ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

Glucose Transporter 7 (rGlut-7) Antibodies

Cat. # GT71-P	Rat Glut-7 Control/blocking Peptide #1	**SIZE**: 100 ug
Cat. # GT71-A	Rabbit Anti-Rat Glut-7 IgG #1 (aff pure)	**SIZE**: 100 ug
Cat. # GT71-S	Rabbit Anti-Rat Glut-7 antiserum #1	**SIZE**: 100 ul

Most mammalian cells transport glucose through a family of membrane proteins known as glucose transporters. Molecular cloning of these glucose transporters has identified a family of closely related genes that encodes at least 7 proteins (**Glut-1 to Glut-13**, Mol. Wt. 40-80 kDa) and Sodium glucose co-transporter-1 (SGLT-1, 662 amino acids; ~75 kDa). Individual member of this family have identical predicted secondary structures with 12 transmembrane domains. Both N and C-termini are predicted to be cytoplasmic. Most differences in sequence homology exist within the four hydrophilic domains that may play a role in tissue-specific targeting.

Glut isoform differ in their tissue expression, substrate specificity and kinetic characteristics. **Glut-1** mediates glucose transport into red cells, and throughout the blood brain barrier, and supply glucose to most cells. **Glut-2** provides glucose to the liver and pancreatic cells. **Glut-3** is the main transporter in neurons, whereas **Glut-4** is primarily expressed in muscle and adipose tissue and regulated by insulin. **Glut-5** transports fructose in intestine and testis. **Glut-6/SLC2A6**, originally described as glut-9 has been reassigned as Glut-6. Glut-6 (human 507 aa; ~ 48 kDa; chromosome 9q34) is most closely related to Glut-8 (~45% homology). It is highly expressed in brain, spleen, and peripheral leukocytes. **Glut-7**, expressed in liver and other gluconeogenic tissues, mediates glucose flux across endoplasmic reticulum membrane. **Glut-8** is found in adult testis and placenta. Human **Glut-9** is expressed in spleen, peripheral leucocytes and brain. Human **Glut-10** (541 aa, chromosome 20q13.1; ~30-35% homology with Glut-3 and Glut-8) has been identified as a candidate gene for NIDDM susceptibility. It is widely expressed with highest levels in liver and pancreas. **Glut-11** (496 aa, chromosome 22q11.2; ~41% identity with Glut-5) is expressed in heart and skeletal muscle. **Glut-12** (human 617 aa, , monkey 621 aa;~ 50 kDa; ~30% homology with Glut-4 and 40% with Glut-10) is expressed in skeletal muscle, adipose tissue, and small intestine . **Glut-13** or proton myo-inositol transporter (**HMIT**; human 629 aa, rat 618 aa, ~75-90 kDa/67 kDa protein) is highly expressed in glial cells and some neurons. Glut-13 transport activity was specific for myo-inositol. Rat HMIT is ~35% identical to rat GlutX1.

Source of Antigen and Antibodies

Antigen	14-aa peptide from rat **Glut-7**; (Gene Accession #S24344) **Designation (GT71-P, control peptide**) conjugated to KLH
Location	~C-terminus of rat Glut-7
Ab Host/type	Rabbit, Polyclonal; Unpurified antiserum (cat #GT71-S) Aff pure IgG (**cat # GT71-A**)
2-ab	**Goat Anti-rabbit IgG-HRP** cat # 20320 (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 -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.
Shipping: 4oC for solutions and room temp for powder

Recommended Usage

Western Blotting (1:1K-5K for antiserum and 1-10 ug/ml for affinity pure IgG 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).

Histochemistry: not tested.

Specificity & Cross-reactivity

Rat GT71 sequence is 64% conserved in human. Glut-7 and Glut-2 sequences are 68% identical in rats and show similar secondary and tertiary structures. However, Glut-7 contains an extra 6 amino acid (KKMKND) at the C-terminal end. This sequence is very similar to the last 6 amino acids of some of the mircosomal UDP-glucoronosyltransferase isoenzymes (see refs. 1 and other refs. Cited therein). The KK-K-- has been considered motif for the retention of transmembrane proteins (3) and is not found in Gluts 1-5. The crossreactivity of anti-rat GT71 antibody to other proteins with an endoplasmic reticulum motif and species crossreactivity has not been determined. 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 at: www.4adi.com\data\abblock.html).

General References: **1**. Waddell. I.D., et al (1992) Biochem. J. 286, 173-177 & (1991) Biochem. J. 275, 363-377; 3. Jackson, M.R., et al (1990) EMBO J., 9, 3153-3162

Citations of ADI's antibodies for Glucose transporters (see updated list at: www.4adi.com\flr\glutsflr.html)

*This product is for In vitro research use only.

Related material available from ADI

Antibodies for Glut 1-13 & SGLT-1/2

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