S-Adenosyl methionine <=> De-carboxylated-Adenosyl methionine + CO2

D'Eustachio, P., Gopinathrao, G.

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

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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. ↗

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. ↗

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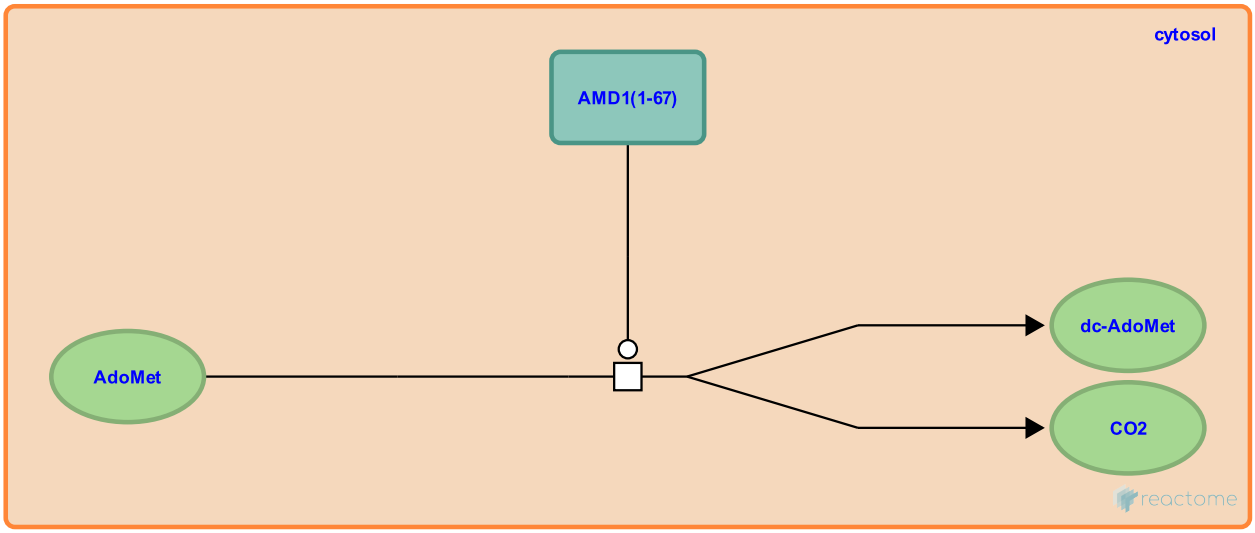
Stable identifier: R-HSA-351222

Type: transition

Compartments: cytosol



S-Adenosylmethionine decarboxylase belongs to a small class of amino acid decarboxylases that use a covalently bound pyruvate as a prosthetic group. It is an essential enzyme for polyamine biosynthesis and provides an important target for the design of anti-parasitic and cancer chemotherapeutic agents. It catalyzes the formation of the aminopropyl group donor in the biosynthesis of the polyamines spermidine and spermine. These pyruvoyl-dependent decarboxylases also form amines such as histamine, decarboxylated S-adenosylmethionine, phosphatidylethanolamine (a component of membrane phospholipids), and -alanine (a precursor of coenzyme A), which are all of critical importance in cellular physiology and provide important targets for drug design.

Literature references

Tolbert, WD., Ekstrom, JL., Mathews, II., Secrist JA, 3rd., Kapoor, P., Pegg, AE. et al. (2001). The structural basis for substrate specificity and inhibition of human S-adenosylmethionine decarboxylase. *Biochemistry, 40*, 9484-94. ↗

Editions

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