SANTA CRUZ BIOTECHNOLOGY, INC.

Trypsin (M-60): sc-67388

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The human pancreas secretes three different isoforms of the inactive trypsinogen into the small intestine, namely cationic trypsinogen, anionic trypsinogen (the two major isoforms) and mesotrypsinogen (a minor isoform). In the small intestine, each isoform is cleaved by Enterokinase into its active form, Trypsin-1, Trypsin-2 and Trypsin-3, respectively. All trypsins are members of the serine protease trypsin family. The activated trypsins go on to activate other protease zymogens and play a role in the autoactivation of trypsinogens. This suggests an important role for trypsins in digestion. Mutations in the gene encoding Trypsin-1 that stimulate its activity are associated with autosomal dominant hereditary pancreatitis (HCP), also known as chronic pancreatitis (CP), a disease characterized by persistent, severe abdominal pain due to calcifications of the parenchyma, pancreatic stones, cysts and pancreatic head enlargement. Trypsin-3 is expressed in the brain in addition to the pancreas.

REFERENCES

1. Scheele, G., et al. 1981. Characterization of human exocrine pancreatic proteins by two-dimensional isoelectric focusing/sodium dodecyl sulfate gel electrophoresis. Gastroenterology 80: 461-473.
2. Rinderknecht, H., et al. 1984. Mesotrypsin: a new inhibitor-resistant protease from a zymogen in human pancreatic tissue and fluid. Gastroenterology 86: 681-692.
3. Kleeff, J., et al. 2000. Chronic pancreatitis: pathogenesis and molecular aspects. Ann. Ital. Chir. 71: 3-10.
4. Chandak, G.R., et al. 2004. Absence of PRSS1 mutations and association of SPINK1 trypsin inhibitor mutations in hereditary and non-hereditary chronic pancreatitis. Gut 53: 723-728.
5. Sahin-Tóth, M., et al. 2006. Human cationic trypsinogen is sulfated on Tyr 154. FEBS J. 273: 5044-5050.
6. Nemoda, Z., et al. 2006. Chymotrypsin C (caldecrin) stimulates autoactivation of human cationic trypsinogen. J. Biol. Chem. 281: 11879-11886.
7. Keim, V. 2008. Role of genetic disorders in acute recurrent pancreatitis. World J. Gastroenterol. 14: 1011-1015.

CHROMOSOMAL LOCATION

Genetic locus: Prss1/Prss2/Prss3/Try10 (mouse) mapping to 6 B1.

SOURCE

Trypsin (M-60) is a rabbit polyclonal antibody raised against amino acids 1-60 mapping at the N-terminus of Trypsin-1 of mouse origin.

PRODUCT

Each vial contains 200 µg IgG 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

Trypsin (M-60) is recommended for detection of Trypsin-1, Trypsin-2, Trypsin-3 and Trypsin-10 of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg 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).

Trypsin (M-60) is also recommended for detection of Trypsin-1, Trypsin-2, Trypsin-3 and Trypsin-10 in additional species, including equine, bovine and porcine.

Molecular Weight of Trypsin-1: 23 kDa,

Molecular Weight of Trypsin-2: 26 kDa.

Molecular Weight of Trypsin-3: 32 kDa.

Molecular Weight of Trypsin-10: 26 kDa.

Positive Controls: rat pancreas extract: sc-364806.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Lam, D.K., et al. 2012. Novel animal models of acute and chronic cancer pain: a pivotal role for PAR2. J. Neurosci. 32: 14178-14183.

RESEARCH USE

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

PROTOCOLS

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