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EndoG Antibody

Catalog # ASC10172

Product Information

Application	WB, E, IHC-P
Primary Accession	Q14249
Other Accession	NP_004426, 53759134
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	32620
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	EndoG antibody can be used for detection of EndoG by Western blot at 2 □g/mL. Antibody can also be used for immunohistochemistry starting at 15 □g/mL.

Additional Information

Gene ID	2021
Other Names	EndoG Antibody: Endonuclease G, mitochondrial, Endo G, endonuclease G
Target/Specificity	ENDOG;
Reconstitution & Storage	EndoG antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	EndoG Antibody 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.

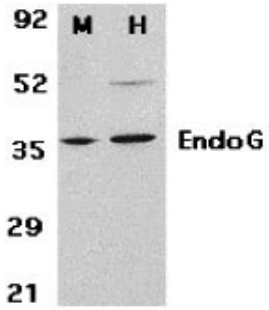
Background

EndoG 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. EndooG also cleaves DNA in vitro.

References

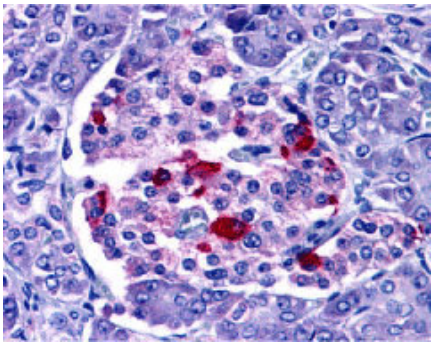
Li LY, Luo X, Wang X. Endonuclease G is an apoptotic DNase when released from mitochondria. Nature. 2001;412(6842):95-9.
Parrish J, Li L, Klotz K, Ledwich D, Wang X, Xue D. Mitochondrial endonuclease G is important for apoptosis in C. elegans. Nature. 2001;412(6842):90-4
Hengartner MO. Apoptosis. DNA destroyers. Nature. 2001;412(6842):27, 29.
Widlak P, Li LY, Wang X, Garrard WT. Action of recombinant human apoptotic endonuclease G on naked DNA and chromatin substrates: cooperation with exonuclease and DNase I. J Biol Chem. 2001;276(51):48404-9.

Images



Western blot analysis of EndoG in mouse (M) 3T3 and human (H) HepG2 cell lysates with EndoG antibody at 2 µg/mL.

Immunohistochemistry of EndoG in human pancreas with EndoG antibody at 15 µg/mL.



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