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XRCC5 Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO1587a

Product Information

Application	WB, IHC, FC, ICC, E
Primary Accession	P13010
Reactivity	Human, Mouse
Host	Mouse
Clonality	Monoclonal
Clone Names	5C5
Isotype	IgG1
Calculated MW	82705
Description	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.
Immunogen	Purified recombinant fragment of human XRCC5 expressed in E. Coli.
Formulation	Ascitic fluid containing 0.03% sodium azide.

Additional Information

Gene ID	7520
Other Names	X-ray repair cross-complementing protein 5, 3.6.4.-, 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~~1/500 - 1/2000 IHC~~1/500 - 1/2000 FC~~1/200 - 1/400 ICC~~N/A E~~1/10000
Storage	Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.

Precautions	XRCC5 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	XRCC5 (HGNC:12833)
Synonyms	G22P2
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 XRCC6 (Ku70), 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:33854234, PubMed:34352203). 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).
Cellular Location	Nucleus. Nucleus, nucleolus Chromosome

References

1. Breast Cancer Res. 2009;11(6):R83. 2. Biochem Biophys Res Commun. 2009 Dec 18;390(3):738-42.

Images

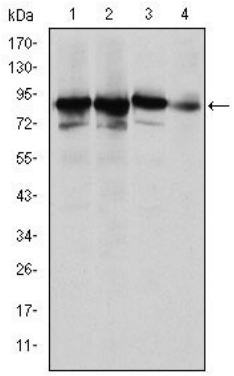


Figure 1: Western blot analysis using XRCC5 mouse mAb against Hela (1), MCF-7 (2), A549 (3) and NIH/3T3 (4) cell lysate.

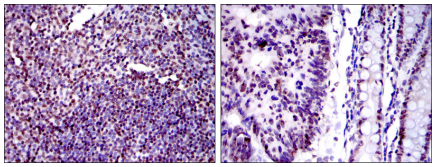


Figure 2: Immunohistochemical analysis of paraffin-embedded human tonsil tissues (left) and human colon cancer tissues (right) using XRCC5 mouse mAb with DAB staining.

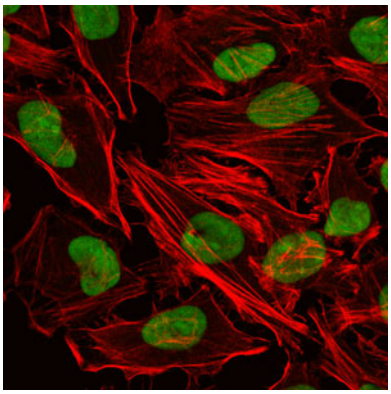


Figure 3: Immunofluorescence analysis of Hela cells using XRCC5 mouse mAb (green). Red: Actin filaments have been labeled with Alexa Fluor-555 phalloidin.

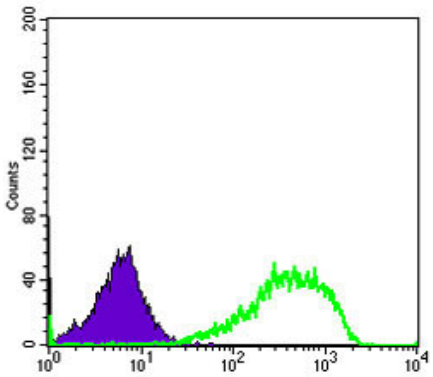


Figure 4: Flow cytometric analysis of Hela cells using XRCC5 mouse mAb (green) and negative control (purple).

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