

**XRCC6 Antibody**  
**Purified Mouse Monoclonal Antibody**  
**Catalog # AO1956a**

**Specification**

**XRCC6 Antibody - Product Information**

Application	<b>E, WB, IF, FC, IHC</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  
IHC~~1/200 - 1/1000

**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:<a href="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](#)

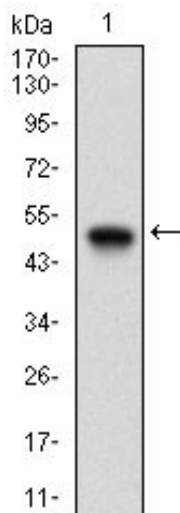
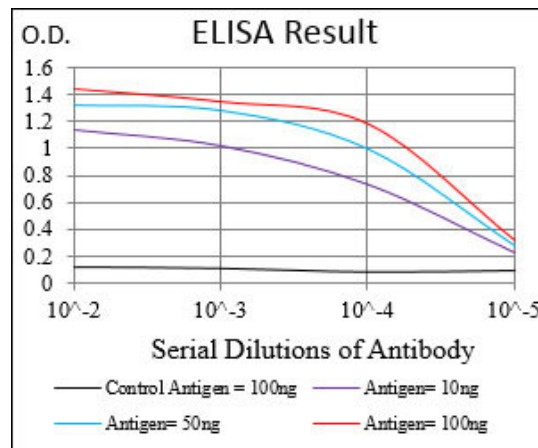


Figure 1: Western blot analysis using XRCC6 mAb against human XRCC6 (AA: 6-214) recombinant protein. (Expected MW is 49.7 kDa)

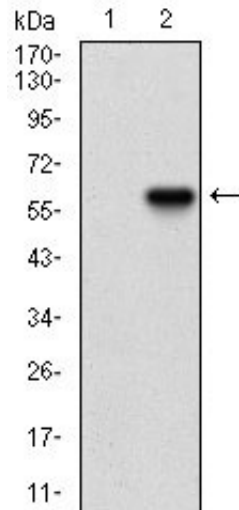


Figure 2: Western blot analysis using XRCC6 mAb against HEK293 (1) and XRCC6 (AA: 6-214)-hIgGFc transfected HEK293 (2) cell lysate.

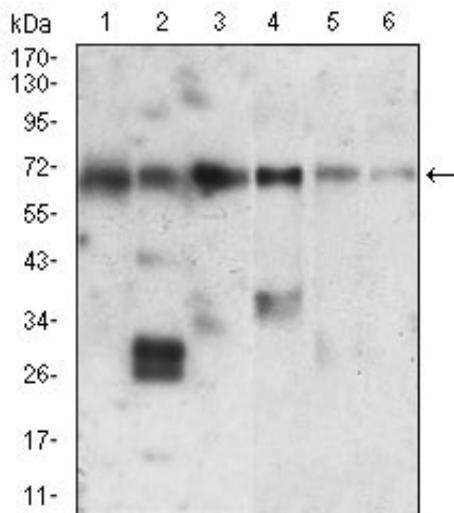


Figure 3: Western blot analysis using XRCC6 mouse mAb against Hela (1), PC-2 (2), A549 (3), A431 (4), HepG2 (5), K562 (6) cell lysate.



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)

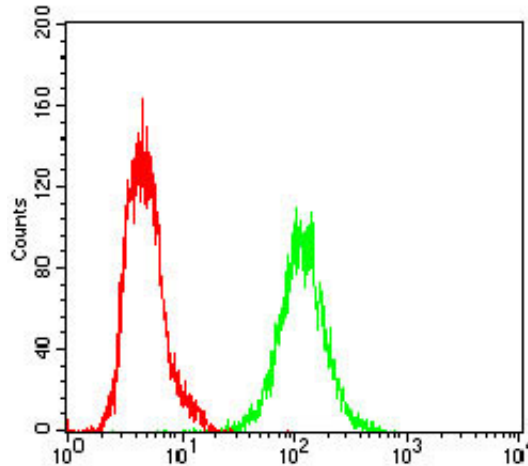


Figure 5: Flow cytometric analysis of A431 cells using XRCC6 mouse mAb (green) and negative control (red).

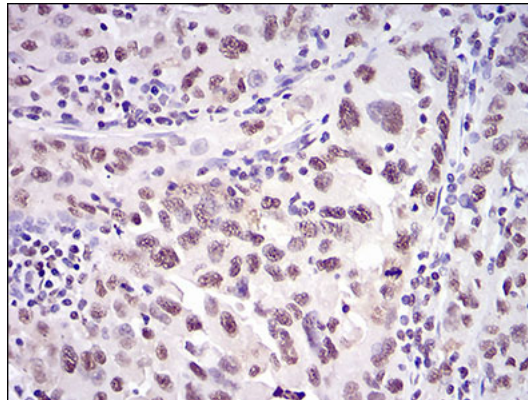


Figure 6: Immunohistochemical analysis of paraffin-embedded endometrial cancer tissues using XRCC6 mouse mAb with DAB staining.

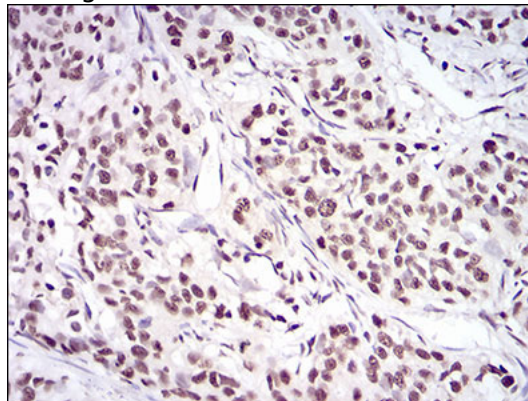


Figure 7: Immunohistochemical analysis of paraffin-embedded cervical cancer tissues using XRCC6 mouse mAb with DAB staining.

### XRCC6 Antibody - Background

The protein encoded by this gene is a member of the keratin gene family. The type II cytokeratins consist of basic or neutral proteins which are arranged in pairs of heterotypic keratin chains coexpressed during differentiation of simple and stratified epithelial tissues. This type II cytokeratin is specifically expressed in the basal layer of the epidermis with family member KRT14. Mutations in these genes have been associated with a complex of diseases termed epidermolysis bullosa simplex. The type II cytokeratins are clustered in a region of chromosome 12q12-q13. ; ;

**XRCC6 Antibody - References**

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