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Product Information

Anti-Derlin-1
produced in rabbit, affinity isolated antibody

Catalog Number **D4443**

Product Description

Anti-Derlin-1 is produced in rabbit using as immunogen a synthetic peptide corresponding to the C-terminal region of human Derlin-1 with N-terminal added cysteine, conjugated to KLH. The corresponding sequence is identical in mouse. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-Derlin-1 recognizes human, mouse, rat, monkey, hamster, bovine, and canine Derlin-1. Applications include immunoblotting (~22 kDa) and immuno-fluorescence. Detection of the Derlin-1 band by immunoblotting is specifically inhibited by the immunizing peptide.

Derlin-1, a human homolog of yeast Der1p, is a membrane protein required for the dislocation of misfolded proteins from the ER lumen to the cytosol.[1, 2] Proteins that fail to fold in the ER are transferred from the ER to the cytosol, where they are destroyed by the ubiquitin-proteasome system.[3]

Derlin-1 is a 22 kDa hydrophobic protein that spans the lipid bilayer of the ER four times with its amino- and carboxy-terminus in the cytosol. It is an evolutionary conserved protein in eukaryotes that is widely expressed with high levels in liver, spleen, pancreas, lung, thymus, and ovary. Derlin-1 was initially identified as an ER membrane protein essential for US11-mediated dislocation of the major histocompatibility complex (MHC) class I heavy chains from the ER to the cytosol followed by its degradation. Derlin-1 is a component of the retro-translocation machinery. Misfolded proteins exposed to the cytosol are extracted from the ER membrane by the cytosolic p97 ATPase. Derlin-1 is a central component of a p97-interacting membrane protein complex in mammalians that links between the recognition of misfolded proteins in the ER lumen and their transfer through the ER membrane by p97.[1, 2] Derlin-1 interacts with VIMP (VCP-interacting membrane protein), a membrane protein that recruits p97 and its cofactors, Ufd1 and Npl4. Derlin-1 and VIMP form a membrane protein complex that serves as a receptor for p97.[2] p97 interacts with several ubiquitin ligases, thus recruiting them to Derlin-1.[4] Derlin-1 was also found to interact with PNGase, a deglycosylating enzyme, bringing it close to misfolding dislocating glycoproteins.[5]

It has been reported that the viral E3 ubiquitin ligase mK3 uses the Derlin-1/p97 ER-associated degradation pathway to mediate down-regulation of MHC class I heavy chains.[6]

Reagent

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

Antibody concentration: ~1 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 dilutions should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working concentration of 0.2-0.4 μg/mL is recommended using a whole extract of human HeLa and mouse 3T3 cells, applying a chemiluminescent detection reagent.

Indirect immunofluorescence: a working concentration of 2.5-5 μg/mL is recommended using rat NRK cells.

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

References

1. Lilley, B.N., and Ploegh, H.L., *Nature*, **429**, 834-840 (2004).
2. Ye, Y., et al., *Nature*, **429**, 841-847 (2004).
3. Kostova, Z., and Wolf, D.H., *EMBO J.,* **22**, 2309-2317 (2003).
4. Ye, Y., et al., *Proc. Natl. Acad. Sci. USA*, **102**, 14132-14138 (2005).
5. Katiyar, S., et al., *Mol. Biol. Cell*, **16**, 4584-4594 (2005).
6. Wang, X., et al., *J. Biol. Chem.*, **281**, 8636-8644 (2006).

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