

Ku80 Antibody

Purified Rabbit Polyclonal Antibody (Pab)

Catalog # AP50194

Product Information

Application	WB, IF, IHC
Primary Accession	P13010
Reactivity	Human
Host	Rabbit
Clonality	polyclonal
Calculated MW	82705

Additional Information

Gene ID	7520
Other Names	X-ray repair cross-complementing protein 5, 364-, 86 kDa subunit of Ku antigen, ATP-dependent DNA helicase 2 subunit 2, ATP-dependent DNA helicase II 80 kDa subunit, CTC box-binding factor 85 kDa subunit, CTC85, CTCBF, DNA repair protein XRCC5, Ku80, Ku86, Lupus Ku autoantigen protein p86, Nuclear factor IV, Thyroid-lupus autoantigen, TLAA, X-ray repair complementing defective repair in Chinese hamster cells 5 (double-strand-break rejoining), XRCC5, G22P2
Dilution	WB~~ 1:1000 IF~~1:100 IHC~~1:50-1:100
Format	Rabbit IgG in phosphate buffered saline (without Mg ²⁺ and Ca ²⁺), pH 7.4, 150mM NaCl, 0.09% (W/V) sodium azide and 50% glycerol.
Storage Conditions	-20°C

Protein Information

Name	XRCC5
Synonyms	G22P2
Function	Single-stranded DNA-dependent ATP-dependent helicase that plays a key role in DNA non-homologous end joining (NHEJ) by recruiting DNA-PK to DNA (PubMed: 11493912 , PubMed: 12145306 , PubMed: 7957065 , PubMed: 8621488). Required for double-strand break repair and V(D)J recombination (PubMed: 11493912 , PubMed: 12145306 , PubMed: 7957065 , PubMed: 8621488). Also has a role in chromosome translocation (PubMed: 11493912 , PubMed: 12145306 , PubMed: 7957065 , PubMed: 8621488). The DNA helicase II complex binds preferentially to fork-like ends of double-stranded DNA in a cell cycle-dependent manner (PubMed: 11493912 , PubMed: 12145306 , PubMed: 7957065 , PubMed: 8621488). It works in the 3'-5' direction

(PubMed:[11493912](#), PubMed:[12145306](#), PubMed:[7957065](#), PubMed:[8621488](#)). During NHEJ, the XRCC5-XRCC6 dimer performs the recognition step: it recognizes and binds to the broken ends of the DNA and protects them from further resection (PubMed:[11493912](#), PubMed:[12145306](#), PubMed:[7957065](#), PubMed:[8621488](#)). Binding to DNA may be mediated by XRCC6 (PubMed:[11493912](#), PubMed:[12145306](#), PubMed:[7957065](#), PubMed:[8621488](#)). The XRCC5-XRCC6 dimer acts as a 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 (PubMed:[11493912](#), PubMed:[12145306](#), PubMed:[20383123](#), PubMed:[7957065](#), PubMed:[8621488](#)). The XRCC5-XRCC6 dimer is probably involved in stabilizing broken DNA ends and bringing them together (PubMed:[12145306](#), PubMed:[20383123](#), PubMed:[7957065](#), PubMed:[8621488](#)). The assembly of the DNA-PK complex to DNA ends is required for the NHEJ ligation step (PubMed:[12145306](#), PubMed:[20383123](#), PubMed:[7957065](#), PubMed:[8621488](#)). The XRCC5-XRCC6 dimer probably also acts as a 5'- deoxyribose-5-phosphate lyase (5'-dRP lyase), by catalyzing the beta- elimination of the 5' deoxyribose-5-phosphate at an abasic site near double-strand breaks (PubMed:[20383123](#)). XRCC5 probably acts as the catalytic subunit of 5'-dRP activity, and allows to 'clean' the termini of abasic sites, a class of nucleotide damage commonly associated with strand breaks, before such broken ends can be joined (PubMed:[20383123](#)). The XRCC5-XRCC6 dimer together with APEX1 acts as a negative regulator of transcription (PubMed:[8621488](#)). In association with NAA15, the XRCC5-XRCC6 dimer binds to the osteocalcin promoter and activates osteocalcin expression (PubMed:[12145306](#)). As part of the DNA-PK complex, involved in the early steps of ribosome assembly by promoting the processing of precursor rRNA into mature 18S rRNA in the small- subunit processome (PubMed:[32103174](#)). Binding to U3 small nucleolar RNA, recruits PRKDC and XRCC5/Ku86 to the small-subunit processome (PubMed:[32103174](#)). 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](#)).

Cellular Location

Nucleus. Nucleus, nucleolus Chromosome

Background

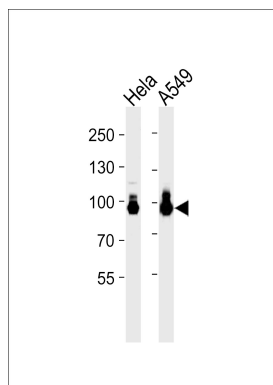
Single-stranded DNA-dependent ATP-dependent helicase. Has a role in chromosome translocation. The DNA helicase II complex binds preferentially to fork-like ends of double-stranded DNA in a cell cycle-dependent manner. It works in the 3'-5' direction. Binding to DNA may be mediated by XRCC6. Involved in DNA non-homologous end joining (NHEJ) required for double-strand break repair and V(D)J recombination. The XRCC5/6 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 XRCC5/6 dimer is probably involved in stabilizing broken DNA ends and bringing them together. The assembly of the DNA-PK complex to DNA ends is required for the NHEJ ligation step. In association with NAA15, the XRCC5/6 dimer binds to the osteocalcin promoter and activates osteocalcin expression. The XRCC5/6 dimer probably also acts as a 5'- deoxyribose-5-phosphate lyase (5'-dRP lyase), by catalyzing the beta-elimination of the 5' deoxyribose-5-phosphate at an abasic site near double-strand breaks. XRCC5 probably acts as the catalytic subunit of 5'-dRP activity, and allows to 'clean' the termini of abasic sites, a class of nucleotide damage commonly associated with strand breaks, before such broken ends can be joined. The XRCC5/6 dimer together with APEX1 acts as a negative regulator of transcription.

References

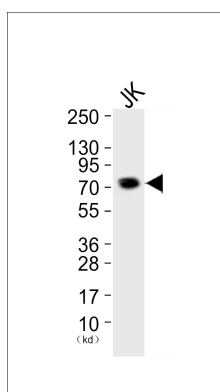
- Yaneva M.,et al.J. Biol. Chem. 264:13407-13411(1989).
Mimori T.,et al.Proc. Natl. Acad. Sci. U.S.A. 87:1777-1781(1990).
Ota T.,et al.Nat. Genet. 36:40-45(2004).

Suzuki Y.,et al.Submitted (APR-2005) to the EMBL/GenBank/DDBJ databases.
Mural R.J.,et al.Submitted (JUL-2005) to the EMBL/GenBank/DDBJ databases.

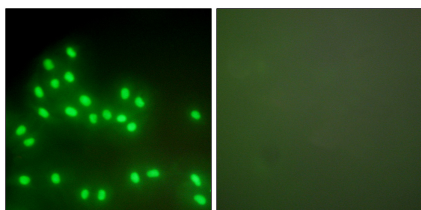
Images



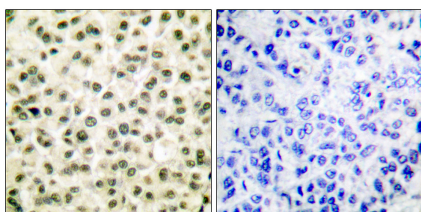
Western blot analysis of lysates from HeLa,A549 cell line (from left to right),using Ku80 Antibody(C0252). C0252 was diluted at 1:1000 at each lane. A goat anti-rabbit IgG H&L(HRP) at 1:5000 dilution was used as the secondary antibody.Lysates at 35ug per lane.



Western blot analysis of extracts from JK cells, using Ku80 Antibody. The lane on the left is treated with synthesized peptide.



Immunofluorescence analysis of A549 cells, using Ku70/80 antibody .



Immunohistochemical analysis of paraffin-embedded human breast carcinoma tissue using Ku70/80 antibody .

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