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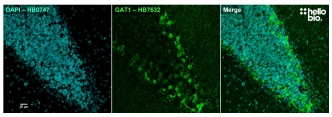
DATASHEET

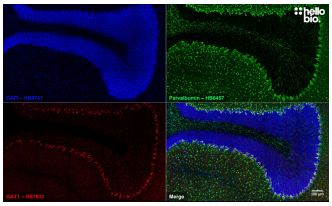
Anti-GAT1 Antibody ValidAb™

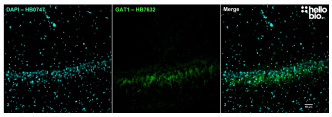
Product overview

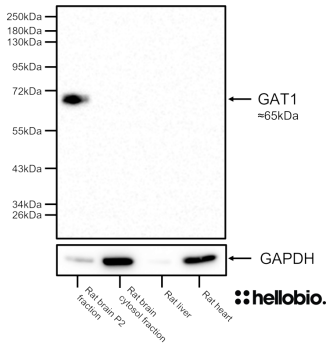
Name	Anti-GAT1 Antibody ValidAb™
Cat No	HB7632
Host	Rabbit
Clonality	Polyclonal
Target	GAT1
Description	Antibody to GAT1 - GABA reuptake transporter and marker for GABAergic interneurones. Part of the ValidAb™ range of highly validated, data-rich antibodies.

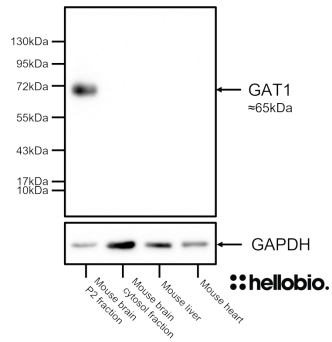
Validation data

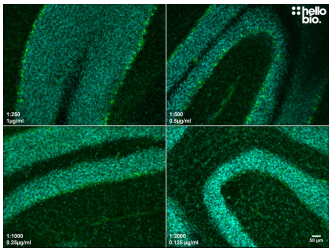


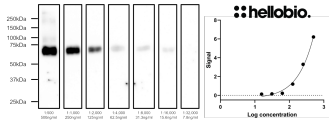












Product information

Immunogen	Synthetic peptide corresponding to the C-terminal region of rat GAT1 conjugated to KLH
Isotype	IgG
Purification	Immunogen affinity chromatography
Concentration	0.25mg/ml
Formulation	10mM HEPES (pH 7.5), 150mM NaCl, 100 µg/ml BSA and 50% glycerol.
Predicted species reactivity	Mouse, Rat
Tested species reactivity	Mouse, Rat

Tested applications

Applications	WB, IHC(IF)

Western blot optimal concentration	125ng/ml (1:2,000) as tested in a mouse brain P2 membrane preparation
IHC(IF) optimal concentration	500ng/ml (1:500) as tested in rat cerebellum sections
Positive control	GAT1 is highly expressed within the GABAergic interneurones of the CNS therefore brain samples (and especially membrane enriched samples) make an excellent positive control. GAT1 expression has also been reported in K-562, Hel and HMC-1 cell lines (see the human protein atlas for more information).
Negative control	GAT1 is poorly expressed in peripheral tissues therefore these make a good negative control. Adittionally the majority of cell lines, including HEK293, HeLa and SH-SY5Y cells, do not express GAT1.
Open data link	Please follow this link to OSF

Target information

Other names	Sodium- and chloride-dependent GABA transporter 1, SLC6A1, Solute carrier family 6 member 1
UniProt ID	P30531
Gene name	SLC6A1
NCBI full gene name	solute carrier family 6 member 1
Entrez gene ID	6529
Amino acids	599 (67.1kDa)
Isoforms	GAT1 only has one described isoform.
Expression	GAT1 is primarily expressed in GABAergic interneurones within the CNS. There is also expression at a lower level in some peripheral organs (see Erdo and Wolff, 1990). There have also been reports of GAT1 residing within astrocytic processes in the CNS (see Minelli et al., 1995).
Subcellular expression	GAT1 is expressed in the plasma membrane and is enriched in axon terminals.
Target function	GAT1 is a transmembrane re-uptake transporter that removes GABA from the synaptic cleft into presynaptic neurones and astrocytes.
Processing	None
Post translational modifications	GAT1 is subject to phosphorylation on Ser18 and Ser591 alongside N-linked glycosylation on residues 176, 181 and 184
Homology (compared to human)	Mouse and rat GAT1 proteins are identical to each other and both have a 98% identity to human GAT1 in a BLAST search. This corresponds to 12 amino acid changes compared to the human sequence.
Similar proteins	GAT2 and GAT3 have a 52.1% and 54.6% identity to GAT1 in a BLAST search. These were the only identified proteins with significant homology with GAT1.

Storage & Handling

Storage instructions	-20°C
Important	This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not for human or veterinary use

References

GAT-1, a high-affinity GABA plasma membrane transporter, is localized to neurons and astroglia in the cerebral cortex.

Minelli A et al (1995) The Journal of neuroscience : the official journal of the Society for Neuroscience 15

PubMedID 7472524

Structure, Function, and Modulation of γ-Aminobutyric Acid Transporter 1 (GAT1) in Neurological Disorders: A Pharmacoinformatic Prospective.

Zafar S et al (2018) Frontiers in chemistry 6

PubMedID 30255012

GAT1 and GAT3 expression are differently localized in the human epileptogenic hippocampus.

Lee TS et al (2006) Acta neuropathologica 111

PubMedID 16456667

Current knowledge of SLC6A1-related neurodevelopmental disorders.

Goodspeed K et al (2020) Brain communications 2

PubMedID 33241211