SANTA CRUZ BIOTECHNOLOGY, INC.

A cyclase III (N-14): sc-32113

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 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 cyclases of the type II family differ from other subforms in that they are conditionally stimulated by $G_{\alpha\ s/\beta\gamma}$ subunits and regulated by PKC-mediated C-terminal phosphorylation. Both short- and long-term activation of D(2L) dopamine receptors result in a marked degree of sensitization of A cyclase I, II, V and IX, but not A cyclase VIII. The effects on A cyclase I, II and VIII is dependent upon the ability of these A cyclase isoforms to synergistically respond to selective activators in the presence of activated $G_{\alpha\ s}$. Belonging to the adenylyl cyclase class IV family, A cyclase III is activated by Golf, which results in an elevation of cyclic AMP and subsequent activation of a cyclic nucleotide-gated channel.

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.

CHROMOSOMAL LOCATION

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

SOURCE

A cyclase III (N-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an N-terminal cytoplasmic domain of A cyclase III 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-32113 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 III (N-14) is recommended for detection of Adenylyl cyclase III 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), immunohistochemistry (including paraffin-embedded sections) (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 (N-14) is also recommended for detection of Adenylyl 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.

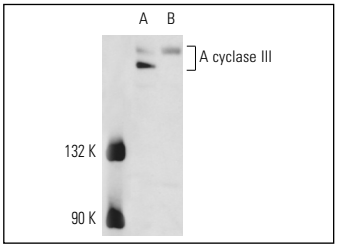
Molecular Weight of glycosylated A cyclase III isoforms: 170/180 kDa.

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

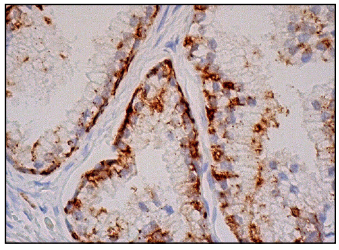
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 4) Immunohistochemistry: use ImmunoCruz™: sc-2053 or ABC: sc-2023 goat IgG Staining Systems.

DATA



A cyclase III (N-14): sc-32113. Western blot analysis of A cyclase III expression in HISM (**A**) and A-10 (**B**) whole cell lysates.



A cyclase III (N-14): sc-32113. Immunoperoxidase staining of formalin fixed, paraffin-embedded human prostate tissue showing cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Schönrath, K., et al. 2011. Involvement of VILIP-1 (visinin-like protein) and opposite roles of cyclic AMP and GMP signaling in *in vitro* cell migration of murine skin squamous cell carcinoma. Mol. Carcinog. 50: 319-333.