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SHOC2 Antibody

Catalog # ASC10921

Product Information

Application	WB, E, IHC-P
Primary Accession	Q9UQ13
Other Accession	NP_031399, 41281398
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	64888
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	SHOC2 antibody can be used for detection of Shoc2 by Western blot at 1-2 g/mL. Antibody can also be used for immunohistochemistry starting at 5 g/mL.

Additional Information

Gene ID	8036
Other Names	Leucine-rich repeat protein SHOC-2, Protein soc-2 homolog, Protein sur-8 homolog, SHOC2, KIAA0862
Target/Specificity	SHOC2;
Reconstitution & Storage	SHOC2 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	SHOC2 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	SHOC2
Synonyms	KIAA0862
Function	Core component of the SHOC2-MRAS-PP1c (SMP) holophosphatase complex that regulates activation of the MAPK pathway (PubMed:10783161, PubMed:16630891, PubMed:25137548, PubMed:35768504, PubMed:35830882, PubMed:35831509, PubMed:36175670). Acts as a scaffolding protein in the SMP complex (PubMed:35768504, PubMed:35830882, PubMed:35831509, PubMed:36175670). The SMP complex specifically dephosphorylates the inhibitory phosphorylation at 'Ser-259' of

	RAF1 kinase, 'Ser-365' of BRAF kinase and 'Ser-214' of ARAF kinase, stimulating their kinase activities (PubMed:10783161, PubMed:16630891, PubMed:35768504, PubMed:35830882, PubMed:35831509, PubMed:36175670). The SMP complex enhances the dephosphorylation activity and substrate specificity of PP1c (PubMed:35768504, PubMed:36175670). Acts as an inhibitor of keratinocyte differentiation via interaction with RAS protein complexes that promote ERK activation (PubMed:23524970).
Cellular Location	Cytoplasm. Nucleus. Note=Translocates from cytoplasm to nucleus upon growth factor stimulation.
Tissue Location	Expressed in the intermediate epidermal layers, expression is weaker in the most basal and suprabasal keratinocytes (at protein level).

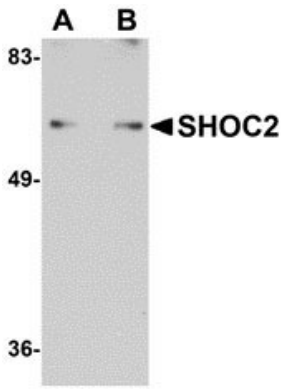
Background

SHOC2 Antibody: SHOC2 protein participates in protein binding / transferase activity in the fibroblast growth factor receptor signaling pathway and Ras protein signal transduction. It is a widely expressed protein composed almost entirely of leucine-rich repeats (LRR), with a lysine-rich sequence at the amino terminus and cytoplasmically localized. SHOC2 acts as a positive modulator of the RAS-MAPK signaling cascade, which is elicited by EGL-15 and LET-23 and mediated by LET-60. SHOC2 together with protein phosphatase 1c (PP1c) forms a highly specific M-Ras effector complex and is essential for activation of the MAPK pathway by growth factors. Furthermore, in tumor cells with Ras gene mutations, inhibition of SHOC2 expression inhibits MAPK, but not PI3K activity. The SHOC2-PP1c holoenzyme provides an attractive therapeutic target for inhibition of the MAPK pathway in cancer. Recent studies show that aberrantly acquired N-myristoylation of SHOC2 causes human disease Noonan-like syndrome with loose anagen hair.

References

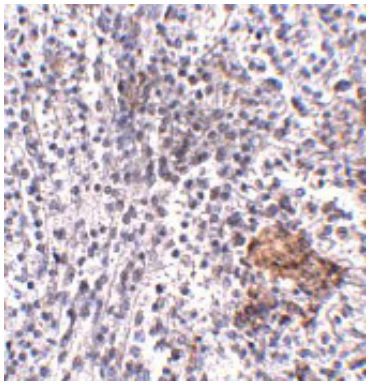
Selfors LM, Schutzman JL, Borland CZ, et al. Soc-2 encodes a leucine-rich repeat protein implicated in fibroblast growth factor receptor signaling. Proc. Natl. Acad. Sci. USA1998; 95:6903-8.
Sieburth DS, Sun Q, and Han M. SUR-8, a conserved Ras-binding protein with leucine-rich repeats, positively regulates Ras-mediated signaling in C. elegans. Cell1998; 94:119-130.
Rodriguez-Viciana P, Oses-Prieto J, Burlingame A, et al. A phosphatase holoenzyme comprised of Shoc2/Sur8 and the catalytic subunit of PP1 functions as an M-Ras effector to modulate Raf activity. Mol. Cell2006; 22:217-30.
Li W, Han M, and Guan KL. The leucine-rich repeat protein SUR-8 enhances MAP kinase activation and forms a complex with Ras and Raf. Genes Dev.2000; 14:895-900.

Images



Western blot analysis of SHOC2 in Jurkat cell lysate with SHOC2 antibody at (A) 1 and (B) 2 µg/mL.

Immunohistochemistry of SHOC2 in human spleen tissue



with SHOC2 antibody at 5 µg/mL.

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