

Product Information

MONOCLONAL ANTI-ERCC1 CLONE 8F1

Purified Mouse Immunoglobulin

Product Number **E 8903**

Product Description

Monoclonal Anti-ERCC1 (mouse IgG1 isotype) is derived from the hybridoma produced by the fusion of splenocytes from BALB/c mice immunized with recombinant full length human ERCC1 protein and mouse myeloma Sp2/0 cells. The antibody is purified by Protein A chromatography.

Monoclonal Anti-ERCC1 recognizes human and rat Excision Repair Cross Complementing protein-1 (ERCC1). It may be used for the detection of ERCC1 by immunoblotting (33-36 kDa protein), immunohistochemistry on frozen or formalin-fixed, paraffin embedded human tonsil tissues sections, and by immunoprecipitation.

ERCC1 is a member of the nucleotide excision repair (NER) family. Nucleotide excision repair (NER) is a cellular process that guards the integrity of the genome. It removes a wide variety of lesions from the DNA, including bulky DNA adducts and the most prominent UV-induced damages. ERCC1-encoded polypeptide is homologous to *Saccharomyces cerevisiae* RAD10, which functions in repair and mitotic intrachromosomal recombination.^{1,2}

The structure-specific ERCC1/XPF endonuclease complex is implicated in the repair of two distinct lesions in DNA: NER for UV-induced lesions and bulky chemical adducts, and recombination repair of the very genotoxic interstrand cross-links. The N-terminal 378 amino acids of XPF are capable of binding and hydrolyzing DNA, while the C-terminal 214 residues are capable of binding specifically to ERCC1. ERCC1-XPF complex formation is established by a direct interaction between these two binding domains.^{3,4} ERCC1 and XPF families are related via an ancient duplication. In mammalian cells XPG cleaves the 3' of the DNA lesion while the ERCC1-XPF complex makes the 5' incision.

ERCC1-deficient mice suffer from severe developmental problems and signs of premature aging in addition to the repair-deficient phenotype. Elevated levels of p53 were detected in liver, brain and kidney, supporting the hypothesized role of p53 as a monitor of DNA damage.

Expression of DNA repair enzymes, including ERCC-1, might be under the control of hormonal and growth factor stimulation. Insulin enhances ERCC-1 mRNA levels by the activation of the Ras-ERK-dependent pathway without the involvement of the phosphatidylinositol 3'-kinase/pp70 S6 kinase.^{5,6}

Reagent

Monoclonal Anti-ERCC1 is supplied as a solution in phosphate buffered saline, pH 7.4, with 0.08% sodium azide as a preservative.

Precautions and Disclaimer

Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazards and safe handling practices.

Storage/Stability

Store at -20 °C. Upon initial thawing, freeze the solution in working aliquots for extended storage. Avoid repeated freezing and thawing to prevent denaturing the antibody. Do not store in a frost-free freezer. The antibody is stable for at least 12 months when stored appropriately. Working dilutions should be discarded if not used within 12 hours.

Product Profile

A recommended working concentration of 1 to 5 µg/ml is determined by immunoblotting using Monoclonal Anti-ERCC1 antibody on A431 or HeLa cells.

The recommended working dilution for immunoprecipitation is 2 µg /mg of protein lysate, For immunohistochemistry using human tonsil tissues, 2 to 4 µg/ml is recommended.

Note: In order to obtain best results using different techniques and preparations we recommend determining optimal working concentration by titration.

References

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3. Houtsmuller, A. B., et al., Action of DNA repair endonuclease ERCC1/XPF in living cells. *Science*, **284**, 958-961 (1999).
4. de Laat, W. L., et al., Mapping of interaction domains between human repair proteins ERCC1 and XPF. *Nucleic Acids Res.*, **26**, 4146-4152 (1998).
5. Lee-Kwon, W., et al., Involvement of the Ras/extracellular signal-regulated kinase signalling pathway in the regulation of ERCC-1 mRNA levels by insulin. *Biochem. J.*, **331**, 591-597 (1998).
6. Lee-Kwon, W., et al., Nucleotide excision repair is not required for the antiapoptotic function of insulin-like growth factor 1. *Exp. Cell. Res.*, **241**, 458-466 (1998).

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