Human Matriptase/ST14 Catalytic Domain Antibody

Antigen Affinity-purified Polyclonal Sheep IgG
Catalog Number: AF3946

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human Matriptase/ST14 Catalytic Domain in direct ELISAs and Western blots.
Source	Polyclonal Sheep IgG
Purification	Antigen Affinity-purified
Immunogen	*E. coli*-derived recombinant human Matriptase/ST14 Catalytic Domain Val615-Val855 Accession # Q9Y5Y6
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 µm filtered solution in PBS.

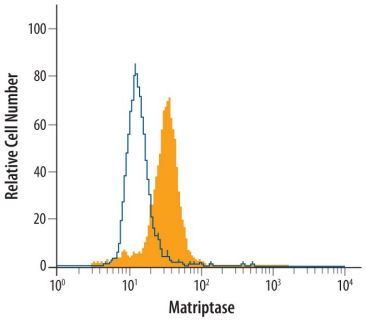
APPLICATIONS

Please Note: *Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.*

	Recommended Concentration	Sample
Western Blot	0.1 µg/mL	Recombinant Human Matriptase/ST14 Catalytic Domain
Intracellular Staining by Flow Cytometry	2.5 µg/10^6 cells	See Below
CyTOF-ready	Ready to be labeled using established conjugation methods. No BSA or other carrier proteins that could interfere with conjugation.	

DATA

Intracellular Staining by Flow Cytometry



Detection of Matriptase/ST14 Catalytic Domain in PC-3 Human Cell Line by Flow Cytometry. PC-3 human prostate cancer cell line was stained with Sheep Anti-Human Matriptase/ST14 Catalytic Domain Antigen Affinity-purified Polyclonal Antibody (Catalog # AF3946, filled histogram) or control antibody (Catalog # 5-001-A, open histogram), followed by NorthernLights™ 557-conjugated Anti-Sheep IgG Secondary Antibody (Catalog # NL010). To facilitate intracellular staining, cells were fixed with paraformaldehyde and permeabilized with saponin.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.2 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 6 months, -20 to -70 °C under sterile conditions after reconstitution.

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BACKGROUND

Human matriptase, encoded by the ST14 (suppression of tumorogenicity 14) gene, is also known as tumor associated differentially expressed gene 15 protein/TADG-15), epithin, and membrane-type serine protease 1/MT-SP1 (1). Predicted to have a significant role in tumor biology, matriptase may be a novel target for anti-cancer therapy (2). However, expressed in most human epithelia, matriptase is also important in several physiological processes (1). For example, it activates prostasin to initiate a protease cascade that is essential for epidermal differentiation (3), and it converts a single-chain IGFBP-rp1 into the two-chain form (4).

Matriptase is a type II transmembrane serine protease with a complex modular structure (1). The 855 amino acid (aa) sequence of human matriptase consists of a cytoplasmic tail (aa 1-55), a transmembrane domain (aa 56-76), and an extracellular portion (aa 77-855). The latter contains the following domains: SEA (aa 86-201), two CUBs (aa 214-334 and 340-447), four LDLRAs (aa 452-486, 487-523, 524-560, and 566-603), and a serine protease (aa 615-855). The physiological activation of the single-chain zymogen requires the cleavage at the SEA domain within the ER or Golgi, association with HAI-1, which facilitates the transport of the protease to the cell surface, and auto-cleavage at QAR-V(615)VGG (1). The activated matriptase is inhibited by HAI-1, and the resulting HAI-1 complex can be shed from the cell surface (1). R&D Systems rhST14 corresponds to the catalytic domain, and is inhibited effectively by rhHAI-1 and rhHAI-2A (R&D Systems, Catalog # 1048-PI and 1106-PI).

References:

1. List, K. *et al.* (2006) Mol. Med. **12**:1.
2. Uhland, K. (2006) Cell. Mol. Life Sci. **63**:2968.
3. Netzel-Arnett, S. *et al.* (2006) J. Biol. Chem. **281**:32941.
4. Ahmed, S. *et al.* (2006) FEBS J. **273**:615.

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