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ProductInformation

Anti-ADAMTS-4, Propeptide Domain
Developed in Rabbit
Affinity Isolated Antibody

Product Number **A 4726**

Product Description

Anti-ADAMTS-4, Propeptide Domain is developed in rabbit using a synthetic peptide corresponding to the propeptide domain of human ADAMTS-4 as immunogen. Affinity isolated antigen specific antibody is obtained from rabbit anti-ADAMTS-4 antiserum by immuno-specific purification which removes essentially all rabbit serum proteins, including immunoglobulins, which do not specifically bind to the peptide.

Anti-ADAMTS-4, Propeptide Domain may be used for the detection and localization of human ADAMTS-4 (A Disintegrin And Metalloproteinase with Thrombo-Spondin-4 motif). Full length ADAMTS-4 (837 amino acids) has a predicted mass of 90.24 kDa, but glycosylation and the abundance of cysteine residues gives ADAMTS-4 a greater apparent molecular weight on reduced SDS-PAGE gels. By immunoblotting against the reduced protein in cell lysates, the antibody identifies the zymogen form at 98 kDa, activated forms at 64 kDa (major bands), and breakdown products at 30 kDa. A band at approximately 29 kDa is detected in cell culture media, which may be the propeptide domain shed after furin cleavage.

ADAMTS-4 is a member of the metalloproteinases of the ADAM (A Disintegrin And Metalloproteinase) family containing disintegrin-like domains. ADAMTS-4, also known as Aggrecanase-1, was first described as a protein elevated in arthritis.[1] Initial findings indicated a role for ADAMTS-4 in aggrecan cleavage and cartilage destruction, especially in arthritis.[2] Induction of ADAMTS-4 by LPS (lipopolysaccharide), IL-1, and retinoic acid suggests the possibility that ADAMTS-4 could be involved in inflammation and its role in arthritis. Aggrecan, versican, and brevican are all cleaved by ADAMTS-4, and specific inhibition of ADAMTS-4 appears to block degradation of these matrix components. It is suggested that the up-regulation of ADAMTS-4 during endothelial tube formation implies a potential role in the metabolism of vascular proteoglycans, such as versican and other components of the basement membrane.[3] ADAMTS-4 has been implicated in angiogenesis.

ADAMTS-4 contains the canonical HExxHxxxxxH zinc metalloproteinase motif, and has been shown to be proteolytically active on a range of substrates. It is inhibited by the endogenous MMP inhibitors (TIMP-1, 2, 3, and 4), but most efficiently by TIMP-3 (IC_{50} = 7.9 nM). In addition to the metalloprotease domain, ADAMTS-4 has a propeptide domain, a Prohormone Convertase (PC, furin) cleavage site, a cysteine-rich domain and thrombospondin-1 like domains. ADAMTS-4, a secreted protein, does not have a transmembrane domain, unlike many of the ADAMTs proteases.

Reagent

Anti-ADAMTS-4, Propeptide Domain is supplied in phosphate buffered saline (PBS) containing 50% glycerol and 0.05% sodium azide. The protein concentration is approximately 1 mg/ml.

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 six months. For extended storage, the solution may be stored −20 °C. Do not store below −22 °C. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Product Profile

A minimum working antibody dilution of 1:1,000 is determined by immunoblotting a tissue cell lysate with an alkaline phosphatase conjugated secondary antibody and BCIP/NBT as the substrate. A starting dilution of 1:5,000 of the antibody is recommended for chemiluminescent substrates

Note: Higher antibody dilutions may be necessary for non-human samples. EDTA/EGTA treatment of tissues or lysates is required to see latent zymogen.

In order to obtain the best results and assay sensitivity in various techniques and preparations we recommend determining optimum working dilutions by titration.

References

1. Tortorella, M.D., et al., Science, **284**, 1664-1666 (1999).
2. Tortorella, M.D., et al., J. Biol. Chem., **275**, 18566-18573 (2000).
3. Kahn, M.J. et al., Amer. J. Path., **156**, 1887-1900 (2000).

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