



## A cyclase IV (R-170): sc-20763

### 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 IV (AC IV) and IX mRNA are expressed in all kidney nephron segments. AC IV exhibits moderate staining in type II and type IV fibrocytes in rat cochlea and immunoreactivity is also observed in type I fibrocytes. AC IV is expressed in myenteric ganglia and is variably expressed in glia of the duodenum, jejunum and ileum. Activation of the D2 dopaminergic and m4 muscarine receptors inhibits the activity of adenylyl cyclase isozymes I, V, VI and VIII, whereas type II, IV and VII are stimulated and type III is not affected.

### REFERENCES

1. Gilman, A.G., 1987. G proteins: transducers of receptor-generated signals. *Ann. 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.
4. Taussig, R., et al. 1994. Distinct patterns of bidirectional regulation of mammalian adenylyl cyclases. *J. Biol. Chem.* 269: 6093-6100.
5. Nevo, I., et al. 1998. Regulation of adenylyl cyclase isozymes on acute and chronic activation of inhibitory receptors. *Mol. Pharmacol.* 54: 419-426.
6. Drescher, M.J., et al. 2000. Immunohistochemical localization of adenylyl cyclase isoforms in the lateral wall of the rat cochlea. *Brain Res. Mol. Brain Res.* 76: 289-298.
7. Bek, M.J., et al. 2001. Differential expression of adenylyl cyclases in the rat nephron. *Kidney Int.* 60: 890-899.

### CHROMOSOMAL LOCATION

Genetic locus: ADCY4 (human) mapping to 14q12; Adcy4 (mouse) mapping to 14 C3.

### SOURCE

A cyclase IV (R-170) is a rabbit polyclonal antibody raised against amino acids 631-800 mapping near the C-terminus of A cyclase IV of rat origin.

### PRODUCT

Each vial contains 200  $\mu$ 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 IV (R-170) is recommended for detection of A cyclase IV of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ 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).

Suitable for use as control antibody for A cyclase IV siRNA (h): sc-29602, A cyclase IV siRNA (m): sc-29603, A cyclase IV shRNA Plasmid (h): sc-29602-SH, A cyclase IV shRNA Plasmid (m): sc-29603-SH, A cyclase IV shRNA (h) Lentiviral Particles: sc-29602-V and A cyclase IV shRNA (m) Lentiviral Particles: sc-29603-V.

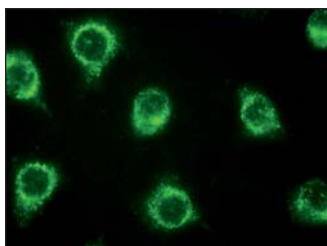
Molecular Weight of A cyclase IV: 110 kDa.

Positive Controls: mouse brain extract: sc-2253 or EOC 20 cells.

### 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.

### DATA



A cyclase IV (R-170): sc-20763. Immunofluorescence staining of methanol-fixed EOC 20 cells showing cytoplasmic localization.

### SELECT PRODUCT CITATIONS

1. Fernandez-Twinn, D.S., et al. 2006. Maternal low-protein diet programs cardiac  $\beta$ -adrenergic response and signaling in 3-mo-old male offspring. *Am. J. Physiol. Regul. Integr. Comp. Physiol.* 291: R429-R436.

### RESEARCH USE

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