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EPAC1 Antibody

Catalog # ASC11418

Product Information

Application	WB, IF, E, IHC-P
Primary Accession	O95398
Other Accession	NP_659099, 148747859
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	103751
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	EPAC1 antibody can be used for detection of EPAC1 by Western blot at 1 g/mL. Antibody can also be used for immunohistochemistry starting at 2.5 g/mL. For immunofluorescence start at 20 g/mL.

Additional Information

Gene ID	10411
Other Names	Rap guanine nucleotide exchange factor 3, Exchange factor directly activated by cAMP 1, Exchange protein directly activated by cAMP 1, EPAC 1, Rap1 guanine-nucleotide-exchange factor directly activated by cAMP, cAMP-regulated guanine nucleotide exchange factor I, cAMP-GEFI, RAPGEF3, CGEF1, EPAC, EPAC1
Target/Specificity	RAPGEF3; At least two isoforms of EPAC1 are known to exist; this antibody will detect both isoforms. EPAC1 antibody is predicted to not cross-react with EPAC2.
Reconstitution & Storage	EPAC1 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	EPAC1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	RAPGEF3
Synonyms	CGEF1, EPAC, EPAC1
Function	Guanine nucleotide exchange factor (GEF) for RAP1A and RAP2A small GTPases that is activated by binding cAMP. Through simultaneous binding of

PDE3B to RAPGEF3 and PIK3R6 is assembled in a signaling complex in which it activates the PI3K gamma complex and which is involved in angiogenesis. Plays a role in the modulation of the cAMP- induced dynamic control of endothelial barrier function through a pathway that is independent on Rho-mediated signaling. Required for the actin rearrangement at cell-cell junctions, such as stress fibers and junctional actin.

Cellular Location Endomembrane system

Tissue Location Widely expressed with highest levels in adult kidney, heart, thyroid and brain, and fetal kidney

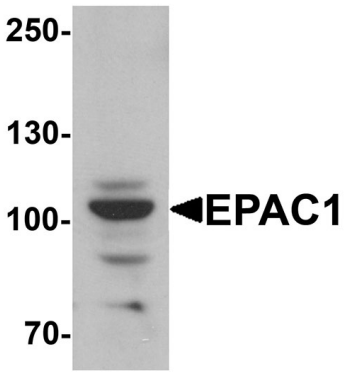
Background

EPAC1 Antibody: EPAC1, also known as Rap guanine nuclear exchange factor 3 and cAMPGEF-I, is widely expressed but most prominently in brain, heart, kidney, pancreas, spleen, ovary, thyroid and spinal cord. EPAC1 is a cAMP-binding protein with intrinsic guanine nuclear exchange factor activity that couples cAMP production to the activation of Rap, a GTPase belonging to the Ras family. This activation of Rap influences numerous cellular processes such as integrin-mediated cell adhesion, vascular endothelial barrier formation, and cardiac myocyte gap junction formation. Recently, EPAC1 has been suggested to also be involved in the cAMP-dependent regulation of ion channel formation, intracellular Ca++ signalling, ion transporter activity, and exocytosis.

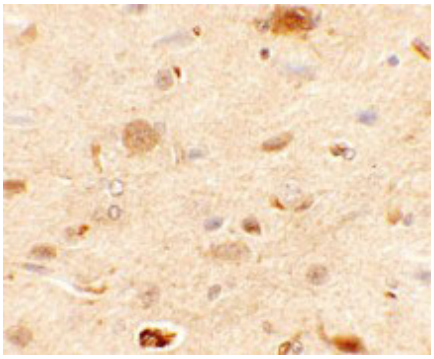
References

de Rooij J, Zwartkruis FJ, Verheijen MH, et al. Epac is a Rap1 guanine-nucleotide-exchange factor directly activated by cyclic AMP. Nature 1998; 396:474-7.
Bos JL. Epac: a new cAMP target and new avenues. Hum. Immunol. 2004; 65:282-90.
Holz GG, Kang G, Harbeck M, et al. Cell physiology of cAMP sensor Epac. J. Physiol. 2006; 577:5-15.

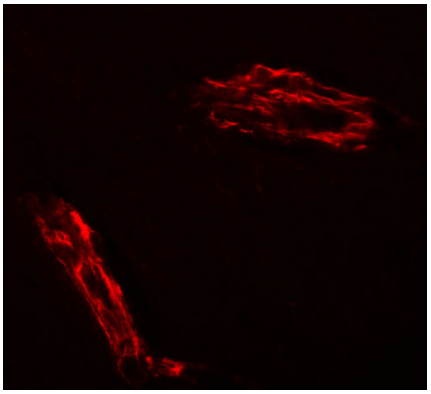
Images



Western blot analysis of EPAC1 in rat skeletal muscle tissue lysate with EPAC1 antibody at 1 µg/mL.



Immunohistochemistry of EPAC1 in rat brain tissue with EPAC1 antibody at 2.5 µg/mL.



Immunofluorescence of EPAC1 in rat brain tissue with EPAC1 antibody at 20 µg/mL.