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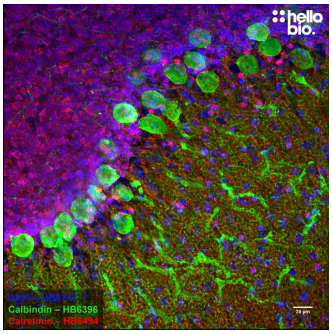
DATASHEET

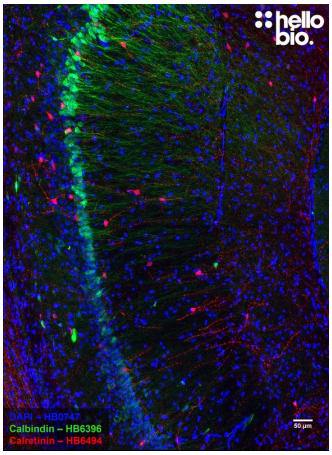
Anti-Calbindin antibody ValidAb™

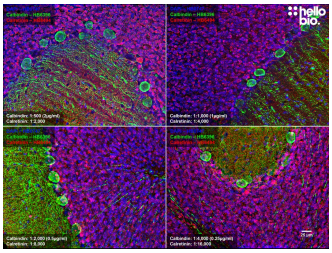
Product overview

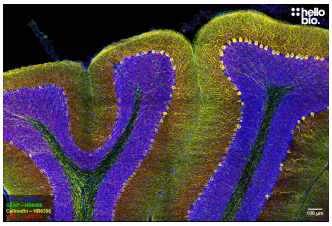
Name	Anti-Calbindin antibody ValidAb™
Cat No	HB6396
Host	Mouse
Clonality	Monoclonal
Target	Calbindin
Description	Antibody to Calbindin - calcium binding protein used as a marker for an inhibitory interneuron subtype. Part of the ValidAb™ range of highly validated, data-rich antibodies.

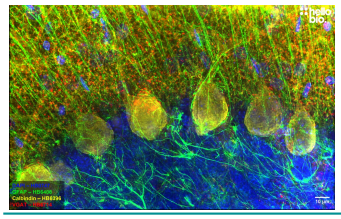
Validation data

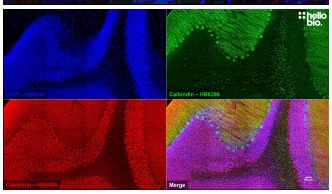












Product information

Immunogen	Recombinant human calbindin expressed in and purified from *E. coli.*
Clone number	5A9
Isotype	IgG2a
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	Rat

Tested applications

Applications **IHC(IF) optimal concentration**	IHC(IF) 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 **Gene name** **NCBI full gene name** **Entrez gene ID**	P05937 CALB1 calbindin 1 793
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.
Subcellular expression	Calbindin is primarily expressed in the cytosol of expressing cells with expression also having being 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.
Processing	Calbindin has the initiator methionine removed before forming a final conformation.
Post translational modifications	Calbindin is acetylated on alanine 2.
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).
Similar proteins	In a BLAST search Calretinin (58.5% identity, 29kDa) was the only protein identified with significant homology to Calbindin.

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

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
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