

# XRCC5 Antibody (Center K439)

Affinity Purified Rabbit Polyclonal Antibody (Pab)

Catalog # AP11960c

## Product Information

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<b>Application</b>	IF, FC, WB, E
<b>Primary Accession</b>	<a href="#">P13010</a>
<b>Other Accession</b>	<a href="#">NP_066964</a>
<b>Reactivity</b>	Human
<b>Host</b>	Rabbit
<b>Clonality</b>	Polyclonal
<b>Isotype</b>	Rabbit IgG
<b>Calculated MW</b>	82705
<b>Antigen Region</b>	424-450

## Additional Information

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<b>Gene ID</b>	7520
<b>Other Names</b>	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
<b>Target/Specificity</b>	This XRCC5 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 424-450 amino acids from the Central region of human XRCC5.
<b>Dilution</b>	IF~~1:10~50 FC~~1:10~50 WB~~1:1000 E~~Use at an assay dependent concentration.
<b>Format</b>	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
<b>Storage</b>	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.
<b>Precautions</b>	XRCC5 Antibody (Center K439) is for research use only and not for use in diagnostic or therapeutic procedures.

## Protein Information

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<b>Name</b>	XRCC5
<b>Synonyms</b>	G22P2
<b>Function</b>	<p>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:<a href="#">11493912</a>, PubMed:<a href="#">12145306</a>, PubMed:<a href="#">7957065</a>, PubMed:<a href="#">8621488</a>). Required for double-strand break repair and V(D)J recombination (PubMed:<a href="#">11493912</a>, PubMed:<a href="#">12145306</a>, PubMed:<a href="#">7957065</a>, PubMed:<a href="#">8621488</a>). Also has a role in chromosome translocation (PubMed:<a href="#">11493912</a>, PubMed:<a href="#">12145306</a>, PubMed:<a href="#">7957065</a>, PubMed:<a href="#">8621488</a>). The DNA helicase II complex binds preferentially to fork-like ends of double-stranded DNA in a cell cycle-dependent manner (PubMed:<a href="#">11493912</a>, PubMed:<a href="#">12145306</a>, PubMed:<a href="#">7957065</a>, PubMed:<a href="#">8621488</a>). It works in the 3'-5' direction (PubMed:<a href="#">11493912</a>, PubMed:<a href="#">12145306</a>, PubMed:<a href="#">7957065</a>, PubMed:<a href="#">8621488</a>). 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:<a href="#">11493912</a>, PubMed:<a href="#">12145306</a>, PubMed:<a href="#">7957065</a>, PubMed:<a href="#">8621488</a>). Binding to DNA may be mediated by XRCC6 (PubMed:<a href="#">11493912</a>, PubMed:<a href="#">12145306</a>, PubMed:<a href="#">7957065</a>, PubMed:<a href="#">8621488</a>). 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:<a href="#">11493912</a>, PubMed:<a href="#">12145306</a>, PubMed:<a href="#">20383123</a>, PubMed:<a href="#">7957065</a>, PubMed:<a href="#">8621488</a>). The XRCC5-XRCC6 dimer is probably involved in stabilizing broken DNA ends and bringing them together (PubMed:<a href="#">12145306</a>, PubMed:<a href="#">20383123</a>, PubMed:<a href="#">7957065</a>, PubMed:<a href="#">8621488</a>). The assembly of the DNA-PK complex to DNA ends is required for the NHEJ ligation step (PubMed:<a href="#">12145306</a>, PubMed:<a href="#">20383123</a>, PubMed:<a href="#">7957065</a>, PubMed:<a href="#">8621488</a>). 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:<a href="#">20383123</a>). 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:<a href="#">20383123</a>). The XRCC5-XRCC6 dimer together with APEX1 acts as a negative regulator of transcription (PubMed:<a href="#">8621488</a>). In association with NAA15, the XRCC5-XRCC6 dimer binds to the osteocalcin promoter and activates osteocalcin expression (PubMed:<a href="#">12145306</a>). 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:<a href="#">32103174</a>). Binding to U3 small nucleolar RNA, recruits PRKDC and XRCC5/Ku86 to the small-subunit processome (PubMed:<a href="#">32103174</a>). 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:<a href="#">28712728</a>).</p>
<b>Cellular Location</b>	Nucleus. Nucleus, nucleolus Chromosome

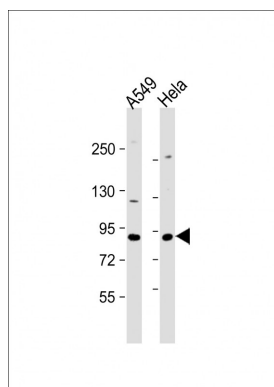
## Background

The protein encoded by this gene is the 80-kilodalton subunit of the Ku heterodimer protein which is also known as ATP-dependant DNA helicase II or DNA repair protein XRCC5. Ku is the DNA-binding component of the DNA-dependent protein kinase, and it functions together with the DNA ligase IV-XRCC4 complex in the repair of DNA double-strand break by non-homologous end joining and the completion of V(D)J recombination events. This gene functionally complements Chinese hamster xrs-6, a mutant defective in DNA double-strand break repair and in ability to undergo V(D)J recombination. A rare microsatellite polymorphism in this gene is associated with cancer in patients of varying radiosensitivity.

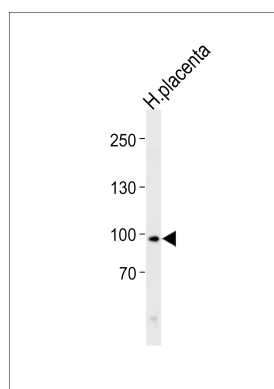
## References

Gomes, B.C., et al. *Oncol. Rep.* 24(4):1079-1085(2010)  
Liu, Y., et al. *Carcinogenesis* 31(10):1762-1769(2010)  
Ho-Pun-Cheung, A., et al. *Pharmacogenomics J.* (2010) In press :  
Briggs, F.B., et al. *Am. J. Epidemiol.* 172(2):217-224(2010)  
Monsees, G.M., et al. *Breast Cancer Res. Treat.* (2010) In press :

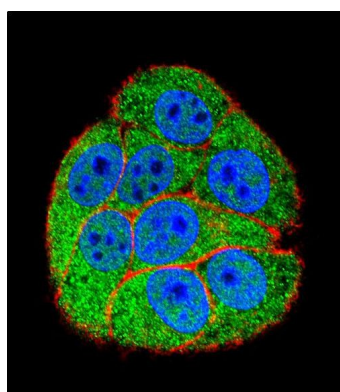
## Images



All lanes : Anti-XRCC5Antibody(CenterK439) at 1:1000 dilution Lane 1: A549 whole cell lysate Lane 2: HeLa whole cell lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 83 kDa Blocking/Dilution buffer: 5% NFDm/TBST.

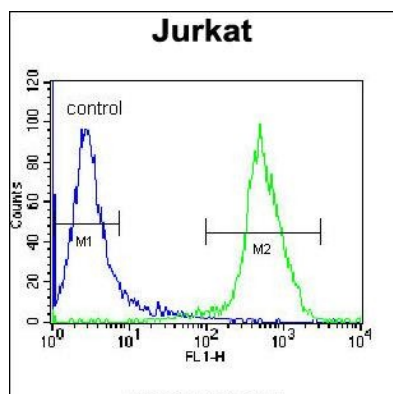


XRCC5 Antibody (CenterK439) (Cat. #AP11960c) western blot analysis in human placenta tissue lysates (35ug/lane).This demonstrates the XRCC5 antibody detected the XRCC5 protein (arrow).



Confocal immunofluorescent analysis of XRCC5 Antibody (Center K439)(Cat#AP11960c) with hela cell followed by Alexa Fluor 488-conjugated goat anti-rabbit IgG (green). Actin filaments have been labeled with Alexa Fluor 555 phalloidin (red). DAPI was used to stain the cell nuclear (blue).

XRCC5 Antibody (Center K439) (Cat. #AP11960c) flow cytometric analysis of Jurkat cells (right histogram) compared to a negative control cell (left histogram).FITC-conjugated donkey-anti-rabbit secondary antibodies were used for the analysis.



## Citations

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- [JmjC domain-containing protein 8 \(JMJD8\) represses Ku70/Ku80 expression via attenuating AKT/NF- \$\kappa\$ B/COX-2 signaling.](#)

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