Sulfur compound metabolism

Jassal, B., Stephan, R., Warner, D.

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

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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.

24/09/2022
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


Sulfur compound metabolism

**Stable identifier:** R-MTU-936621

Unique small sulfur compounds, as well as unique pathways to sulfur amino acids are known in Mycobacteria. Sulfoglycolipids and mycothiols are an important part of the hardy pathogen nature of these organisms. Their pathways make interesting targets for drug designers (Bhave et al, 2007).

**Literature references**


**Editions**

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Uptake of sulfur in *Mycobacterium tuberculosis* happens exclusively through sulfate assimilation, an abundant molecule in the bacterium's environment. All enzymes participating in this process are non-redundant i.e., they are essential enzymes. Sulfate is first taken up via an ABC transporter and appended to AMP giving APS and PAPS, which can be considered the activated forms of sulfate and are used in cysteine and sulfolipid biosynthesis (Bhave et al, 2007).

**Literature references**

No cysteine auxotrophs of *Mycobacterium tuberculosis* are known. This suggests redundant pathways for sulfur uptake and cysteine biosynthesis. Indeed, there is full interconversion between taken up sulfate/sulfide, cysteine, and methionine via cystathionine. (Schnell and Schneider, 2010)

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