

ARG63051 anti-Ku80 antibody [MEM-54]

Package: 100 µg
Store at: -20°C

Summary

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| Product Description | Mouse Monoclonal antibody [MEM-54] recognizes Ku80 |
| Tested Reactivity | Hu |
| Tested Application | ICC/IF, IP |
| Specificity | The clone MEM-54 reacts with Ku80, a 80 kDa subunit of Ku autoantigen (heterodimer of 72 and 87 kDa polypeptides). Ku autoantigen is involved in DNA repair and in V(D)J recombination through its ability to bind DNA double-strand breaks. |
| Host | Mouse |
| Clonality | Monoclonal |
| Clone | MEM-54 |
| Isotype | IgG2a |
| Target Name | Ku80 |
| Species | Human |
| Immunogen | human whole T-lymphocytes |
| Conjugation | Un-conjugated |
| Alternate Names | double-strand-break rejoining; Thyroid-lupus autoantigen; Nuclear factor IV; KU80; DNA repair protein XRCC5; KARP1; Lupus Ku autoantigen protein p86; EC 3.6.4.-; CTCBF; CTC85; ATP-dependent DNA helicase 2 subunit 2; X-ray repair cross-complementing protein 5; ATP-dependent DNA helicase II 80 kDa subunit; CTC box-binding factor 85 kDa subunit; KARP-1; X-ray repair complementing defective repair in Chinese hamster cells 5; 86 kDa subunit of Ku antigen; KUB2; NFIV; TLAA; Ku80; Ku86 |

Application Instructions

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| Application table | Application | Dilution |
| | ICC/IF | 2 µg/ml |
| | IP | Assay-dependent |
| Application Note | ICC/IF: Staining technique: PFA-fixation. * The dilutions indicate recommended starting dilutions and the optimal dilutions or concentrations should be determined by the scientist. | |

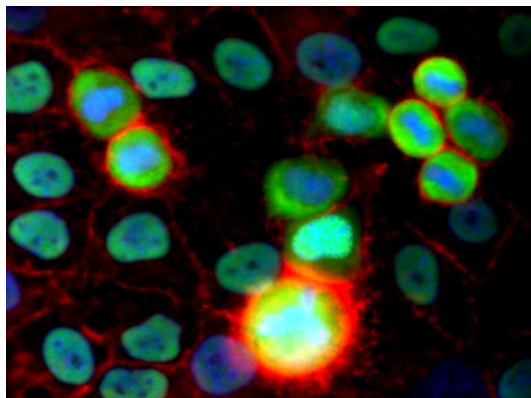
Properties

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| Form | Liquid |
| Purification | Purified from hybridoma culture supernatant by protein-A affinity chromatography. |
| Purity | > 95% (by SDS-PAGE) |
| Buffer | PBS (pH 7.4) and 15 mM Sodium azide |
| Preservative | 15 mM Sodium azide |

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| Concentration | 1 mg/ml |
| Storage instruction | For continuous use, store undiluted antibody at 2-8°C for up to a week. For long-term storage, aliquot and store at -20°C or below. Storage in frost free freezers is not recommended. Avoid repeated freeze/thaw cycles. Suggest spin the vial prior to opening. The antibody solution should be gently mixed before use. |
| Note | For laboratory research only, not for drug, diagnostic or other use. |

Bioinformation

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| Database links | GeneID: 7520 Human Swiss-port # P13010 Human |
| Gene Symbol | XRCC5 |
| Gene Full Name | X-ray repair complementing defective repair in Chinese hamster cells 5 (double-strand-break rejoining) |
| Background | <p>Ku Antigen (DNA-dependent DNA helicase) is a heterodimer (of 72 and 87 kDa polypeptides) which contributes to genomic integrity through its ability to bind DNA double-strand breaks and facilitate repair by the nonhomologous end-joining pathway. A DNA double-strand break is a major lesion that destroys the integrity of the DNA molecule. Such damage is introduced by ionizing radiation. Ku binds to free double-stranded DNA ends and is the DNA-binding component of the DNA-dependent protein kinase. Thus, the Ku protein is involved in DNA repair and in V(D)J recombination, and the Ku-DNA-dependent protein kinase complex may have a role in those same processes. Ku70 and Ku80 share a common topology and form a dyad-symmetrical molecule with a preformed ring that encircles duplex DNA. The binding site can cradle 2 full turns of DNA while encircling only the central 3-4 base pairs. Ku makes no contacts with DNA bases and few with the sugar-phosphate backbone, but it fits sterically to major and minor groove contours so as to position the DNA helix in a defined path through the protein ring. These features are well designed to structurally support broken DNA ends and to bring the DNA helix into phase across the junction during end processing and ligation. Mouse cells deficient for Ku80 display a marked increase in chromosomal aberrations, including breakage, translocations, and aneuploidy. Despite the observed chromosome instabilities, Ku80 ^{-/-} mice have only a slightly earlier onset of cancer. Loss of p53 synergizes with Ku80 to promote tumorigenesis such that all Ku80 ^{-/-} and p53 ^{-/-} mice succumb to disseminated pro-B-cell lymphoma before 3 months of age. The p70/p80 complex binds to the ends of double-stranded DNA in a cell cycle-dependent manner, being associated with chromosomes of interphase cells, followed by complete dissociation from the condensing chromosomes in early prophase. Some patients with systemic lupus erythematosus produce very large amounts of autoantibodies to p70 and p80. The autoantibody has been found in patients with autoimmune thyroid disease (Graves disease) as well as in those with lupus.</p> |
| Function | <p>Single-stranded DNA-dependent ATP-dependent helicase. Has a role in chromosome translocation. The DNA helicase II complex binds preferentially to fork-like ends of double-stranded DNA in a cell cycle-dependent manner. It works in the 3'-5' direction. Binding to DNA may be mediated by XRCC6. Involved in DNA non-homologous end joining (NHEJ) required for double-strand break repair and V(D)J recombination. The XRCC5/6 dimer acts as 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. The XRCC5/6 dimer is probably involved in stabilizing broken DNA ends and bringing them together. The assembly of the DNA-PK complex to DNA ends is required for the NHEJ ligation step. In association with NAA15, the XRCC5/6 dimer binds to the osteocalcin promoter and activates osteocalcin expression. The XRCC5/6 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. 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. The XRCC5/6 dimer together with APEX1 acts as a negative regulator of transcription. [UniProt]</p> |
| Research Area | Gene Regulation antibody |
| Calculated Mw | 83 kDa |
| PTM | <p>Phosphorylated on serine residues. Phosphorylation by PRKDC may enhance helicase activity. Sumoylated.</p> <p>Ubiquitinated by RNF8 via 'Lys-48'-linked ubiquitination following DNA damage, leading to its degradation and removal from DNA damage sites (PubMed:22266820). Ubiquitinated by RNF138, leading to remove the Ku complex from DNA breaks (PubMed:26502055).</p> |



ARG63051 anti-Ku80 antibody [MEM-54] ICC/IF image

Immunofluorescence: HeLa cells stained with ARG63051 anti-Ku80 antibody [MEM-54] (red).

Actin (red) was stained with Phalloidin-TRITC, nuclei with DAPI (blue).