New Item

FabGennix Inc.
INTERNATIONAL

Antibodies to Exchange proteins directly activated by cAMP (EPAC)

Anti-Exchange protein directly activated by cAMP (Anti-Epac-1) Antibodies: EPAC-101AP and EPAC-112AP.

General secondary messenger cAMP levels are altered by many extracellular physiological signals including neurotransmitters, immunomodulators and hormones via the activation of G-protein coupled receptor (GPCR) activation. Activation of GPCRs by ligand interaction stimulates the heterotrimeric G-proteins thereby increasing the activity of one or more subtypes of adenylate cyclases to increase the formation of cAMP. The increased intracellular levels of cAMP transduce the signal transduction via protein kinase A and via small GTPase, RAP 1 (1,2). The activation of RaP1 by cAMP is independent f PKA and is mediated by recently discovered family of guanine nucleotide exchange factors (GEFs) called cAMP-GEFs or Epacs. The Epac signaling therefore represent a novel mechanism for cAMP signaling with in the cAMP cascade.

There are 2 members of the Epac family, Epac1 and Epac 2. Both proteins are multidomain proteins containing an autoinhibitory cAMP-binding domain that inhibits the catalytic region and a DEP domain (dishevelled, Egl-10 and pleckstrin homology domain) targeting the membrane anchors (3). EPAC2 has an additional cAMP-binding site in its N-terminus that binds cAMP with low affinity [2]. EPAC1 mRNA is broadly expressed, with particularly high levels occurring in the thyroid, ovary, kidney and certain brain regions, whereas expression of EPAC2 mRNA appears to be restricted to the brain and adrenal glands (4, 5). Epac 1 and Epac 2 also interact with light chain 2 (LC2) or MAP1A that serves as a scaffolding structure to stabilize the signal transduction complex (6).

The Epac 1-selective antibodies were generated against unique antigenic sequences form near N-terminus and between RasGEFN and Ras GEF domains. The antibodies to Epac 1are affinity purified over immobilized antigen based chromatography, and the purified immunoglobulins are stabilized in antibody stabilization buffer. FabGennix Int. Inc., will also provide limited quantities of antigenic blocking peptides for both Epac-101AP and Epac-112AP antibodies. Antibodies to the Epac 2 (Epac-201AP) protein are also available from FabGennix International Inc. *FabGennix Inc*. will also conjugate antibodies with secondary enzymes (alk-Pase or HRP) or fluorescent probes upon request at a nominal cost.

Catalog #	Host Species	Nature	Cross reactivity	Quantity	price
Epac-101AP	Rabbit	N-terminal Epac 1 affinity purifed antibodies	R, M, H	100 g	235
Epac-112AP	Rabbit	Mid-region Epac 1 affinity purifed antibodies	R, M, H	100 ug	235
P-Epac100	Rabbit	Antigenic blocking peptide for Epac-101AP	n/a	5 appl	125
P-Epac112	n/a	Antigenic blocking peptide for Epac-112AP	n/a	5 appl	125
PC-Epac 1	n/a	Western blotting positive control	n/a	250 ug	145

R = rat; M = mouse; H = human; C = chicken; monk = monkey ; * not all variants are labeled equally

Immunogen: Synthetic peptides corresponding to positions: Epac-101AP (9-26) and Epac-112AP position (526-541), sequences unique to Epac 1 protein and are conserved in many species.

Concentration: Epac-101AP and Epac-112AP: IgG concentration 0.78-0.94mg/ml in antibody stabilization buffer.

Applications: Antibody Epac-101AP and Epac-112AP are ideal for western blotting and ELISA applications, other applications have not been tested. These antibodies do not cross react to Epac 2 protein. The species cross reactivity for these antibodies have not been examined. The dilutions for this antibody is for reference only, investigators are expected to determine the optimal conditions for specific assay. WB: > 1:500; IMM & i.p pull-down assays: n.d; IHC n.d. ELISA <1:10,000

Reactivity: This antibody detects a single band of approximately 100 kDa in PC-Epac1 samples. The antibody does not cross reacts with other proteins of the Epac family members.

Protocols: Standard protocol for various applications (WB; IMM and IHC) of this antibody is provided with the product specification sheet, however, FabGennix Inc. strongly recommends investigators to optimize conditions for use of this antibody in their laboratories.

Form/Storage: The antiserum is supplied in antibody stabilization buffer. The affinity-purified antibodies are isolated on immobilized antigen-affinity column and supplied as stabilized product. Store at -20°C for long-term storage. FabGennix Inc. does not recommend storage of very dilute antibody solutions unless they are prepared in specially formulated multi use antibody dilution buffer (Cat # DiluOBuffer). Working solutions of antibodies in DiluOBuffer should be filtered through 0.45µ filter after every use for long-term storage.

References:

1. Kopperud, R., Krakstad, C., Selheim, F. and Doskeland, S. O. (2003) FEBS Lett. 546, 121–126
2. Rehmann H et. al., J. Biol. Chem. 278, 23508-23514, 2003.
3. Bos, J. L., de Rooij, J. and Reedquist, K. A. (2001) Nat. Rev. Mol. Cell. Biol. 2, 369–377
4. de Rooij, J., Zwartkruis, F. J., Verheijen, et. alo., (1998) Nature (London) 396, 474–477.
5. 7 Kawasaki, H., Springett, G. M., Mochizuki, N., et. al., (1998) Science 282, 2275–2279
6. Maria M. MAGIERA, Mona GUPTA, Catherine J. RUNDELL, Nilima SATISH, et. al., J. Biochem. J. (2004) 382 (803–810).

For users who may require large amounts of Epac-101AP and Epac-112AP, please enquire about bulk material discounts.