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Ku70 Antibody (Center)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP6775c

Product Information

Application	WB, IHC-P, FC, E
Primary Accession	P12956
Reactivity	Human, Mouse
Predicted	Bovine
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB20014
Calculated MW	69843
Antigen Region	432-461

Additional Information

Gene ID	2547
Other Names	X-ray repair cross-complementing protein 6, 364-, 4299-, 5'-deoxyribose-5-phosphate lyase Ku70, 5'-dRP lyase Ku70, 70 kDa subunit of Ku antigen, ATP-dependent DNA helicase 2 subunit 1, ATP-dependent DNA helicase II 70 kDa subunit, CTC box-binding factor 75 kDa subunit, CTC75, CTCBF, DNA repair protein XRCC6, Lupus Ku autoantigen protein p70, Ku70, Thyroid-lupus autoantigen, TLAA, X-ray repair complementing defective repair in Chinese hamster cells 6, XRCC6, G22P1
Target/Specificity	This Ku70 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 432-461 amino acids from the Central region of human Ku70.
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 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.
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	Ku70 Antibody (Center) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	XRCC6 (HGNC:4055)
Synonyms	G22P1
Function	DNA-binding protein critical for the DNA damage response, specifically in repairing double-strand breaks (DSBs) via the classical non-homologous end joining (NHEJ) pathway. It forms a heterodimer with XRCC5 (Ku80), creating the Ku70:Ku80 heterodimer (Ku complex), which serves as a DNA end-binding complex. It primarily binds DSBs and recruits essential repair factors, assembling the core long-range NHEJ complex to facilitate the alignment and ligation of broken DNA ends (PubMed:11493912, PubMed:20493174, PubMed:33854234, PubMed:34352203, PubMed:9742108). This pathway ensures the rapid repair of cytotoxic and mutagenic DSBs and contributes to the generation of diversity in T-cell receptors and antibodies through mechanisms such as V(D)J recombination (PubMed:9742108). Likely acts as a 5'-deoxyribose-5-phosphate lyase (5'-dRP lyase), catalyzing the beta-elimination of the 5'-deoxyribose- 5-phosphate at abasic sites near DSBs. This activity cleans the termini of abasic sites, a common form of nucleotide damage, preparing broken ends for ligation (PubMed:20383123). It may also possess 3'-5' DNA helicase activity, although this has not been confirmed in vivo, and its physiological significance remains unclear (PubMed:7957065). Beyond DNA repair, the protein contributes to telomere maintenance (PubMed:29490055). It is also implicated in transcriptional regulation, acting as a cofactor for various transcription factors (PubMed:12145306, PubMed:8621488). It plays a role in the regulation of DNA virus-mediated innate immune response by assembling into the HDP- RNP complex, a complex that serves as a platform for IRF3 phosphorylation and subsequent innate immune response activation through the cGAS-STING pathway (PubMed:28712728). Can also bind RNAs and recruits PRKDC to a wide range of cellular RNAs, including the U3 small nucleolar RNA, playing a role in the biogenesis of ribosomal RNAs (PubMed:32103174). Additionally, it negatively regulates apoptosis by interacting with BAX, sequestering it from the mitochondria, and may possess deubiquitination activity targeting BAX (PubMed:15023334, PubMed:18362350, PubMed:35545041).
Cellular Location	Nucleus. Chromosome. Cytoplasm. Note=When trimethylated, localizes in the cytoplasm.

Background

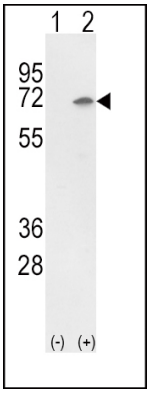
Ku70 is a single stranded DNA-dependent ATP-dependent helicase. It has a role in chromosome translocation. The DNA helicase II complex binds preferentially to fork-like ends of double-stranded DNA in a cell cycle-dependent manner. It works in the 3'-5' direction. Binding to DNA may be mediated by p70.It is involved in DNA nonhomologous end joining (NHEJ) required for double-strand break repair and V(D)J recombination. The Ku p70/p86 dimer acts as regulatory subunit of the DNA-dependent protein kinase complex DNA-PK by increasing the affinity of the catalytic subunit PRKDC to DNA by 100-fold. The Ku p70/p86 dimer is probably involved in stabilizing broken DNA ends and bringing them together.

References

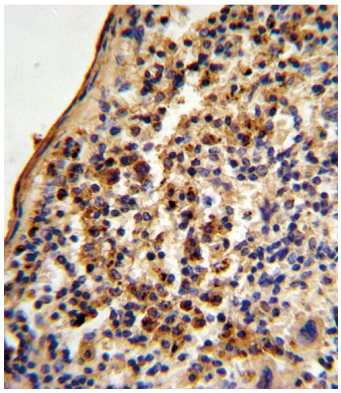
Beskow,C., et.al., Br. J. Cancer 101 (5), 816-821 (2009) Tseng,R.C., et.al., Cancer 115 (13), 2939-2948 (2009)

Images

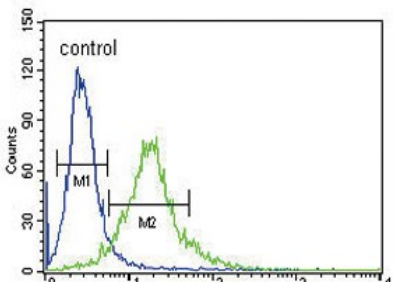
Western blot analysis of Ku70 (arrow) using rabbit polyclonal Ku70 Antibody (Center) (Cat. #AP6775c). 293



cell lysates (2 ug/lane) either nontransfected (Lane 1) or transiently transfected with the Ku70 gene (Lane 2).



Formalin-fixed and paraffin-embedded mouse spleen tissue reacted with Ku70 Antibody (Center), 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.



Ku70 Antibody (Center) (Cat. #AP6775c) flow cytometric analysis of 293 cells (right histogram) compared to a negative control cell (left histogram).FITC-conjugated goat-anti-rabbit secondary antibodies were used for the analysis.

Citations

- JmjC domain-containing protein 8 (JMJD8) represses Ku70/Ku80 expression via attenuating AKT/NF-κB/COX-2 signaling.

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