SIRT4 transfers ADPRib to GLUD

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06/05/2024

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.

The development of Reactome is supported by grants from the US National Institutes of Health (P41 HG003751), University of Toronto (CFREF Medicine by Design), European Union (EU STRP, EMI-CD), and the European Molecular Biology Laboratory (EBI Industry program).

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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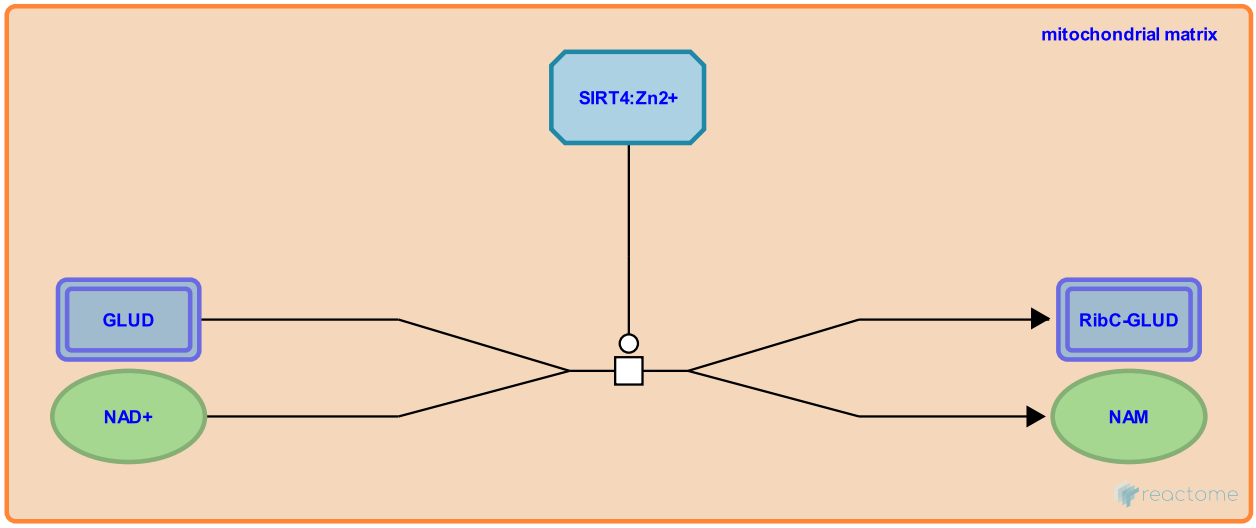
Stable identifier: R-HSA-5688276

Type: transition

Compartments: mitochondrial matrix



Sirtuin 4 (SIRT4) is a mitochondrial ADP-ribosyltransferase and deacetylase. It uses NAD+ to ADP-ribosylate glutamate dehydrogenase (GLUD), reducing its enzyme activity by at least 50%, leading to reduced insulin secretion in pancreatic beta cells (Haigis et al. 2006, Ahuja et al. 2007).

Literature references

Waltregny, D., North, BJ., Maechler, P., Verdin, E., Carobbio, S., Schwer, B. et al. (2007). Regulation of insulin secretion by SIRT4, a mitochondrial ADP-ribosyltransferase. *J. Biol. Chem., 282*, 33583-92. ↗

Editions

2015-04-15	Authored	Jupe, S.
2017-02-01	Reviewed	Haigis, M.
2017-02-01	Edited	Jupe, S.