



**FabGennix Inc.**  
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### Particulate Adenylyl Cyclase selective antibodies

#### Anti-Particulate Adenylyl Cyclase 9 antibodies (PAC-900P and PAC-901AP)

The membrane-bound adenylyl cyclases (ACs) represent one of the major families of effector enzymes for G protein-coupled receptors (GPCRs). Using the high inter-species homology of mammalian AC isoforms, nine Adenylyl cyclase (AC) isoforms, encoded by separate genes, have been identified until today. Human adenylyl cyclase genes comprise of 11 to 26 exons, which are distributed over 16 to 430kb. The expression profile of these 9 AC isoforms in a panel of 16 human tissues and in human embryonic kidney (HEK) cells have been demonstrated earlier (1). The cAMP synthesizing enzymes are found in two forms: cytosolic (soluble) and membrane-bound (particulate). Stimulation of adenylyl cyclases produce cAMP from ATP in response to the activation of GPCRs by various hormones, neurotransmitters and other regulatory molecules. cAMP, in subsequent steps down the signal transduction pathway, can stimulate cAMP-dependent protein kinase A (cPKA), and several other target molecules. Activation of cPKA can phosphorylate a broad range of substrates that regulate various metabolic pathways, gene expression, and affect memory functions etc., (3, 4). The stimulation of adenylyl cyclases starts with interactions with GPCRs mediated signals initiated by Gs and Gi heterotrimeric G-proteins. The interaction of GPCR agonist (eg. Interaction of isoprenaline to beta2 receptors) catalyses the exchange of GDP to GTP that is bound to G proteins. The GTP binding reduces the affinity of Gs $\alpha$  to other GTP binding proteins and Gs-GTP complex stimulate the adenylyl cyclase (5). In last several years, new members of particulate and soluble adenylyl cyclase family have been identified and significant progress is made in understanding of the molecular mechanisms that underlie the regulation of these families of enzymes.

The Anti-PAC-9-selective antibodies were generated against peptide sequence unique to PAC-9 protein. The PAC-9-selective antibodies are affinity purified against immobilized antigen based affinity chromatography which yielded epitope-specific antibodies. The PAC-9 antibodies label a 125-130 kDa protein in AC3-Western blot positive controls (Cat # PC-AC9). Anti-PAC-9-selective antibodies are also available in affinity-purified form for confocal, WB and IHC analyses. *FabGennix Inc.* can conjugate antibodies with fluorescent probes or various enzymes upon request at extra charge.

*FabGennix Inc.* also provides antibodies to other family members of the particulate Guanylate cyclase (A-G) and to adenylyl cyclases (AC-1 through 9). *FabGennix Inc.* employs cyclic peptide methodology for generating antibodies, which results in higher titer and specificity (6). *FabGennix, Inc.*, will also provide Western blot positive controls for most of these antibodies in ready-to-use buffer for easy identification of respective proteins. Limited quantities of antigens are also available for blocking studies. Please enquire for their availability before ordering.

#	Type	Tissue Distribution
1	PAC-1	Ubiquitous, B, K, L, T, H, Immune system
2	PAC-2	Majrity of tissues, B, K, L, S, T, E
3	PAC-3	Intestinal track, marker of Colorectal cancer
4	PAC-4	Mainly in Olfactory cells (Gib/g-dependent)
5	PAC-5	Photoreceptor cells (retinal GC1 & ret GC2)
6	PAC-6	Pineal gland of rat, chicks and bovine
7	PAC-7	Lung, intestine and skeletal muscle
6	PAC-8	Pineal gland of rat, chicks and bovine
7	PAC-9	Lung, intestine and skeletal muscle

B= brain; E= eye; H= heart; K= kidney; L= liver; S= spleen

Catalog #	Host Species	Nature	Cross reactivity	Quantity	Price
PAC-900P	Rabbit	Affinity purified Antibody	R, M, H	100 $\mu$ l	205
PAC-901AP	Rabbit	Affinity purified Antibody	R, M, H	100 $\mu$ g	235
P-PAC9	Peptide	Blocking antigenic peptide	n/a	5 Appl.	165
PC-PAC9	Controls	WB Positive control	R	250 $\mu$ g	115

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

- Immunogen:** Synthetic peptide unique to PAC-9 protein was used to generate antibodies in rabbit. All peptides were amidated before conjugation.
- Concentration:** PAC-901AP 0.75-1.2 mg/ml of antibody stabilization buffer
- Applications:** Antibody dilutions for this antibody is for reference only, investigators are expected to determine the optimal conditions. PAC-901AP is tested for WB application at 1:500 dilution. Other applications for this antibody has not been tested. WB: > 1:500; IMM & i.p pull-down assays: n.d; IHC n.d
- Protocols:** Standard protocol for various applications (WB, IHC and IMM) of this antibody is provided with the product specification sheet, however, *FabGennix Inc.* strongly recommends investigators to optimize conditions for use of this antibody.
- References:**

1. G-proteins signal transduction & disease Ed. Milligan G and Wakeman M. Pub. Acad. Press, Scotland, UK 1992.
2. Tang W. J and Gilman A. G. Adenyl Cyclases, Cell 70, 869-872; 1992.
3. Taussing R., Tang W., et. Al., J. Biol. Chemistry 269; 6093-6100; 1994.
4. Gilman A. G. 1987; Ann. Rev. Biochem. 56; 615-649.
5. Bourne H. R., Sanders. D. A., McCormick F., Nature 1990; 348; 125-132.

\* For users who may require large amounts of PAC-900P and PAC-901AP, please enquire about bulk material discounts.

This Product is for Research Use Only and is NOT intended for use in humans or clinical diagnosis.

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