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# DATASHEET

Anti-GAT1 Antibody ValidAb™

## Product overview

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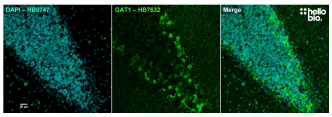
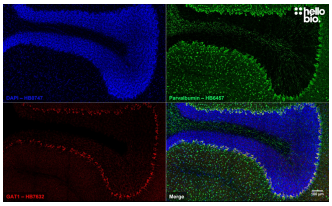
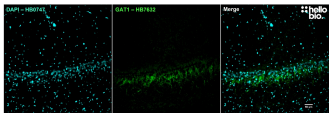
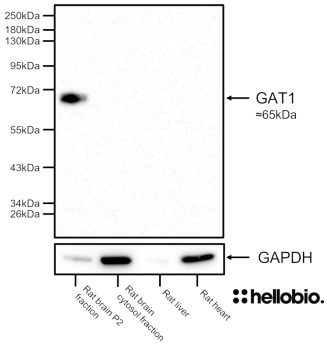
| **Name** | Anti-GAT1 Antibody ValidAb™ |
| **Cat No** | HB7632 |
| **Host** | Rabbit |
| **Clonality** | Polyclonal |
| **Target** | GAT1 |
| **Description** | Antibody to GAT1 - GABA reuptake transporter and marker for GABAergic interneurones. Part of the ValidAb™ range of highly validated, data-rich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

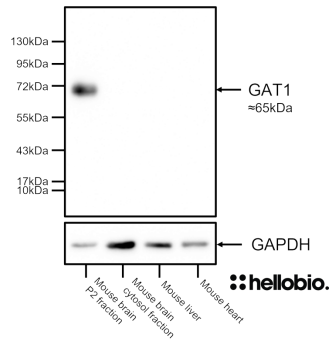
## Validation data

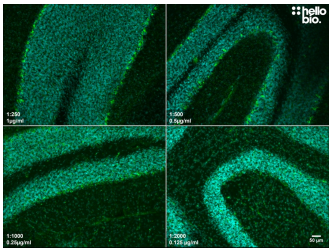


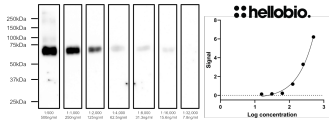









## Product information

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| **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

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| **Applications** | WB, IHC(IF) |

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| **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

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| **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. |
| **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

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| **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