SANTA CRUZ BIOTECHNOLOGY, INC.

Epac (A-5): sc-28366

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

3',5' cyclic adenosine monophosphate (cAMP)-regulated guanine nucleotide exchange factors Epac (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. The human Epac gene maps to chromosome 12q13.11 with transcript being abundant in the kidney and heart. *In situ* hybridization indicates expression of Epac in adult rat brain and selective expression in neonatal brain, including septum and thalamus.

CHROMOSOMAL LOCATION

Genetic locus: RAPGEF3 (human) mapping to 12q13.11; Rapgef3 (mouse) mapping to 15 F1.

SOURCE

Epac (A-5) is a mouse monoclonal antibody raised against amino acids 1-70 of Epac 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.

Epac (A-5) is available conjugated to agarose (sc-28366 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-28366 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-28366 PE), fluorescein (sc-28366 FITC), Alexa Fluor® 488 (sc-28366 AF488), Alexa Fluor® 546 (sc-28366 AF546), Alexa Fluor® 594 (sc-28366 AF594) or Alexa Fluor® 647 (sc-28366 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-28366 AF680) or Alexa Fluor® 790 (sc-28366 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Epac (A-5) is recommended for detection of Epac of mouse, rat, human and hamster 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), 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).

Suitable for use as control antibody for Epac siRNA (h): sc-41700, Epac siRNA (m): sc-41701, Epac siRNA (r): sc-270246, Epac shRNA Plasmid (h): sc-41700-SH, Epac shRNA Plasmid (m): sc-41701-SH, Epac shRNA Plasmid (r): sc-270246-SH, Epac shRNA (h) Lentiviral Particles: sc-41700-V, Epac shRNA (m) Lentiviral Particles: sc-41701-V and Epac shRNA (r) Lentiviral Particles: sc-270246-V.

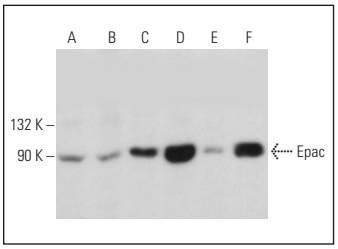
Molecular Weight of Epac: 99 kDa.

Positive Controls: BC_3H1 cell lysate: sc-2299, EOC 20 whole cell lysate: sc-364187 or SK-N-MC cell lysate: sc-2237.

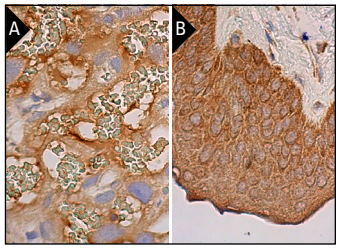
STORAGE

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

DATA



Epac (A-5): sc-28366. Western blot analysis of Epac expression in SK-N-MC (**A**), IMR-32 (**B**), BC_3H1 (**C**), EOC 20 (**D**), PC-12 (**E**) and C6 (**F**) whole cell lysates.



Epac (A-5): sc-28366. Immunoperoxidase staining of formalin fixed, paraffin-embedded rat placenta tissue showing cytoplasmic staining of trophoblastic cells and decidual cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human skin tissue showing cytoplasmic staining of keratinocytes, fibroblasts, Langerhans cells and melanocytes (**B**).

SELECT PRODUCT CITATIONS

1. Hochbaum, D., et al. 2008. Epac, in synergy with cAMP-dependent protein kinase (PKA), is required for cAMP-mediated mitogenesis. J. Biol. Chem. 283: 4464-4468.
2. Grandoch, M., et al. 2009. Epac inhibits apoptosis of human leukocytes. J. Leukoc. Biol. 86: 847-849.
3. 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.
4. Hewer, R.C., et al. 2011. PKA and Epac synergistically inhibit smooth muscle cell proliferation. J. Mol. Cell. Cardiol. 50: 87-98.
5. Roberts, O.L., et al. 2013. Exchange protein activated by cAMP (Epac) induces vascular relaxation by activating Ca^{2+}-sensitive K^+ channels in rat mesenteric artery. J. Physiol. 591: 5107-5123.
6. Brown, L.M., et al. 2014. Allosteric inhibition of Epac: computational modeling and experimental validation to identify allosteric sites and inhibitors. J. Biol. Chem. 289: 29148-29157.
7. Bröderdorf, S., et al. 2014. CAMP regulates expression of the cyclic nucleotide transporter MRP4 (ABCC4) through the Epac pathway. Pharmacogenet. Genomics 24: 522-526.
8. Gorshkov, K., et al. 2017. AKAP-mediated feedback control of cAMP gradients in developing hippocampal neurons. Nat. Chem. Biol. 13: 425-431.
9. Wang, X., et al. 2019. Curcumin pretreatment protects against hypoxia/reoxgenation injury via improvement of mitochondrial function, destabilization of HIF-1α and activation of Epac1-Akt pathway in rat bone marrow mesenchymal stem cells. Biomed. Pharmacother. 109: 1268-1275.

RESEARCH USE

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