

# XRCC6 Antibody

Purified Mouse Monoclonal Antibody

Catalog # AO1968a

## Product Information

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<b>Application</b>	WB, FC, ICC, E
<b>Primary Accession</b>	<a href="#">P12956</a>
<b>Reactivity</b>	Human
<b>Host</b>	Mouse
<b>Clonality</b>	Monoclonal
<b>Clone Names</b>	7A9E7
<b>Isotype</b>	IgG1
<b>Calculated MW</b>	69843
<b>Description</b>	The p70/p80 autoantigen is a nuclear complex consisting of two subunits with molecular masses of approximately 70 and 80 kDa. The complex functions as a single-stranded DNA-dependent ATP-dependent helicase. The complex may be involved in the repair of nonhomologous DNA ends such as that required for double-strand break repair, transposition, and V(D)J recombination. High levels of autoantibodies to p70 and p80 have been found in some patients with systemic lupus erythematosus.
<b>Immunogen</b>	Purified recombinant fragment of human XRCC6 (AA: 6-214) expressed in E. Coli.
<b>Formulation</b>	Purified antibody in PBS with 0.05% sodium azide.

## Additional Information

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<b>Gene ID</b>	2547
<b>Other Names</b>	X-ray repair cross-complementing protein 6, 3.6.4.-, 4.2.99.-, 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
<b>Dilution</b>	WB~~1/500 - 1/2000 FC~~1/200 - 1/400 ICC~~N/A E~~1/10000
<b>Storage</b>	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.
<b>Precautions</b>	XRCC6 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

## Protein Information

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<b>Name</b>	XRCC6 ( <a href="#">HGNC:4055</a> )
<b>Synonyms</b>	G22P1
<b>Function</b>	<p>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:<a href="#">11493912</a>, PubMed:<a href="#">20493174</a>, PubMed:<a href="#">33854234</a>, PubMed:<a href="#">34352203</a>, PubMed:<a href="#">9742108</a>). 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:<a href="#">9742108</a>). 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:<a href="#">20383123</a>). It may also possess 3'-5' DNA helicase activity, although this has not been confirmed in vivo, and its physiological significance remains unclear (PubMed:<a href="#">7957065</a>). Beyond DNA repair, the protein contributes to telomere maintenance (PubMed:<a href="#">29490055</a>). It is also implicated in transcriptional regulation, acting as a cofactor for various transcription factors (PubMed:<a href="#">12145306</a>, PubMed:<a href="#">8621488</a>). 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:<a href="#">28712728</a>). 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:<a href="#">32103174</a>). Additionally, it negatively regulates apoptosis by interacting with BAX, sequestering it from the mitochondria, and may possess deubiquitination activity targeting BAX (PubMed:<a href="#">15023334</a>, PubMed:<a href="#">18362350</a>, PubMed:<a href="#">35545041</a>).</p>
<b>Cellular Location</b>	Nucleus. Chromosome. Cytoplasm. Note=When trimethylated, localizes in the cytoplasm.

## Background

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This gene is expressed ubiquitously with higher levels in fetal than in adult tissues. It encodes a protein sharing 93% sequence identity with the mouse protein. Wolf-Hirschhorn syndrome (WHS) is a malformation syndrome associated with a hemizygous deletion of the distal short arm of chromosome 4. This gene is mapped to the 165 kb WHS critical region, and may play a role in the phenotype of the WHS or Pitt-Rogers-Danks syndrome. The encoded protein is found to be capable of reacting with HLA-A2-restricted and tumor-specific cytotoxic T lymphocytes, suggesting a target for use in specific immunotherapy for a large number of cancer patients. This protein has also been shown to be a member of the NELF (negative elongation factor) protein complex that participates in the regulation of RNA polymerase II transcription elongation. ; ;

## References

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1. Clin Cancer Res. 2013 Mar 15;19(6):1547-56.2. Mol Carcinog. 2012 Oct;51 Suppl 1:E183-90.

## Images

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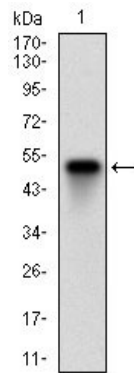


Figure 1: Western blot analysis using XRCC6 mAb against human XRCC6 (AA: 6-214) recombinant protein. (Expected MW is 49.7 kDa)

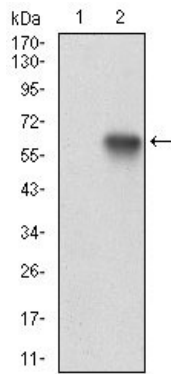


Figure 2: Western blot analysis using XRCC6 mAb against HEK293 (1) and XRCC6 (AA: 6-214)-hIgGFc transfected HEK293 (2) cell lysate.

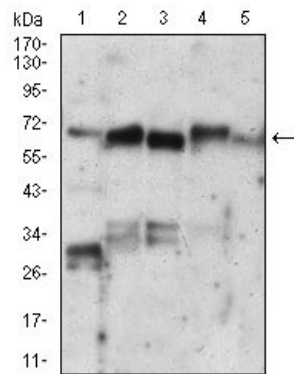


Figure 3: Western blot analysis using XRCC6 mouse mAb against PC-2 (1), A549 (2), A431 (3), HepG2 (4), K562 (5) cell lysate.

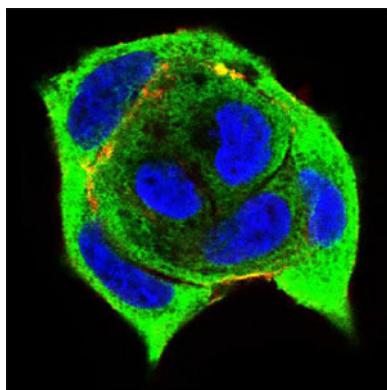


Figure 4: Immunofluorescence analysis of MCF-7 cells using XRCC6 mouse mAb (green). Blue: DRAQ5 fluorescent DNA dye. Red: Actin filaments have been labeled with Alexa Fluor-555 phalloidin. Secondary antibody from Fisher (Cat#: 35503)

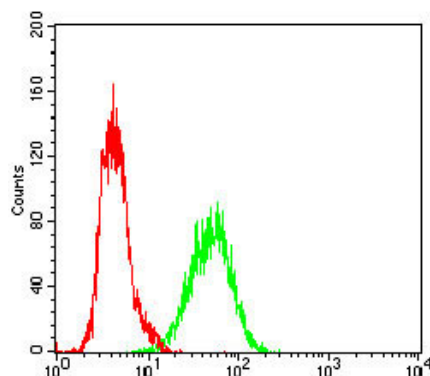


Figure 5: Flow cytometric analysis of A431 cells using XRCC6 mouse mAb (green) and negative control (red).

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