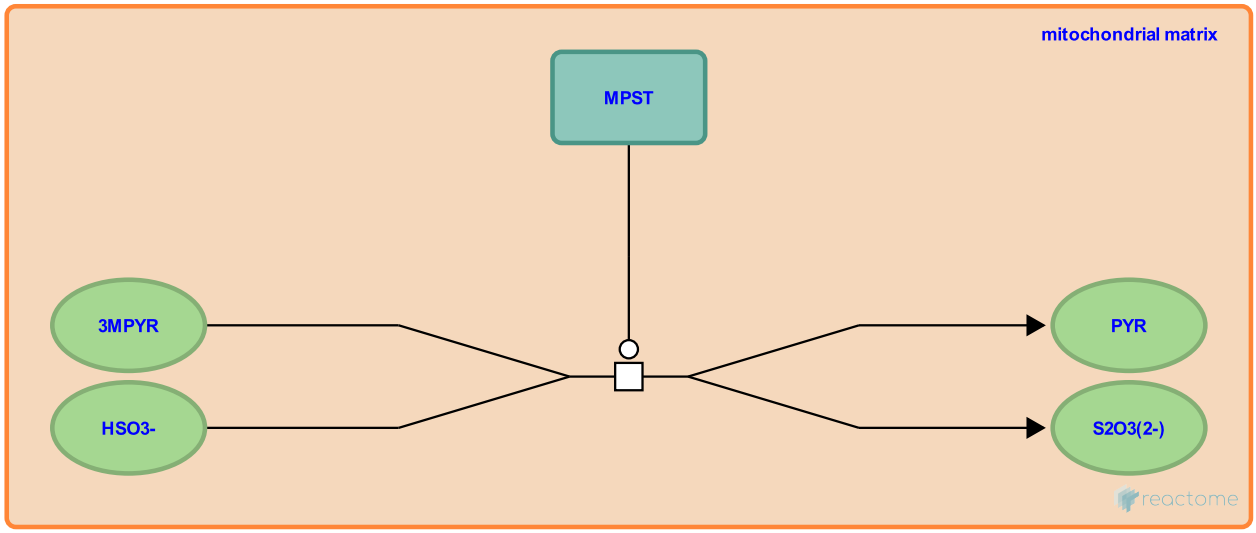
Stable identifier: R-HSA-9012721

Type: transition

Compartments: mitochondrial matrix



Hydrogen sulfide (H2S) produced endogenously has been established as the third gaseous signaling molecule, a smooth muscle relaxant and a neuroprotectant (Kimura 2011a, 2011b). Three enzyme systems produce H2S in the brain, retina and vascular endothelial cells (Shibuya et al. 2009a, 2009b, Mikami et al. 2011). 3-mercaptopyruvate sulphurtransferase (MPST, aka 3MST) in conjunction with cysteine (aspartate) aminotransferase (CAT, aka GOT2) is decribed here. In the second step, 3-mercaptopyruvate sulfurtransferase (MPST aka 3MST) mediates the transfer of a sulfur atom from 3-methylpryuvate (3MPYR) to hydrogensulfite (HSO3-) to form thiosulfate (S2O3(2-)) and pyruvate (PYR) (Yadav et al. 2013).

Literature references

Yadav, PK., Yamada, K., Chiku, T., Koutmos, M., Banerjee, R. (2013). Structure and kinetic analysis of H2S production by human mercaptopyruvate sulfurtransferase. *J. Biol. Chem., 288*, 20002-13.

Editions

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