SANTA CRUZ BIOTECHNOLOGY, INC.

# GRK 5 (D-9): sc-518005

SANTA CRUZ BIOTECHNOLOGY

*The Power to Question*

## BACKGROUND

Heterotrimeric G protein-mediated signal transduction is a dynamically regulated process with the intensity of signal decreasing over time despite the continued presence of the agonist. This phenomenon, referred to as agonist-mediated desensitization, involves phosphorylation of the receptor by two classes of enzymes. The first are the second messenger-regulated kinases such as c-AMP dependent protein kinase A and protein kinase C. The second are the G protein-coupled receptor kinases (GRKs). At least seven members of the GRK family have been identified. These include rhodopsin kinase, GRK 1; two forms of β-adrenergic receptor kinase, GRK 2 (βARK, βARK1) and GRK 3 (βARK2); IT-11 (GRK 4); GRK 5, GRK 6 and GRK 7. Phosphorylation of receptors by GRKs appears to be strictly dependent on the receptor being in its agonist-activated state.

## CHROMOSOMAL LOCATION

Genetic locus: GRK5 (human) mapping to 10q26.11; Grk5 (mouse) mapping to 19 D3.

## SOURCE

GRK 5 (D-9) is a mouse monoclonal antibody raised against amino acids 94-157 mapping near the N-terminus of GRK 5 of human origin.

## PRODUCT

Each vial contains 200 µg $IgG_{2a}$ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

GRK 5 (D-9) is available conjugated to agarose (sc-518005 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-518005 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-518005 PE), fluorescein (sc-518005 FITC), Alexa Fluor® 488 (sc-518005 AF488), Alexa Fluor® 546 (sc-518005 AF546), Alexa Fluor® 594 (sc-518005 AF594) or Alexa Fluor® 647 (sc-518005 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-518005 AF680) or Alexa Fluor® 790 (sc-518005 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

GRK 5 (D-9) is recommended for detection of GRK 5 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 GRK 5 siRNA (h): sc-39042, GRK 5 siRNA (m): sc-39043, GRK 5 siRNA (r): sc-270362, GRK 5 shRNA Plasmid (h): sc-39042-SH, GRK 5 shRNA Plasmid (m): sc-39043-SH, GRK 5 shRNA Plasmid (r): sc-270362-SH, GRK 5 shRNA (h) Lentiviral Particles: sc-39042-V, GRK 5 shRNA (m) Lentiviral Particles: sc-39043-V and GRK 5 shRNA (r) Lentiviral Particles: sc-270362-V.

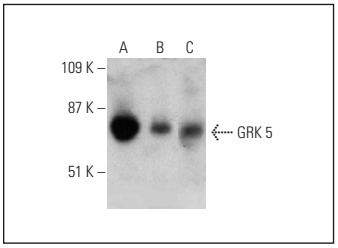
Molecular Weight of GRK 5: 65 kDa.

Positive Controls: A-673 cell lysate: sc-2414, rat brain extract: sc-2392 or human heart extract: sc-363763.

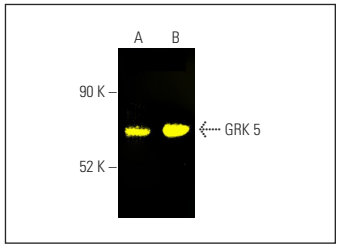
## STORAGE

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

## DATA




GRK 5 (D-9): sc-518005. Western blot analysis of GRK 5 expression in A-673 whole cell lysate (**A**) and rat brain (**B**) and human heart (**C**) tissue extracts.




GRK 5 (D-9) Alexa Fluor® 488: sc-518005 AF488. Direct fluorescent western blot analysis of GRK 5 expression in 293T (**A**) and WI-38 (**B**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214.

## SELECT PRODUCT CITATIONS


1. Mann, A., et al. 2020. Agonist-induced phosphorylation bar code and differential post-activation signaling of the δ opioid receptor revealed by phosphosite-specific antibodies. Sci. Rep. 10: 8585.
2. Mann, A., et al. 2021. New phosphosite-specific antibodies to unravel the role of GRK phosphorylation in dopamine $D_2$ receptor regulation and signaling. Sci. Rep. 11: 8288.
3. Kawakami, K., et al. 2022. Heterotrimeric $G_q$ proteins act as a switch for GRK 5/6 selectivity underlying β-arrestin transducer bias. Nat. Commun. 13: 487.
4. Drube, J., et al. 2022. GPCR kinase knockout cells reveal the impact of individual GRKs on arrestin binding and GPCR regulation. Nat. Commun. 13: 540.
5. Guimarães, D.A., et al. 2022. Neuronal cholinergic signaling constrains norepinephrine activity in the heart. Am. J. Physiol. Cell Physiol. 322: C794-C801.
6. Sasaki, S., et al. 2023. Type 2 diabetes susceptibility gene GRK 5 regulates physiological pancreatic β-cell proliferation via phosphorylation of HDAC5. iScience 26: 107311.
7. Ganguly, A., et al. 2023. G protein-receptor kinases 5/6 are the key regulators of G protein-coupled receptor 35-arrestin interactions. J. Biol. Chem. 299: 105218.
8. George, K., et al. 2024. Robust GRK 2/3/6-dependent desensitization of oxytocin receptor in neurons. iScience 27: 110047.
9. Seramur, M.E., et al. 2025. GRK 5 is required for adipocyte differentiation through ERK activation. Int. J. Obes. E-published.


## RESEARCH USE

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