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Product Information

Anti-Protein Disulfide Isomerase (DL-11)
antibody produced in rabbit, affinity isolated antibody

Catalog Number **P7122**

Synonyms: Anti-Erp58; Anti-PDI

Product Description

Anti-Protein Disulfide Isomerase (DL-11) is produced in rabbit using as immunogen a synthetic peptide corresponding to amino acid residues 498-508 of human PDI with N-terminal added cysteine, conjugated to KLH. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-Protein Disulfide Isomerase (DL-11) recognizes human, mouse, and rat PDI. Applications include immunoblotting (57 kDa), immunoprecipitation, and immunofluorescence. Detection of the PDI band by immunoblotting is specifically inhibited with the immunizing peptide.

Protein Disulfide Isomerase is an abundant multifunctional, soluble enzyme (E.C. 5.3.4.1) that resides in the lumen of the endoplasmic reticulum of eukaryotic cells and catalyzes the formation and rearrangements of both intrachain and interchain disulfide bonds in secreted proteins.[1-3] PDI also serves as a molecular chaperone that can suppress protein aggregation, or as an antichaperone that mediates aggregate formation, when the amount of unfolded or aggregation-prone protein greatly exceeds that of PDI.[4-6] In addition to its role in correct protein folding, PDI has other functions such as an essential component of two protein complexes: the heterotetramer collagen prolyl 4-hydroxylase and the heterodimer microsomal triglyceride transfer protein. PDI participates in the hydroxylation of prolines in procollagen during collagen synthesis and in the transfer of neutral lipid onto nascent lipoprotein particles. PDI has calcium-dependent transglutaminase activity, which catalyzes the formation of isopeptide bonds.[7] Estrogen binding by PDI has also been reported.[6]

The mammalian PDI family comprises several highly divergent proteins that contain one or more thioredoxin-like structural domains. PDI consists of four tandem domains, two of which contain a catalytic site for S-S bond formation. One domain is the main site of non-covalent interaction with other peptides or proteins. PDI has an N-terminal ER signal and C-terminal ER-retention KDEL signal sequences. The same, or a closely related, C-terminal sequence is also present in GRP 78, ERP 72, and GRP 94. PDI is a major endoplasmic reticulum calcium-binding protein.

Although a widely used marker for the ER compartment, PDI may also be expressed in other cellular localizations such as the cell surface, cytosol, and nucleus.[8, 9] It should also be noted that a mitochondrial isoform of PDI (~ 54 kDa) has been described.[10] PDI was found on the cell surface of several cell types including platelets, lymphoid cells, pancreatic exocrine cells, retinal cells, thyroid cells, and hepatocytes. In this location, PDI is thought to play an important role in various cellular phenomena, e.g. cell adhesion.[11] PDI expressed on special domains of CD4+ T cells has been reported to cleave two disulfide bonds in gp120 surface component of the HIV-1 envelope to produce conformational changes required for virion entry.[12] Extracellular secretion of PDI from hepatocytes, exocrine pancreatic cells, endothelial cells, and platelets is also possible.

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 1% bovine serum albumin and 15 mM sodium azide.

Antibody concentration: ~0.3 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 antibody concentration of 0.1-0.2 μg/ml is recommended using a whole extract of mouse NIH-3T3 cells and a chemiluminescent detection reagent.

Immunoprecipitation: 1-2 μg of the antibody immunoprecipitates PDI from 250-500 μg RIPA lysate of rat NRK cells.

Indirect immunofluorescence: a working antibody concentration of 2-5 μg/ml is recommended using human HeLa cells.

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

References

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