SANTA CRUZ BIOTECHNOLOGY, INC.

$G_{\alpha\ s/olf}$ (E-7): sc-55546

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Heterotrimeric G proteins function to relay information from cell surface receptors to intracellular effectors. Each of a very broad range of receptors specifically detects an extracellular stimulus (a photon, pheromone, odorant, hormone or neurotransmitter) while the effectors (e.g., adenyl cyclase), which act to generate one or more intracellular messengers, are less numerous. In mammals, G protein α, β and γ polypeptides are encoded by at least 16, 4 and 7 genes, respectively. Most interest in G proteins has been focused on their α subunits, since these proteins bind and hydrolyze GTP and most obviously regulate the activity of the best studied effectors. The G_s subfamily of G_α subunits includes two closely related proteins, $G_{\alpha\ s}$ and $G_{\alpha\ olf}$, which respectively stimulate Adenylate cyclase and mediate response to olfactory stimuli.

REFERENCES

1. Jones, D.T., et al. 1991. G_{olf}: an olfactory neuron specific G protein involved in odorant signal transduction. Science 244: 790-795.
2. Simon, M.I., et al. 1991. Diversity of G proteins in signal transduction. Science 252: 802-808.

CHROMOSOMAL LOCATION

Genetic locus: GNAS (human) mapping to 20q13.32, GNAL (human) mapping to 18p11.21; Gnas (mouse) mapping to 2 H4, Gnal (mouse) mapping to 18 E1.

SOURCE

$G_{\alpha\ s/olf}$ (E-7) is a mouse monoclonal antibody raised against amino acids 82-381 mapping at the C-terminus of $G_{\alpha\ olf}$ 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.

STORAGE

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

APPLICATIONS

$G_{\alpha\ s/olf}$ (E-7) is recommended for detection of $G_{\alpha\ s\ 1\text{-}4}$ and $G_{\alpha\ olf}$ 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), 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).

Molecular Weight of $G_{\alpha\ s}$ long form: 52 kDa.

Molecular Weight of $G_{\alpha\ s}$ short form and $G_{\alpha\ olf}$: 45 kDa.

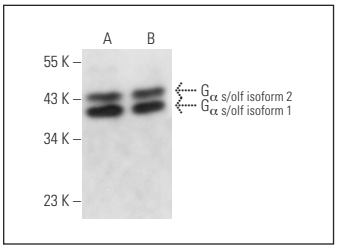
Molecular Weight of $G_{\alpha\ olf}$ proteolytic fragment: 39 kDa.

Positive Controls: SK-N-MC cell lysate: sc-2237, T98G cell lysate: sc-2294 or HeLa whole cell lysate: sc-2200.

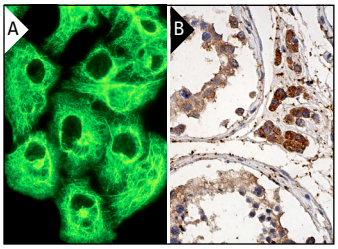
RECOMMENDED SUPPORT REAGENTS

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 A/G PLUS-Agarose: sc-2003 (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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



$G_{\alpha\ s/olf}$ (E-7): sc-55546. Western blot analysis of $G_{\alpha\ s}$ and $G_{\alpha\ olf}$ expression in SK-N-MC (**A**) and T98G (**B**) whole cell lysates.



$G_{\alpha\ s/olf}$ (E-7): sc-55546. Immunofluorescence staining of methanol-fixed HeLa cells showing membrane and cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing cytoplasmic staining of cells in seminiferous ducts and Leydig cells (**B**).

SELECT PRODUCT CITATIONS

1. Kotowski, S.J., et al. 2011. Endocytosis promotes rapid dopaminergic signaling. Neuron 71: 278-290.
2. Regard, J.B., et al. 2013. Activation of Hedgehog signaling by loss of GNAS causes heterotopic ossification. Nat. Med. 19: 1505-1512.
3. Dieris, M., et al. 2017. A single identified glomerulus in the zebrafish olfactory bulb carries the high-affinity response to death-associated odor cadaverine. Sci. Rep. 7: 40892.
4. Stallaert, W., et al. 2017. Purinergic receptor transactivation by the β_2-adrenergic receptor increases intracellular Ca^{2+} in nonexcitable cells. Mol. Pharmacol. 91: 533-544.
5. Kawakami, K., et al. 2022. Heterotrimeric G_q proteins act as a switch for GRK5/6 selectivity underlying β-arrestin transducer bias. Nat. Commun. 13: 487.

RESEARCH USE

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

CONJUGATES

See **$G_{\alpha\ s/olf}$ (A-5): sc-55545** for $G_{\alpha\ s/olf}$ antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.