

CAT-4 (B-2): sc-376557

BACKGROUND

As a member of the APC family of transporters, CAT-4 (cationic amino acid transporter 4), also known as Solute carrier family 7 member 4, is a 635 amino acid multi-pass membrane protein that is involved in the transport of the cationic amino acids, arginine, lysine and ornithine. This uptake of cationic amino acids is designated "system y⁺", which is pH insensitive, stereoselective, Na⁺ independent and inhibitable by neural amino acids in the presence of Na⁺. CAT-4 displays high sequence similarity with CAT-1 and CAT-2 and is expressed in testis, placenta and brain. A microdeletion of the chromosomal band near the location of the gene encoding CAT-4 causes velocardiofacial syndrome (also known as DiGeorge syndrome), a disease that is characterized by several clinical findings, including conotruncal cardiac defects, prominent tubular nose and a hypernasal voice. This suggests that CAT-4 may play a role in determining the velocardiofacial phenotype.

REFERENCES

1. Sperandio, M.P., et al. 1998. The gene encoding a cationic amino acid transporter (SLC7A4) maps to the region deleted in the velocardiofacial syndrome. *Genomics* 49: 230-236.
2. Hammermann, R., et al. 2001. Analysis of the genomic organization of the human cationic amino acid transporters CAT-1, CAT-2 and CAT-4. *Amino Acids* 21: 211-219.
3. Wolf, S., et al. 2002. Expression of solute carrier 7A4 (SLC7A4) in the plasma membrane is not sufficient to mediate amino acid transport activity. *Biochem. J.* 364: 767-775.

CHROMOSOMAL LOCATION

Genetic locus: SLC7A4 (human) mapping to 22q11.21; Slc7a4 (mouse) mapping to 16 A3.

SOURCE

CAT-4 (B-2) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 291-323 within an internal region of CAT-4 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-4 (B-2) is available conjugated to agarose (sc-376557 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376557 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376557 PE), fluorescein (sc-376557 FITC), Alexa Fluor[®] 488 (sc-376557 AF488), Alexa Fluor[®] 546 (sc-376557 AF546), Alexa Fluor[®] 594 (sc-376557 AF594) or Alexa Fluor[®] 647 (sc-376557 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-376557 AF680) or Alexa Fluor[®] 790 (sc-376557 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-376557 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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APPLICATIONS

CAT-4 (B-2) is recommended for detection of CAT-4 of mouse, rat and 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-4 siRNA (h): sc-72804, CAT-4 siRNA (m): sc-142027, CAT-4 shRNA Plasmid (h): sc-72804-SH, CAT-4 shRNA Plasmid (m): sc-142027-SH, CAT-4 shRNA (h) Lentiviral Particles: sc-72804-V and CAT-4 shRNA (m) Lentiviral Particles: sc-142027-V.

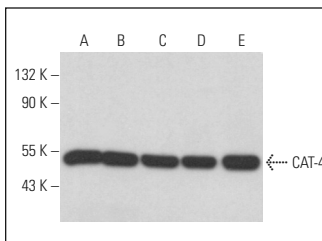
Molecular Weight of CAT-4: 68 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, JAR cell lysate: sc-2276 or PC-12 cell lysate: sc-2250.

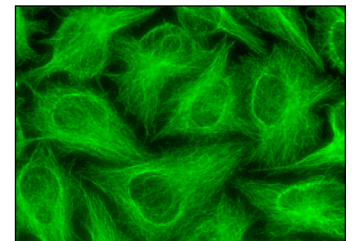
RECOMMENDED SUPPORT REAGENTS

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-4 (B-2): sc-376557. Western blot analysis of CAT-4 expression in Hep G2 (A), JAR (B), Neuro-2A (C), KNRK (D) and PC-12 (E) whole cell lysates.



CAT-4 (B-2): sc-376557. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Long, X., et al. 2019. Protective effect of silkworm pupa oil on hydrochloric acid/ethanol-induced gastric ulcer. *J. Sci. Food Agric.* 99: 2974-2986.

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.