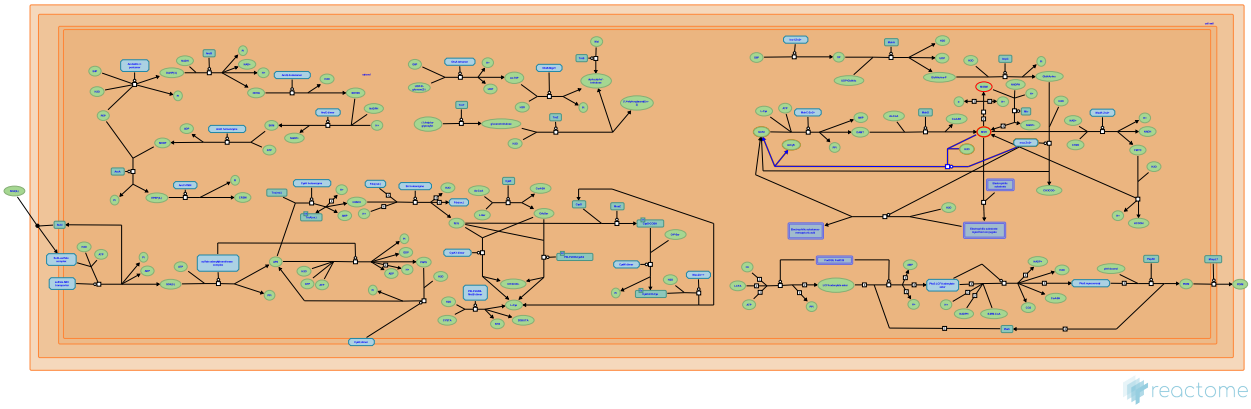
Mycothiol catabolism



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This is just an excerpt of a full-length report for this pathway. To access the complete report, please download it at the Reactome Textbook.

02/05/2024

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.

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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. ↗

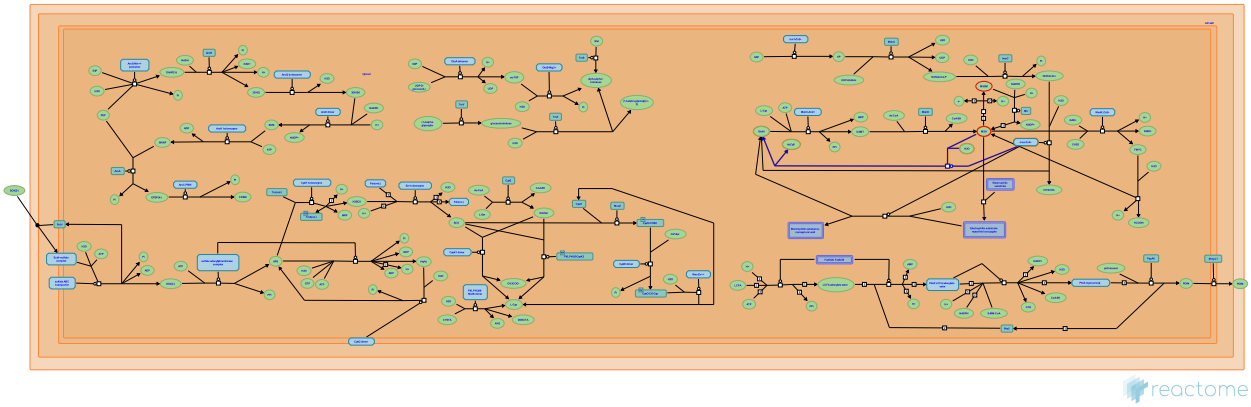
Sidiropoulos, K., Viteri, G., Sevilla, C., Jupe, S., Webber, M., Orlic-Milacic, M. et al. (2017). Reactome enhanced pathway visualization. *Bioinformatics, 33*, 3461-3467. ↗

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. ↗

Mycothiol catabolism ↗

Stable identifier: R-MTU-879325



Mycothiol and its adducts that result from detoxification can be readily cleaved into smaller molecules. The mycothiol pool therefore serves as storage for unstable cysteine and sugars. (Rawat and Av-Gay, 2007; Newton et al, 2008)

Literature references

Newton, GL., Fahey, RC., Buchmeier, N. (2008). Biosynthesis and functions of mycothiol, the unique protective thiol of Actinobacteria. *Microbiol Mol Biol Rev, 72*, 471-94. ↗

Rawat, M., Av-Gay, Y. (2007). Mycothiol-dependent proteins in actinomycetes. *FEMS Microbiol Rev, 31*, 278-92. ↗

Editions

2010-06-12	Authored	Stephan, R.
2010-11-25	Reviewed	Warner, D.
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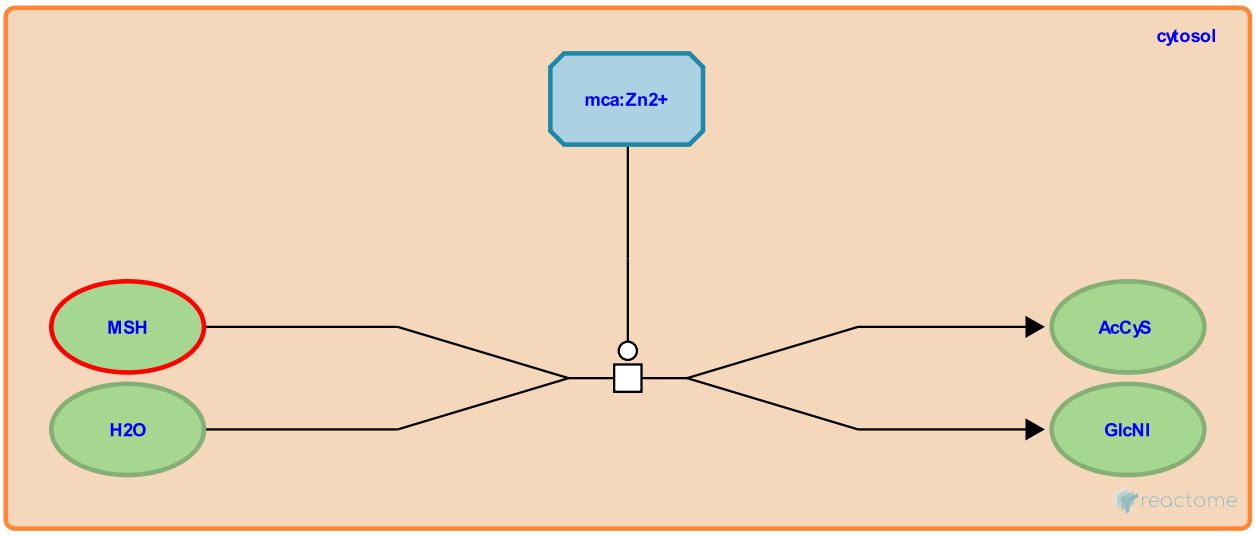
mycothiol is cleaved to acetylcysteine and glucosaminylinositol ↗

Location: Mycothiol catabolism

Stable identifier: R-MTU-879281

Type: transition

Compartments: cytosol



The degradation of mycothiol proceeds through its cleavage into acetylcysteine and glucosaminylinositol which both are completely degradable further. (Steffek et al, 2003)

Literature references

Newton, GL., Fahey, RC., Av-Gay, Y., Steffek, M. (2003). Characterization of Mycobacterium tuberculosis mycothiol S-conjugate amidase. *Biochemistry, 42*, 12067-76. ↗

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