SANTA CRUZ BIOTECHNOLOGY, INC.

SHP (H-5): sc-271511

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

SHP (short heterodimer partner and small heterodimer partner) is an orphan nuclear receptor containing the dimerization and ligand-binding domains found in other nuclear receptors, but lacking the conserved DNA binding domain. SHP is specifically expressed in liver and other tissues, including fetal liver and adrenal gland, as well as adult spleen and small intestine. In addition, SHP is highy expressed in the murine macrophage cell line RAW 264.7 but suppressed by oxLDL and 13-HODE, which is a ligand for PPARγ. SHP interacts with nuclear receptors, including thyroid receptor, retinoic acid receptors (RAR and RXR) and estrogen receptors (ERa and ERb). SHP functions as a negative regulator of these receptors by at least three mechanisms: inhibition of DNA binding via dimerization, direct antagonism of coactivator function through competition and possibly transrepression via recruitment of putative corepressors. In oxLDL-treated, resting macrophage cells, SHP acts as a transcription coactivator of NFκB, suggesting that SHP is a modulatory component in the regulation of the transcriptional activities of NFκB. Lastly, negative feedback regulation of a hepatic bile acid transporter, NTCP, is controlled by bile acid-activated FXR via induction of SHP to protect the hepatocyte from bile acid-mediated damage in cholestatic conditions.

REFERENCES

1. Seol, W., et al. 1996. An orphan nuclear hormone receptor that lacks a DNA binding domain and heterodimerizes with other receptors. Science 272: 1336-1339.
2. Lee, H.K., et al. 1998. Structure and expression of the orphan nuclear receptor SHP gene. J. Biol. Chem. 273: 14398-14402.

CHROMOSOMAL LOCATION

Genetic locus: NR0B2 (human) mapping to 1p36.11.

SOURCE

SHP (H-5) is a mouse monoclonal antibody raised against amino acids 1-160 mapping at the N-terminus of SHP 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.

SHP (H-5) is available conjugated to agarose (sc-271511 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271511 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271511 PE), fluorescein (sc-271511 FITC), Alexa Fluor® 488 (sc-271511 AF488), Alexa Fluor® 546 (sc-271511 AF546), Alexa Fluor® 594 (sc-271511 AF594) or Alexa Fluor® 647 (sc-271511 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271511 AF680) or Alexa Fluor® 790 (sc-271511 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

STORAGE

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

APPLICATIONS

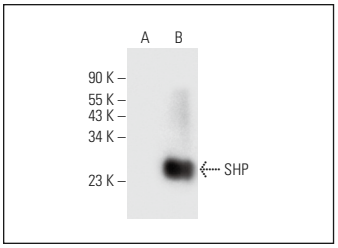
SHP (H-5) is recommended for detection of SHP of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (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 SHP siRNA (h): sc-44101, SHP shRNA Plasmid (h): sc-44101-SH and SHP shRNA (h) Lentiviral Particles: sc-44101-V.

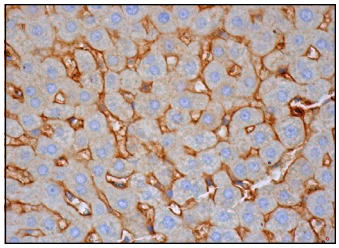
Molecular Weight of SHP: 28 kDa.

Positive Controls: SHP (h): 293T Lysate: sc-114141 or A-431 nuclear extract: sc-2122.

DATA



SHP (H-5): sc-271511. Western blot analysis of SHP expression in non-transfected: sc-117752 (**A**) and human SHP transfected: sc-114141 (**B**) 293T whole cell lysates.



SHP (H-5): sc-271511. Immunoperoxidase staining of formalin fixed, paraffin-embedded human liver tissue showing membrane staining of hepatocytes and cytoplasmic and membrane staining of sinusoids.

SELECT PRODUCT CITATIONS

1. Wang, W., et al. 2016. FXR agonists enhance the sensitivity of biliary tract cancer cells to cisplatin via SHP dependent inhibition of Bcl-x_L expression. Oncotarget 7: 34617-34629.
2. Hao, L., et al. 2020. ERRγ suppression by Sirt6 alleviates cholestatic liver injury and fibrosis. JCI Insight 5: e137566.
3. Dalton, G.D., et al. 2021. Hepatocyte activity of the cholesterol sensor smoothened regulates cholesterol and bile acid homeostasis in mice. iScience 24: 103089.
4. Choi, Y.J., et al. 2022. Intratracheal exposure to polyhexamethylene guanidine phosphate disrupts coordinate regulation of FXR-SHP-mediated cholesterol and bile acid homeostasis in mouse liver. Ecotoxicol. Environ. Saf. 247: 114213.
5. Zhou, L.M., et al. 2023. Epiberberine regulates lipid synthesis through SHP (NR0B2) to improve non-alcoholic steatohepatitis. Biochim. Biophys. Acta Mol. Basis Dis. 1869: 166639.

RESEARCH USE

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