

SLC5 – Sodium glucose cotransporter family

Human gene name	Protein name	Aliases	Predominant substrates	Transport type/coupling ion ^{*)}	Tissue distribution and cellular / subcelluar expression	Link to disease	Human gene locus	Sequence accession ID	Splice variants and their features
SLC5A1	SGLT1		glucose, galactose	C / Na ⁺ (H ⁺) F / Na ⁺ (H ⁺)	small Intestine >> trachea, kidney, heart	glucose / galactose malabsorption	22q13.1	NM_000343	
SLC5A2	SGLT2		glucose	C / Na ⁺	kidney	renal glucosuria	16p12-p11	NM_003041	
SLC5A3	SMIT		<i>myo</i> -inositol	C / Na ⁺	brain, heart, kidney, lung	(Down's syndrome), (myocardial infarction)	21q22.1 2	NM_006933	
SLC5A4	SGLT3	SAAT1		glucose-activated Na ⁺ (H ⁺) channel	small Intestine (cholinergic neurons), skeletal muscle, kidney, uterus, testis		22q12.2-q12.3	NM_014227	
SLC5A5	NIS		I ⁻ (ClO ₄ ⁻ , SCN ⁻ , NO ₃ ⁻ , Br ⁻)	C / Na ⁺	thyroid, breast, colon, ovary	thyroid hormonogenesis	19p13.2-p12	NM_000453	
SLC5A6	SMVT		biotin, lipoate, pantothenate	C / Na ⁺	brain, heart, kidney, lung, placenta		2p23	NM_021095	
SLC5A7	CHT	CHT1	choline	C / Na ⁺ / Cl ⁻	spinal cord and medulla (intracellular vesicles)		2q12	NM_021815	
SLC5A8	SMCT1	AIT	short-chain fatty acids, lactate, nicotinate	C / Na ⁺	kidney, colon, lung, esophagus, small intestine, stomach, thyroid, uterus	(lactaturia), (cancer)	12q23.2	NM_145913	
SLC5A9	SGLT4		mannose	C / Na ⁺	small intestine, kidney, liver, lung, brain		1p33	NM_001011547	2 splice variants
SLC5A10	SGLT5	RK-D		O	kidney		17p11.2	NM_152351 NM_001042450	2 splice variants
SLC5A11	SGLT6	KST1, SMIT2	<i>myo</i> -inositol, chiro-inositol	C / Na ⁺	small intestine, brain, kidney, liver, heart, lung		16pter-p11	NM_052944	
SLC5A12	SMCT2		short-chain fatty acids, lactate, pyruvate, nicotinate	C / Na ⁺	kidney, small intestine skeletal muscle		11p14.2	NM_178498	

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

References:

Original versions of the SLC table:

[Wright EM, Turk E.](#) The sodium/glucose cotransport family SLC5. Pflugers Arch. 2004 Feb;447(5):510-8 (erratum 813-5).

[Diez-Sampedro A, Hirayama BA, Osswald C, Gorboulev V, Baumgarten K, Volk C, Wright EM, Koepsell H.](#) A glucose sensor hiding in a family of transporters. Proc Natl Acad Sci U S A. 2003 Sep 30;100(20):11753-8.

Questions & Comments