

Product Information

Monoclonal Anti-Derlin-1, Clone Derlin1-1

produced in mouse, purified immunoglobulin

Catalog Number **SAB4200148**

Product Description

Monoclonal Anti-Derlin-1 (mouse IgG1 isotype) is derived from the hybridoma Derlin1-1 produced by the fusion of mouse myeloma cells and splenocytes from BALB/c mice immunized with a synthetic peptide corresponding to amino acids 238-251 of human Derlin-1 (GenelD: 79139), conjugated to KLH. The corresponding sequence is identical in mouse, rat, monkey, pig, bovine and canine. The isotype is determined by ELISA using Mouse Monoclonal Antibody Isotyping Reagents, Catalog Number ISO2. The antibody is purified from culture supernatant of hybridoma cells grown in a bioreactor.

Monoclonal Anti-Derlin-1 recognizes human, mouse, rat, bovine and canine Derlin-1 (not tested in other species). The antibody may be used in several immunochemical techniques including immunoblotting (22 kDa) and immunoprecipitation. 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 evolutionarily conserved protein in eukaryotes that is widely expressed, showing 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 chain 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 mammals

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 was 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 as a preservative.

Antibody concentration: ~ 1.0 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

Store at -20 °C. For continuous use, the product may be stored at 2-8°C for up to one month. For extended storage, freeze at -20 °C 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 antibody concentration of 2-4 µg/mL is recommended using whole extracts of mouse NIH-3T3 or rat NRK cells.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining 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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