SANTA CRUZ BIOTECHNOLOGY, INC.

A cyclase IX (N-18): sc-8576

BACKGROUND

Adenylyl cyclases function to convert ATP to cyclic AMP in response to activation by a variety of hormones, neurotransmitters and other regulatory molecules. Cyclic AMP, in turn, activates several other target molecules (primarily cyclic AMP-dependent protein kinases) to control a broad range of diverse phenomena such as metabolism, gene transcription and memory. Classically, adenylyl cyclases respond to receptor-initiated signals, mediated by the G_s and G_i heterotrimeric G proteins. The binding of an agonist to a G_s-coupled receptor (i.e., α β-adrenergic receptor) catalyzes the exchange of GDP (bound to $G_{\alpha s}$) for GTP, dissociation of GTP-$G_{\alpha s}$ from $G_{\beta\gamma}$ and $G_{\alpha s}$-mediated activation of adenylyl cyclase. The most abundant cerebral adenylyl cyclases appears to be adenylyl cyclase IX. AC IX is confined to the gray matter and its expression is mainly neuronal, with its highest expression located at the hippocampus. ACIX is also expressed in heart, pancreas and thyrocytes. AC I and AC IX are regulated reciprocally by intracellular free Ca^{2+}. The inhibition of AC IX by Ca^{2+} is blocked by the calcineurin inhibitors FK506 and cyclosporin A.

REFERENCES

1. Gilman, A.G. 1987. G proteins: transducers of receptor-generated signals. Annu. Rev. Biochem. 56: 615-649.
2. Bourne, H.R., et al. 1990. The GTPase superfamily: a conserved switch for diverse cell functions. Nature 348: 125-132.
3. Tang, W.J., et al. 1992. Adenylyl cyclases. Cell 70: 869-872.
4. Taussig, R., et al. 1994. Distinct patterns of bidirectional regulation of mammalian adenylyl cyclases. J. Biol. Chem. 269: 6093-6100.
5. Paterson, J.M., et al. 1995. Control of a novel adenylyl cyclase by calcineurin. Biochem. Biophys. Res. Commun. 214: 1000-1008.

CHROMOSOMAL LOCATION

Genetic locus: ADCY9 (human) mapping to 16p13.3; Adcy9 (mouse) mapping to 16 A1.

SOURCE

A cyclase IX (N-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of A cyclase IX of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-8576 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

RESEARCH USE

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

APPLICATIONS

A cyclase IX (N-18) is recommended for detection of adenylyl cyclase IX of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

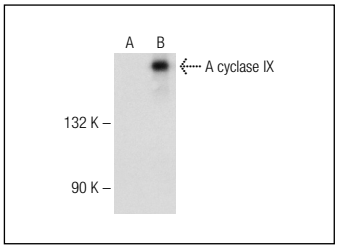
A cyclase IX (N-18) is also recommended for detection of adenylyl cyclase IX in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for A cyclase IX siRNA (h): sc-29604, A cyclase IX siRNA (m): sc-29605, A cyclase IX shRNA Plasmid (h): sc-29604-SH, A cyclase IX shRNA Plasmid (m): sc-29605-SH, A cyclase IX shRNA (h) Lentiviral Particles: sc-29604-V and A cyclase IX shRNA (m) Lentiviral Particles: sc-29605-V.

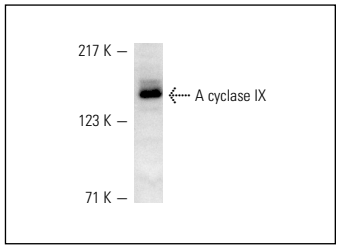
Molecular Weight of A cyclase IX: 161 kDa.

Positive Controls: A cyclase IX (m): 293 Lysate: sc-178226 or K-562 whole cell lysate: sc-2203.

DATA



A cyclase IX (N-18): sc-8576. Western blot analysis of A cyclase IX expression in non-transfected: sc-110760 (**A**) and mouse A cyclase IX transfected: sc-178226 (**B**) 293 whole cell lysates.



A cyclase IX (N-18): sc-8576. Western blot analysis of A cyclase IX expression in K-562 whole cell lysate.

SELECT PRODUCT CITATIONS

1. Xu, D., et al. 2001. Human airway smooth muscle expresses seven isoforms of adenylyl cyclase: a dominant role for isoform V. Am. J. Physiol. Lung Cell. Mol. Physiol. 281: 832-843.
2. Tovey, S.C., et al. 2008. Selective coupling of type 6 adenylyl cyclase with type 2 IP3 receptors mediates direct sensitization of IP3 receptors by cAMP. J. Cell Biol. 183: 297-311.
3. Namkung, W., et al. 2010. CFTR-adenylyl cyclase I association responsible for UTP activation of CFTR in well-differentiated primary human bronchial cell cultures. Mol. Biol. Cell 21: 2639-2648.
4. Ujcikova, H., et al. 2011. Up-regulation of adenylylcyclases I and II induced by long-term adaptation of rats to morphine fades away 20 days after morphine withdrawal. Biochim. Biophys. Acta 1810: 1220-1229.
5. Sabbatini, M.E., et al. 2013. Adenylyl cyclase 6 mediates the action of cyclic AMP-dependent secretagogues in mouse pancreatic exocrine cells via PKA pathway activation. J. Physiol. 591: 3693-3707.