## SANTA CRUZ BIOTECHNOLOGY, INC.

# CAT-1 (F-2): sc-515782



## BACKGROUND

The cationic amino acid transporter (CAT) family of proteins are part of a larger superfamily, the amino acid-polyamine-organocation (APC) superfamily. High-affinity cationic amino acid transporter-1 (CAT-1), also designated ecotropic retroviral leukemia receptor homolog, ATRC1 or REC1L, is a ubiquitously expressed integral membrane protein. In non-hepatic tissues, CAT-1 acts as a high-affinity, low capacity permease that is important in cationic amino acid transport. CAT-1 is also a potential ecotropic retroviral leukemia receptor. SLC7A1, the gene encoding for the CAT-1 protein, maps to chromosome 13q12.3.

## REFERENCES

- Yoshimoto, T., et al. 1991. Molecular cloning and characterization of a novel human gene homologous to the murine ecotropic retroviral receptor. Virology 185: 10-17.
- Albritton, L.M., et al. 1992. The human cationic amino acid transporter (ATRC1): physical and genetic mapping to 13q12-q14. Genomics 12: 430-434.
- Kamath, S.G., et al. 1999. Identification of three cationic amino acid transporters in placental trophoblast: cloning, expression, and characterization of hCAT-1. J. Membr. Biol. 171: 55-62.
- Zani, B.G., et al. 2005. Transport of extracellular l-arginine via cationic amino acid transporter is required during *in vivo* endothelial nitric oxide production. Am. J. Physiol. Heart Circ. Physiol. 289: H1381-H1390.

## **CHROMOSOMAL LOCATION**

Genetic locus: SLC7A1 (human) mapping to 13q12.3.

#### SOURCE

CAT-1 (F-2) is a mouse monoclonal antibody raised against amino acids 431-540 mapping within an internal region of CAT-1 of human origin.

## PRODUCT

Each vial contains 200  $\mu g\, lg G_1$  kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

CAT-1 (F-2) is available conjugated to agarose (sc-515782 AC), 500  $\mu$ g/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-515782 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-515782 PE), fluorescein (sc-515782 FITC), Alexa Fluor<sup>®</sup> 488 (sc-515782 AF488), Alexa Fluor<sup>®</sup> 546 (sc-515782 AF546), Alexa Fluor<sup>®</sup> 594 (sc-515782 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-515782 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-515782 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-515782 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## **STORAGE**

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

## APPLICATIONS

CAT-1 (F-2) is recommended for detection of CAT-1 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 CAT-1 siRNA (h): sc-44923, CAT-1 shRNA Plasmid (h): sc-44923-SH and CAT-1 shRNA (h) Lentiviral Particles: sc-44923-V.

Molecular Weight of CAT-1: 70 kDa.

Positive Controls: human CAT-1 transfected HEK293T whole cell lysate, Jurkat whole cell lysate: sc-2204 or MCF7 whole cell lysate: sc-2206.

## **RECOMMENDED SUPPORT REAGENTS**

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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





CAT-1 (F-2): sc-515782. Western blot analysis of CAT-1 expression in Jurkat  $({\bm A})$  and MCF7  $({\bm B})$  whole cell lysates.

CAT-1 (F-2): sc-515782. Western blot analysis of CAT-1 expression in non-transfected (**A**) and human CAT-1 transfected (**B**) HEK293T whole cell lysates. Detection reagent used: m-IgG Fc BP-HRP: sc-525409.

## SELECT PRODUCT CITATIONS

- Lam, S.K., et al. 2019. Endogenous arginase 2 as a potential biomarker for PEGylated arginase 1 treatment in xenograft models of squamous cell lung carcinoma. Oncogenesis 8: 18.
- Tarek, H., et al. 2023. Attenuation of oxidative damage via upregulating Nrf2/H0-1 signaling pathway by protease SH21 with exerting anti-inflammatory and anticancer properties *in vitro*. Cells 12: 2190.

## **RESEARCH USE**

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