

Pepsin A (D-5): sc-365680

BACKGROUND

Pepsin is one of the main proteolytic enzymes secreted by the gastric mucosa. Pepsin consists of a single polypeptide chain and arises from its precursor, pepsinogen, by removal of a 41 amino acid segment from the N-terminus. Pepsinogen is synthesized in the stomach lining, and hydrochloric acid, also produced by the gastric mucosa, is necessary to convert the inactive enzyme and to maintain the optimum acidity (pH 1-3) for pepsin function. Pepsin is particularly effective in cleaving peptide bonds involving aromatic amino acids. Pepsin shows extremely broad specificity; although bonds involving phenylalanine and leucine are preferred, many others are also cleaved to some extent. Pepsin A is a member of the subfamily A1 within the pepsin family and is the predominant endopeptidase in the gastric juice of vertebrates. Pepsin A is inhibited by ovUS-1, a uterine serpin.

REFERENCES

- Carles, C. and Martin, P. 1985. Kinetic study of the action of bovine chymosin and Pepsin A on bovine κ -casein. Arch. Biochem. Biophys. 242: 411-416.
- Okoniewska, M., et al. 1999. The role of the flap residue, Threonine 77, in the activation and catalytic activity of Pepsin A. Protein Eng. 12: 55-61.
- Kageyama, T. 2004. Role of S'1 loop residues in the substrate specificities of Pepsin A and chymosin. Biochemistry 43: 15122-15130.
- Akkerdaas, J.H., et al. 2005. IgE binding to pepsin-digested food extracts. Int. Arch. Allergy Immunol. 138: 203-208.
- Ibrahim, H.R., et al. 2005. Processing of lysozyme at distinct loops by pepsin: a novel action for generating multiple antimicrobial peptide motifs in the newborn stomach. Biochim. Biophys. Acta 1726: 102-114.
- Tagliazucchi, D., et al. 2005. Effect of some phenolic compounds and beverages on pepsin activity during simulated gastric digestion. J. Agric. Food Chem. 53: 8706-8713.
- Schimek, E.M., et al. 2005. Gastrointestinal digestion of Bet v 1-homologous food allergens destroys their mediator-releasing, but not T cell-activating, capacity. J. Allergy Clin. Immunol. 116: 1327-1333.

CHROMOSOMAL LOCATION

Genetic locus: PGA3/PGA4/PGA5 (human) mapping to 11q12.2.

SOURCE

Pepsin A (D-5) is a mouse monoclonal antibody raised against amino acids 281-324 mapping near the C-terminus of Pepsin A of human origin.

PRODUCT

Each vial contains 200 μ g IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

Pepsin A (D-5) is recommended for detection of Pepsin A and Pepsinogen A of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Pepsin A siRNA (h): sc-61317, Pepsin A shRNA Plasmid (h): sc-61317-SH and Pepsin A shRNA (h) Lentiviral Particles: sc-61317-V.

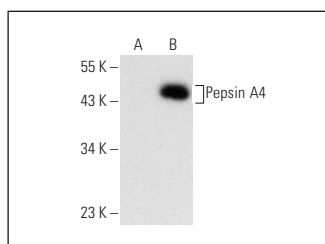
Molecular Weight of Pepsin A: 42 kDa.

Positive Controls: Pepsin A4 (h): 293 Lysate: sc-171136.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



Pepsin A (D-5): sc-365680. Western blot analysis of Pepsin A4 expression in non-transfected: sc-110760 (A) and human Pepsin A4 transfected: sc-171136 (B) 293 whole cell lysates.

SELECT PRODUCT CITATIONS

- Race, C., et al. 2019. Studies of salivary pepsin in patients with gastro-oesophageal reflux disease. Aliment. Pharmacol. Ther. 49: 1173-1180.
- Doukas, P.G., et al. 2021. Pepsin promotes activation of epidermal growth factor receptor and downstream oncogenic pathways, at slightly acidic and neutral pH, in exposed hypopharyngeal cells. Int. J. Mol. Sci. 22: 4275.

RESEARCH USE

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