ornithine (cytosolic) + citrulline (mitochondrial) => ornithine (mitochondrial) + citrulline (cytosolic)

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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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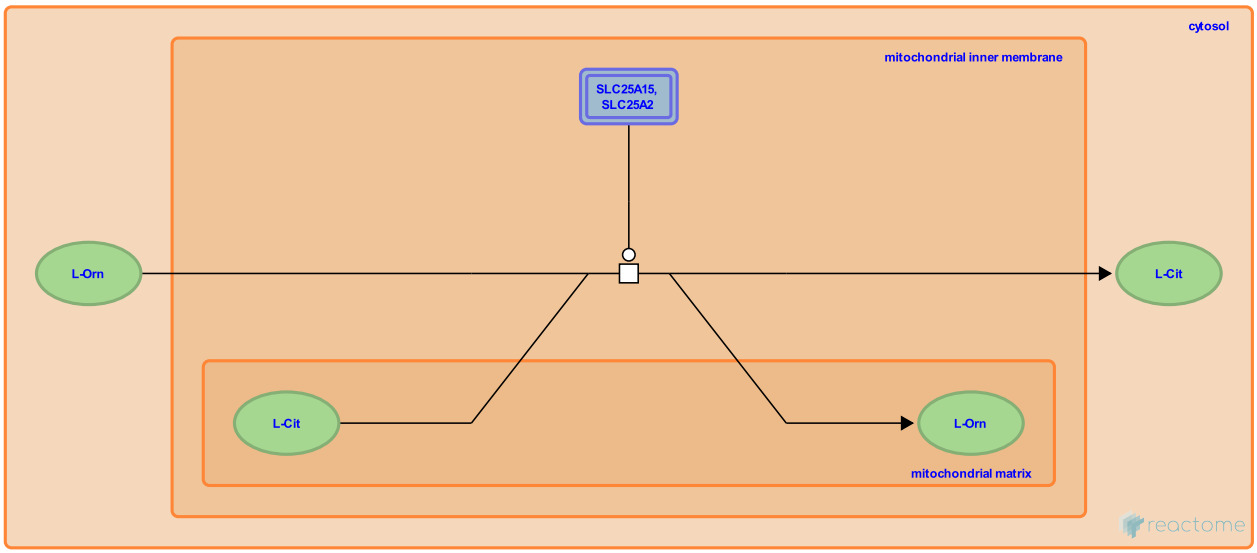
ornithine (cytosolic) + citrulline (mitochondrial) => ornithine (mitochondrial) + citrulline (cytosolic) ↗

Stable identifier: R-GGA-187608

Type: transition

Compartments: cytosol, mitochondrial inner membrane, mitochondrial matrix

Inferred from: ornithine (cytosolic) + citrulline (mitochondrial) => ornithine (mitochondrial) + citrulline (cytosolic) (Homo sapiens)



SLC25A15 and SLC25A2, mitochondrial ornithine transporters, mediate the exchange of cytosolic ornithine for mitochondrial citrulline across the inner mitochondrial membrane. Both human proteins have been experimentally characterized (Fiermonte et al. 2003). DNA sequences capable of encoding chicken orthologs of both have been computationally identified in the ENSEMBL chicken gene set, although it is not clear which chicken gene corresponds to which human one. The chicken reaction is inferred from the human one although, given the evidence that citrulline is not synthesized from ornithine to an appreciable extent in chickens (Tamir and Ratner 1963), the physiological significance of the reaction is unclear.

Editions

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