

## SLC31 family of copper transporters in GtoPdb v.2023.1

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### Abstract

SLC31 family members, alongside the [Cu-ATPases](#) are involved in the regulation of cellular copper levels. The CTR1 transporter is a cell-surface transporter to allow monovalent copper accumulation into cells, while CTR2 appears to be a vacuolar/vesicular transporter [5]. Functional copper transporters appear to be trimeric with each subunit having three TM regions and an extracellular N-terminus. CTR1 is considered to be a higher affinity copper transporter compared to CTR2. The stoichiometry of copper accumulation is unclear, but appears to be energy-independent [4].

### Contents

This is a citation summary for SLC31 family of copper transporters in the [Guide to Pharmacology](#) database (GtoPdb). It exists purely as an adjunct to the database to facilitate the recognition of citations to and from the database by citation analyzers. Readers will almost certainly want to visit the relevant sections of the database which are given here under database links.

[GtoPdb](#) is an expert-driven guide to pharmacological targets and the substances that act on them. GtoPdb is a reference work which is most usefully represented as an on-line database. As in any publication this work should be appropriately cited, and the papers it cites should also be recognized. This document provides a citation for the relevant parts of the database, and also provides a reference list for the research cited by those parts. For further details see [2].

Please note that the database version for the citations given in GtoPdb are to the most recent preceding version in which the family or its subfamilies and targets were substantially changed. The links below are to the current version. If you need to consult the cited version, rather than the most recent version, please contact the GtoPdb curators.

### Database links

#### [SLC31 family of copper transporters](#)

<https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=218>

Transporters

[CTR1\(Copper transporter 1\)](#)

<https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1131>

[CTR2\(Copper transporter 2\)](#)

<https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1132>

### References

1. Blair BG, Larson CA, Safaei R and Howell SB. (2009) Copper transporter 2 regulates the cellular accumulation and cytotoxicity of Cisplatin and Carboplatin. *Clin Cancer Res* **15**: 4312-21

[\[PMID:19509135\]](#)

2. Buneman P, Christie G, Davies JA, Dimitrellou R, Harding SD, Pawson AJ, Sharman JL and Wu Y. (2020) Why data citation isn't working, and what to do about it *Database* **2020** [\[PMID:32367113\]](#)
3. Ishida S, Lee J, Thiele DJ and Herskowitz I. (2002) Uptake of the anticancer drug cisplatin mediated by the copper transporter Ctr1 in yeast and mammals. *Proc Natl Acad Sci USA* **99**: 14298-302 [\[PMID:12370430\]](#)
4. Lee J, Peña MM, Nose Y and Thiele DJ. (2002) Biochemical characterization of the human copper transporter Ctr1. *J Biol Chem* **277**: 4380-7 [\[PMID:11734551\]](#)
5. Rees EM, Lee J and Thiele DJ. (2004) Mobilization of intracellular copper stores by the ctr2 vacuolar copper transporter. *J Biol Chem* **279**: 54221-9 [\[PMID:15494390\]](#)