

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 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). **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