

Sodium Glucose Transporter 1 (SGLT-1) Antibodies

– Cat # SG12-P	Rat SGLT-1 control/blocking peptide # 2	SIZE: 100 ug
– Cat # SG12-S	Rabbit Anti-Rat SGLT-1 Antiserum # 2	SIZE: 100 ul
– 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 extracellular. There is approx 60-70% homology between SGLT1-3. SGLTs transport α-methyl-D-glucoside (α-MDG), a non-metabolized model substrate, in Na-dependent manner. SGLT1 does not discriminate α-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 S_q1 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: Sgl1
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 approx 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