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ProductInformation

Monoclonal Anti-ERp57
Clone TO-2
produced in mouse, purified immunoglobulin

Catalog Number **E5031**

Product Description

Monoclonal Anti-ERp57 (mouse IgG1 isotype) is derived from the hybridoma TO-2 produced by the fusion of mouse myeloma cells (P3-X63-AG8.653) cells) and splenocytes from BALB/c mice immunized with a synthetic peptide corresponding to amino acids 460-478 of human ERp57, conjugated to KLH through a N-terminal added cysteine.[1] The isotype is determined using a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Catalog Number ISO2.

Monoclonal Anti-ERp57 recognizes human and mouse ERp57. The antibody epitope resides within amino acids 460-478 of human ERp57.[1] The antibody may be used in ELISA,[1] immunoblotting (~57 kDa)[1], flow cytometry,[1] immunocytochemistry,[1] and immunohistochemistry.[1, 2]

The development of an adaptive immune response depends on the assembly of a functional major histocompatibility complex (MHC) class I peptide complex within the endoplasmic reticulum (ER). The ER complex specialized in the folding and assembly of secretory and membrane-bound proteins. Around the MHC class I molecule, several ER-resident proteins facilitate the peptide loading process. The complex of ER proteins around the MHC molecule is named the MHC class I loading complex. After loading the peptide in the MHC molecule, the loading complex dissociates and the MHC molecule continues to the cell surface along the secretory pathway.[3-5]

The loading complex contains several different proteins. One protein is a heterodimeric transmembrane protein specialized in translocating peptides from the cytosol into the ER (Transporter associated with Antigen Processing – TAP). This protein is in direct contact to tapasin, a type I transmembrane protein that serves as a physical bridge between the TAP transporter and the MHC class I molecule.[3-5] Furthermore, tapasin is involved in the peptide loading process. The glycosylated heavy chain of the MHC class I complex binds to β2-microglobulin and the ER-resident lectin calreticulin (CRT). Another member of this complex is the thioldisulfide oxidoreductase Erp57. This protein belongs to the protein disulfide isomerase (PDI) family, and is recruited to incompletely folded glycoproteins by interaction with either CRT or calnexin (CNX). ERp57 contains four thioredoxin (TR) domains, two that carry the active motif CXXC. CRT and Erp57, but not tapasin, are general chaperones of glycoprotein folding in the ER. Calreticulin or calnexin deficiency, or reduction in the level of ERp57 protein (heterozygote mice) lead to the development of metabolic disorders such as severe changes in serum lipids and carbohydrates composition.[3-5]

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Antibody concentration: ~2 mg/mL

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working concentration of 20-30 µg/mL is recommended using total cell extract of NS1 cells.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining optimal working dilutions by titration.

References

1. Ogino, T., et al., *Tissue Antigens*, **62**, 385-393 (2003).
2. Ogino, T., et al., *Clin. Cancer Res.*, **9**, 4043-4051 (2003).
3. Dick, T.B., *Cell. Mol. Life Sci.*, **61**, 547-556 (2004).
4. Michalak, M., J. App. *Biomed.*, **3**, 159-165 (2005).
5. Ritz, U., and Seliger, B., *Mol. Med.*, **7**, 149-158 (2001).

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