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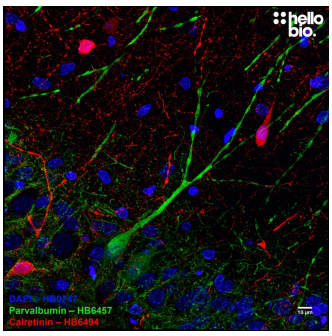
DATASHEET

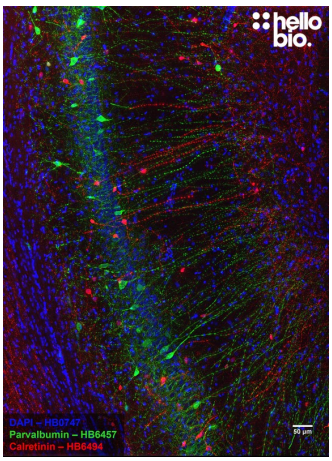
Anti-Parvalbumin antibody ValidAb™

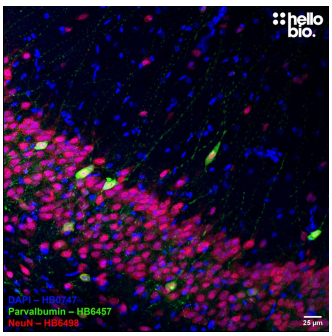
Product overview

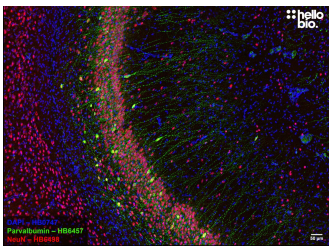
Name	Anti-Parvalbumin antibody ValidAb™
Cat No	HB6457
Host	Mouse
Clonality	Monoclonal
Target	Parvalbumin
Description	Antibody to Parvalbumin - calcium binding protein used as a marker for an inhibitory interneuron subtype. Part of the ValidAb™ range of highly validated, data-rich antibodies.

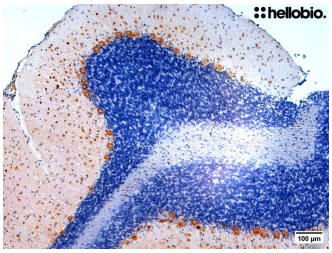
Validation data

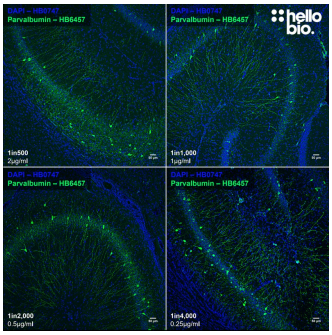


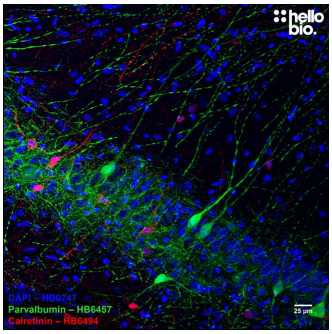


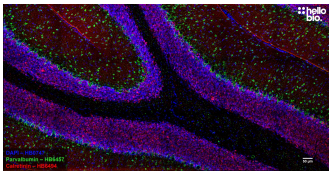


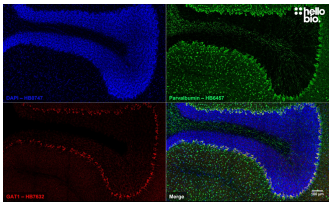


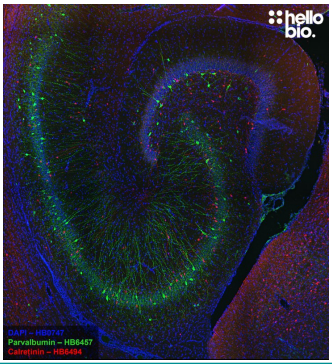












Product information

Immunogen	Recombinant human parvalbumin expressed in and purified from *E. coli*
Clone number	3C9
Isotype	IgG1
Purification	Protein G affinity chromatography
Concentration	1mg/ml
Formulation	50% PBS, 50% glycerol + 5mM sodium azide
Predicted species reactivity	Mouse, Rat, Human, Pig, Horse, Cow
Tested species reactivity	Mouse, Rat

Tested applications

Applications	IHC-P, IHC(IF)
IHC(IF) optimal concentration	0.25µg/ml (1:4,000) as measured in free-floating paraformaldehyde fixed rat brain sections
IHC-P optimal concentration	1:250 (4µg/ml) as tested in paraffin embedded rat horizontal brain sections using streptavidin-HRP detection system.
Positive control	Parvalbumin is expressed in interneurones in a wide array of brain regions such as the cerebellum and hippocampus.
Negative control	Parvalbumin is not expressed in a range of tissues such as liver, muscle and skin in adittion to not expressing in HeLa cells.
Open data link	Please follow this link to OSF

Target information

Other names	Parvalbumin alpha, PV, PVALB, D22S749
UniProt ID	P20472
Gene name	PVALB
NCBI full gene name	Parvalbumin
Entrez gene ID	5816
Amino acids	110 (12.1kDa)
Isoforms	Parvalbumin has only one described isoform
Expression	Parvalbumin is expressed in inhibitory interneurons in various regions of the brain, including the cerebral cortex, hippocampus, and cerebellum. It is also expressed in skeletal muscle and select other tissues such as in the parathyroid gland.
Subcellular expression	Parvalbumin is expressed in the cytosol; in neurones this expression is across the whole cell body, dendritic and axonal compartments.
Target function	Parvalbumin functions as a calcium buffer in the cytoplasm of inhibitory interneurons in the brain, binding to calcium ions and helping to regulate intracellular calcium levels. This activity helps to modulate the firing of inhibitory neurons, fine-tune the timing and synchronization of neural activity, and regulate synaptic plasticity.

Other names	Parvalbumin alpha, PV, PVALB, D22S749
Processing	Following translation no processing other than having the initiator methionine removed is required for parvalbumin to reach its active conformation.
Post translational modifications	Parvalbumin is subject to phosphorylation on S2, T4 and S24 alongside acetylation on S2.
Homology (compared to human)	Compared to human parvalbumin the mouse and rat homologs show 87.3% and 91.8% identity respectively in a BLAST search. Mouse and rat parvalbumin show a 94.6% identity with 6 amino acid changes.
Similar proteins	In a BLAST search the only identified similar proteins were Oncomodulin-1 (51.4% identity, 12.1kDa) and Oncomodulin-2 (51.4% identity, 12.1kDa)

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

The Role of Parvalbumin Interneurons in Neurotransmitter Balance and Neurological Disease.

Nahar L et al (2021) Frontiers in psychiatry 12
PubMedID 34220586

Parvalbumin interneuron vulnerability and brain disorders.

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Parvalbumin-positive interneurons of the prefrontal cortex support working memory and cognitive flexibility.

Murray AJ et al (2015) Scientific reports 5
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Role of the calcium-binding protein parvalbumin in short-term synaptic plasticity.

Caillard O et al (2000) Proceedings of the National Academy of Sciences of the United States of America 97
PubMedID 11069288

Reduction in parvalbumin expression not loss of the parvalbumin-expressing GABA interneuron subpopulation in genetic parvalbumin and shank mouse models of autism.

Filice F et al (2016) Molecular brain 9
PubMedID 26819149