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# **DATASHEET**

Anti-Parvalbumin antibody ValidAb™

### **Product overview**

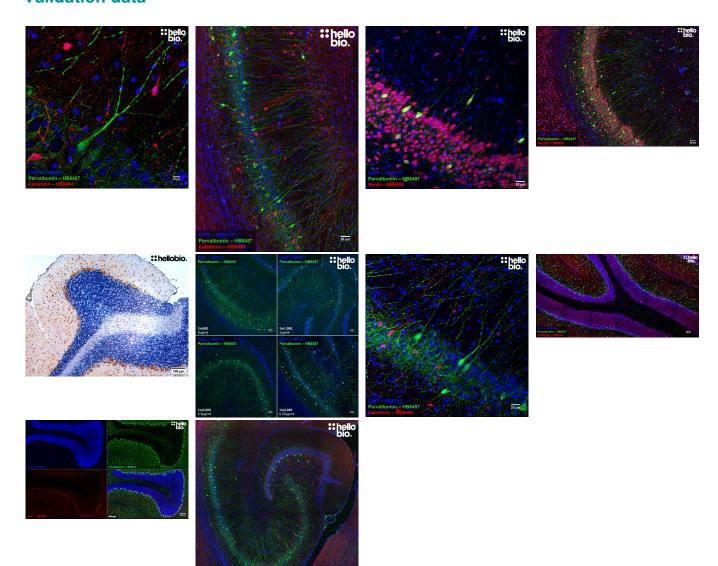
Name Anti-Parvalbumin antibody ValidAb<sup>TM</sup>

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 ValidAbTM 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 paraformal dehyde 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.

**Processing** Following translation no processing other than having the initiator methionine removed is required for

parvalbumin to reach its active conformation.

Post translational modifications

human)

Parvalbumin is subject to phosphorylation on S2, T4 and S24 alongside acetylation on S2.

Homology (compared to

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.

Ruden JB et al (2021) Neuropsychopharmacology : official publication of the American College of Neuropsychopharmacology 46

PubMedID 32722660

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

Murray AJ et al (2015) Scientific reports 5 **PubMedID** 26608841

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