SANTA CRUZ BIOTECHNOLOGY, INC.

A cyclase I (F-10): sc-365350

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. A cyclase I, also known as AC1 or ADCY1, is a 1,119 amino acid multi-pass membrane protein expressed in the brain, retina and adrenal medulla. A cyclase I binds two magnesium ions per subunit and may be involved in regulatory processes in the central nervous system.

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. and Gilman, A.G. 1992. Adenylyl cyclases. Cell 70: 869-872.

CHROMOSOMAL LOCATION

Genetic locus: ADCY1 (human) mapping to 7p12.3; Adcy1 (mouse) mapping to 11 A1.

SOURCE

A cyclase I (F-10) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 1085-1119 at the C-terminus of A cyclase I of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

A cyclase I (F-10) is available conjugated to agarose (sc-365350 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-365350 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365350 PE), fluorescein (sc-365350 FITC), Alexa Fluor® 488 (sc-365350 AF488), Alexa Fluor® 546 (sc-365350 AF546), Alexa Fluor® 594 (sc-365350 AF594) or Alexa Fluor® 647 (sc-365350 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365350 AF680) or Alexa Fluor® 790 (sc-365350 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-365350 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

STORAGE

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

APPLICATIONS

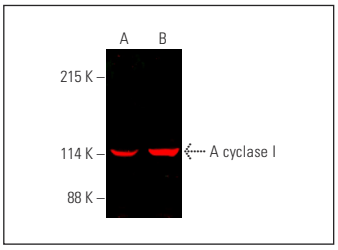
A cyclase I (F-10) is recommended for detection of A cyclase I of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for A cyclase I siRNA (h): sc-40316, A cyclase I siRNA (m): sc-140592, A cyclase I shRNA Plasmid (h): sc-40316-SH, A cyclase I shRNA Plasmid (m): sc-140592-SH, A cyclase I shRNA (h) Lentiviral Particles: sc-40316-V and A cyclase I shRNA (m) Lentiviral Particles: sc-140592-V.

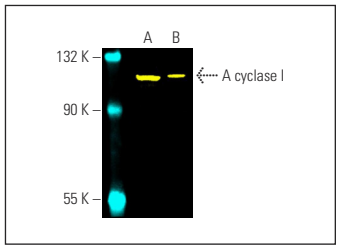
Molecular Weight of A cyclase I: 123 kDa.

Positive Controls: T98G cell lysate: sc-2294, ARPE-19 whole cell lysate: sc-364357 or human kidney extract: sc-363764.

DATA



A cyclase I (F-10): sc-365350. Near-infrared western blot analysis of A cyclase I expression in ARPE-19 (**A**) and T98G (**B**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 790: sc-516181.



A cyclase I (F-10) Alexa Fluor® 488: sc-365350 AF488. Direct fluorescent western blot analysis of A cyclase I expression in T98G whole cell lysate (**A**) and human kidney tissue extract (**B**). Blocked with UltraCruz® Blocking Reagent: sc-516214. Cruz Marker™ Molecular Weight Standards detected with Cruz Marker™ MW Tag-Alexa Fluor® 647: sc-516791.

SELECT PRODUCT CITATIONS

1. Ahmed, M.B., et al. 2021. PRP4 promotes skin cancer by inhibiting production of Melanin, blocking influx of extracellular calcium, and remodeling cell Actin cytoskeleton. Int. J. Mol. Sci. 22: 6992.
2. Yong, L., et al. 2022. Calcium/calmodulin-dependent protein kinase IV promotes imiquimod-induced psoriatic inflammation via macrophages and keratinocytes in mice. Nat. Commun. 13: 4255.
3. Ren, L., et al. 2022. Adenylyl cyclase isoform 1 contributes to sinoatrial node automaticity via functional microdomains. JCI Insight 7: e162602.
4. Jo, D., et al. 2023. Circular RNA Tmcc1 improves astrocytic glutamate metabolism and spatial memory via NFκB and CREB signaling in a bile duct ligation mouse model: transcriptional and cellular analyses. J. Neuroinflammation 20: 121.

RESEARCH USE

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