

SLC1 – High-affinity glutamate and neutral amino acid transporter family

Human gene name	Protein name	Aliases	Predominant substrates	Transport type / coupling ions ^{*)}	Tissue distribution and cellular / subcellular expression	Link to disease	Human gene locus	Sequence accession ID	Splice variants and their features
SLC1A1	EAAC1, EAAT3	system X _{AG}	L-Glu, D / L-Asp	C / Na ⁺ , H ⁺ and K ⁺	brain (neurons), intestine, kidney, liver, heart	dicarboxylic amino aciduria, obsessive-compulsive disorder	9q24	NM_004170	
SLC1A2	GLT-1, EAAT2	system X _{AG}	L-Glu, D / L-Asp	C / Na ⁺ , H ⁺ and K ⁺	brain (astrocytes), liver	(amyotrophic lateral sclerosis)	11p13-p12	NM_004171	
SLC1A3	GLAST, EAAT1	system X _{AG}	L-Glu, D / L-Asp	C / Na ⁺ , H ⁺ and K ⁺	brain (astrocytes), heart, skeletal muscle, placenta	schizophrenia, episodic ataxia, type 6	5p13	NM_004172	
SLC1A4	ASCT1, SATT	system ASC	L-Ala, L-Ser, L-Cys	C / Na ⁺ , E/ amino acids	widespread		2p15-p13	NM_003038	2 splice variants
SLC1A5	ASCT2, AAAT	system ASC	L-Ala, L-Ser, L-Thr, L-Cys, L-Gln	C / Na ⁺ , E/ amino acids	lung, skeletal muscle, large intestine, kidney, testis, adipose tissue		19q13.3	NM_005628	3 splice variants
SLC1A6	EAAT4	system X _{AG}	L-Glu, D / L-Asp	C / Na ⁺ , H ⁺ and K ⁺	cerebellum (Purkinje cells)		19q13.12	NM_005071	
SLC1A7	EAAT5	system X _{AG}	L-Glu, D / L-Asp	C / Na ⁺ , H ⁺ and K ⁺	retina		1p32.3	NM_006671	

*) C: Cotransporter; E: Exchanger; F: Facilitated transporter; O: Orphan transporter

References:

Original version of the SLC table:

[Kanai Y, Hediger MA.](#) The glutamate/neutral amino acid transporter family SLC1: molecular, physiological and pharmacological aspects. Pflugers Arch. 2004 Feb;447(5):469-79.

Questions & Comments