SANTA CRUZ BIOTECHNOLOGY, INC.

NOD2 (2D9): sc-56168

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The mammalian homologs of the CED-4 proteins, Apaf-1 (CED-4), NOD1 (CARD4) and NOD2, contain a caspase recruitment domain (CARD) and a putative nucleotide binding domain, signified by a consensus Walker's A box (P-loop) and B box (Mg^{2+}-binding site). NOD1 contains a putative regulatory domain and multiple leucine-rich repeats. NOD1 is a member of a growing family of intracellular proteins which share structural homology to the apoptosis regulator Apaf-1. NOD1 associates with the CARD-containing kinase RICK and activates NFκB. The self-association of NOD1 mediates proximity of RICK and the interaction of RICK with IKKγ. In addition, NOD1 binds to multiple caspases with long prodomains, but specifically activates caspase-9 and promotes caspase-9-induced apoptosis. NOD2 is composed of two N-terminal CARDs, a nucleotide-binding domain and multiple C-terminal leucine-rich repeats. The expression of NOD2 is highly restricted to monocytes, and activates NFκB in response to bacterial lipopoly-saccharides.

CHROMOSOMAL LOCATION

Genetic locus: NOD2 (human) mapping to 16q12.1; Nod2 (mouse) mapping to 8 C3.

SOURCE

NOD2 (2D9) is a mouse monoclonal antibody raised against amino acids 28-301 of NOD2 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.

NOD2 (2D9) is available conjugated to agarose (sc-56168 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-56168 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-56168 PE), fluorescein (sc-56168 FITC), Alexa Fluor® 488 (sc-56168 AF488), Alexa Fluor® 546 (sc-56168 AF546), Alexa Fluor® 594 (sc-56168 AF594) or Alexa Fluor® 647 (sc-56168 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-56168 AF680) or Alexa Fluor® 790 (sc-56168 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

NOD2 (2D9) is recommended for detection of NOD2 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)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for NOD2 siRNA (h): sc-43973, NOD2 siRNA (m): sc-44983, NOD2 shRNA Plasmid (h): sc-43973-SH, NOD2 shRNA Plasmid (m): sc-44983-SH, NOD2 shRNA (h) Lentiviral Particles: sc-43973-V and NOD2 shRNA (m) Lentiviral Particles: sc-44983-V.

Molecular Weight of NOD2: 115 kDa.

STORAGE

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

SELECT PRODUCT CITATIONS

1. Dugan, J.W., et al. 2009. Nucleotide oligomerization domain-2 interacts with 2'-5'-oligoadenylate synthetase type 2 and enhances RNase-L function in THP-1 cells. Mol. Immunol. 47: 560-566.
2. Cooney, R., et al. 2010. NOD2 stimulation induces autophagy in dendritic cells influencing bacterial handling and antigen presentation. Nat. Med. 16: 90-97.
3. Morosky, S.A., et al. 2011. Retinoic acid-induced gene-I (RIG-I) associates with nucleotide-binding oligomerization domain-2 (NOD2) to negatively regulate inflammatory signaling. J. Biol. Chem. 286: 28574-28583.
4. Nabatov, A.A., et al. 2013. Hypoxia inducible NOD2 interacts with 3-O-sulfogalactoceramide and regulates vesicular homeostasis. Biochim. Biophys. Acta 1830: 5277-5286.
5. Yang, S., et al. 2013. Pellino3 ubiquitinates RIP2 and mediates NOD2-induced signaling and protective effects in colitis. Nat. Immunol. 14: 927-936.
6. Leichtle, A., et al. 2015. NOD-like receptor signaling in cholesteatoma. Biomed Res. Int. 2015: 408169.
7. Dagil, Y.A., et al. 2016. The dual NOD1/NOD2 agonism of muropeptides containing a meso-diaminopimelic acid residue. PLoS ONE 11: e0160784.
8. DeWolf, S.E., et al. 2017. Expression of TLR2, NOD1, and NOD2 and the NLRP3 inflammasome in renal tubular epithelial cells of male versus female mice. Nephron 137: 68-76.
9. Ma, B., et al. 2018. *Haemophilus parasuis* infection activates NOD1/2-RIP2 signaling pathway in PK-15 cells. Dev. Comp. Immunol. 79: 158-165.
10. Normand, S., et al. 2018. Proteasomal degradation of NOD2 by NLRP12 in monocytes promotes bacterial tolerance and colonization by enteropathogens. Nat. Commun. 9: 5338.
11. Zhao, S., et al. 2020. Selective loss of brain-derived neurotrophic factor exacerbates brain injury by enhancing neuroinflammation in experimental *Streptococcus pneumoniae* meningitis. Front. Immunol. 11: 1357.
12. Zhang, Y., et al. 2021. Anemoside B4 ameliorates TNBS-induced colitis through S100A9/MAPK/NFκB signaling pathway. Chin. Med. 16: 11.
13. Zhang, Y., et al. 2022. Upregulation of NOD1 and NOD2 contribute to cancer progression through the positive regulation of tumorigenicity and metastasis in human squamous cervical cancer. BMC Med. 20: 55.
14. Leichtle, A., et al. 2022. Immunomodulation as a protective strategy in chronic otitis media. Front. Cell. Infect. Microbiol. 12: 826192.

RESEARCH USE

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