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Caspase-3 (CASP3) Antibody (Center)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP7563C

Product Information

Application	WB, IHC-P, FC, E
Primary Accession	P42574
Reactivity	Human
Predicted	Mouse, Rat, Bovine, Canine, Rabbit
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB14696
Calculated MW	31608
Antigen Region	60-90

Additional Information

Gene ID	836
Other Names	Caspase-3, CASP-3, Apopain, Cysteine protease CPP32, CPP-32, Protein Yama, SREBP cleavage activity 1, SCA-1, Caspase-3 subunit p17, Caspase-3 subunit p12, CASP3, CPP32
Target/Specificity	This Caspase-3 (CASP3) antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 60-90 amino acids from the Central region of human Caspase-3 (CASP3).
Dilution	WB~~1:1000 IHC-P~~1:100~500 FC~~1:10~50 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.05% (V/V) Proclin 300. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	Caspase-3 (CASP3) Antibody (Center) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	CASP3
Synonyms	CPP32 {ECO:0000303|PubMed:7983002}

Function	Thiol protease that acts as a major effector caspase involved in the execution phase of apoptosis (PubMed:18723680, PubMed:20566630, PubMed:23650375, PubMed:35338844, PubMed:35446120, PubMed:7596430). Following cleavage and activation by initiator caspases (CASP8, CASP9 and/or CASP10), mediates execution of apoptosis by catalyzing cleavage of many proteins (PubMed:18723680, PubMed:20566630, PubMed:23650375, PubMed:7596430). At the onset of apoptosis, it proteolytically cleaves poly(ADP-ribose) polymerase PARP1 at a '216-Asp-|-Gly-217' bond (PubMed:10497198, PubMed:16374543, PubMed:7596430, PubMed:7774019). Cleaves and activates sterol regulatory element binding proteins (SREBPs) between the basic helix-loop-helix leucine zipper domain and the membrane attachment domain (By similarity). Cleaves and activates caspase-6, -7 and -9 (CASP6, CASP7 and CASP9, respectively) (PubMed:7596430). Cleaves and inactivates interleukin-18 (IL18) (PubMed:37993714, PubMed:9334240). Involved in the cleavage of huntingtin (PubMed:8696339). Triggers cell adhesion in sympathetic neurons through RET cleavage (PubMed:21357690). Also involved in axon pruning during brain development (By similarity). Cleaves DSG2 in response to apoptosis resulting in a loss of full length DSG2 at desmosome cell junctions and subsequent loss of cell-cell adhesion (PubMed:17559062). Also cleaves JUP in response to apoptosis (PubMed:17559062). Cleaves and inhibits serine/threonine-protein kinase AKT1 in response to oxidative stress (PubMed:23152800). 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 (PubMed:30878284). Also involved in pyroptosis by mediating cleavage and activation of gasdermin-E (GSDME) (PubMed:35338844, PubMed:35446120). Cleaves XRCC4 and phospholipid scramblase proteins XKR4, XKR8 and XKR9, leading to promote phosphatidylserine exposure on apoptotic cell surface (PubMed:23845944, PubMed:33725486). Cleaves BIRC6 following inhibition of BIRC6-caspase binding by DIABLO/SMAC (PubMed:36758104, PubMed:36758106).
Cellular Location	Cytoplasm.
Tissue Location	Highly expressed in lung, spleen, heart, liver and kidney. Moderate levels in brain and skeletal muscle, and low in testis. Also found in many cell lines, highest expression in cells of the immune system.

Background

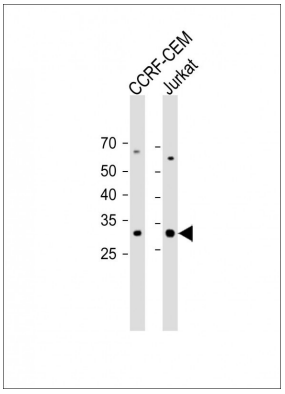
CASP3 is a member of the cysteine-aspartic acid protease (caspase) family. Sequential activation of caspases plays a central role in the execution-phase of cell apoptosis. Caspases exist as inactive proenzymes which undergo proteolytic processing at conserved aspartic residues to produce two subunits, large and small, that dimerize to form the active enzyme. This protein cleaves and activates caspases 6, 7 and 9, and the protein itself is processed by caspases 8, 9 and 10. It is the predominant caspase involved in the cleavage of amyloid-beta 4A precursor protein, which is associated with neuronal death in Alzheimer's disease.

References

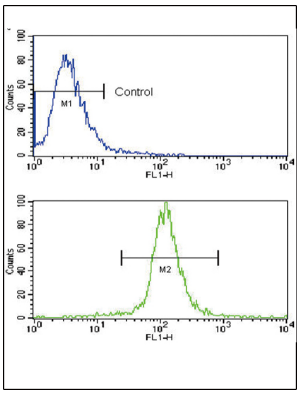
Wright,M.H.,Biochem. Biophys. Res. Commun. 369 (2), 478-484 (2008) Brown,E.T.,Radiat. Res. 169 (5), 595-601 (2008) Mustafa,T.,Virchows Arch. 452 (4), 449-456 (2008)

Images

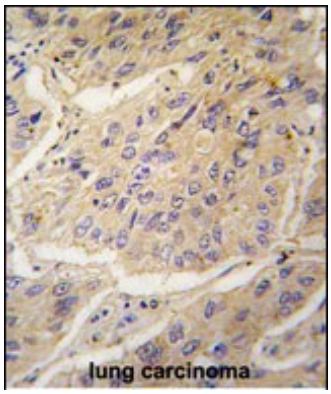
All lanes: Anti-Caspase-3 (CASP3) Antibody (Center) at 1:1000 dilution Lane 1: CCRF-CEM whole cell lysate Lane



2: Jurkat whole cell lysate Lysates/proteins at 20 µg per lane. Secondary: Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated (ASP1615) at 1/15000 dilution. Observed band size: 32 KDa Blocking/Dilution buffer: 5% NFDM/TBST.



Flow cytometric analysis of NCI-H460 cells using Caspase-3 (CASP3) Antibody (Center)(bottom histogram) compared to a negative control cell (top histogram). FITC-conjugated goat-anti-rabbit secondary antibodies were used for the analysis.



Formalin-fixed and paraffin-embedded human lung carcinoma tissue reacted with CASP3 antibody (Center) (Cat.#AP7563c), which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated.

Citations

- EXPRESS: Gremlin1 blocks vascular endothelial growth factor signalling in the pulmonary microvascular endothelium
- LncRNA HRCEG, regulated by HDAC1, inhibits cells proliferation and epithelial-mesenchymal-transition in gastric cancer
- Ubenimex inhibits cell proliferation, migration and invasion in renal cell carcinoma: The effect is autophagy-associated.
- Combination of Rad001 (everolimus) and propachlor synergistically induces apoptosis through enhanced autophagy in prostate cancer cells.
- Senkyunolide H protects against MPP-induced apoptosis via the ROS-mediated mitogen-activated protein kinase pathway in PC12 cells.
- Atorvastatin ameliorates early brain injury through inhibition of apoptosis and ER stress in a rat model of subarachnoid hemorrhage.
- Nucleostemin dysregulation contributes to ischemic vulnerability of diabetic hearts: Role of ribosomal biogenesis.
- Combination of metformin and sorafenib suppresses proliferation and induces autophagy of hepatocellular carcinoma via targeting the mTOR pathway.
- Expression of pituitary tumor-transforming 2 in human glioblastoma cell lines and its role in glioblastoma tumorigenesis.

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