

# Pepsin A (A-10): sc-271798

## 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

1. Carles, C. and Martin, P. 1985. Kinetic study of the action of bovine chymosin and Pepsin A on bovine  $\kappa$ -casein. *Arch. Biochem. Biophys.* 242: 411-416.
2. 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.
3. Kageyama, T. 2004. Role of S'1 loop residues in the substrate specificities of Pepsin A and chymosin. *Biochemistry* 43: 15122-15130.
4. Akkerdaas, J.H., et al. 2005. IgE binding to Pepsin-digested food extracts. *Int. Arch. Allergy Immunol.* 138: 203-208.
5. 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.
6. Tagliacruzchi, 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.

## CHROMOSOMAL LOCATION

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

## SOURCE

Pepsin A (A-10) 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  $\mu$ g IgG<sub>2b</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Pepsin A (A-10) is available conjugated to agarose (sc-271798 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271798 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271798 PE), fluorescein (sc-271798 FITC), Alexa Fluor<sup>®</sup> 488 (sc-271798 AF488), Alexa Fluor<sup>®</sup> 546 (sc-271798 AF546), Alexa Fluor<sup>®</sup> 594 (sc-271798 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-271798 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-271798 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-271798 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

Pepsin A (A-10) 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  $\mu$ g per 100-500  $\mu$ 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.

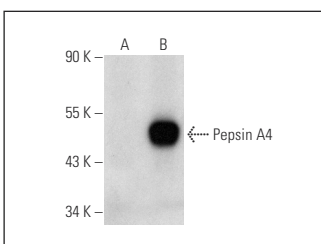
Molecular Weight of Pepsin A: 42 kDa.

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 $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> 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 $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## DATA



Pepsin A (A-10): sc-271798. 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

1. Wu, W., et al. 2016. A simple biomarker scoring matrix for early gastric cancer detection. *Proteomics* 16: 2921-2930.

## 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.

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