

## SLC38 – Family of System A and System N sodium-coupled neutral amino acid transporters

Human gene name	Protein name	Aliases	Predominant substrates	Transport type / coupling ions <sup>#)</sup>	Tissue distribution and cellular / subcellular expression	Human gene locus	Sequence accession ID	Splice variants and their features
<b>System A subfamily</b>								
<a href="#">SLC38A1</a>	SNAT1	ATA1, NAT2, SAT1	Gln, Ala, Asn, Cys, His, Ser	C / Na <sup>+</sup>	brain (glutamatergic and GABAergic neurons, ependyma), retina, heart, placenta, adrenal gland	12q13.11	<a href="#">NM_030674.3</a> <a href="#">NM_001077484</a>	
<a href="#">SLC38A2</a>	SNAT2	ATA2, SAT2	Ala, Asn, Cys, Gln, Gly, His, Met, Pro, Ser	C / Na <sup>+</sup>	brain, spinal cord (neurons), placenta, adrenal glands, testis, thymus, muscle, liver, intestine, kidney, lung, adipose tissue, spleen, skin	12q	<a href="#">NM_018976.4</a>	
<a href="#">SLC38A4</a>	SNAT4	ATA3, NAT3, PAAT	Ala, Asn, Cys, Gly, Ser, Thr	C / Na <sup>+</sup>	liver, skeletal muscle, kidney, pancreas	12q13	<a href="#">NM_018018.4</a>	2 splice variants
<b>System N subfamily</b>								
<a href="#">SLC38A3</a>	SNAT3	g17, SN1	Gln, His, Ala, Asn	C / Na <sup>+</sup> + E / H <sup>+</sup>	astrocytes in brain and retina; liver, kidney, adipose tissue	3p21.3	<a href="#">NM_006841.4</a>	
<a href="#">SLC38A5</a>	SNAT5	JM24, SN2	Gln, Asn, His, Ser	C / Na <sup>+</sup> + E / H <sup>+</sup>	stomach, brain, liver, lung, small intestine, spleen, colon, kidney	Xp11.23	<a href="#">NM_033518.2</a>	
<b>Orphan members</b>								
<a href="#">SLC38A6</a>	SNAT6	NAT-1		O	brain	14q23.1	<a href="#">NM_153811</a>	
<a href="#">SLC38A7</a>				O	liver	16q21	<a href="#">NM_018231</a>	
<a href="#">SLC38A8</a>				O		16q23.3	<a href="#">NM_001080442</a>	
<a href="#">SLC38A9</a>				O		5q11.2	<a href="#">NM_173514</a>	
<a href="#">SLC38A10</a>		PP1744		O	pituitary, eye, lung	17q25.3	<a href="#">NM_001037984</a> <a href="#">NM_138570</a>	2 splice variants
<a href="#">SLC38A11</a>		AVT2		O	testis	2q24.3	<a href="#">NM_173512</a>	
#) C: Cotransporter, E: Antiporter								

### References:

Original version of the SLC table:

[Mackenzie B, Erickson JD.](#) Sodium-coupled neutral amino acid (System N/A) transporters of the SLC38 gene family. Pflugers Arch. 2004 Feb;447(5):784-95

Questions & Comments