

Aminopeptidase P (JG12): sc-65390

BACKGROUND

Aminopeptidases are widely distributed in eukaryotes and prokaryotes. These enzymes catalyze the removal of amino acids from the N-termini of proteins. Aminopeptidase P is a member of the peptidase clan MG. It is a mammalian bradykinin-degrading, metal-dependant enzyme that exists in two forms: a membrane-bound form and a cytosolic form. Aminopeptidase P is proline-specific; it cleaves the N-terminal amino acid where the second residue is proline. Aminopeptidase P is GPI-linked, and the membrane-bound form is expressed on the surface of lymphoid cells, on vascular endothelial cells in various tissues, and on the brush-border membrane in kidney tubules and in the intestine. Cytosolic Aminopeptidase P is 623 amino acids in length. Membrane-bound Aminopeptidase P is 674 amino acids in length. Experiments have shown that Aminopeptidase P is also the receptor for the breast-homing peptide. This information may be very useful in designing drugs for the treatment and prevention of breast cancer.

REFERENCES

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2. Cottrell, G.S., et al. 2000. Cloning, expression and characterization of human cytosolic Aminopeptidase P: a single manganese(II)-dependent enzyme. *Biochemistry* 39: 15121-15128.
3. Essler, M., et al. 2002. Molecular specialization of breast vasculature: a breast-homing phage-displayed peptide binds to Aminopeptidase P in breast vasculature. *Proc. Natl. Acad. Sci. USA* 99: 2252-2257.
4. Graham, S.C., et al. 2006. Kinetic and crystallographic analysis of mutant *Escherichia coli* Aminopeptidase P: insights into substrate recognition and the mechanism of catalysis. *Biochemistry* 45: 964-975.
5. Jao, S.C., et al. 2006. Tyrosine 387 and Arginine 404 are critical in the hydrolytic mechanism of *Escherichia coli* Aminopeptidase P. *Biochemistry* 45: 1547-1553.
6. Kiraly, O., et al. 2006. Expression of human cationic trypsinogen with an authentic N-terminus using intein-mediated splicing in Aminopeptidase P deficient *Escherichia coli*. *Protein Expr. Purif.* 48: 104-111.
7. Molinaro, G., et al. 2006. Kinin-dependent hypersensitivity reactions in hemodialysis: metabolic and genetic factors. *Kidney Int.* 70: 1823-1831.
8. Oh, P., et al. 2007. Live dynamic imaging of caveolae pumping targeted antibody rapidly and specifically across endothelium in the lung. *Nat. Biotechnol.* 25: 327-337.
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SOURCE

Aminopeptidase P (JG12) is a mouse monoclonal antibody raised against glomerular membrane protein fractions of rat origin.

PRODUCT

Each vial contains 100 µg IgG₁ in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Aminopeptidase P (JG12) is recommended for detection of epithelial Aminopeptidase P of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Molecular Weight of Aminopeptidase P: 70 kDa.

SELECT PRODUCT CITATIONS

1. Sun, D., et al. 2011. Protective effect of prostaglandin E1 on renal microvascular injury in rats of acute aristolochic acid nephropathy. *Ren. Fail.* 33: 225-232.
2. Sun, D., et al. 2012. Effects of nitric oxide on renal interstitial fibrosis in rats with unilateral ureteral obstruction. *Life Sci.* 90: 900-909.
3. Jia, X., et al. 2016. Bone marrow mesenchymal stromal cells ameliorate angiogenesis and renal damage via promoting PI3k-Akt signaling pathway activation *in vivo*. *Cytotherapy* 18: 838-845.
4. Maïga, S., et al. 2017. Renal auto-transplantation promotes cortical microvascular network remodeling in a preclinical porcine model. *PLoS ONE* 12: e0181067.
5. Hou, B., et al. 2017. Salvianolic acid A protects against diabetic nephropathy through ameliorating glomerular endothelial dysfunction via inhibiting AGE-RAGE signaling. *Cell. Physiol. Biochem.* 44: 2378-2394.
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8. Bao, C., et al. 2020. Aerobic endurance exercise ameliorates renal vascular sclerosis in aged mice by regulating PI3K/AKT/mTOR signaling pathway. *DNA Cell Biol.* 39: 310-320.
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STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.