

CHP2 (E-14): sc-164062

BACKGROUND

CHP2 (Calcineurin B homologous protein 2), also known as Hepatocellular carcinoma-associated antigen 520, is a 196 amino acid protein that contains four EF-hand domains and plays a potential role in transmembrane Na⁺/H⁺ exchange. By binding to and activating NHE-1, CHP2 increases the pH and works to protect cells from serum deprivation-induced death. Though not typically detected in normal tissues, CHP2 is highly expressed in malignantly transformed cells and is therefore considered to be a tumor-associated antigen. Ectopic expression of CHP2 promotes proliferation of HEK293 cells and knockdown of CHP2 mRNA in HepG2 cells inhibits cell proliferation. Like calcineurin B, CHP2 can bind to and stimulate phosphatase activity of calcineurin A and activate the calcineurin/NFAT signaling pathway.

REFERENCES

- Pang, T., Wakabayashi, S. and Shigekawa, M. 2002. Expression of calcineurin B homologous protein 2 protects serum deprivation-induced cell death by serum-independent activation of Na⁺/H⁺ exchanger. *J. Biol. Chem.* 277: 43771-43777.
- Inoue, H., Nakamura, Y., Nagita, M., Takai, T., Masuda, M., Nakamura, N. and Kanazawa, H. 2003. Calcineurin homologous protein isoform 2 (CHP2), Na⁺/H⁺ exchangers-binding protein, is expressed in intestinal epithelium. *Biol. Pharm. Bull.* 26: 148-155.
- Ben Ammar, Y., Takeda, S., Sugawara, M., Miyano, M., Mori, H. and Wakabayashi, S. 2005. Crystallization and preliminary crystallographic analysis of the human calcineurin homologous protein CHP2 bound to the cytoplasmic region of the Na⁺/H⁺ exchanger NHE1. *Acta Crystallogr. Sect. F Struct. Biol. Cryst. Commun.* 61: 956-958.
- Ammar, Y.B., Takeda, S., Hisamitsu, T., Mori, H. and Wakabayashi, S. 2006. Crystal structure of CHP2 complexed with NHE1-cytosolic region and an implication for pH regulation. *EMBO J.* 25: 2315-2325.
- Jin, Q., Kong, B., Yang, X., Cui, B., Wei, Y. and Yang, Q. 2007. Overexpression of CHP2 enhances tumor cell growth, invasion and metastasis in ovarian cancer. *In Vivo.* 21: 593-598.
- Zaun, H.C., Shrier, A. and Orlowski, J. 2008. Calcineurin B homologous protein 3 promotes the biosynthetic maturation, cell surface stability, and optimal transport of the Na⁺/H⁺ exchanger NHE1 isoform. *J. Biol. Chem.* 283: 12456-12467.
- Li, G.D., Zhang, X., Li, R., Wang, Y.D., Wang, Y.L., Han, K.J., Qian, X.P., Yang, C.G., Liu, P., Wei, Q., Chen, W.F., Zhang, J. and Zhang, Y. 2008. CHP2 activates the calcineurin/nuclear factor of activated T cells signaling pathway and enhances the oncogenic potential of HEK293 cells. *J. Biol. Chem.* 283: 32660-32668.
- Garcia, J.F., Dumesic, P.A., Hartley, P.D., El-Samad, H. and Madhani, H.D. 2010. Combinatorial, site-specific requirement for heterochromatic silencing factors in the elimination of nucleosome-free regions. *Genes Dev.* 24: 1758-1771.

RESEARCH USE

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

CHROMOSOMAL LOCATION

Genetic locus: CHP2 (human) mapping to 16p12.2.

SOURCE

CHP2 (E-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of CHP2 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-164062 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

CHP2 (E-14) is recommended for detection of CHP2 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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); non cross-reactive with CHP1.

Suitable for use as control antibody for CHP2 siRNA (h): sc-93299, CHP2 shRNA Plasmid (h): sc-93299-SH and CHP2 shRNA (h) Lentiviral Particles: sc-93299-V.

Molecular Weight of CHP2: 22 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

STORAGE

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

PROTOCOLS

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