ALPHA DIAGNOSTIC INTERNATIONAL

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Product Specification Sheet

GABA-A Receptor Alpha 1 Subunit (GAA1) Antibodies

Cat. # GAA13-M **Mouse Monoclonal** Anti-bovine GAA1 IgG # 3 **SIZE**: 100 ug

GABA (γ-amino butyric acid) is the most abundant neurotransmitter in mammalian brain. GABA exerts its effects through ionotropic ligand-gated $GABA_A$, $GABA_C$ and $GABA_B$ receptors (**$GABA_BRs$**). 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 GAA1 (chromosome 5q34-q35) protein is 456 aa (rat/mouse 455 aa). Defects in GABRA1 are a cause of juvenile myoclonic epilepsy (JME), a common epileptic syndrome characterized by afebrile seizures, onset in adolescence (rather than in childhood) and myoclonic jerks.

Source of Antigen and Antibodies

Antigen	**Recombinant bovine GAA1 fragment (1-269 aa)** (1); Epitope location Extracellular domain
Ab Host/type	Balb/c **mouse**. Splenocytes were fused with Sp2/0 myeloma cells. Resulting clone (designated GAA1, isotype IgG #3), selected for reactivity with bovine GAA1, was expanded into mice as **ascites**. Antibody has been purified by Protein A/G column chromatography.
2-Ab	**Goat Anti-mouse IgG-HRP conjugate Cat # 40320 (AP, biotin, FITC conjugates also available)**
-ve control IgG	Cat # 20008-1, Mouse (non-immune) Serum IgG, purified, suitable for ELISA, Western, IHC as –ve control

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

Recommended Usage

Western Blotting (1:1K-5K for neat serum and 1-10 ug/ml for affinity pure antibody using ECL technique).

Histochemistry & Immunofluorescence: Not tested. We recommend the use of affinity purified antibody at 2-20 ug/ml in paraformaldehyde fixed sections of tissues.

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.

Recommended Usage

Western Blotting (1-5 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.

Specificity & Cross-reactivity

GAA1 monoclonal antibody specifically reacts with bovine GAA1 protein. Antibody cross-reactivity in various species has not been studied.

General References: (1) Schofield PR et al (1987) Nature 328, 221-227; 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); Siegart W et al (1999) Neurochem. Intl. 34, 379-385 (review); (2). Garrett KM et al (1988) BBRC 156, 1039-1045; Lolait SJ et al (1989) FEBS Lett. 246, 145-148; Wang JB et al (1992) J. Mol. Neurosci. 3, 177-184; Schofield PR et al (1989) FEBS Lett. 244, 361-364; Hirouchi M et al (1989) Neurochem. Intl. 15, 33-38; Johnson KJ et al (1992) Genomics 14, 745-748; Kang I et al (1994) J Neurochem. 62, 1643-1646.

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

Wang J (2003) "Interaction of Calcineurin and Type-A GABA Receptor ┌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.

Related material available from ADI

Antibodies GABA-A receptors (α, β, and γ -subunits), GABAR associated protein, GBR1a, 1b, and GBR2, GABA transporters (GAT-3), and Anti-GABA antibodies.

GAA13-M 71208J

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