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CASP-7 Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO1994a

Product Information

Application	WB, IHC, FC, E
Primary Accession	P55210
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Clone Names	4D10B2
Isotype	IgG1
Calculated MW	34277
Description	This gene encodes a member of the cysteine-aspartic acid protease (caspase) family. Sequential activation of caspases plays a central role in the execution-phase of cell apoptosis. Caspases exist as inactive proenzymes which undergo proteolytic processing at conserved aspartic residues to produce two subunits, large and small, that dimerize to form the active enzyme. The precursor of the encoded protein is cleaved by caspase 3 and 10, is activated upon cell death stimuli and induces apoptosis. Alternatively spliced transcript variants encoding multiple isoforms have been observed for this gene.
Immunogen	Purified recombinant fragment of human CASP-7 (AA: 29-198) expressed in E. Coli.
Formulation	Purified antibody in PBS with 0.05% sodium azide.

Additional Information

Gene ID	840
Other Names	Caspase-7, CASP-7, 3.4.22.60, Apoptotic protease Mch-3, CMH-1, ICE-like apoptotic protease 3, ICE-LAP3, Caspase-7 subunit p20, Caspase-7 subunit p11, CASP7, MCH3
Dilution	WB~~1/500 - 1/2000 IHC~~1/200 - 1/1000 FC~~1/200 - 1/400 E~~1/10000
Storage	Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	CASP-7 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	CASP7 {ECO:0000303|PubMed:9070923, ECO:0000312|HGNC:HGNC:1508}
Function	Thiol protease involved in different programmed cell death processes, such as apoptosis, pyroptosis or granzyme-mediated programmed cell death, by proteolytically cleaving target proteins (PubMed:11257230, PubMed:11257231, PubMed:11701129, PubMed:15314233, PubMed:16916640, PubMed:17646170, PubMed:18723680, PubMed:19581639, PubMed:8521391, PubMed:8567622, PubMed:8576161, PubMed:9070923). Has a marked preference for Asp-Glu-Val-Asp (DEVD) consensus sequences, with some plasticity for alternate non-canonical sequences (PubMed:12824163, PubMed:15314233, PubMed:17697120, PubMed:19581639, PubMed:20566630, PubMed:23650375, PubMed:23897474, PubMed:27032039). Its involvement in the different programmed cell death processes is probably determined by upstream proteases that activate CASP7 (By similarity). Acts as an effector caspase involved in the execution phase of apoptosis: following cleavage and activation by initiator caspases (CASP8, CASP9 and/or CASP10), mediates execution of apoptosis by catalyzing cleavage of proteins, such as CLSPN, PARP1, PTGES3 and YY1 (PubMed:10497198, PubMed:16123041, PubMed:16374543, PubMed:16916640, PubMed:18723680, PubMed:20566630, PubMed:21555521, PubMed:22184066, PubMed:22451931, PubMed:27889207, PubMed:28863261, PubMed:31586028, PubMed:34156061, PubMed:35338844, PubMed:35446120). Compared to CASP3, acts as a minor executioner caspase and cleaves a limited set of target proteins (PubMed:18723680). Acts as a key regulator of the inflammatory response in response to bacterial infection by catalyzing cleavage and activation of the sphingomyelin phosphodiesterase SMPD1 in the extracellular milieu, thereby promoting membrane repair (PubMed:21157428). Regulates pyroptosis in intestinal epithelial cells: cleaved and activated by CASP1 in response to S.typhimurium infection, promoting its secretion to the extracellular milieu, where it catalyzes activation of SMPD1, generating ceramides that repair membranes and counteract the action of gasdermin-D (GSDMD) pores (By similarity). Regulates granzyme-mediated programmed cell death in hepatocytes: cleaved and activated by granzyme B (GZMB) in response to bacterial infection, promoting its secretion to the extracellular milieu, where it catalyzes activation of SMPD1, generating ceramides that repair membranes and counteract the action of perforin (PRF1) pores (By similarity). Following cleavage by CASP1 in response to inflammasome activation, catalyzes processing and inactivation of PARP1, alleviating the transcription repressor activity of PARP1 (PubMed:22464733). Acts as an inhibitor of type I interferon production during virus-induced apoptosis by mediating cleavage of antiviral proteins CGAS, IRF3 and MAVS, thereby preventing cytokine overproduction (By similarity). Cleaves and activates sterol regulatory element binding proteins (SREBPs) (PubMed:8643593). Cleaves phospholipid scramblase proteins XKR4, XKR8 and XKR9 (By similarity). In case of infection, catalyzes cleavage of Kaposi sarcoma-associated herpesvirus protein ORF57, thereby preventing expression of viral lytic genes (PubMed:20159985). Cleaves BIRC6 following inhibition of BIRC6-caspase binding by DIABLO/SMAC (PubMed:36758104, PubMed:36758106).
Cellular Location	Cytoplasm, cytosol. Nucleus. Secreted, extracellular space {ECO:0000250|UniProtKB:P97864}. Note=Following cleavage and activation by CASP1 or granzyme B (GZMB), secreted into the extracellular milieu by passing through the gasdermin-D (GSDMD) pores or perforin (PRF1) pore, respectively {ECO:0000250|UniProtKB:P97864}
Tissue Location	Highly expressed in lung, skeletal muscle, liver, kidney, spleen and heart, and moderately in testis. No expression in the brain.

References

1. Lung Cancer. 2009 Jul;65(1):19-24.2. Genes Cells. 2008 Jun;13(6):609-21.

Images

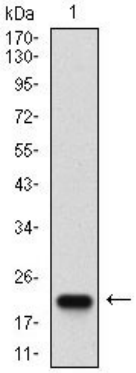


Figure 1: Western blot analysis using CASP-7 mAb against human CASP-7 (AA: 29-198) recombinant protein. (Expected MW is 22.5 kDa)

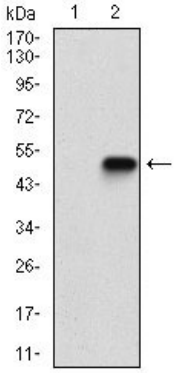


Figure 2: Western blot analysis using CASP-7 mAb against HEK293 (1) and CASP-7 (AA: 29-198)-hIgGFc transfected HEK293 (2) cell lysate.

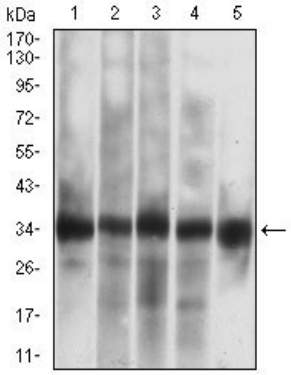


Figure 3: Western blot analysis using CASP-7 mouse mAb against Jurkat (1), HEK293 (2), MOLT4 (3), MCF-7 (4), PC-12 (5) cell lysate.

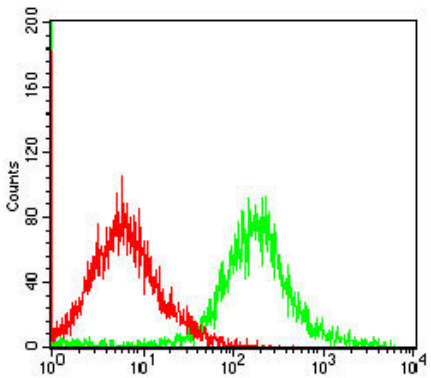
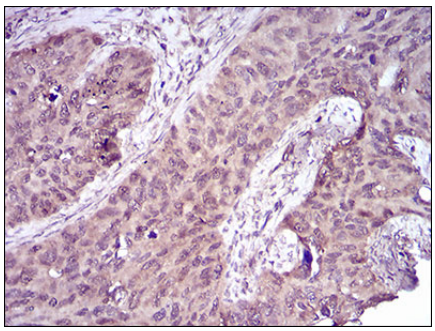


Figure 4: Flow cytometric analysis of MCF-7 cells using CASP-7 mouse mAb (green) and negative control (red).

Figure 5: Immunohistochemical analysis of paraffin-embedded cervical cancer tissues using CASP-7 mouse mAb with DAB staining.



Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.