SANTA CRUZ BIOTECHNOLOGY, INC.

Epac2 (A-7): sc-28326

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

3',5' cyclic adenosine monophosphate (cAMP)-regulated guanine nucleotide exchange factors Epac1 (cAMP-GEFI) and Epac2 (cAMP-GEFII) activate the Ras family GTPases Rap 1 and Rap 2 by promoting GTP binding in a cAMP-dependent manner. Eukaryotic cAMP is a second messenger that induces physiological responses such as gene expression, growth, differentiation, secretion and neurotransmission. Human EPAC2 contains at least 31 exons and maps to chromosome 2q31.1. The 4.4-kb Epac2 transcript is prominent in brain and adrenal gland. Within the brain, expression is strong in cortex, occipital pole, frontal lobe, temporal lobe, amygdala, putamen, hippocampus and cerebellum.

CHROMOSOMAL LOCATION

Genetic locus: RAPGEF4 (human) mapping to 2q31.1; Rapgef4 (mouse) mapping to 2 C3.

SOURCE

Epac2 (A-7) is a mouse monoclonal antibody raised against amino acids 1-220 of Epac2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Epac2 (A-7) is available conjugated to agarose (sc-28326 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-28326 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-28326 PE), fluorescein (sc-28326 FITC), Alexa Fluor® 488 (sc-28326 AF488), Alexa Fluor® 546 (sc-28326 AF546), Alexa Fluor® 594 (sc-28326 AF594) or Alexa Fluor® 647 (sc-28326 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-28326 AF680) or Alexa Fluor® 790 (sc-28326 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

APPLICATIONS

Epac2 (A-7) is recommended for detection of Epac2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:500), 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Epac2 (A-7) is also recommended for detection of Epac2 in additional species, including bovine.

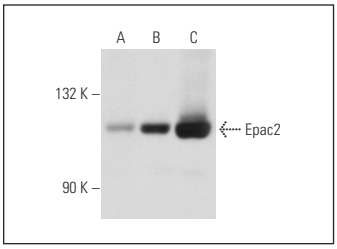
Suitable for use as control antibody for Epac2 siRNA (h): sc-41702, Epac2 siRNA (m): sc-41703, Epac2 siRNA (r): sc-270233, Epac2 shRNA Plasmid (h): sc-41702-SH, Epac2 shRNA Plasmid (m): sc-41703-SH, Epac2 shRNA Plasmid (r): sc-270233-SH, Epac2 shRNA (h) Lentiviral Particles: sc-41702-V, Epac2 shRNA (m) Lentiviral Particles: sc-41703-V and Epac2 shRNA (r) Lentiviral Particles: sc-270233-V.

Molecular Weight of Epac2: 126 kDa.

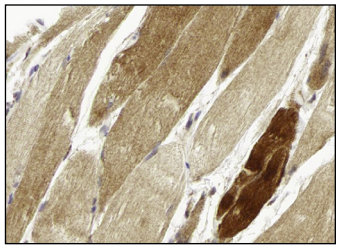
STORAGE

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

DATA



Epac2 (A-7): sc-28326. Western blot analysis of Epac2 expression in rat cerebellum (**A**), mouse brain (**B**) and rat brain (**C**) tissue extracts.



Epac2 (A-7): sc-28326. Immunoperoxidase staining of formalin fixed, paraffin-embedded human skeletal muscle tissue showing cytoplasmic staining of myocytes. Kindly provided by The Swedish Human Protein Atlas (HPA) program.

SELECT PRODUCT CITATIONS

1. Wang, Z., et al. 2006. Rap1-mediated activation of extracellular signal-regulated kinases by cyclic AMP is dependent on the mode of Rap1 activation. Mol. Cell. Biol. 26: 2130-2145.
2. Haag, S., et al. 2008. Role of Epac1 in mediating anti-proliferative effects of prostanoid EP_2 receptors and cAMP in human lung fibroblasts. Naunyn Schmiedebergs Arch. Pharmacol. 378: 617-630.
3. Banales, J.M., et al. 2009. The cAMP effectors Epac and protein kinase a (PKA) are involved in the hepatic cystogenesis of an animal model of autosomal recessive polycystic kidney disease (ARPKD). Hepatology 49: 160-174.
4. Purves, G.I., et al. 2009. Exchange protein activated by cAMP (Epac) mediates cAMP-dependent but protein kinase A-insensitive modulation of vascular ATP-sensitive potassium channels. J. Physiol. 587: 3639-3650.
5. Van Kolen, K., et al. 2010. Corticotropin releasing factor-induced ERK phosphorylation in AtT20 cells occurs via a cAMP-dependent mechanism requiring EPAC2. Neuropharmacology 58: 135-144.
6. Hoque, K.M., et al. 2010. Epac1 mediates protein kinase A-independent mechanism of forskolin-activated intestinal chloride secretion. J. Gen. Physiol. 135: 43-58.
7. Idevall-Hagren, O., et al. 2013. Spatial control of Epac2 activity by cAMP and Ca^{2+}-mediated activation of Ras in pancreatic β cells. Sci. Signal. 6: ra29.1-ra29.11, S1-S6.
8. Whitehouse, A., et al. 2015. Histone deacetylases (HDACs) in frontotemporal lobar degeneration. Neuropathol. Appl. Neurobiol. 41: 245-257.
9. Guinzberg, R., et al. 2017. Newly synthesized cAMP is integrated at a membrane protein complex signalosome to ensure receptor-response specificity. FEBS J. 284: 258-276.

RESEARCH USE

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