SLC7A11 Protein, Human (Cell-Free, His)

Cat. No.:	HY-P702444
Synonyms:	Cystine/glutamate transporter; Amino acid transport system xc-; Calcium channel blocker resistance protein CCBR1; Solute carrier family 7 member 11; xCT
Species:	Human
Source:	E. coli Cell-free
Accession:	Q9UPY5 (M1-L501)
Gene ID:	23657
Molecular Weight:	58.2 kDa

PROPERTIES

AA Sequence	M V R K P V V S T I S K G G Y L Q G N V N G R L P S L G N K E P P G Q E K V Q L K R K V T L L R G V S I I I G T I I G A G I F I S P K G V L Q N T G S V G M S L T I W T V C G V L S L F G A L S Y A E L G T T I K K S G G H Y T Y I L E V F G P L P A F V R V W V E L L I I R P A A T A V I S L A F G R Y I L E P F F I Q C E I P E L A I K L I T A V G I T V V M V L N S M S V S W S A R I Q I F L T F C K L T A I L I I I V P G V M Q L I K G Q T Q N F K D A F S G R D S S I T R L P L A F Y Y G M Y A Y A G W F Y L N F V T E E V E N P E K T I P L A I C I S M A I V T I G Y V L T N V A Y F T T I N A E E L L L S N A V A V T F S E R L L G N F S L A V P I F V A L S C F G S M N G G V F A V S R L F Y V A S R E G H L P E I L S M I H V R K H T P L P A V I V L H P L T M I M L F S G D L D S L L N F L S F A R W L F I G L A V A G L I Y L R Y K C P D M H R P F K V P L F I P A L F S F T C L F M V A L S L Y S D P F S T G I G F V I T L T G V P A Y Y L F I I W D K K P R W F R I M S E K I T R T L Q I I L E V V P E E D K L
Biological Activity	Measured by its binding ability in a functional ELISA. Immobilized Human SLC7A11 at 2 μg/mL can bind Anti-SLC7A11 antibody, the EC_{50} is 1.964-2.793 ng/mL.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm sterile filtered 25 mM HEPES, 150 mM NaCl, 0.05% Brij-78, 6% Trehalose, pH 7.4
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O. For long term storage it is recommended to add 5-50% of glycerol (final concentration). Our default final concentration of glycerol is 50%. Customers could use it as reference.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	SLC7A11 Protein, forming a heterodimer with SLC3A2, operates as an antiporter, facilitating the exchange of extracellular anionic L-cystine for intracellular L-glutamate across the cellular plasma membrane. This sodium-independent, electroneutral transport, with a stoichiometry of 1:1, is propelled by the high intracellular concentration of L-glutamate and the intracellular reduction of L-cystine. The pivotal role of SLC7A11 extends to providing L-cystine for maintaining the redox balance between extracellular L-cystine and L-cysteine, essential for cellular protection against oxidative stress. Additionally, it mediates the import of L-kynurenine, contributing to anti-ferroptotic signaling that is crucial for L-cystine and glutathione homeostasis. Furthermore, SLC7A11 facilitates N-acetyl-L-cysteine uptake into the placenta, leading to the down-regulation of oxidative stress, inflammation, and apoptosis-associated pathways. In vitro, the protein exhibits the ability to transport L-aspartate. Beyond its transport functions, SLC7A11 may play a role in astrocyte and meningeal cell proliferation during development, offering neuroprotection by promoting glutathione synthesis and delivery from non-neuronal cells, such as astrocytes and meningeal cells, to immature neurons. Notably, it controls the direct production of pheomelanin pigment.

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