

Ku-80 Polyclonal Antibody

Catalog # AP70685

Product Information

Application	WB, IHC-P, IF
Primary Accession	P13010
Reactivity	Human, Monkey
Host	Rabbit
Clonality	Polyclonal
Calculated MW	82705

Additional Information

Gene ID	7520
Other Names	XRCC5; G22P2; X-ray repair cross-complementing protein 5; 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 pr
Dilution	WB~~Western Blot: 1/500 - 1/2000. Immunohistochemistry: 1/100 - 1/300. Immunofluorescence: 1/200 - 1/1000. ELISA: 1/5000. Not yet tested in other applications. IHC-P~~N/A IF~~1:50~200
Format	Liquid in PBS containing 50% glycerol, 0.5% BSA and 0.09% (W/V) sodium azide.
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 (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. In association with NAA15, the XRCC5/6 dimer binds to the osteocalcin promoter and activates osteocalcin expression (PubMed:[20383123](#)). 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 (PubMed:[8621488](#)). 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.

Images



Western Blot analysis of various cells using Ku-80 Polyclonal Antibody

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