

A cyclase III (H-270): sc-20762

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 to control a broad range of diverse phenomena such as metabolism, gene transcription and memory. 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 catalyzes the exchange of GDP (bound to $G_{\alpha s}$) for GTP, the dissociation of $GTP-G_{\alpha s}$ from $G_{\beta\gamma}$ and $G_{\alpha s}$ -mediated activation of adenylyl cyclase. Adenylyl cyclase III (AC III) exhibits distinct staining within the cell nucleus in rat primary sensory neurons and is expressed in myenteric ganglia as two bands near 220 kDa by SDS-PAGE. In addition, a processed form of AC III is expressed in primary neurons and PC12 cells as a 70 kDa protein. Both short- and long-term activation of D(2L) dopamine receptors result in a marked degree of sensitization of AC I, AC II, AC V and AC IX, but not AC VIII. The effects on AC I, AC II and AC VIII is dependent upon the ability of these AC isoforms to synergistically respond to selective activators in the presence of activated $G_{\alpha s}$.

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. Taussig, R., et al. 1994. Distinct patterns of bidirectional regulation of mammalian adenylyl cyclases. *J. Biol. Chem.* 269: 6093-6100.
4. Liu, C.Y., et al. 1999. FICRHR/cyclic AMP signaling in myenteric ganglia and calbindin-D28 intrinsic primary afferent neurons involves adenylyl cyclases I, III and IV. *Brain Res.* 826: 253-269.
5. Parkinson, N.A., et al. 2001. A nuclear location for Ca^{2+} -activated adenylyl cyclases I and III in neurons. *Brain Res. Mol. Brain Res.* 91: 43-49.
6. Cumbay, M.G., et al. 2001. Heterologous sensitization of recombinant adenylyl cyclases by activation of D(2) dopamine receptors. *J. Pharmacol. Exp. Ther.* 297: 1201-1209.

CHROMOSOMAL LOCATION

Genetic locus: ADCY3 (human) mapping to 2p23.3; Adcy3 (mouse) mapping to 12 A1.1.

SOURCE

A cyclase III (H-270) is a rabbit polyclonal antibody raised against amino acids 1-270 mapping at the N-terminus of A cyclase III of human origin.

PRODUCT

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

STORAGE

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

APPLICATIONS

A cyclase III (H-270) is recommended for detection of A cyclase III of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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 III (H-270) is also recommended for detection of A cyclase III in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for A cyclase III siRNA (h): sc-29600, A cyclase III siRNA (m): sc-29601, A cyclase III shRNA Plasmid (h): sc-29600-SH, A cyclase III shRNA Plasmid (m): sc-29601-SH, A cyclase III shRNA (h) Lentiviral Particles: sc-29600-V and A cyclase III shRNA (m) Lentiviral Particles: sc-29601-V.

Molecular Weight of A cyclase III: 170/180 kDa.

Positive Controls: A-10 cell lysate: sc-3806 or HISM cell lysate: sc-2229.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Gueguen, M., et al. 2010. Implication of adenylyl cyclase 8 in pathological smooth muscle cell migration occurring in rat and human vascular remodeling. *J. Pathol.* 221: 331-342.

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.