SANTA CRUZ BIOTECHNOLOGY, INC.

A cyclase IX (M-21): sc-8578

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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., a 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 cyclase 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. Ann. 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.
6. Antoni, F.A., et al. 1998. Ca^{2+}/calcineurin-inhibited adenylyl cyclase, highly abundant in forebrain regions, is important for learning and memory. J. Neurosci. 18: 9650-9661.
7. Vanvooren, V., et al. 2000. Expression of multiple adenylyl cyclases isoforms in human and dog thyroid. Mol. Cell Endocrinol. 170: 185-196.
8. Paterson, J.M., et al. 2000. Characterization of human adenylyl cyclase IX reveals inhibition by Ca^{2+}/calcineurin and differential mRNA polyadenyla.

CHROMOSOMAL LOCATION

Genetic locus: Adcy9 (mouse) mapping to 16 B1.

SOURCE

A cyclase IX (M-21) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of A cyclase IX of mouse 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-8578 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

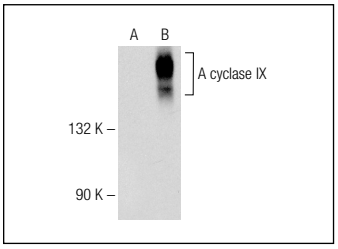
A cyclase IX (M-21) is recommended for detection of A cyclase IX of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for A cyclase IX siRNA (m): sc-29605, A cyclase IX shRNA Plasmid (m): sc-29605-SH 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.

DATA



A cyclase IX (M-21): sc-8578. 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.

SELECT PRODUCT CITATIONS

1. Abdel-Majid, R.M., et al. 2002. Localization of adenylyl cyclase proteins in the rodent retina. Brain Res. Mol. Brain Res. 101: 62-70.
2. Ostrom, R.S., et al. 2003. Angiotensin II enhances adenylyl cyclase signaling via Ca^{2+}/calmodulin. G_q-G_s cross-talk regulates Collagen production in cardiac fibroblasts. J. Biol. Chem. 278: 24461-24468.
3. Baxendale, RW., et al. 2003. Evidence for multiple distinctly localized adenylyl cyclase isoforms in mammalian spermatozoa. Mol. Reprod. Dev. 66: 181-190.
4. Beltrán, C., et al. 2007. Particulate and soluble adenylyl cyclases participate in the sperm acrosome reaction. Biochem. Biophys. Res. Commun. 358: 1128-1135.

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.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.