

Product Specification Sheet

Glut-4 Antibodies

Cat. # GT42-P	Human Glut-4 control peptide # 1	SIZE: 100 ug
Cat. # GT42-A	Rabbit Anti-Human Glut-4 IgG # 1 (aff pure)	SIZE: 100 ug

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-7**, Mol. Wt. 40-60 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 leukocytes 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	13-aa peptide from (Gene Accession #P14672) Human GT-4; Designation (GT42-P, control peptide) conjugated to KLH
Location	~N-terminus, Extracellular
Ab Host/type	Rabbit, Polyclonal; Aff pure IgG (cat # GT42-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

Recommended Usage

Western Blotting (1-10 ug/ml for affinity pure antibody using ECL technique).

ELISA: Control peptide can be used to coat ELISA plates at 1 ug/ml and detected with antibodies (0.5-1 ug/ml for affinity pure).

Histochemistry & Immunofluorescence: Not tested. We recommend the use of aff pure IgG at 2-20 ug/ml.

Specificity & Cross-reactivity

The GT42-P control peptide is 100% identical in human GT4, 92% in bovine GT4, 84% in pig and 83% each in mouse and rat Glut4. No significant homology is detected with other species. 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 Hernandez R et al (2003) Biochem J, 10.1042/BJ20030325, Niu W et al (2003) JBC, 10, 1074/jbc James et al. (1989) Nature 338, 83-86; (1989) PNAS 86, 8368-8372; see reviews by Baldwin, SA (1993) Biochem. Biophys. Acta 1154, 17-49; Mueckler, M (1994) Eur. J. Biochem. 219, 713-725.

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.

Form & Storage of Antibodies/Peptide Control

Affinity pure IgG

100 ug/200ul solution	50 ug/100 ul lyophilized powder
Buffer: 100 mM Tris, pH 7.5, 0.2% BSA contains 0.05% sodium azide	
Reconstitute powder in the original vol. of water	

Control/blocking peptide

100 ug/100 ul solution	lyophilized powder
Buffer: PBS, pH 7.5 and 0.05% sodium azide	
Reconstitute powder in the original vol. of water	

Storage

Short-term: unopened, undiluted vials for less than a week at 4oC. **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.

Related material available from ADI

Antibodies and Peptides: Glucose transport family(GT 1-13).

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