

## Product datasheet for **AM03105PU-N**

### **Ku80 (XRCC5) Mouse Monoclonal Antibody [Clone ID: MEM-54]**

#### **Product data:**

<b>Product Type:</b>	Primary Antibodies
<b>Clone Name:</b>	MEM-54
<b>Applications:</b>	IF, IP
<b>Recommended Dilution:</b>	Immunocytochemistry (2 µg/ml, PFA-fixation). Immunoprecipitation.
<b>Reactivity:</b>	Human
<b>Host:</b>	Mouse
<b>Isotype:</b>	IgG2a
<b>Clonality:</b>	Monoclonal
<b>Immunogen:</b>	human whole T-lymphocytes.
<b>Specificity:</b>	The antibody 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.
<b>Formulation:</b>	Phosphate buffered saline (PBS), pH~7.4 containing 15 mM Sodium Azide as preservative. State: Aff - Purified State: Liquid purified Ig fraction (> 95% pure by SDS-PAGE).
<b>Concentration:</b>	lot specific
<b>Purification:</b>	Affinity Chromatography on Protein A
<b>Conjugation:</b>	Unconjugated
<b>Storage:</b>	Store the antibody undiluted at 2-8°C for one month or (in aliquots) at -20°C for longer. Avoid repeated freezing and thawing.
<b>Stability:</b>	Shelf life: One year from despatch.
<b>Gene Name:</b>	X-ray repair complementing defective repair in Chinese hamster cells 5
<b>Database Link:</b>	<a href="#">Entrez Gene 7520 Human P13010</a>



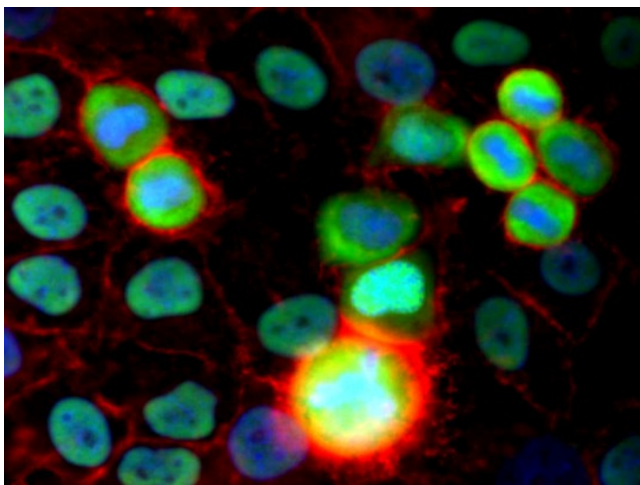
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**Background:**

**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.

**Synonyms:**

TLAA, G22P2, CTCBF, CTC85

**Product images:**

Immunofluorescence staining of HeLa human cervix carcinoma cell line using purified anti-Ku Antigen (MEM-54) (detection by Goat anti-mouse IgG2a Alexa Fluor 488; green). Actin (red) was stained with Phalloidin-TRITC, nuclei with DAPI (blue).