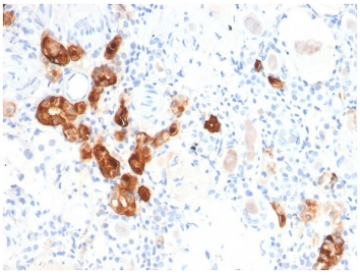
Calbindin Antibody / CALB1 [clone CALB1/2782] (V8170)

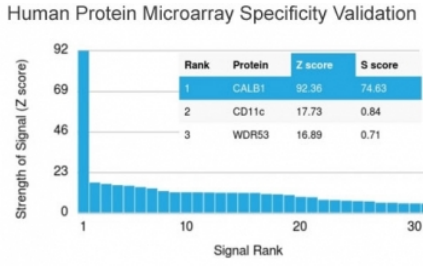
Catalog No.	Formulation	Size
V8170-100UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced) and 0.05% sodium azide	100 ug
V8170-20UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced) and 0.05% sodium azide	20 ug
V8170SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Mouse
Clonality	Monoclonal (mouse origin)
Isotype	Mouse IgG2b, kappa
Clone Name	CALB1/2782
Purity	Protein G affinity chromatography
UniProt	P05937
Localization	Cytoplasmic, nuclear, secreted
Applications	ELISA (order BSA-free format for coating) Immunohistochemistry (FFPE): 1-2ug/ml
Limitations	This Calbindin antibody is available for research use only.



Immunohistochemistry analysis of Calbindin / CALB antibody (clone CALB1/2782) in human kidney tissue. Formalin-fixed, paraffin-embedded human kidney shows cytoplasmic HRP-DAB brown staining in subsets of tubular epithelial cells, while surrounding glomerular and interstitial cells are largely negative. Nuclear counterstain highlights renal architecture. Heat-induced epitope retrieval was performed by boiling tissue sections in pH 9 10 mM Tris with 1 mM EDTA for 20 minutes followed by cooling prior to staining.



Analysis of HuProt(TM) microarray containing more than 19,000 full-length human proteins using Calbindin antibody (clone CALB1/2782). These results demonstrate the foremost specificity of the CALB1/2782 mAb. Z- and S- score: The Z-score represents the strength of a signal that an antibody (in combination with a fluorescently-tagged anti-IgG secondary Ab) produces when binding to a particular protein on the HuProt(TM) array. Z-scores are described in units of standard deviations (SD's) above the mean value of all signals generated on that array. If the targets on the HuProt(TM) are arranged in descending order of the Z-score, the S-score is the difference (also in units of SD's) between the Z-scores. The S-score therefore represents the relative target specificity of an Ab to its intended target.

Description

Calbindin antibody, also known as CALB antibody, recognizes Calbindin, a cytoplasmic calcium-binding protein encoded by the CALB1 gene and widely referred to as Calbindin-D28k. This protein belongs to the EF-hand calcium-binding protein family and functions primarily as an intracellular calcium buffer. By binding Ca2+ ions through multiple EF-hand domains, Calbindin regulates the amplitude and duration of calcium transients, thereby shaping calcium-dependent signaling pathways. Calbindin is predominantly localized in the cytoplasm and is especially enriched in defined neuronal populations, including cerebellar Purkinje cells, hippocampal pyramidal neurons, and subsets of cortical interneurons. Calbindin antibody is therefore frequently used in neurobiological research to identify specific neuronal subtypes and to study mechanisms of calcium homeostasis.

Structurally, Calbindin contains six EF-hand motifs, four of which are functional calcium-binding sites. Calcium binding induces conformational changes that influence protein-protein interactions and intracellular signaling events. Through its buffering activity, Calbindin protects cells from calcium overload and contributes to neuronal resilience under conditions of metabolic or excitotoxic stress. Reduced CALB1 expression has been associated with increased susceptibility to neurodegenerative processes, including Alzheimer's disease and Parkinson's disease, where disrupted calcium regulation is a key pathogenic feature. These observations highlight the biological importance of Calbindin in maintaining neuronal integrity and calcium balance.

In addition to its well-characterized expression in the central nervous system, Calbindin is detected in peripheral tissues such as kidney distal tubules, intestinal epithelium, and pancreatic islets. In these tissues, Calbindin participates in calcium transport and secretion-related functions, supporting epithelial and endocrine physiology. Developmentally, CALB1 expression is dynamically regulated, with distinct spatial and temporal patterns observed during embryogenesis and postnatal maturation. Because of its stable and cell type-restricted distribution, Calbindin antibody serves as a valuable tool for examining tissue architecture, differentiation status, and disease-associated alterations in calcium-handling capacity. Clone CALB1/2782 is designed to target Calbindin in research applications and enables detection of Calbindin expression in experimental systems focused on calcium signaling and neuronal characterization.

Application Notes

Optimal dilution of the Calbindin antibody should be determined by the researcher.

Immunogen

A recombinant human partial protein (amino acids 7-96) was used as the immunogen for this Calbindin antibody.

Storage

Store the Calbindin antibody at 2-8oC (with azide) or aliquot and store at -20oC or colder (without azide).

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