

Product Specification Sheet

**GABA-A Receptor Alpha 3 Subunit (GAA3) Antibodies**

Cat. # GAA31-P	Human GAA3 control/blocking peptide # 1	<b>SIZE:</b> 100 ug
Cat. # GAA31-A	Rabbit Anti-Human GAA3 IgG # 1 (aff pure)	<b>SIZE:</b> 100 ug

GABA ( $\gamma$ -amino butyric acid) is the most abundant neurotransmitter in mammalian brain. GABA exerts its effects through ionotropic ligand-gated GABA<sub>A</sub>, GABA<sub>C</sub> and GABA<sub>B</sub> receptors (**GABA<sub>B</sub>Rs**). A family of GABA-A receptors subtypes exists, which are generated by alternative splicing of alpha 1-6, beta 1-4, gamma 1-4, delta, epsilon, pie, theta, and rho1-3 to form a heteromeric (pentameric?) protein complexes. Various GABA-A subunits show distinct patterns of temporal and spatial expression that may imply its tissue specific physiological role (1). **GABA A (GAA) receptor** proteins (450-627 aa) are characterized by the presence of a cleavable signal peptide, a large extracellular N-terminus, 3 TM (transmembrane) domains, a large cytoplasmic domain followed by TM4 and C-terminal extracellular domain. The regions between TM3-4 and the large cytoplasmic loop are least conserved among various GAA subunits, which may confer subunit specific functionality. GAA genes are distributed as clusters throughout the human genome (chromosomes 4, 5, 15, and X; delta subunit on chromosome 1). GAA in the brain are the targets of many clinically important drugs. Human (chromosome Xq28), rat GAA3 are 493 aa protein. GAA3 may be candidate gene for X-linked manic depressive illness, which has been mapped to the Xq28 region close to colorblindness and G6PD.

**Storage**

**Short-term:** unopened, undiluted vials for less than a week at 4°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:** 1-10  $\mu$ g/ml; using affinity pure antibody (chemiluminescence technique).

**ELISA:** 1:100K; using 50-100 ng control peptide/well.

**Histochemistry & Immunofluorescence:** Not tested; we recommend the use of affinity purified antibody at 2-10  $\mu$ g/ml.

**Source of Antigen and Antibodies**

<b>Antigen</b>	13-aa peptide from rat GAA3 (1); <b>Designation (GAA31-P, control peptide /blocking peptide)</b> conjugated to KLH; Epitope location ~N-terminus, Extracellular domain
<b>Antibody host/type</b>	Rabbit, Polyclonal IgG (Cat # GAA31 -A), purified over antigen-Agarose
<b>Secondary Ab</b>	Cat # 20320, goat anti-rabbit IgG-HRP (AP, biotin, FITC conjugates also available).
<b>Negative Control Ab</b>	Non-immune rabbit IgG (Cat # 20009-1) to be used as -ve control for ELISA, WB, IHC etc.

**Form & Storage of Antibodies/Peptide Control**

**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.

**Specificity & Cross-reactivity**

The human GAA31-P control peptide is 100% conserved in mouse and rat GAA3. No significant homology is detected with other GABA A receptor subtypes or other receptors. Antibody cross-reactivity in various species has not been studied. The **GAA31-P** 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 the web site).

**General References:** (1). Hadingham KI et al (1993) Mol. Pharmacol. 43, 970-975; Wang JB et al (1992) J. Mol. Neurosci. 3, 177-184; Khretchatsky M et al (1991) J. Neurochem. 56, 1717-1722; Mehta Ak and Ticku MK et al (1999) Brain Res. Rev. 29, 196-271 (review); Whiting PJ et al (1999) Ann. NY Acad. Sci. 868, 645-653 (review);

**Citations of ADI antibodies** (see complete list at the web site).

Wang J (2003) "Interaction of Calcineurin and Type-A GABA Receptor  $\alpha$ 2 Subunits Produces Long-Term Depression at CA1 Inhibitory Synapses", Journal of Neuroscience, 23(3):826-836, WB

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

GAA31- A-P

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