SANTA CRUZ BIOTECHNOLOGY, INC.

A cyclase X (B-1): sc-515097

BACKGROUND

Adenylyl cyclases (A cyclases) function to convert ATP to cyclic AMP (cAMP) in response to activation by a variety of hormones, neurotransmitters and other regulatory molecules. cAMP, in turn, activates several other target molecules to control a broad range of diverse phenomena, including metabolism, gene transcription and memory. A cyclases respond to receptor-initiated signals, mediated by a variety of G_s and G_i heterotrimeric G proteins (such as $G_{\alpha s}$). The binding of an agonist to a $G_{\alpha s}$-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 the subsequent $G_{\alpha s}$-mediated activation of A cyclases. A cyclase X, also known as ADCY10 (adenylate cyclase 10), SAC, SACI, HCA2 or sacy, is a 1,610 amino acid soluble adenylyl cyclase that acts as a bicarbonate sensor throughout the body and plays an essential role in spermatogenesis. A member of the A cyclase family, A cyclase X exists as three alternatively spliced isoforms that localize to cytoplasm and cell membrane.

REFERENCES

1. Reed, B.Y., et al. 1999. Mapping a gene defect in absorptive hypercalciuria to chromosome 1q23.3-q24. J. Clin. Endocrinol. Metab. 84: 3907-3913.
2. Buck, J., et al. 1999. Cytosolic adenylyl cyclase defines a unique signaling molecule in mammals. Proc. Natl. Acad. Sci. USA 96: 79-84.
3. Sinclair, M.L., et al. 2000. Specific expression of soluble adenylyl cyclase in male germ cells. Mol. Reprod. Dev. 56: 6-11.
4. Chen, Y., et al. 2000. Soluble adenylyl cyclase as an evolutionarily conserved bicarbonate sensor. Science 289: 625-628.
5. Reed, B.Y., et al. 2002. Identification and characterization of a gene with base substitutions associated with the absorptive hypercalciuria phenotype and low spinal bone density. J. Clin. Endocrinol. Metab. 87: 1476-1485.
6. Hess, K.C., et al. 2005. The "soluble" adenylyl cyclase in sperm mediates multiple signaling events required for fertilization. Dev. Cell 9: 249-259.
7. Online Mendelian Inheritance in Man, OMIM™. 2005. Johns Hopkins University, Baltimore, MD. MIM Number: 605205. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/

CHROMOSOMAL LOCATION

Genetic locus: ADCY10 (human) mapping to 1q24.2; Adcy10 (mouse) mapping to 1 H2.3.

SOURCE

A cyclase X (B-1) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 1328-1346 within an internal region of A cyclase X of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-515097 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

A cyclase X (B-1) is recommended for detection of A cyclase X 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 X siRNA (h): sc-88117, A cyclase X siRNA (m): sc-140593, A cyclase X shRNA Plasmid (h): sc-88117-SH, A cyclase X shRNA Plasmid (m): sc-140593-SH, A cyclase X shRNA (h) Lentiviral Particles: sc-88117-V and A cyclase X shRNA (m) Lentiviral Particles: sc-140593-V.

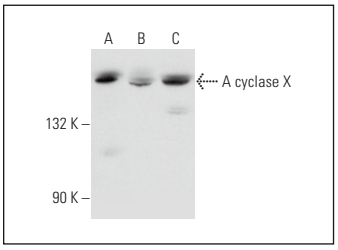
Molecular Weight of A cyclase X: 187 kDa.

Positive Controls: mouse testis extract: sc-2405, K-562 whole cell lysate: sc-2203 or mouse brain extract: sc-2253.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein L-Agarose: sc-2336 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



A cyclase X (B-1): sc-515097. Western blot analysis of A cyclase X expression in K-562 whole cell lysate (**A**) and mouse brain (**B**) and mouse testis (**C**) tissue extracts.

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 for detailed protocols and support products.