

# EPAC1 Antibody

Catalog # ASC11418

## Product Information

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

## Additional Information

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<b>Gene ID</b>	10411
<b>Other Names</b>	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
<b>Target/Specificity</b>	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.
<b>Reconstitution &amp; Storage</b>	EPAC1 antibody can be stored at 4°C for three months and -20°C, 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.
<b>Precautions</b>	EPAC1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

## Protein Information

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<b>Name</b>	RAPGEF3
<b>Synonyms</b>	CGEF1, EPAC, EPAC1
<b>Function</b>	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

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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<sup>++</sup> signalling, ion transporter activity, and exocytosis.

## References

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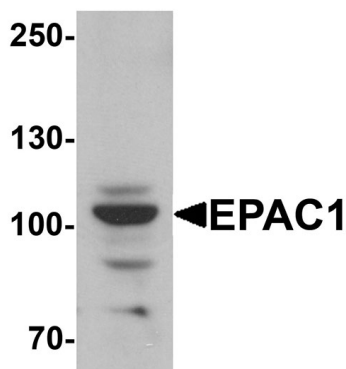
de Rooij J, Zwartkruis FJ, Verheijen MH, et al. Epac is a Rap1 guanine-nucleotide-exchange factor directly activated by cyclic AMP. *Nature* 1998; 396:474-7.

Bos JL. Epac: a new cAMP target and new avenues. *Hum. Immunol.* 2004; 65:282-90.

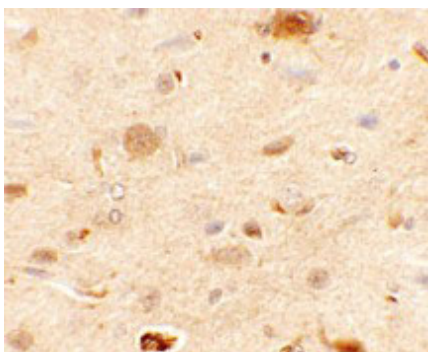
Holz GG, Kang G, Harbeck M, et al. Cell physiology of cAMP sensor Epac. *J. Physiol.* 2006; 577:5-15.

## Images

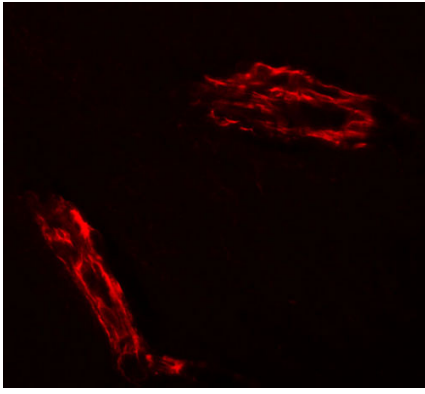
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Western blot analysis of EPAC1 in rat skeletal muscle tissue lysate with EPAC1 antibody at 1 µg/mL.



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  $\mu\text{g/mL}$ .

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.