Defective MAOA does not oxidatively deaminate 5HT

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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. ↗

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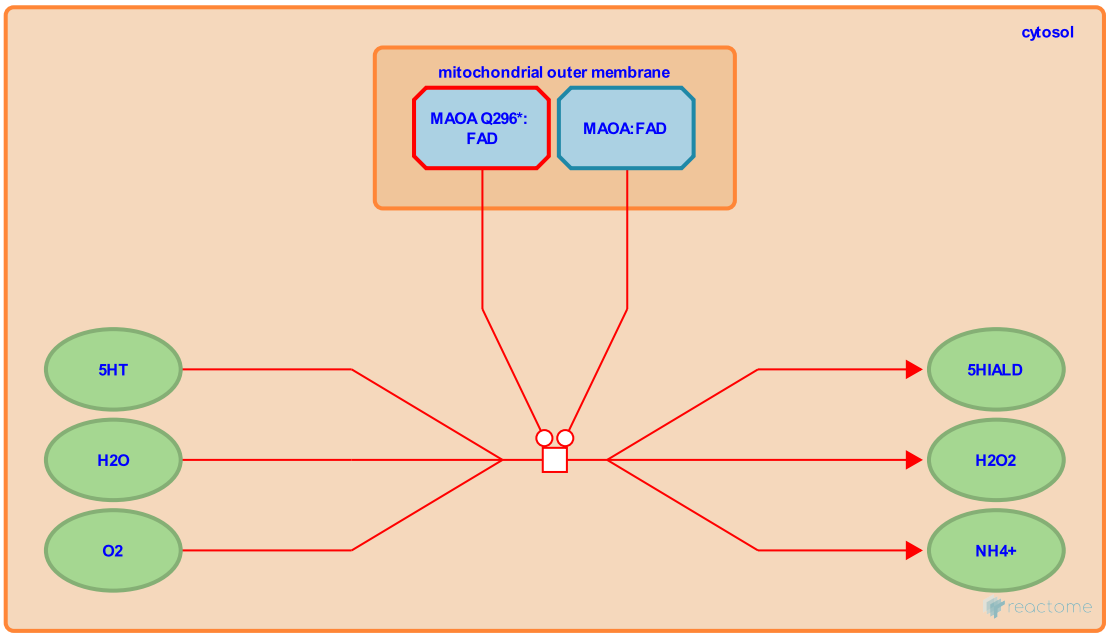
Stable identifier: R-HSA-5603108

Type: transition

Compartments: mitochondrial outer membrane, cytosol

Diseases: disease of mental health



Amine oxidase (flavin-containing) A (MAOA) catalyses the oxidative deamination of biogenic and dietary amines, the regulation of which is critical for mental state homeostasis. MAOA, located on the mitochondrial outer membrane and requiring FAD as cofactor, preferentially oxidises biogenic amines such as 5-hydroxytryptamine (5HT), dopamine, noradrenaline and adrenaline. Defects in MAOA can cause Brunner syndrome (BRUNS; MIM:300615), a form of X-linked non-dysmorphic mild mental retardation. Male patients are affected by mild mental retardation and exhibit abnormal behaviour, including impulsive aggression. A mutation that causes BRUNS is Q296* (Brunner et al. 1993).

Literature references

Brunner, HG., Nelen, M., Ropers, HH., van Oost, BA., Breakefield, XO. (1993). Abnormal behavior associated with a point mutation in the structural gene for monoamine oxidase A. *Science, 262*, 578-80. ↗

Editions

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