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ProductInformation

Anti-Protein Disulfide Isomerase (PDI)
Developed in Rabbit
IgG fraction of antiserum

Product Number **P7496**

Product Description

Anti-Protein Disulfide Isomerase (PDI) is developed in rabbit using as immunogen Protein Disulfide Isomerase purified from bovine liver. Whole antiserum is fractionated and then further purified by ion-exchange chromatography to provide the IgG fraction of antiserum that is essentially free of other rabbit serum proteins.

Anti-Protein Disulfide Isomerase (PDI) recognizes human, bovine, mouse, and rat protein disulfide isomerase. Applications include immunoblotting (57 kDa), immunoprecipitation, and immunofluorescence. Detection of PDI by immunoblotting is specifically inhibited with purified bovine PDI.

Protein Disulfide Isomerase (PDI, Erp58) 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 suppresses 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 respectively 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 noncovalent interaction with other peptides or proteins. PDI has an N-terminal ER signal and a 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 (approx. 54 kDa) has been recently 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 it is thought to play an important role in various cellular phenomena e.g. cell adhesion.[11] Recently, PDI expressed on special domains of CD4+ T cells was 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

Anti-Protein Disulfide Isomerase (PDI) is supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

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

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended.

Storage in frost-free freezers is also 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
By immunoblotting, a working antibody dilution of 1:2,000 is recommended using whole extract of mouse NIH-3T3 cells and a chemilumescent detection system.

By indirect immunofluorescence, a minimum working dilution of 1:250 is recommended using human HeLa cells.
By immunoprecipitation, 10-20 µg of the antibody immunoprecipitates protein disulfide isomerase from 500 µg RIPA lysate of 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

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KAA/RM 06/04