

# Mast Cell Tryptase (G3): sc-33676

## BACKGROUND

Mast cells are connective tissue cells derived from blood-forming tissues that line arterial walls and secrete substances, which mediate inflammatory and immune responses. Mast Cell Chymase, known as CMA1, is a major secreted serine protease that is involved in vasoactive peptide generation, extracellular matrix degradation and regulation of gland secretion. The human chymase gene, which maps to human chromosome 14q11.2, encodes a pre-enzyme with a 19-amino acid signal peptide, an acidic 2-amino acid propeptide and a 226-amino acid catalytic domain. Tryptases comprise a family of trypsin-like serine proteases that are enzymatically active as heparin-stabilized tetramers. There are four functional genes for tryptase:  $\alpha$  I,  $\beta$  I,  $\beta$  II and  $\gamma$  I, which map to human chromosome 16p13.3, with  $\beta$  tryptases representing the main isoenzymes expressed in mast cells. Mast cell proteases are a family of rodent protein homologs to human tryptases that are specifically expressed in mast cells and may serve as highly specific markers in the analysis of mast cell heterogeneity, differentiation and function.

## CHROMOSOMAL LOCATION

Genetic locus: TPSAB1 (human) mapping to 16p13.3.

## SOURCE

Mast Cell Tryptase (G3) is a mouse monoclonal antibody raised against tryptase purified from lung mast cells of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Mast Cell Tryptase (G3) is available conjugated to agarose (sc-33676 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-33676 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-33676 PE), fluorescein (sc-33676 FITC), Alexa Fluor<sup>®</sup> 488 (sc-33676 AF488), Alexa Fluor<sup>®</sup> 546 (sc-33676 AF546), Alexa Fluor<sup>®</sup> 594 (sc-33676 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-33676 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-33676 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-33676 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## APPLICATIONS

Mast Cell Tryptase (G3) is recommended for detection of Mast Cell Tryptase (also designated MMCP-6) of human origin by Western Blotting (starting dilution 1:200, 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 immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for Mast Cell Tryptase siRNA (h): sc-43910, Mast Cell Tryptase shRNA Plasmid (h): sc-43910-SH and Mast Cell Tryptase shRNA (h) Lentiviral Particles: sc-43910-V.

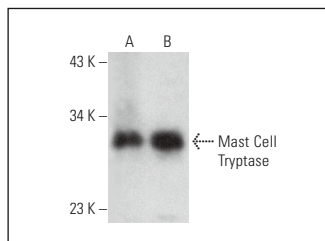
Molecular Weight of Mast Cell Tryptase: 31-36 kDa.

Positive Controls: C32 whole cell lysate: sc-2205, U-937 cell lysate: sc-2239 or A-673 cell lysate: sc-2414.

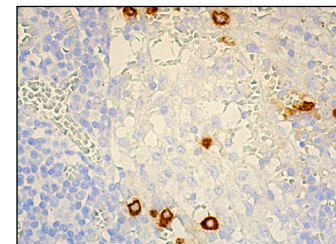
## STORAGE

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

## DATA



Mast Cell Tryptase (G3): sc-33676. Western blot analysis of Mast Cell Tryptase expression in U-937 (A) and A-673 (B) whole cell lysates.



Mast Cell Tryptase (G3): sc-33676. Immunoperoxidase staining of formalin fixed, paraffin-embedded human spleen tissue showing membrane and cytoplasmic staining of a subset of leukocytes. Blocked with 0.25X UltraCruz<sup>®</sup> Blocking Reagent: sc-516214. Detected with m-IgG Fc BP-B: sc-533652 and ImmunoCruz<sup>®</sup> ABC Kit: sc-516216.

## SELECT PRODUCT CITATIONS

- Merz, H., et al. 2010. Interleukin-9 (IL-9) and NPM-ALK each generate mast cell hyperplasia as single "hit" and cooperate in producing a mastocytosis-like disease in mice. *Oncotarget* 1: 104-119.
- Gelincik, A., et al. 2012. Enhanced nerve growth factor expression by mast cells does not differ significantly between idiopathic and allergic rhinitis. *Ann. Allergy Asthma Immunol.* 108: 396-401.
- Spencer, M., et al. 2014. Pioglitazone treatment reduces adipose tissue inflammation through reduction of mast cell and macrophage number and by improving vascularity. *PLoS ONE* 9: e102190.
- Roy, A., et al. 2017. Serglycin as a potential biomarker for glioma: association of serglycin expression, extent of mast cell recruitment and glioblastoma progression. *Oncotarget* 8: 24815-24827.
- Finlin, B.S., et al. 2019. Adipose tissue mast cells promote human adipose beiging in response to cold. *Sci. Rep.* 9: 8658.
- Reeves, S.R., et al. 2020. Respiratory syncytial virus infection of human lung fibroblasts induces a hyaluronan-enriched extracellular matrix that binds mast cells and enhances expression of mast cell proteases. *Front. Immunol.* 10: 3159.
- Kim, K.W., et al. 2021. Regulation of osteoclastogenesis by mast cell in rheumatoid arthritis. *Arthritis Res. Ther.* 23: 124.
- Faisal, M., et al. 2021. Effects of analgesic and surgical modality on immune response in colorectal cancer surgery. *Surg. Oncol.* 38: 101602.
- Kim, H.W., et al. 2022. NAD<sup>+</sup>-boosting molecules suppress mast cell degranulation and anaphylactic responses in mice. *Theranostics* 12: 3316-3328.

## RESEARCH USE

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