

Product Specification Sheet

**Glucose Transporter 5 (Glut-5) Antibodies**

Cat. # GT51-P	Rat Glut-5 Control/blocking Peptide	<b>SIZE:</b> 100 ug
Cat. # GT51-A	Rabbit Anti-Rat Glut-5 IgG (affinity pure)	<b>SIZE:</b> 100 ug
Cat. # GT51-S	Rabbit Anti-Rat Glut-5 (antiserum)	<b>SIZE:</b> 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 isoforms 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** is a pseudogene and unlikely to be expressed at the protein level. **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.

**Source of Antigen and Antibodies**

<b>Antigen</b>	13-aa peptide from Rat (Gene Accession #P43427) <b>GT5; Designation (GT51-P, control peptide)</b> conjugated to KLH
<b>Location</b>	~C-terminus, Cytoplasmic domain
<b>Ab Host/type</b>	Rabbit, Polyclonal; Unpurified antiserum (cat # GT51-S) Aff pure IgG (cat # <b>GT51-A</b> )
<b>2-ab</b>	<b>Goat Anti-rabbit IgG-HRP</b> cat # 20320 (AP, biotin, FITC conjugates also available)
<b>-ve control</b>	# 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). Rat Glut-5 is ~ 60 kDa in rat jejunum membranes (2) that is slightly larger than that reported for human Glut 5 (50-55 kDa) (3). As opposed to human tissues, rat Glut-5 mRNA has not been detected in rat testis, adipose tissues, and skeletal muscle (2, 4). In rat kidney, a protein of about 42 kDa was detected (5).

**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 GT51-P peptide sequence is ~ 61% homology with human and 53% in mouse Glut-5. For human Glut-5, we suggest cat # GT52-S that are made to a peptide from human Glut5. GT51-P has no significant sequence homology with other gluts. Antibody cross-reactivity in various species is not known. 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](http://www.4adi.com/data/abblock.html)).

**General References:** 1. Rand, EB, et al (1993) Am. J. Physiol. 264, G1169; 2. Inukai, K, et al (1993) Endocrinology 133, 2009; 3. Sheperd, PR, et al (1992) Diabetes 41, 1360; 4. Kayano, T, et al (1990) JBC 265, 13276; Burant, F, et al (1992) JBC 267, 14523; 5. Burant, CF and Saxena, M (1994) Am. J. Physiol. 267, G71-G79

**Citations of ADI's antibodies for Glucose transporters**

Garcia MDLA (2003)J. Neurochem., Aug 2003; 86: 709 - 724.WB; Venge P (2003) Respiratory Medicine in press May 2003, Antibody blocks glucose uptake in live cells Glut1, 3, 4 more potent, 2% 5 minimal effect. (see updated list at: [www.4adi.com/flr/glutsflr.html](http://www.4adi.com/flr/glutsflr.html))

\*This product is for In vitro research use only.

Antibodies for Glut 1-12 & SGLT-1-6  
GT51 S-A-P

Rev. 40128S

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