

# Product Datasheet

## SLC31A1/CTR1 Antibody - BSA Free NB100-402

Unit Size: 0.1 ml

Store at 4C short term. Store at -20C long term. Avoid freeze-thaw cycles.

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**NB100-402****SLC31A1/CTR1 Antibody - BSA Free**

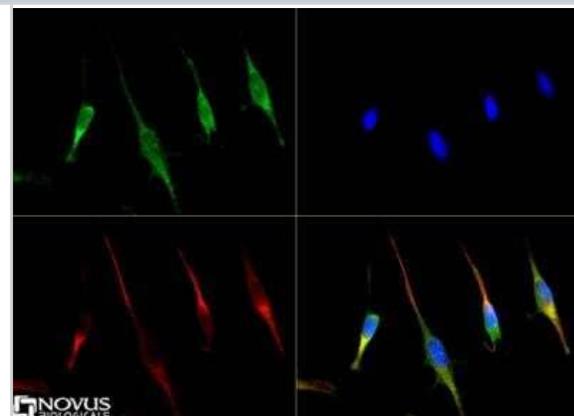
<b>Product Information</b>	
<b>Unit Size</b>	0.1 ml
<b>Concentration</b>	1 mg/ml
<b>Storage</b>	Store at 4C short term. Store at -20C long term. Avoid freeze-thaw cycles.
<b>Clonality</b>	Polyclonal
<b>Preservative</b>	0.02% Sodium Azide
<b>Isotype</b>	IgG
<b>Purity</b>	Immunogen affinity purified
<b>Buffer</b>	PBS

<b>Product Description</b>	
<b>Description</b>	Novus Biologicals Rabbit SLC31A1/CTR1 Antibody - BSA Free (NB100-402) is a polyclonal antibody validated for use in IHC, WB and ICC/IF. Anti-SLC31A1/CTR1 Antibody: Cited in 34 publications. All Novus Biologicals antibodies are covered by our 100% guarantee.
<b>Host</b>	Rabbit
<b>Gene ID</b>	1317
<b>Gene Symbol</b>	SLC31A1
<b>Species</b>	Human, Mouse, Rat, Porcine, Canine, Xenopus, Zebrafish
<b>Reactivity Notes</b>	Canine reactivity reported in scientific literature (PMID: 29901089).
<b>Immunogen</b>	A synthetic peptide derived from a C-terminal sequence of human SLC31A1/CTR1 [Uniprot: O15431]

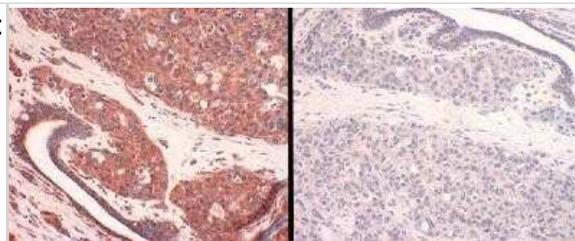
<b>Product Application Details</b>	
<b>Applications</b>	Western Blot, Immunohistochemistry-Paraffin, Immunocytochemistry/Immunofluorescence, Immunohistochemistry, Immunohistochemistry-Frozen
<b>Recommended Dilutions</b>	Western Blot, Immunohistochemistry 1:250, Immunocytochemistry/Immunofluorescence 1:500, Immunohistochemistry-Paraffin 1:250, Immunohistochemistry-Frozen

**Images**

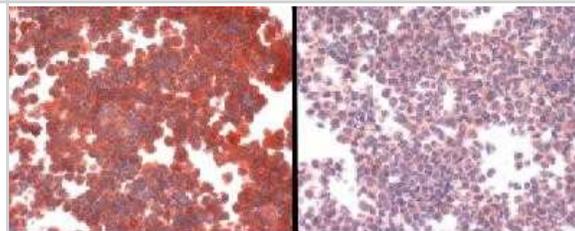
Immunocytochemistry/Immunofluorescence: SLC31A1/CTR1 Antibody [NB100-402] - CTR1 antibody was tested in NIH-3T3 cells with DyLight 488 (green). Nuclei and alpha-tubulin were counterstained with DAPI (blue) and DyLight 550 (red).



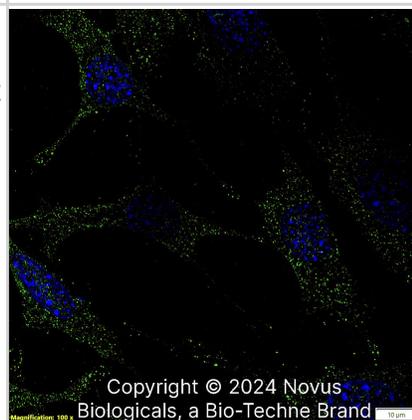
Immunohistochemistry: SLC31A1/CTR1 Antibody [NB100-402] - Panel 1: human CTR1 staining of breast cancer tissue. Panel 2: human CTR1-antigen competition in breast cancer tissue.



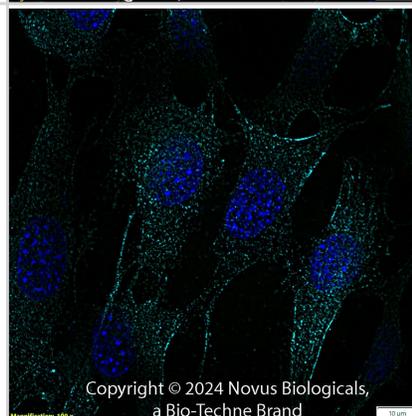
Immunohistochemistry: SLC31A1/CTR1 Antibody [NB100-402] - Left panel: Antibody staining of hCTR1 overexpressing cell line. Right panel: Antibody plus peptide competition staining.



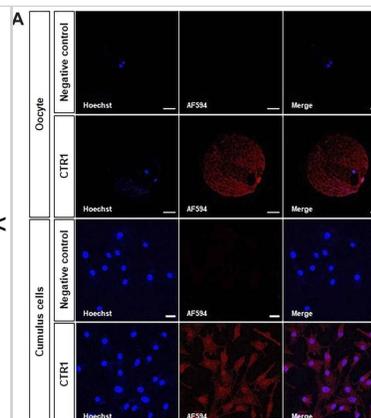
SLC31A1/CRT1 was detected in immersion fixed NIH3T3 Mouse fibroblast cell line using Rabbit anti-SLC31A1/CRT1 Antigen Affinity-purified Polyclonal Antibody (Catalog # NB100-402) at 2  $\mu\text{g}/\text{mL}$  overnight at 4C. Cells were stained using DyLight 488-conjugated Anti-Rabbit IgG (H+L) Cross-Absorbed Secondary Antibody (green) and counterstained with DAPI (blue). Cells were imaged using a 100X objective and digitally deconvolved.



SLC31A1/CRT1 was detected in immersion fixed NIH3T3 Mouse fibroblast cell line using Rabbit anti-SLC31A1/CRT1 Antigen Affinity-purified Polyclonal Antibody conjugated to DyLight 650 (Catalog # NB100-402C) (light blue) at 10  $\mu\text{g}/\text{mL}$  overnight at 4C. Cells were counterstained with DAPI (blue). Cells were imaged using a 100X objective and digitally deconvolved.



Identification of the copper transporter CTR1 in porcine oocytes and cumulus cells. (A) Immunofluorescence indicating the localization of the CTR1 in meiosis II stage-oocytes and mature cumulus cells. Scale bar = 50 and 20  $\mu\text{m}$ , respectively. (B) A representative western blot image and relative densitometric bar graph of the CTR1 expression in granulosa cells, immature cumulus, mature cumulus, meiosis I (MI) oocytes, and meiosis II (MII) oocytes. An asterisk indicates statistical significance ( $*p < 0.05$ ). Image collected and cropped by CiteAb from the following open publication (<https://pubmed.ncbi.nlm.nih.gov/36158185>), licensed under a CC-BY license. Not internally tested by Novus Biologicals.



## Publications

Zhang X, Su Y, Yang W et al. Disruption of NF- $\kappa$ B-Mediated Copper Homeostasis Sensitizes Breast Cancer to Cuproptosis. *Advanced science* (Weinheim, Baden-Wurttemberg, Germany) 2025-09-26 [PMID: 40999870]

Lin X, Chen W, Li B et al. Targeting Intratumoral Copper Inhibits Tumor Progression via p62-Mediated EZH2 Degradation and Potentiates Anti-PD-1 Immunotherapy in Oral Squamous Cell Carcinoma. *Advanced science* (Weinheim, Baden-Wurttemberg, Germany) 2025-07-28 [PMID: 40719074]

Schoonover KE, Queern SL, Lapi SE, Roberts RC. Impaired copper transport in schizophrenia results in a copper-deficient brain state: A new side to the dysbindin story *The World Journal of Biological Psychiatry* 2020-01-02 [PMID: 30230404]

Choi H, Oh D, Kim M et al. Copper deficiency affects the developmental competence of porcine oocytes matured in vitro *Frontiers in Cell and Developmental Biology* 2022-09-07 [PMID: 36158185]

Federica Iannelli, Andrea Ilaria Zotti, Maria Serena Roca, Laura Grumetti, Rita Lombardi, Tania Moccia, Carlo Vitagliano, Maria Rita Milone, Chiara Ciardiello, Francesca Bruzzese, Alessandra Leone, Ernesta Cavalcanti, Rossella De Cecio, Giuseppina Iachetta, Salvatore Valiante, Franco Ionna, Francesco Caponigro, Elena Di Gennaro, Alfredo Budillon Valproic Acid Synergizes With Cisplatin and Cetuximab in vitro and in vivo in Head and Neck Cancer by Targeting the Mechanisms of Resistance *Frontiers in Cell and Developmental Biology* 2020-08-17 [PMID: 33015030]

Elodie A. Pérès, Jérôme Toutain, Louis-Paul Paty, Didier Divoux, Méziane Ibazizène, Stéphane Guillouet, Louisa Barré, Aurélien Vidal, Michel Cherel, Mickaël Bourgeois, Myriam Bernaudin, Samuel Valable 64 Cu-ATSM/ 64 Cu-CI 2 and their relationship to hypoxia in glioblastoma: a preclinical study *EJNMMI Research* 2019-12-19 [PMID: 31858290]

Fantin J, Toutain J, Pérès EA et al. Assessment of hypoxia and oxidative-related changes in a lung-derived brain metastasis model by [64Cu][Cu(ATSM)] PET and proteomic studies *EJNMMI research* 2023-11-25 [PMID: 38006431] (IHC-Fr, Human)

Shin VY, Liu MX, Siu JM et al. Inhibition of EP2 receptor suppresses tumor growth and chemoresistance of gastric cancer *American journal of cancer research* 2022-10-15 [PMID: 36381319] (WB, Human)

Zhang X, Jiang Q, Su Y et al. AMPK phosphorylates and stabilises copper transporter 1 to synergise metformin and copper chelator for breast cancer therapy *British journal of cancer* 2023-02-17 [PMID: 36807336]

Saifi MA, Godugu C Copper chelation therapy inhibits renal fibrosis by modulating copper transport proteins *BioFactors* (Oxford, England) 2022-03-24 [PMID: 35322483]

Aloysius Dhivya M, Sulochana K, Devi S High glucose induced inflammation is inhibited by copper chelation via rescuing mitochondrial fusion protein 2 in retinal pigment epithelial cells *Cellular Signalling* 2022-01-01 [PMID: 34999205] (WB, Human)

Liu LL, Du D, Zheng W, Zhang Y Age-dependent Decline of Copper Clearance at the Blood-Cerebrospinal Fluid Barrier *Neurotoxicology* 2021-10-27 [PMID: 34718061] (IF/IHC, WB, Rat)

More publications at <http://www.novusbio.com/NB100-402>

## Procedures

### Immunohistochemistry-paraffin protocol specific for SLC31A1 / CTR1 Antibody (NB100-402)

#### Immunohistochemistry-Paraffin Embedded Sections

##### Antigen Unmasking:

Bring slides to a boil in 10 mM sodium citrate buffer (pH 6.0) then maintain at a sub-boiling temperature for 10 minutes. Cool slides on bench-top for 30 minutes (keep slides in the sodium citrate buffer at all times).

##### Staining:

1. Wash sections in deionized water three times for 5 minutes each.
2. Wash sections in PBS for 5 minutes.
3. Block each section with 100-400 ul blocking solution (1% BSA in PBS) for 1 hour at room temperature.
4. Remove blocking solution and add 100-400 ul diluted primary antibody. Incubate overnight at 4 C.
5. Remove antibody solution and wash sections in wash buffer three times for 5 minutes each.
6. Add 100-400 ul HRP polymer conjugated secondary antibody. Incubate 30 minutes at room temperature.
7. Wash sections three times in wash buffer for 5 minutes each.
8. Add 100-400 ul DAB substrate to each section and monitor staining closely.
9. As soon as the sections develop, immerse slides in deionized water.
10. Counterstain sections in hematoxylin.
11. Wash sections in deionized water two times for 5 minutes each.
12. Dehydrate sections.
13. Mount coverslips.

### Immunocytochemistry/Immunofluorescence Protocol for SLC31A1/CTR1 Antibody (NB100-402)

#### Immunocytochemistry Protocol

Culture cells to appropriate density in 35 mm culture dishes or 6-well plates.

1. Remove culture medium and wash the cells briefly in PBS. Add 10% formalin to the dish and fix at room temperature for 10 minutes.
2. Remove the formalin and wash the cells in PBS.
3. Permeabilize the cells with 0.1% Triton X100 or other suitable detergent for 10 min.
4. Remove the permeabilization buffer and wash three times for 10 minutes each in PBS. Be sure to not let the specimen dry out.
5. To block nonspecific antibody binding, incubate in 10% normal goat serum from 1 hour to overnight at room temperature.
6. Add primary antibody at appropriate dilution and incubate overnight at 4C.
7. Remove primary antibody and replace with PBS. Wash three times for 10 minutes each.
8. Add secondary antibody at appropriate dilution. Incubate for 1 hour at room temperature.
9. Remove secondary antibody and replace with PBS. Wash three times for 10 minutes each.
10. Counter stain DNA with DAPI if required.



**Western Blot Protocol for SLC31A1/CTR1 Antibody (NB100-402)**

## Western Blot Protocol

1. Perform SDS-PAGE on samples to be analyzed, loading 10-25 ug of total protein per lane.
2. Transfer proteins to PVDF membrane according to the instructions provided by the manufacturer of the membrane and transfer apparatus.
3. Stain the membrane with Ponceau S (or similar product) to assess transfer success, and mark molecular weight standards where appropriate.
4. Rinse the blot TBS -0.05% Tween 20 (TBST).
5. Block the membrane in 5% Non-fat milk in TBST (blocking buffer) for at least 1 hour.
6. Wash the membrane in TBST three times for 10 minutes each.
7. Dilute primary antibody in blocking buffer and incubate overnight at 4C with gentle rocking.
8. Wash the membrane in TBST three times for 10 minutes each.
9. Incubate the membrane in diluted HRP conjugated secondary antibody in blocking buffer (as per manufacturer's instructions) for 1 hour at room temperature.
10. Wash the blot in TBST three times for 10 minutes each (this step can be repeated as required to reduce background).
11. Apply the detection reagent of choice in accordance with the manufacturer's instructions.





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### Products Related to NB100-402

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NB100-402PEP	SLC31A1/CTR1 Antibody Blocking Peptide
NBP2-33376H	Blue Marker Antibody (6F4-F6) [HRP]
HAF008	Goat anti-Rabbit IgG Secondary Antibody [HRP]
NB7160	Goat anti-Rabbit IgG (H+L) Secondary Antibody [HRP]
NBP2-24891	Rabbit IgG Isotype Control

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### Limitations

This product is for research use only and is not approved for use in humans or in clinical diagnosis. Primary Antibodies are guaranteed for 1 year from date of receipt.

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