SANTA CRUZ BIOTECHNOLOGY, INC.

K-Ras (F234): sc-30

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The mammalian Ras (also designated v-Ha-Ras, Harvey rat sarcoma viral oncogene homolog, HRAS1, K-Ras, N-Ras, RASH1 or c-bas/has) gene family consists of the Harvey and Kirsten Ras genes (c-H-Ras1 and c-K-Ras2), an inactive pseudogene of each (c-H-Ras2 and c-K-Ras1) and the N-Ras gene. The three Ras oncogenes, H-Ras, K-Ras and N-Ras, encode proteins with GTP/GDP binding and GTPase activity. Ras proteins alternate between an inactive form bound to GDP and an active form bound to GTP, activated by a guanine nucleotide-exchange factor (GEF) and inactivated by a GTPase-activating protein (GAP). Ras nomenclature originates from the characterization of human DNA sequences homologous to cloned DNA fragments containing oncogenic sequences of a type C mammalian retrovirus, the Harvey strain of murine sarcoma virus (HaMSV), derived from the rat. Under normal conditions, Ras family members influence cell growth and differentiation events in a subcellular membrane compartmentalization-based signaling system. Oncogenic Ras can deregulate processes that control both cell proliferation and apoptosis. The Ras superfamily of GTP hydrolysis-coupled signal transduction relay proteins can be subclassified into Ras, Rho, Rab and ARF families.

CHROMOSOMAL LOCATION

Genetic locus: KRAS (human) mapping to 12p12.1; Kras (mouse) mapping to 6 G3.

SOURCE

K-Ras (F234) is a mouse monoclonal antibody raised against recombinant encompassing amino acids 54-189 of K-Ras protein of rat origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

K-Ras (F234) is recommended for detection of c-K-Ras and v-K-Ras of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500); may cross-react with c-H-Ras and c-N-Ras.

Suitable for use as control antibody for K-Ras siRNA (h): sc-35731, K-Ras siRNA (m): sc-43876, K-Ras shRNA Plasmid (h): sc-35731-SH, K-Ras shRNA Plasmid (m): sc-43876-SH, K-Ras shRNA (h) Lentiviral Particles: sc-35731-V and K-Ras shRNA (m) Lentiviral Particles: sc-43876-V.

Molecular Weight of K-Ras: 21 kDa.

Positive Controls: K-Ras (h): 293T Lysate: sc-111225, KNRK whole cell lysate: sc-2214 or NRK whole cell lysate: sc-364197.

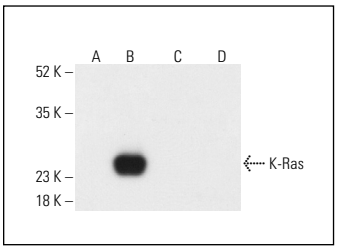
STORAGE

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

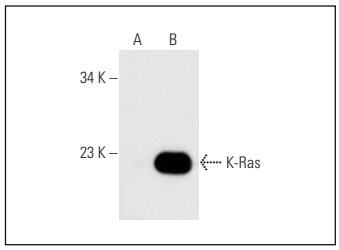
RESEARCH USE

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

DATA



K-Ras (F234): sc-30. Western blot analysis of K-Ras expression in non-transfected 293T: sc-117752 (**A**), human K-Ras transfected 293T: sc-111225 (**B**), human N-Ras transfected 293T (**C**) and human H-Ras transfected 293T (**D**) whole cell lysates. Detection reagent used: m-IgGκ BP-HRP: sc-516102. Note lack of reactivity with human N-Ras in lane **C** and human H-Ras in lane **D**.



K-Ras (F234): sc-30. Western blot analysis of K-Ras expression in non-transfected: sc-110760 (**A**) and human K-Ras transfected: sc-111225 (**B**) 293 whole cell lysates.

SELECT PRODUCT CITATIONS

1. Taylor, S.J. and Shalloway, D. 1996. Cell cycle-dependent activation of Ras. Curr. Biol. 6: 1621-1627.
2. Patel, A., et al. 2015. MutT homolog 1 (MTH1) maintains multiple KRAS-driven pro-malignant pathways. Oncogene 34: 2586-2596.
3. Grabocka, E. and Bar-Sagi, D. 2016. Mutant KRAS enhances tumor cell fitness by upregulating stress granules. Cell 167: 1803-1813.e12.
4. Neu, J., et al. 2017. MiR-181a decelerates proliferation in cutaneous squamous cell carcinoma by targeting the proto-oncogene KRAS. PLoS ONE 12: e0185028.
5. Zheng, Z.Y., et al. 2018. Induction of N-Ras degradation by flunarizine-mediated autophagy. Sci. Rep. 8: 16932.
6. Jeong, W.J., et al. 2019. WDR76 is a Ras binding protein that functions as a tumor suppressor via Ras degradation. Nat. Commun. 10: 295.
7. Qin, S., et al. 2020. Small-molecule inhibitor of 8-oxoguanine DNA glycosylase 1 regulates inflammatory responses during *Pseudomonas aeruginosa* infection. J. Immunol. 205: 2231-2242.
8. Klimpel, A., et al. 2021. Cell-permeable CaaX-peptides affect K-Ras downstream signaling and promote cell death in cancer cells. FEBS J. 288: 2911-2929.
9. Kim, D.G., et al. 2022. AIMP2-DX2 provides therapeutic interface to control KRAS-driven tumorigenesis. Nat. Commun. 13: 2572.
10. Yoon, C., et al. 2023. KRAS activation in gastric cancer stem-like cells promotes tumor angiogenesis and metastasis. BMC Cancer 23: 690.

CONJUGATES

See **pan Ras (C-4): sc-166691** for pan Ras antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.