ALPHA DIAGNOSTIC INTERNATIONAL

Product Specification Sheet

Life Technologies™ Your Molecular & Cell Technology Partner

## Sodium Glucose Transporter 3 (SGLT-3) Antibodies

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| Cat # SG34-P | Pig SGLT-3 control/blocking peptide # 4 | **SIZE**: 100 ug |
| Cat # SG34-S | Rabbit Anti-Pig SGLT-3 Antiserum # 4 | **SIZE**: 100 ul |
| Cat # SG34-A | Rabbit Anti-Pig SGLT-3 IgG # 4, 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). **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. SGLT2 mediates saturable Na-dependent and phlorizin-sensitive glucose transport. In contrast with SGLT1, SGLT2 does not transport D-galactose. Defect in SGLT2 may be associated with renal glycosuria. **SGLT3/SLC54** (pig 660 aa; mouse 656/660/616 aa; human 659 aa, chromosome 22), originally named **SAAT1 or pSGLT2**, was initially identified in LLC-Pk1 cell line derived from pig renal epithelium. It is also low affinity Na-glucose transporter. It is expressed in kidney, intestine, liver, skeletal muscle and spleen. Like SGLT2, SGLT3 has a low affinity for sugars, and is highly selective for D-glucose and low affinity for D-galactose.

### Source of Antigen and Antibodies

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| **Antigen** | 16-aa peptide of Pig SGLT;protein **Designated (SGLT-34 P or control peptide).**conjugated to KLH;Epitope location C-terminal, cytoplasmic domain 6 |
| **Ab Host/type** | Rabbit, polyclonal Aff pure IgG (**cat #SG34-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 SG34-S-A-P 709119J

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).

**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 pig SG34-P peptide sequence is poorly conserved in other species SGLT3. No significant sequence homology exists with other SGLTs. For mouse SGLT3, we recommend the use antibody #1, Cat # SG31-S, and SG-32 for human SGLT-3 that are made to the mouse and human SGLT-3 peptide, respectively. This antibody has previsouly been available as cat #SG22-S or SG22-A for pig SGLT-2. The same antibody is now reclassified as pig SGLT-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

**General References**: (1) Tatabai NM et al (2001) Toxicol. Appl. Pharamcol. 177, 163-177; Kong CT et al (1993) JBC 268, 1509-1512; Mackenzie B et al (1994) JBC 269, 22488-22491; Dunham I et al (1999) Nature 402, 489-495; Wright E (2001) Am. J. Physiol. Renal Physiol. 280, F10-F18 (review)

*This product is for In vitro research use only.



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