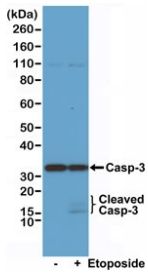
Recombinant Caspase-3 Antibody [clone RM250] (R20270)

Catalog No.	Formulation	Size
R20270-0.1ML	Antibody in PBS with 50% glycerol, 1% BSA and 0.09% sodium azide	100 ul

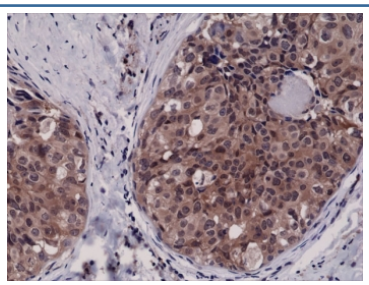
Recombinant RABBIT MONOCLONAL

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	RM250
Purity	Protein A purified from animal origin-free supernatant
UniProt	P42574
Gene ID	836
Applications	Immunohistochemistry (FFPE) : 1:1000-1:2500 (1) Western Blot : 1:1000-1:2000
Limitations	This recombinant Caspase-3 antibody is available for research use only.



Western blot of Jurkat cell lysate, untreated or treated with Etoposide, using recombinant Caspase-3 antibody at 1:1000.



IHC testing of FFPE human breast cancer tissue with recombinant Caspase-3 antibody at 1:2500.

Description

The Recombinant Caspase-3 antibody is a recombinant reagent engineered to detect caspase-3, a key executioner protease in the apoptotic cascade. Caspase-3 is synthesized as an inactive zymogen (procaspase-3) and undergoes proteolytic activation by upstream initiator caspases such as caspase-8 and caspase-9. Once activated, caspase-3 cleaves a broad range of cellular substrates, including PARP, lamin proteins, and cytoskeletal components, culminating in the morphological and biochemical hallmarks of apoptosis. The Recombinant Caspase-3 antibody provides precise and reproducible detection of this enzyme in multiple experimental systems.

Caspase-3 belongs to the cysteine-aspartic protease family and is encoded by the CASP3 gene on chromosome 4q34. Structurally, it contains a prodomain, a large subunit, and a small subunit. Activation requires cleavage at conserved aspartate residues, producing the active heterotetrameric enzyme. As the primary effector caspase, caspase-3 is indispensable for dismantling cellular structures during programmed cell death. Dysregulation of caspase-3 activity contributes to a range of pathological conditions, including cancer, where reduced apoptosis allows tumor survival, and neurodegenerative disorders, where excessive apoptosis contributes to neuronal loss.

In western blotting, the Recombinant Caspase-3 antibody detects both the full-length zymogen and the cleaved active fragments, allowing researchers to monitor caspase activation under apoptotic conditions. In immunohistochemistry, it highlights apoptotic cells in tissue samples, providing a readout of cell death during development, disease progression, or treatment response. In immunofluorescence, the antibody reveals cytoplasmic and nuclear localization of cleaved caspase-3, serving as a sensitive marker of apoptosis in cultured cells. Recombinant production ensures batch-to-batch uniformity and eliminates variability associated with hybridoma-derived antibodies.

The Recombinant Caspase-3 antibody is widely used in cancer research, where induction of apoptosis is a major therapeutic goal. It also plays a central role in studies of developmental biology, as apoptosis is essential for tissue sculpting and homeostasis. In neuroscience, detection of caspase-3 provides insight into mechanisms of neuronal death in conditions such as AlzheimerÃ¢Â€Â™s and ParkinsonÃ¢Â€Â™s disease. Synonym phrases such as recombinant CASP3 antibody, recombinant effector caspase antibody, and recombinant apoptosis marker antibody broaden accessibility for researchers using alternate nomenclature.

By delivering validated and reproducible detection, the Recombinant Caspase-3 antibody supports rigorous analysis of apoptosis in both basic and translational research. NSJ Bioreagents ensures strict quality control for this reagent, giving scientists confidence in western blotting, immunofluorescence, and immunohistochemistry. With specificity for a critical effector of programmed cell death, the Recombinant Caspase-3 antibody is an indispensable tool for advancing studies of apoptosis, cancer biology, and neurodegeneration.

This recombinant Caspase-3 antibody reacts to human full length caspase-3 (35 kDa) and the large fragment of caspase-3 resulting from cleavage (17 kDa).

Application Notes

The stated application concentrations are suggested starting points. Titration of the recombinant Caspase-3 antibody may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

A peptide corresponding to residues within human Caspase-3 subunit p17 was used as the immunogen for this recombinant Caspase-3 antibody.

Storage

Store the recombinant Caspase-3 antibody at -20oC (with glycerol) or aliquot and store at -20oC (without glycerol).