

# SIAH-2 (22B9B5): sc-81788

## BACKGROUND

SIAH-2 (seven in absentia homolog-2) is an E3 ligase that catalyzes ubiquitination and proteasome-mediated degradation of protein substrates. SIAH-2 encodes a 324 amino acid protein that shares 77% identity with human SIAH-1 and 68% identity with the *Drosophila* *sina* (seven in absentia) gene, on which development of the *Drosophila* R7 photoreceptor is dependent. SIAH-2 targets TRAF2 (which regulates cell responses to stress and cytokines through the regulation of key stress-signaling cascades) for degradation under stress conditions such as hypoxia. It targets HIF-1 $\alpha$  prolyl hydroxylase 3 (PHD3) for degradation upon exposure to hypoxic conditions, which coincides with an increase in SIAH-2 transcription. SIAH-2 can decrease TNF $\alpha$ -dependent induction of JNK activity and transcriptional activation of NF $\kappa$ B. SIAH-2 null mice subjected to hypoxia display an impaired respiratory response and reduced levels of hemoglobin.

## REFERENCES

1. Della, N.G., et al. 1995. Expression of SIAH-2, a vertebrate homologue of *Drosophila sina*, in germ cells of the mouse ovary and testis. *Cell Tissue Res.* 279: 411-419.
2. Habelhah, H., et al. 2002. Stress-induced decrease in TRAF2 stability is mediated by SIAH-2. *EMBO J.* 21: 5756-5765.
3. Frew, I.J., et al. 2002. Normal p53 function in primary cells deficient for Siah genes. *Mol. Cell. Biol.* 22: 8155-8164.
4. Frew, I.J., et al. 2003. Generation and analysis of SIAH-2 mutant mice. *Mol. Cell. Biol.* 23: 9150-9161.
5. Simon, M.C. 2004. SIAH proteins, HIF prolyl hydroxylases, and the physiological response to hypoxia. *Cell* 117: 851-853.
6. Nakayama, K., et al. 2004. SIAH-2 regulates stability of prolyl-hydroxylases, controls HIF1 $\alpha$  abundance, and modulates physiological responses to hypoxia. *Cell* 117: 941-952.
7. Avraham, E., et al. 2005. Glycogen synthase kinase-3 $\beta$  modulates synphilin-1 ubiquitylation and cellular inclusion formation by SIAH: implications for proteasomal function and Lewy body formation. *J. Biol. Chem.* 280: 42877-42886.
8. Ravni, A., et al. 2006. Cycloheximide treatment to identify components of the transitional transcriptome in PACAP-induced PC12 cell differentiation. *J. Neurochem.* 98: 1229-1241.

## CHROMOSOMAL LOCATION

Genetic locus: SIAH2 (human) mapping to 3q25.1.

## SOURCE

SIAH-2 (24E6H3) is a mouse monoclonal antibody raised against a synthetic peptide corresponding to a region near the N-terminus of SIAH of *Drosophila melanogaster* origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

SIAH-2 (22B9B5) is recommended for detection of SIAH-2 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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); non cross-reactive with SIAH-1 of human origin.

SIAH-2 (22B9B5) is also recommended for detection of SIAH-2 in additional species, including porcine.

Suitable for use as control antibody for SIAH-2 siRNA (h): sc-37497, SIAH-2 shRNA Plasmid (h): sc-37497-SH and SIAH-2 shRNA (h) Lentiviral Particles: sc-37497-V.

Molecular Weight of SIAH-2: 40 kDa.

## 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.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.