abcam

ab238440

Anti-pro Caspase-3 antibody [E83-103] - BSA and Azide free

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	E83-103
Purification technique	Affinity purification Protein A
Specificity	This antibody only detects pro-form (35kD) of caspase 3, and does not recognize any cleaved caspases.
Concentration	1.036 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	-
Notes	-

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Tested

Species	Human
Dilution info	-
Notes	-

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.

Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Expected

Species	Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information CASP3

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). 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).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab238440 is the carrier-free version of ab32499.

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Species reactivity
Rat: We have preliminary internal testing data to indicate this antibody may not react with this species.
Please contact us for more information.

Conjugation ready
Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility
This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	Pro Caspase-3 also known as Caspase-3 zymogen is a central component in the apoptotic process. This inactive precursor form undergoes cleavage during apoptosis to become active caspase-3 an important executioner in cell death. Caspase-3 possesses a molecular weight of approximately 32 kDa. It is expressed ubiquitously in cells throughout the body with a higher concentration in tissues with rapid cell turnover such as thymus and gastrointestinal tract.
Biological function summary	The inactive pro Caspase-3 form serves as a safeguard in cells preventing premature apoptosis. It only becomes the active caspase-3 after specific activation ensuring controlled progression of apoptosis. This inactive form does not participate in any complex but becomes a part of the caspase family network upon cleavage. In its active form caspase-3 leads to the cleavage of several key cellular proteins driving the morphological and biochemical changes seen during apoptosis.
Pathways	Pro Caspase-3 is critical in the apoptotic signaling pathway. It serves as a link between intrinsic and extrinsic pathways of apoptosis. The intrinsic pathway often triggered by mitochondrial signals and the extrinsic pathway initiated by death receptor signals both lead to the activation of caspase-3. In these pathways pro Caspase-3 interacts with proteins like caspase-8 and cytochrome c playing a part in their signaling cascades and cellular outcomes.
Associated diseases and disorders	Pro Caspase-3 is associated with conditions involving dysregulated apoptosis. One such condition is cancer where evasion of apoptosis leads to uncontrolled cell proliferation. The therapeutic targeting of pro Caspase-3 activation holds potential in reinstating apoptotic pathways in cancerous cells. Additionally it relates to neurodegenerative diseases like Alzheimer's where excessive apoptosis contributes to neuronal loss. Here active caspase-3 interacts with proteins like amyloid precursor protein suggesting a role in the disease's progression.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

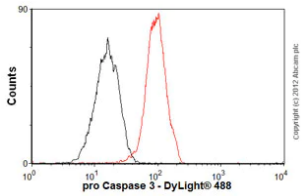
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

2 product images

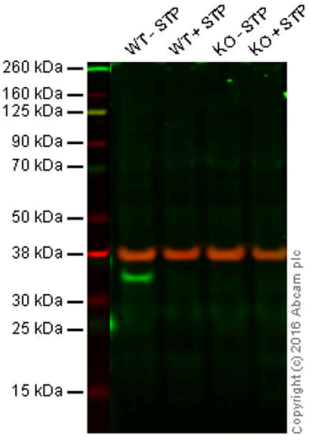


Flow Cytometry (Intracellular) - Anti-pro Caspase-3 antibody [E83-103] - BSA and Azide free (ab238440)

Pro Caspase-3 Flow Cytometry (Intracellular) staining using rabbit Anti-pro Caspase-3 antibody

Overlay histogram showing Jurkat cells stained with ab32499 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab32499, 1/50 dilution) for 30 min at 22°C. The secondary antibody used was anti-rabbit DyLight® 488 (ab96899) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was rabbit IgG (monoclonal) (1µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32499)



Western blot - Anti-pro Caspase-3 antibody [E83-103] - BSA and Azide free (ab238440)

Pro Caspase-3 Western blot staining using rabbit Anti-pro Caspase-3 antibody

Lane 1: Wild-type HAP1 cell lysate
Lane 2: Wild-type HAP1 cell lysate + Staurosporine (1µM for 4h)
Lane 3: Caspase-3 knockout HAP1 cell lysate
Lane 4: Caspase-3 knockout HAP1 cell lysate + Staurosporine (1µM for 4h)
Lanes 1 - 4: Merged signal (red and green). Green - ab32499 observed at 35 kDa. Red - loading control, ab8245, observed at 37 kDa.

ab32499 was shown to specifically react with pro Caspase 3 when Caspase 3 knockout samples were used. Wild-type and Caspase 3 knockout samples (± Staurosporine treatment) were subjected to SDS-PAGE. ab32499 and ab8245 (loading control to GAPDH) were diluted to 1/1000 and 1/10000 respectively and incubated overnight at 4°C. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (ab216776) secondary antibodies at 1/10000 dilution for 1 hour at room temperature before imaging.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol and sodium azide (ab32499).

All lanes:
Western blot - Anti-pro Caspase-3 antibody [E83-103] (ab32499)

Predicted band size: 31 kDa

Observed band size: 35 kDa

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