SANTA CRUZ BIOTECHNOLOGY, INC.

xCT siRNA (m): sc-76934

BACKGROUND

xCT, also known as SLC7A11 (solute carrier family 7, (cationic amino acid transporter, y^+ 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 4q28.3, 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. and Murphy, T.H. 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 (mouse) mapping to 3 C.

PRODUCT

xCT siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see xCT shRNA Plasmid (m): sc-76934-SH and xCT shRNA (m) Lentiviral Particles: sc-76934-V as alternate gene silencing products.

For independent verification of xCT (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-76934A, sc-76934B and sc-76934C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

xCT siRNA (m) is recommended for the inhibition of xCT expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor xCT gene expression knockdown using RT-PCR Primer: xCT (m)-PR: sc-76934-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Li, L., et al. 2018. Ferroptosis is associated with oxygen-glucose deprivation/reoxygenation-induced Sertoli cell death. Int. J. Mol. Med. 41: 3051-3062.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.