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EndoG Antibody [7G1C10]

Catalog # ASC11983

Product Information

Application	WB, E
Primary Accession	Q14249
Other Accession	Q14249, 24638471
Reactivity	Human, Mouse, Rat
Host	Mouse
Clonality	Monoclonal
Isotype	IgG1
Clone Names	7G1C10
Calculated MW	32620
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	EndoG monoclonal antibody can be used for detection of EndoG by Western blot at 2.5 - 5 □g/mL.

Additional Information

Gene ID	2021
Other Names	Endonuclease G, mitochondrial, Endo G, 3.1.30.-, ENDOG
Target/Specificity	ENDOG;
Reconstitution & Storage	EndoG monoclonal antibody can be stored at -20℃, stable for one year.
Precautions	EndoG Antibody [7G1C10] is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	ENDOG
Function	Endonuclease that preferentially catalyzes the cleavage of double-stranded 5-hydroxymethylcytosine (5hmC)-modified DNA (PubMed:25355512). The 5hmC-modified nucleotide does not increase the binding affinity, but instead increases the efficiency of cutting and specifies the site of cleavage for the modified DNAs (By similarity). Shows significantly higher affinity for four-stranded Holliday junction over duplex and single-stranded DNAs (By similarity). Promotes conservative recombination when the DNA is 5hmC-modified (PubMed:25355512). Promotes autophagy through the suppression of mTOR by its phosphorylation-mediated interaction with YWHAG and its endonuclease activity-mediated DNA damage response (PubMed:33473107). GSK3-beta mediated phosphorylation of ENDOG enhances its interaction with YWHAG, leading to the release of TSC2 and PIK3C3 from YWHAG resulting in mTOR pathway suppression and autophagy

initiation (PubMed:33473107). Promotes cleavage of mtDNA in response to oxidative and nitrosative stress, in turn inducing compensatory mtDNA replication (PubMed:29719607).

Cellular Location Mitochondrion.

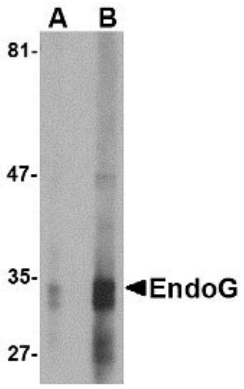
Background

EndoG Monoclonal Antibody: The fragmentation of nuclear DNA is a hallmark of apoptotic cell death. The activities of caspase and nuclease are involved in the DNA fragmentation. Caspase-activated deoxyribonuclease (CAD), also termed DNA fragmentation factor (DFF40), is one such nuclease, and is capable of inducing DNA fragmentation and chromatin condensation after cleavage by caspase-3 of its inhibitor ICAD/DFF45. Caspase and CAD independent DNA fragmentation also exists. Recent studies demonstrated that another nuclease, endonuclease G (EndoG), is specifically activated by apoptotic stimuli and is able to induce nucleosomal fragmentation of DNA independently of caspase and DFF/CAD. EndoG is a mitochondrion-specific nuclease that translocates to the nucleus and cleaves chromatin DNA during apoptosis. The homologue of mammalian EndoG is the first mitochondrial protein identified to be involved in apoptosis in C. elegans. EndoG also cleaves DNA in vitro.

References

Li LY, Luo X, Wang X. Endonuclease G is an apoptotic DNase when released from mitochondria. Nature 2001; 412:95-9.
Parrish J, Li L, Klotz K, et al. Mitochondrial endonuclease G is important for apoptosis in C. elegans. Nature 2001; 412:90-4
Hengartner MO. Apoptosis. DNA destroyers. Nature 2001; 412:27, 29.
Widlak P, Li LY, Wang X, et al. Action of recombinant human apoptotic endonuclease G on naked DNA and chromatin substrates: cooperation with exonuclease and DNase I. J. Biol. Chem. 2001; 276:48404-9.

Images



Western blot analysis of EndoG expression in HepG2 cell lysate with EndoG antibody at (A) 2.5 and (B) 5 µg/mL.

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