ALPHA DIAGNOSTIC INTERNATIONAL

Product Specification Sheet

Sodium Glucose Transporter 1 (SGLT-1) Antibodies

¾ Cat # SG12-P	Rat SGLT-1 control/blocking peptide # 2	**SIZE**: 100 ug
¾ Cat # SG12-S	Rabbit Anti-Rat SGLT-1 Antiserum # 2	**SIZE**: 100 ul
¾ Cat # SG12-A	Rabbit Anti-Rat SGLT-1 IgG # 2, aff pure	**SIZE**: 100 ug

The kidneys play a major role in the regulation of glucose levels. Kidneys filter approx. 180 g of glucose per day from the blood, and this is mostly reabsorbed back into the blood in the proximal tubules. Typically, glucose is first absorbed within epithelium by a specific transporter protein, Sodium glucose co transporters (SGLT), in the brush-border membrane and then it is transported out of the cell across the basolateral membranes by a facilitated sugar transporter (GLUTs). At least 3 members of SGLTs (SGLT1-3) have been cloned and characterized from various species. Individual member of this family have identical predicted secondary structures with up to 14 transmembrane domains. SGLT1-3 genes code for protein of approx 659-672 residues (calculated size of ~75 kDa). Both N and C-termini are predicted to be extracellualr. There is approx 60-70% homology between SGLT1-3. SGLTs transport a-methyl-D-glucoside (a-MDG), a non-metabolized model substrate, in Na-dependent manner. SGLT1 does not discriminate a-MDG, glucose, and galactose. SGLT2/3 do not transport D-galactose efficiently.

SGLT1/NAGT or SLC5A1/NAGT (rat/mouse 665 aa; human 664 aa, chromosome 22q13.1, ~75 kDa) is a high affinity, Na+-coupled, intestinal responsible for active glucose transport across the brush border membrane. In the kidney, SGLT1 is expressed in proximal tubule Sq1 segments. It is also expressed in the intestine. Defects in SGLT1 gene have been implicated in congenital glucose-galactose malabsorption syndrome (GGM).

Protein name Sodium/glucose cotransporter 1
Synonyms Na(+)/glucose cotransporter 1
High affinity sodium-glucose cotransporter
Gene name Name: Slc5a1
Synonyms: Sglt1
FUNCTION: Actively transports glucose into cells by Na(+) cotransport with a Na(+) to glucose coupling ratio of 2:1.
SUBCELLULAR LOCATION: Membrane; Multi-pass membrane protein.
SIMILARITY: Belongs to the sodium:solute symporter (SSF) (TC 2.A.21) family [view classification].

Source of Antigen and Antibodies

Antigen	16-aa peptide from **rat SGLT-1/Slc5a1 (1)**;(protein accession #P53790 , refs 1) **Designation (cat # SG12-P, control/blocking peptide**) conjugated to KLH; Epitope location ~N-terminus, Cytoplasmic domain 1
Ab Host/type	Rabbit, Polyclonal Aff pure IgG, (Cat # SG12-A) purified over the antigen column
2-Ab	Cat # 20320, goat anti-rabbit IgG-HRP (AP, biotin, FITC conjugates also available).
-ve control	# 20009-1, Rabbit (non-immune) IgG, purified, suitable for ELISA, Western, IHC as –ve control

Form & Storage of Antibodies/Peptide Control

Antiserum (unpurified)
☐ 100ul ☐ ☐ solution ☐ lyophilized powder
Supplied in Buffer: 0.05% azide
Reconstitute powder in 100 ul PBS

Affinity pure IgG
☐ 100 ug/100ul ☐ solution ☐ lyophilized powder
Supplied in **Buffer**: PBS+0.1% BSA
Reconstitute powder in PBS at 1mg/ml

Control/blocking peptide
☐ 100 ug/100 ul ☐ solution ☐ lyophilized powder
Supplied in Buffer: PBS pH 7.5,
Reconstitute powder in PBS at 1 mg/ml.

Storage
Short-term: unopened, undiluted liquid vials at 20°C and powder at 4°C or -20°C..
Long-term: at –20°C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

Stability: 6-12 months at –20°C or below.
Shipping: 4°C for solutions and room temp for powder

Recommended Usage

Western Blotting (1:1K-5K for neat serum and 1-10 ug/ml for affinity pure antibody using Chemiluminescence technique). SGLT-1 is apparox 70-77 kDa (2).

ELISA: Control peptide can be used to coat ELISA plates at 1 ug/ml and detected with antibodies (1:10-50K for neat serum and 0.5-1 ug/ml for affinity pure).

Histochemistry & Immunofluorescence: not tested.

Specificity & Cross-reactivity

The rat SG12-P peptide sequence is 93% conserved in mouse and 50% in human SGLT1. No significant sequence homology exists with other SGLTs. For human, we recommend the use antibody #3, Cat # SG13-S that is made to the human SGLT-1 peptide. Control peptide, because of its low mol. Wt (<3 kDa), is not suitable for Western. It should be used for ELISA or antibody blocking experiments (use 5-10 ug control peptide per 1 ug of aff pure IgG or 1 ul antiserum) to confirm antibody specificity

General References: (1) ; Lee WS et al (1994) JBC 269, 12032, Gene accession # AF163846; 2. Hediger, MA et al (1987) Nature 330, 1379-1381; 3. Sileverman , M et al (1993) BBA 1153, 43-52; Pajor, AM et al (1992) Am. J. Physiol. 32, R489-R495; Hirayama, EA et al (1992) BBA 1103, 37-44; Hirayama et al (1991) Am. J. Physiol. 261, C296; Wright EM (2001) Am. J. Renal Physiol. 280, F10 (review).

(2) Citations of ADI's Antibodies (see web site for updated list)

Lane RH, 2002, Am J Physiol Regulatory Integrative Comp Physiol 283: R1450-R1460, IHC
Rodriguez SM, 2004, J Anim Sci, Oct 2004; 82: 3015 - 3023. WB
*This product is for In vitro research use only.

Antibodies to SGLT1-3, RS11, and Glut1-13

SG12-S-A-P 709119J

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