

**XRCC6 Antibody**  
**Purified Mouse Monoclonal Antibody**  
**Catalog # AO1968a**

**Specification**

**XRCC6 Antibody - Product Information**

Application	<b>E, WB, IF, FC</b>
Primary Accession	<a href="#">P12956</a>
Reactivity	<b>Human</b>
Host	<b>Mouse</b>
Clonality	<b>Monoclonal</b>
Isotype	<b>IgG1</b>
Calculated MW	<b>69.8kDa KDa</b>

**Description**

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.

**Immunogen**

Purified recombinant fragment of human XRCC6 (AA: 6-214) expressed in E. Coli.

**Formulation**

Purified antibody in PBS with 0.05% sodium azide.

**XRCC6 Antibody - Additional Information**

**Gene ID** 2547

**Other Names**

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

**Dilution**

E~~1/10000  
WB~~1/500 - 1/2000  
IF~~1/200 - 1/1000  
FC~~1/200 - 1/400

**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

XRCC6 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

## XRCC6 Antibody - Protein Information

**Name** XRCC6

**Synonyms** G22P1

### 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:<a href="http://www.uniprot.org/citations/11493912" target="\_blank">11493912</a>, PubMed:<a href="http://www.uniprot.org/citations/12145306" target="\_blank">12145306</a>, PubMed:<a href="http://www.uniprot.org/citations/20493174" target="\_blank">20493174</a>, PubMed:<a href="http://www.uniprot.org/citations/2466842" target="\_blank">2466842</a>, PubMed:<a href="http://www.uniprot.org/citations/7957065" target="\_blank">7957065</a>, PubMed:<a href="http://www.uniprot.org/citations/8621488" target="\_blank">8621488</a>, PubMed:<a href="http://www.uniprot.org/citations/9742108" target="\_blank">9742108</a>). Required for double-strand break repair and V(D)J recombination (PubMed:<a href="http://www.uniprot.org/citations/11493912" target="\_blank">11493912</a>, PubMed:<a href="http://www.uniprot.org/citations/12145306" target="\_blank">12145306</a>, PubMed:<a href="http://www.uniprot.org/citations/20493174" target="\_blank">20493174</a>, PubMed:<a href="http://www.uniprot.org/citations/2466842" target="\_blank">2466842</a>, PubMed:<a href="http://www.uniprot.org/citations/7957065" target="\_blank">7957065</a>, PubMed:<a href="http://www.uniprot.org/citations/8621488" target="\_blank">8621488</a>, PubMed:<a href="http://www.uniprot.org/citations/9742108" target="\_blank">9742108</a>). Also has a role in chromosome translocation (PubMed:<a href="http://www.uniprot.org/citations/11493912" target="\_blank">11493912</a>, PubMed:<a href="http://www.uniprot.org/citations/12145306" target="\_blank">12145306</a>, PubMed:<a href="http://www.uniprot.org/citations/20493174" target="\_blank">20493174</a>, PubMed:<a href="http://www.uniprot.org/citations/2466842" target="\_blank">2466842</a>, PubMed:<a href="http://www.uniprot.org/citations/7957065" target="\_blank">7957065</a>, PubMed:<a href="http://www.uniprot.org/citations/8621488" target="\_blank">8621488</a>, PubMed:<a href="http://www.uniprot.org/citations/9742108" target="\_blank">9742108</a>). Has a role in chromosome translocation (PubMed:<a href="http://www.uniprot.org/citations/11493912" target="\_blank">11493912</a>, PubMed:<a href="http://www.uniprot.org/citations/12145306" target="\_blank">12145306</a>, PubMed:<a href="http://www.uniprot.org/citations/20493174" target="\_blank">20493174</a>, PubMed:<a href="http://www.uniprot.org/citations/2466842" target="\_blank">2466842</a>, PubMed:<a href="http://www.uniprot.org/citations/7957065" target="\_blank">7957065</a>, PubMed:<a href="http://www.uniprot.org/citations/8621488" target="\_blank">8621488</a>, PubMed:<a href="http://www.uniprot.org/citations/9742108" target="\_blank">9742108</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="http://www.uniprot.org/citations/11493912" target="\_blank">11493912</a>, PubMed:<a href="http://www.uniprot.org/citations/12145306" target="\_blank">12145306</a>, PubMed:<a href="http://www.uniprot.org/citations/20493174" target="\_blank">20493174</a>, PubMed:<a href="http://www.uniprot.org/citations/2466842" target="\_blank">2466842</a>, PubMed:<a href="http://www.uniprot.org/citations/7957065" target="\_blank">7957065</a>, PubMed:<a href="http://www.uniprot.org/citations/8621488" target="\_blank">8621488</a>, PubMed:<a href="http://www.uniprot.org/citations/9742108" target="\_blank">9742108</a>). It works in the 3'-5' direction (PubMed:<a href="http://www.uniprot.org/citations/11493912" target="\_blank">11493912</a>, PubMed:<a href="http://www.uniprot.org/citations/12145306" target="\_blank">12145306</a>, PubMed:<a href="http://www.uniprot.org/citations/20493174" target="\_blank">20493174</a>, PubMed:<a href="http://www.uniprot.org/citations/2466842" target="\_blank">2466842</a>, PubMed:<a href="http://www.uniprot.org/citations/7957065" target="\_blank">7957065</a>, PubMed:<a href="http://www.uniprot.org/citations/8621488" target="\_blank">8621488</a>, PubMed:<a href="http://www.uniprot.org/citations/9742108" target="\_blank">9742108</a>).

href="http://www.uniprot.org/citations/7957065" target="\_blank">7957065</a>, PubMed:<a href="http://www.uniprot.org/citations/8621488" target="\_blank">8621488</a>, PubMed:<a href="http://www.uniprot.org/citations/9742108" target="\_blank">9742108</a>). During NHEJ, the XRCC5-XRRC6 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="http://www.uniprot.org/citations/11493912" target="\_blank">11493912</a>, PubMed:<a href="http://www.uniprot.org/citations/12145306" target="\_blank">12145306</a>, PubMed:<a href="http://www.uniprot.org/citations/20493174" target="\_blank">20493174</a>, PubMed:<a href="http://www.uniprot.org/citations/2466842" target="\_blank">2466842</a>, PubMed:<a href="http://www.uniprot.org/citations/7957065" target="\_blank">7957065</a>, PubMed:<a href="http://www.uniprot.org/citations/8621488" target="\_blank">8621488</a>, PubMed:<a href="http://www.uniprot.org/citations/9742108" target="\_blank">9742108</a>). Binding to DNA may be mediated by XRCC6 (PubMed:<a href="http://www.uniprot.org/citations/11493912" target="\_blank">11493912</a>, PubMed:<a href="http://www.uniprot.org/citations/12145306" target="\_blank">12145306</a>, PubMed:<a href="http://www.uniprot.org/citations/20493174" target="\_blank">20493174</a>, PubMed:<a href="http://www.uniprot.org/citations/2466842" target="\_blank">2466842</a>, PubMed:<a href="http://www.uniprot.org/citations/7957065" target="\_blank">7957065</a>, PubMed:<a href="http://www.uniprot.org/citations/8621488" target="\_blank">8621488</a>, PubMed:<a href="http://www.uniprot.org/citations/9742108" target="\_blank">9742108</a>). The XRCC5-XRRC6 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="http://www.uniprot.org/citations/11493912" target="\_blank">11493912</a>, PubMed:<a href="http://www.uniprot.org/citations/12145306" target="\_blank">12145306</a>, PubMed:<a href="http://www.uniprot.org/citations/20493174" target="\_blank">20493174</a>, PubMed:<a href="http://www.uniprot.org/citations/2466842" target="\_blank">2466842</a>, PubMed:<a href="http://www.uniprot.org/citations/7957065" target="\_blank">7957065</a>, PubMed:<a href="http://www.uniprot.org/citations/8621488" target="\_blank">8621488</a>, PubMed:<a href="http://www.uniprot.org/citations/9742108" target="\_blank">9742108</a>). The XRCC5-XRRC6 dimer is probably involved in stabilizing broken DNA ends and bringing them together (PubMed:<a href="http://www.uniprot.org/citations/11493912" target="\_blank">11493912</a>, PubMed:<a href="http://www.uniprot.org/citations/12145306" target="\_blank">12145306</a>, PubMed:<a href="http://www.uniprot.org/citations/20493174" target="\_blank">20493174</a>, PubMed:<a href="http://www.uniprot.org/citations/2466842" target="\_blank">2466842</a>, PubMed:<a href="http://www.uniprot.org/citations/7957065" target="\_blank">7957065</a>, PubMed:<a href="http://www.uniprot.org/citations/8621488" target="\_blank">8621488</a>, PubMed:<a href="http://www.uniprot.org/citations/9742108" target="\_blank">9742108</a>). The assembly of the DNA-PK complex to DNA ends is required for the NHEJ ligation step (PubMed:<a href="http://www.uniprot.org/citations/11493912" target="\_blank">11493912</a>, PubMed:<a href="http://www.uniprot.org/citations/12145306" target="\_blank">12145306</a>, PubMed:<a href="http://www.uniprot.org/citations/20493174" target="\_blank">20493174</a>, PubMed:<a href="http://www.uniprot.org/citations/2466842" target="\_blank">2466842</a>, PubMed:<a href="http://www.uniprot.org/citations/7957065" target="\_blank">7957065</a>, PubMed:<a href="http://www.uniprot.org/citations/8621488" target="\_blank">8621488</a>, PubMed:<a href="http://www.uniprot.org/citations/9742108" target="\_blank">9742108</a>). 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="http://www.uniprot.org/citations/20383123" target="\_blank">20383123</a>). 5'-dRP lyase activity 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="http://www.uniprot.org/citations/20383123" target="\_blank">20383123</a>). The XRCC5-XRRC6 dimer together with APEX1 acts as a negative regulator of transcription (PubMed:<a href="http://www.uniprot.org/citations/8621488" target="\_blank">8621488</a>). In association with NAA15, the XRCC5-XRRC6 dimer binds to the osteocalcin promoter and activates osteocalcin expression (PubMed:<a href="http://www.uniprot.org/citations/12145306" target="\_blank">12145306</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: <http://www.uniprot.org/citations/28712728> target="\_blank">28712728</a>).

**Cellular Location**  
 Nucleus. Chromosome

### XRCC6 Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

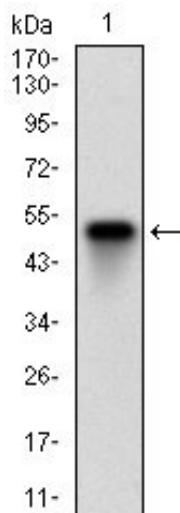
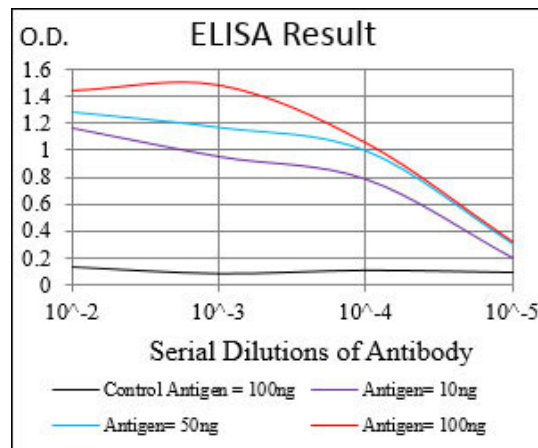


Figure 1: Western blot analysis using XRCC6 mAb against human XRCC6 (AA: 6-214) recombinant protein. (Expected MW is 49.7 kDa)

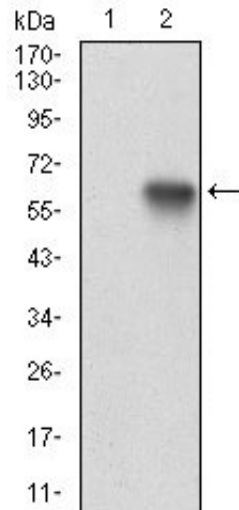


Figure 2: Western blot analysis using XRCC6 mAb against HEK293 (1) and XRCC6 (AA: 6-214)-hIgGFc transfected HEK293 (2) cell lysate.

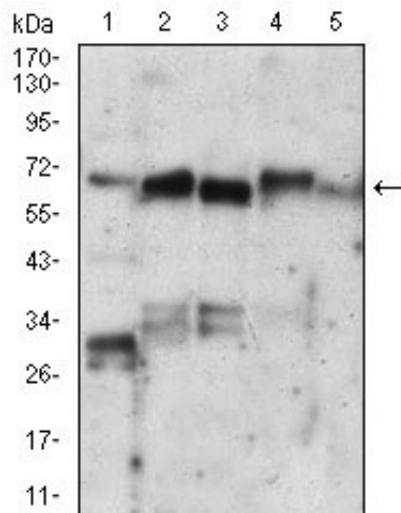


Figure 3: Western blot analysis using XRCC6 mouse mAb against PC-2 (1), A549 (2), A431 (3), HepG2 (4), K562 (5) cell lysate.

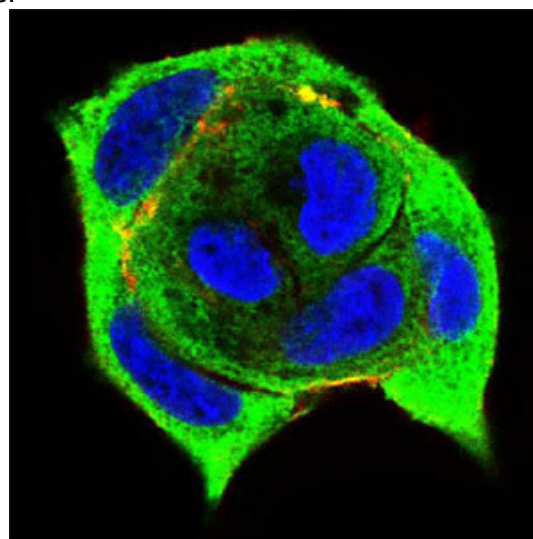


Figure 4: Immunofluorescence analysis of MCF-7 cells using XRCC6 mouse mAb (green). Blue: DRAQ5 fluorescent DNA dye. Red: Actin filaments have been labeled with Alexa Fluor-555 phalloidin.

Secondary antibody from Fisher (Cat#: 35503)

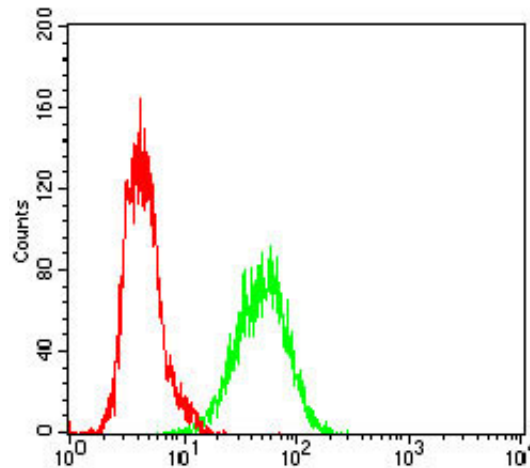


Figure 5: Flow cytometric analysis of A431 cells using XRCC6 mouse mAb (green) and negative control (red).

### XRCC6 Antibody - Background

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. ; ;

### XRCC6 Antibody - References

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

### XRCC6 Antibody - Citations

- [Negative regulation of Toll-like receptor-4 signaling through the binding of glycosylphosphatidylinositol sialic acid-binding lectin, CD33.](#)