

Sodium Glucose Transporter 1 (SGLT-1) Antibodies

<input type="checkbox"/> Cat # SG11-P	Mouse SGLT-1 control peptide # 1	SIZE: 100 ug
<input type="checkbox"/> Cat # SG11-S	Rabbit Anti-Mouse SGLT-1 Antiserum # 1	SIZE: 100 ul
<input type="checkbox"/> Cat # SG11-A	Rabbit Anti-Mouse SGLT-1 IgG # 1, 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). **SGLT2/SLC5A2** (rat/mouse 670 aa; human 672 aa, chromosome 16p11.2) is the low affinity, high capacity Na⁺-glucose transporter located in the S₁ segments of proximal tubules. It is ~60% identical with SGLT1.

Source of Antigen and Antibodies

Antigen	19-aa peptide of mouse/rabbit SGLT-1 (1) ; Designated (SG11-P or control peptide) conjugated to KLH; epitope location ~ Extracellular domain 4
Ab Host/type	Rabbit, Polyclonal antiserum # SG11-S and IgG, purified over antigen-agarose (Cat # SG11-A)
2-Ab	Cat # 20320, goat anti-rabbit IgG-HRP (AP, biotin, FITC conjugates also available).
-ve	Cat # 20009-1, Rabbit (non-immune) Serum 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 -20OC and powder at 4oC or -20oC..

Long-term: at -20C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

Stability: 6-12 months at -20oC or below.

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).

Specificity & Cross-reactivity

The mouse SG11-P peptide sequence is 100% conserved in rabbit, ovine, and sheep, 94% in equine and rat, 89% in pig, 84% in human, 86% in chicken SGLT-1 (1). SG11-P sequence also has high sequence homology with the low affinity SGLT-3 in mouse SGLT-4a/4b (84%), human SAAT1/SGLT-3 (78%), and SGLT-2 from human and rat (63%). SG11-P may also be conserved in other related transporters. Antibodies generated using this sequence have been shown to recognize specific SGLT-1 protein of 70-77 kDa in a variety of species (rabbit, rat, mouse, human, pig, cat, dog; reptiles and birds) by Western blotting (2). It is not known if anti-SG11 will also identify SGLT-1 like or SGLT-2 or SGLT-3 proteins. Therefore, this antibody may be suited to detect cells or tissues that contains only a given SGLT or to detect recombinant purified SGLT1-3. 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 (see detailed protocol see detailed protocol at the web site).

General References: (1) Gene accession # AF163846; Lee WS (1994) JBC 269, 12032; Hediger, MA (1987) Nature 330, 1379; Sileverman, M (1993) BBA 1153, 43-52; Pajor, AM (1992) Am. J. Physiol. 32, R489-R495; Hirayama, EA (1992) BBA 1103, 37-44; Hirayama (1991) Am. J. Physiol. 261, C296; Wright EM (2001) Am. J. Renal Physiol. 280, F10-F18 (review).

Citations of for ADI Antibodies (see updated list at the web site)

kevorkova O, 2007, Biol Reprod, 76: 487 - 495, WB,
Lane RH, 2002, Am J Physiol Regulatory Integrative Comp Physiol 283: R1450-R1460, IHC,
Lee YJ, 2005, Am J Physiol Cell Physiol, 289: C1268 , WB,
Dieter M, 2004, Obes. Res., 12: 862 - 870, , IHC
Rodriguez SM, 2004, J Anim Sci, 82: 3015 - 3023., WB,
deArcaya IF, 2005, Regulatory Peptides 129, 147-154, WB,
Bakke-Mckellep AM, 2007, Res. in Vet. Sci. In Press, WB,
*This product is for In vitro research use only.

SG11-S-A-P 71213A