

A cyclase II (C-20): sc-587

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 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 $G_{\alpha s}$.

CHROMOSOMAL LOCATION

Genetic locus: ADCY2 (human) mapping to 5p15.31; Adcy2 (mouse) mapping to 13 B3.

SOURCE

A cyclase II (C-20) is an affinity purified rabbit polyclonal antibody raised against a peptide mapping at the C-terminus of A cyclase II of rat origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-587 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

A cyclase II (C-20) is recommended for detection of A cyclase II 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), 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 II (C-20) is also recommended for detection of A cyclase II in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for A cyclase II siRNA (h): sc-40317, A cyclase II siRNA (m): sc-40318, A cyclase II shRNA Plasmid (h): sc-40317-SH, A cyclase II shRNA Plasmid (m): sc-40318-SH, A cyclase II shRNA (h) Lentiviral Particles: sc-40317-V and A cyclase II shRNA (m) Lentiviral Particles: sc-40318-V.

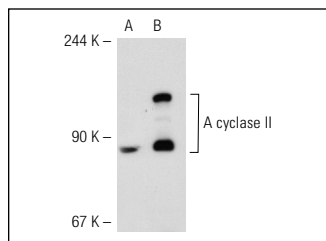
Molecular Weight of A cyclase II: 124 kDa.

Positive Controls: SH-SY5Y cell lysate: sc-3812, 293T whole cell lysate or Jurkat whole cell lysate: sc-2204.

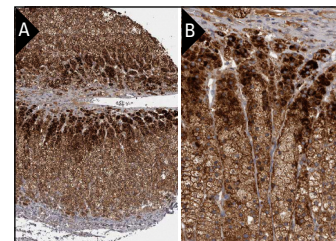
STORAGE

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

DATA



A cyclase II (C-20): sc-587. Western blot analysis of A cyclase II expression in 293T (A) and SH-SY5Y (B) whole cell lysates.



A cyclase II (C-20): sc-587. Immunoperoxidase staining of formalin fixed, paraffin-embedded human adrenal gland tissue showing cytoplasmic staining of cortical cells at low (A) and high (B) magnification. Kindly provided by The Swedish Human Protein Atlas (HPA) program.

SELECT PRODUCT CITATIONS

1. Yamamoto, M., et al. 1996. Reduced immunoreactivity of adenylyl cyclase in dementia of the Alzheimer type. *Neuroreport* 7: 2965-2970.
2. Ryu, H., et al. 2005. Antioxidants modulate mitochondrial PKA and increase CREB binding to D-loop DNA of the mitochondrial genome in neurons. *Proc. Natl. Acad. Sci. USA* 102: 13915-13920.
3. Diel, S. and Klass, K. 2006. G activation site in adenylyl cyclase type II. *J. Biol. Chem.* 281: 288-294.
4. Beltrán, C., et al. 2007. Particulate and soluble adenylyl cyclases participate in the sperm acrosome reaction. *Biochem. Biophys. Res. Commun.* 358: 1128-1135.
5. Liu, X., et al. 2010. Fibroblast-specific expression of AC6 enhances β -adrenergic and prostacyclin signaling and blunts bleomycin-induced pulmonary fibrosis. *Am. J. Physiol. Lung Cell. Mol. Physiol.* 298: L819-L829.
6. Ujickova, 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.
7. Olanas, M.C., et al. 2012. Coincidence signaling of dopamine D_1 -like and M_1 muscarinic receptors in the regulation of cyclic AMP formation and CREB phosphorylation in mouse prefrontal cortex. *Neurosignals* 21: 61-74.

RESEARCH USE

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

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Try **A cyclase II (F-7): sc-514938**, our highly recommended monoclonal alternative to A cyclase II (C-20).