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DATASHEET

Anti-Calbindin antibody ValidAb™

Product overview

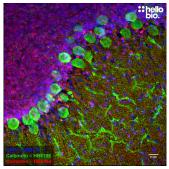
Name Anti-Calbindin antibody ValidAbTM

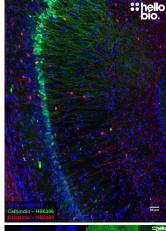
Cat NoHB6396HostMouseClonalityMonoclonalTargetCalbindin

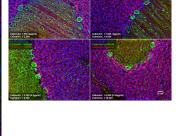
Description Antibody to Calbindin - calcium binding protein used as a marker for an inhibitory interneuron subtype.

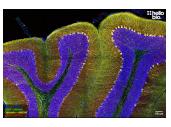
Part of the ValidAb™ range of highly validated, data-rich antibodies.

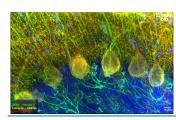
Validation data

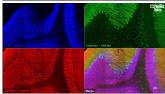












Product information

Immunogen Recombinant human calbindin expressed in and purified from E. coli.

Clone number 5A9 lgG2a

Purification Protein G affinity chromatography

Concentration 1mg/ml

Formulation 50% PBS, 50% glycerol + 5mM sodium azide

Predicted species reactivity Mouse, Rat, Human, Cow

Tested species reactivity Ra

Tested applications

Applications IHC(IF)

IHC(IF) optimal concentration 0.25µg/ml (1:4,000) as tested in free-floating paraformaldehyde fixed rat cerebellum sections

Positive control

Calbindin is strongly expressed in a subset of inhibitory interneurones in the brain alongside in distal

tubules of the kidney.

Negative control

Calbindin expression is absent in most non-neural tissues such as in liver, muscle and lung.

Open data link Please follow this link to OSF

Target information

Other names CALB1, CALB, Calbindin 1, D-28K

UniProt ID P05937 Gene name CALB1 NCBI full gene name calbindin 1 **Entrez gene ID** 793

Amino acids 261 (30.0kDa)

Isoforms Calbindin has two described isoforms:

• Isoform 1 (canonical) - 261 amino acids, 30.0kDa

• Isoform 2 - 204 amino acids, 23.6kDa - missing amino acids 1-57 of isoform 1.

Expression Calbindin is expressed in inhibitory interneurones in the brain with particularly high expression in the

cerebellum and cortex alongside also being expressed in the kidney (collecting ducts and distal

tubules) and retina.

Calbindin is primarily expressed in the cytosol of expressing cells with expression also having being Subcellular expression

reported in the nucleus.

Target function Calbindin plays a significant role in the brain by acting as a calcium buffer, helping to regulate calcium

levels within neurons and prevent excitotoxicity. It is often expressed in specific neuronal populations, where it has been implicated in modulating synaptic plasticity and neurotransmitter release.

Additionally, calbindin has been shown to be involved in neuroprotection, as its expression has been

linked to increased resistance to oxidative stress and protection against neurodegenerative diseases.

Calbindin also has a role in vitamin D dependent movement of calcium in the kidney. Calbindin has the initiator methionine removed before forming a final conformation.

Processing Post translational

modifications

Homology (compared to

human)

Mouse and rat calbindin have 98.5% identity with human calbindin. Mouse and rat calbindin show

99.2% homology (S60T and T232S).

Calbindin is acetylated on alanine 2.

Similar proteins In a BLAST search Calretinin (58.5% identity, 29kDa) was the only protein identified with significant

homology to Calbindin.

-20°C

Storage & Handling

Storage instructions **Shipping Conditions**

On ice

Important

This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not

for human or veterinary use

References

Three functional facets of calbindin D-28k.

Schmidt H (2012) Frontiers in molecular neuroscience 5

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Crucial role of calbindin-D28k in the pathogenesis of Alzheimer's disease mouse model.

Kook SY et al (2014) Cell death and differentiation 21 **PubMedID** 24853300

Biological actions and mechanism of action of calbindin in the process of apoptosis.

Christakos S et al (2004) The Journal of steroid biochemistry and molecular biology 89-90

PubMedID 15225809

Calbindin in cerebellar Purkinje cells is a critical determinant of the precision of motor coordination.

Barski JJ et al (2003) The Journal of neuroscience: the official journal of the Society for Neuroscience 23

PubMedID 12716955 Densities and numbers of calbindin and parvalbumin positive neurons across the rat and mouse brain.

Bjerke IE et al (2021) iScience 24

PubMedID 33385111