

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

1. 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.
2. Albritton, L.M., et al. 1992. The human cationic amino acid transporter (ATRC1): physical and genetic mapping to 13q12-q14. *Genomics* 12: 430-434.
3. 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.
4. 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.
5. Li, C., et al. 2005. Interaction of the endothelial nitric oxide synthase with the CAT-1 arginine transporter enhances NO release by a mechanism not involving arginine transport. *Biochem. J.* 386: 567-574.
6. SWISS-PROT/TrEMBL (P30825). World Wide Web URL: <http://www.expasy.ch/sprot/sprot-top.html>.

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 µg IgG₁ 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 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-515782 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-515782 PE), fluorescein (sc-515782 FITC), Alexa Fluor[®] 488 (sc-515782 AF488), Alexa Fluor[®] 546 (sc-515782 AF546), Alexa Fluor[®] 594 (sc-515782 AF594) or Alexa Fluor[®] 647 (sc-515782 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-515782 AF680) or Alexa Fluor[®] 790 (sc-515782 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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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 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).

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.

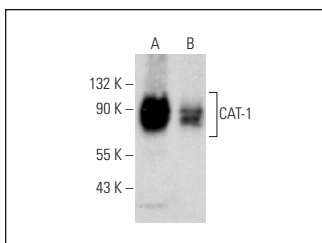
Molecular Weight of CAT-1: 70 kDa.

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

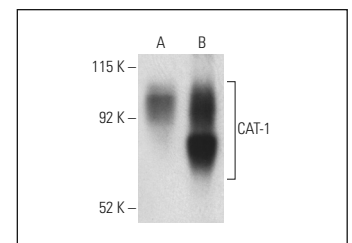
RECOMMENDED SUPPORT REAGENTS

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[™] Molecular Weight Standards: sc-2035, UltraCruz[®] 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[®] Mounting Medium: sc-24941 or UltraCruz[®] Hard-set Mounting Medium: sc-359850.

DATA



CAT-1 (F-2): sc-515782. Western blot analysis of CAT-1 expression in Jurkat (A) and MCF7 (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

1. 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.

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.