

# Pepsin A (F-16): sc-51181

## 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  $\kappa$ -casein. Arch. Biochem. Biophys. 242: 411-416.
- Okoniewska, M., Tanaka, T. and Yada, R.Y. 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., Wensing, M., Asero, R., Fernandez Rivas, M., Rivas, M.F., Knulst, A.C., Bolhaar, S., Hefle, S.L., Aalberse, R.C. and van Ree, R. 2005. IgE binding to pepsin-digested food extracts. Int. Arch. Allergy Immunol. 138: 203-208.
- Ibrahim, H.R., Inazaki, D., Abdou, A., Aoki, T. and Kim, M. 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., Verzelloni, E. and Conte, A. 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., Zwölfer, B., Briza, P., Jahn-Schmid, B., Vogel, L., Vieths, S., Ebner, C. and Bohle, B. 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.
- Schreiber, S., Bucker, R., Groll, C., Azevedo-Vethacke, M., Scheid, P., Gattermann, S., Josenhans, C. and Suerbaum, S. 2005. Gastric antibacterial efficiency is different for Pepsin A and C. Arch. Microbiol. 184: 335-340.
- Simo, C., González, R., Barbas, C. and Cifuentes, A. 2005. Combining peptide modeling and capillary electrophoresis-mass spectrometry for characterization of enzymes cleavage patterns: recombinant versus natural bovine Pepsin A. Anal. Chem. 77: 7709-7716.

## STORAGE

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

## CHROMOSOMAL LOCATION

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

## SOURCE

Pepsin A (F-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of Pepsin A of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-51181 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

Pepsin A (F-16) is recommended for detection of Pepsin A and Pepsinogen A of human 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 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.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## SELECT PRODUCT CITATIONS

- Kim, T.H., Lee, K.J., Yeo, M., Kim, D.K. and Cho, S.W. 2008. Pepsin detection in the sputum/saliva for the diagnosis of gastroesophageal reflux disease in patients with clinically suspected atypical gastroesophageal reflux disease symptoms. Digestion 77: 201-206.

## RESEARCH USE

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



Try **Pepsin A (A-10): sc-271798** or **Pepsin A (D-5): sc-365680**, our highly recommended monoclonal alternatives to Pepsin A (F-16).