SANTA CRUZ BIOTECHNOLOGY, INC.

RIG-I (D-12): sc-376845

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The innate immune system senses viral infection by recognizing many different viral components and triggering specific antiviral responses. Intracellular double-stranded RNA (dsRNA) is a major sign of replication for many viruses. Retinoic acid inducible gene I (RIG-I) is a 925 amino acid, interferon-inducible cellular DExD/H box RNA helicase that activates type I interferon (IFN), an important effector of the innate immune system that is sensitive to these dsRNA viruses. dsRNA is normally present in very low quantities in cells, so when a virus is present, the elevated levels of dsRNA act as a sign telling RIG-I to activate the production of IFN. RIG-I does this by using its helicase domain to bind to viral dsRNA, thus transmitting the activation signal for IFN through IκB kinase-related kinases and inducing IFN expression. RIG-I is expressed in the cytoplasm of fibroblasts and conventional dendritic cells and can distinguish between many different RNA viruses.

CHROMOSOMAL LOCATION

Genetic locus: DDX58 (human) mapping to 9p21.1; Ddx58 (mouse) mapping to 4 A5.

SOURCE

RIG-I (D-12) is a mouse monoclonal antibody raised against amino acids 5-300 mapping at the N-terminus of RIG-I of mouse 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.

RIG-I (D-12) is available conjugated to agarose (sc-376845 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376845 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376845 PE), fluorescein (sc-376845 FITC), Alexa Fluor® 488 (sc-376845 AF488), Alexa Fluor® 546 (sc-376845 AF546), Alexa Fluor® 594 (sc-376845 AF594) or Alexa Fluor® 647 (sc-376845 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376845 AF680) or Alexa Fluor® 790 (sc-376845 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

RIG-I (D-12) is recommended for detection of RIG-I 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).

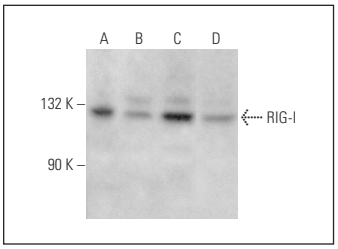
Suitable for use as control antibody for RIG-I siRNA (h): sc-61480, RIG-I siRNA (m): sc-61481, RIG-I siRNA (r): sc-270587, RIG-I shRNA Plasmid (h): sc-61480-SH, RIG-I shRNA Plasmid (m): sc-61481-SH, RIG-I shRNA Plasmid (r): sc-270587-SH, RIG-I shRNA (h) Lentiviral Particles: sc-61480-V, RIG-I shRNA (m) Lentiviral Particles: sc-61481-V and RIG-I shRNA (r) Lentiviral Particles: sc-270587-V.

Molecular Weight of RIG-I: 101 kDa.

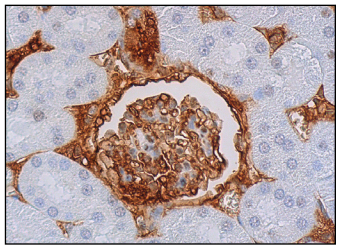
STORAGE

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

DATA



RIG-I (D-12): sc-376845. Western blot analysis of RIG-I expression in Jurkat (**A**), THP-1 (**B**), HUV-EC-C (**C**) and A-431 (**D**) whole cell lysates.



RIG-I (D-12): sc-376845. Immunoperoxidase staining of formalin fixed, paraffin-embedded mouse kidney tissue showing cytoplasmic and perinuclear staining of cells in glomeruli and cytoplasmic staining of endothelial cells.

SELECT PRODUCT CITATIONS

1. Sheng, W., et al. 2018. LSD1 ablation stimulates anti-tumor immunity and enables checkpoint blockade. Cell 174: 549-563.e19.
2. Ren, X., et al. 2019. RIG-I selectively discriminates against 5'-monophosphate RNA. Cell Rep. 26: 2019-2027.e4.
3. Chen, S.T., et al. 2019. NLRP12 regulates anti-viral RIG-I activation via interaction with TRIM25. Cell Host Microbe 25: 602-616.e7.
4. Helms, M.W., et al. 2019. Utility of the RIG-I agonist triphosphate RNA for melanoma therapy. Mol. Cancer Ther. 18: 2343-2356.
5. Bufalieri, F., et al. 2020. The RNA-binding ubiquitin ligase MEX3A affects glioblastoma tumorigenesis by inducing ubiquitylation and degradation of RIG-I. Cancers 12: 321.
6. Di Marco, T., et al. 2020. COPZ1 depletion in thyroid tumor cells triggers type I IFN response and immunogenic cell death. Cancer Lett. 476: 106-119.
7. Pozzi, B., et al. 2020. Dengue virus targets RBM10 deregulating host cell splicing and innate immune response. Nucleic Acids Res. 48: 6824-6838.
8. Seo, J.H., et al. 2020. MTFMT deficiency correlates with reduced mitochondrial integrity and enhanced host susceptibility to intracellular infection. Sci. Rep. 10: 11183.
9. Zhang, X., et al. 2020. Foot-and-mouth disease virus 3B protein interacts with pattern recognition receptor RIG-I to block RIG-I-mediated immune signaling and inhibit host antiviral response. J. Immunol. 205: 2207-2221.
10. Hardy, S., et al. 2020. Classical swine fever virus Npro antagonises IRF3 to prevent IFN-independent TLR3 and RIG-I-mediated apoptosis. J. Virol. 95: e01136-20.

RESEARCH USE

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