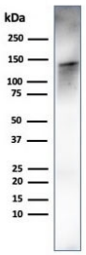
Caldesmon Antibody / CALD1 Cellular Mechanical Stress Response Protein Antibody [clone rCALD1/820] (V8878)

Catalog No.	Formulation	Size
V8878-100UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	100 ug
V8878-20UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	20 ug
V8878SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

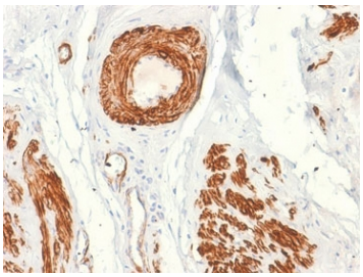
Recombinant | MOUSE MONOCLONAL

Bulk quote request

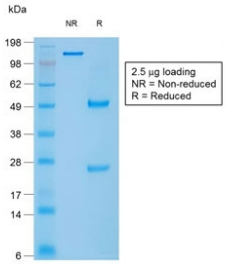
Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Mouse
Clonality	Recombinant Mouse Monoclonal
Isotype	Mouse IgG1, kappa
Clone Name	rCALD1/820
Purity	Protein A/G affinity
UniProt	Q05682
Localization	Cytoplasmic
Applications	Western Blot : 1-2ug/ml Immunohistochemistry (FFPE) : 0.25-0.5ug/ml
Limitations	This Caldesmon antibody is available for research use only.



Caldesmon Antibody / CALD1 Cellular Mechanical Stress Response Protein Antibody. Western blot analysis of Caldesmon (CALD1) in human ovary tissue lysate. Lane 1: human ovary tissue lysate. A band is detected at approximately 120-150 kDa, consistent with the predicted molecular weight of Caldesmon / CALD1 and representing the high molecular weight h-caldesmon isoform associated with mechanically resilient contractile cells. Additional lower molecular weight bands may be observed at approximately 70-80 kDa corresponding to non-muscle isoforms involved in cytoskeletal adaptation to mechanical stress. The observed banding pattern reflects isoform-dependent expression of CALD1 linked to cellular mechanical stress response and cytoskeletal stability.



Caldesmon Antibody / CALD1 Cellular Mechanical Stress Response Protein Antibody. Immunohistochemistry analysis of Caldesmon (CALD1) in human leiomyosarcoma tissue. FFPE human leiomyosarcoma stained with Caldesmon Antibody, clone rCALD1/820, demonstrates strong HRP-DAB brown cytoplasmic staining in tumor cells with smooth muscle differentiation. The staining highlights densely packed, spindle-shaped tumor cells arranged in intersecting fascicles, consistent with cytoskeletal reinforcement and mechanical stress-adapted structural organization. Prominent staining in vascular smooth muscle structures further supports localization of CALD1 to mechanically resilient contractile cell populations. Heat-induced epitope retrieval was performed using Tris-EDTA buffer at pH 9.



SDS-PAGE analysis of purified, BSA-free recombinant Caldesmon antibody (clone rCALD1/820) as confirmation of integrity and purity.

Description

Caldesmon (CALD1) contributes to the cellular response to mechanical stress by regulating cytoskeletal stability and distributing mechanical forces across actin filament networks. Caldesmon Antibody / CALD1 Cellular Mechanical Stress Response Protein Antibody is used to detect CALD1 in studies examining how cells sense, withstand, and adapt to mechanical strain within their environment.

Cells are constantly exposed to mechanical forces such as tension, compression, and shear stress, and maintaining structural integrity under these conditions requires precise cytoskeletal regulation. Caldesmon supports this process by stabilizing actin filaments and reinforcing filament networks that bear mechanical load. This function is particularly important in cells that experience sustained or fluctuating mechanical stress, where cytoskeletal resilience is critical for survival and function.

Caldesmon Antibody, also referred to as CALD1 antibody or h-caldesmon antibody, is valuable for studying how cytoskeletal proteins contribute to mechanical stress resistance. Caldesmon localizes to regions of high mechanical strain, where it helps maintain filament alignment and prevents structural disruption. Its presence in these regions reflects a protective role in preserving cytoskeletal integrity under stress conditions.

At the molecular level, CALD1 participates in mechanotransduction processes by linking structural components of the cytoskeleton to signaling pathways that respond to mechanical input. Through this connection, caldesmon helps convert physical forces into biochemical signals that regulate cellular adaptation, gene expression, and structural remodeling. This dual role in both mechanical stabilization and signal integration distinguishes CALD1 as a key mediator of stress response.

Mechanical stress response is essential in tissues such as vasculature, muscle, and connective tissue, where cells must continuously adjust to changing force environments. Caldesmon contributes to maintaining structural stability in these systems, supporting long-term cellular function and resistance to mechanical damage. Its role extends beyond simple filament stabilization to include coordination of adaptive responses to mechanical challenges.

Due to its involvement in maintaining cytoskeletal integrity and mediating responses to mechanical stress, Caldesmon Antibody provides a reliable tool for detecting CALD1 expression in studies focused on mechanotransduction, cellular resilience, and force-dependent structural adaptation. Its association with mechanical stress response pathways supports investigation of how cells sense and respond to physical forces.

Application Notes

Optimal dilution of the Caldesmon Antibody / CALD1 Cellular Mechanical Stress Response Protein Antibody should be determined by the researcher.

Immunogen

Recombinant full-length human CALD1 protein was used as the immunogen for the Caldesmon Antibody / CALD1 Cellular Mechanical Stress Response Protein Antibody.

Storage

Aliquot the recombinant Caldesmon antibody and store frozen at -20oC or colder. Avoid repeated freeze-thaw cycles.

Alternate Names

Caldesmon antibody, CALD1 antibody, Caldesmon mechanotransduction antibody, CALD1 stress response protein antibody, h-Caldesmon antibody, Caldesmon mechanical regulation antibody

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