

xCT (H-121): sc-98552

The Power to Question

BACKGROUND

xCT, also known as SLC7A11 (solute carrier family 7, (cationic amino acid transporter, γ^+ system) member 11) or CCBR1, is a 501 amino acid multi-pass membrane protein that belongs to the polyamine-organocation superfamily of amino acid transporters. Existing as a disulfide-linked heterodimer with CD98, xCT functions as a member of a heteromeric Na^+ -independent anionic amino acid transport system that specifically facilitates the exchange of anionic amino acids for anionic forms of cystine and glutamate, thereby mediating the formation of glutathione within the cell. Due to its involvement in amino acid transport, xCT is associated with the pathogenesis of glioma-induced neurodegeneration and brain edema, as well as pancreatic cancer. The gene encoding xCT maps to human chromosome 4, which encodes nearly 6% of the human genome and has the largest gene deserts (regions of the genome with no protein encoding genes) of all of the human chromosomes.

REFERENCES

1. Sato, H., et al. 1999. Cloning and expression of a plasma membrane cystine/glutamate exchange transporter composed of two distinct proteins. *J. Biol. Chem.* 274: 11455-11458.
2. Sato, H., et al. 2000. Molecular cloning and expression of human xCT, the light chain of amino acid transport system x_c^- . *Antioxid. Redox Signal.* 2: 665-671.
3. Shih, A.Y., et al. 2001. xCT cystine transporter expression in HEK293 cells: pharmacology and localization. *Biochem. Biophys. Res. Commun.* 282: 1132-1137.
4. Kim, J.Y., et al. 2001. Human cystine/glutamate transporter: cDNA cloning and upregulation by oxidative stress in glioma cells. *Biochim. Biophys. Acta* 1512: 335-344.
5. Bridges, C.C., et al. 2001. Structure, function, and regulation of human cystine/glutamate transporter in retinal pigment epithelial cells. *Invest. Ophthalmol. Vis. Sci.* 42: 47-54.
6. Bassi, M.T., et al. 2001. Identification and characterisation of human xCT that co-expresses, with 4F2 heavy chain, the amino acid transport activity system x_c^- . *Pflugers Arch.* 442: 286-296.

CHROMOSOMAL LOCATION

Genetic locus: SLC7A11 (human) mapping to 4q28.3; Slc7a11 (mouse) mapping to 3 C.

SOURCE

xCT (H-121) is a rabbit polyclonal antibody raised against amino acids 134-249 mapping within an internal region of xCT of human origin.

PRODUCT

Each vial contains 200 μg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

APPLICATIONS

xCT (H-121) is recommended for detection of xCT of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μg per 100-500 μg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

xCT (H-121) is also recommended for detection of xCT in additional species, including equine, canine, porcine and avian.

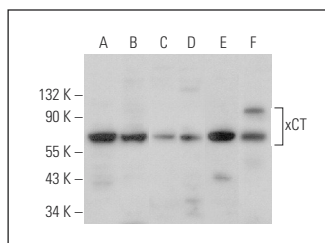
Suitable for use as control antibody for xCT siRNA (h): sc-76933, xCT siRNA (m): sc-76934, xCT shRNA Plasmid (h): sc-76933-SH, xCT shRNA Plasmid (m): sc-76934-SH, xCT shRNA (h) Lentiviral Particles: sc-76933-V and xCT shRNA (m) Lentiviral Particles: sc-76934-V.

Molecular Weight of xCT: 40 kDa.

Positive Controls: THP-1 cell lysate: sc-2238, Hep G2 cell lysate: sc-2227 or Jurkat whole cell lysate: sc-2204.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA

xCT (H-121): sc-98552. Western blot analysis of xCT expression in THP-1 (A), Hep G2 (B), PANC-1 (C), HEK293 (D) and Jurkat (E) whole cell lysates and human spleen tissue extract (F).

SELECT PRODUCT CITATIONS

1. Kakazu, E., et al. 2011. Plasma L-cystine/L-glutamate imbalance increases tumor necrosis factor- α from CD14⁺ circulating monocytes in patients with advanced cirrhosis. *PLoS ONE* 6: e23402.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.