



HES5 (3B6): sc-293445

BACKGROUND

The *Drosophila* Hair and Enhancer of split genes encode basic helix-loop-helix (bHLH) transcriptional repressors that function in the Notch signaling pathway and control segmentation and neural development during embryogenesis. The mammalian homologues of *Drosophila* Hair and Enhancer of split are the HES gene family members, HES1–6, which also encode bHLH transcriptional repressors that regulate myogenesis and neurogenesis. The HES family members form a complex with TLE, the mammalian homologue of Groucho, and this interaction is mediated by the carboxy terminal WRPW motif of the HES proteins. The HES/TLE complex functions by directly binding to DNA, instead of interfering with activator proteins. Most HES family members, including HES1 and HES5, preferentially bind to the N box (CACNAG) as opposed to the E box (CANNTG). HES2 binds to both N and E box sites, while HES6 does not bind DNA. Rather, HES6 inhibits HES1 activity, thereby promoting transcription. HES1 and HES2 are expressed in a variety of adult and embryonic tissues. HES3 is expressed exclusively in cerebellar Purkinje cells, and HES5 is found solely in the nervous system. HES6 is produced in brain as well as in the limb buds of developing embryos.

REFERENCES

1. Akazawa, C., et al. 1992. Molecular characterization of a rat negative regulator with a basic helix-loop-helix structure predominantly expressed in the developing nervous system. *J. Biol. Chem.* 267: 21879-21885.
2. Sasai, Y., et al. 1992. Two mammalian helix-loop-helix factors structurally related to *Drosophila* Hair and Enhancer of split. *Genes Dev.* 6: 2620-2634.
3. Ishibashi, M., et al. 1993. Molecular characterization of HES2, a mammalian helix-loop-helix factor structurally related to *Drosophila* Hair and Enhancer of split. *Eur. J. Biochem.* 215: 645-652.
4. Takebayashi, K., et al. 1994. Structure, chromosomal locus, and promoter analysis of the gene encoding the mouse helix-loop-helix factor HES1. Negative autoregulation through the multiple N box elements. *J. Biol. Chem.* 269: 5150-5156.
5. Fisher, A.L., et al. 1996. The WRPW motif of the Hair-related basic helix-loop-helix repressor proteins acts as a 4 amino-acid transcription repression and protein-protein interaction domain. *Mol. Cell. Biol.* 16: 2670-2677.
6. Grbavec, D. and Stifani, S. 1996. Molecular interaction between TLE1 and the carboxyl-terminal domain of HES1 containing the WRPW motif. *Biochem. Biophys. Res. Commun.* 223: 701-705.

CHROMOSOMAL LOCATION

Genetic locus: HES5 (human) mapping to 1p36.32; Hes5 (mouse) mapping to 4 E2.

SOURCE

HES5 (3B6) is a mouse monoclonal antibody raised against amino acids 28-121 representing full length HES5 of human origin.

PRODUCT

Each vial contains 100 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

HES5 (3B6) is recommended for detection of HES5 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)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

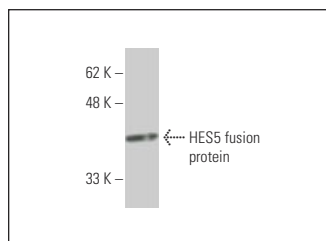
Suitable for use as control antibody for HES5 siRNA (h): sc-72197, HES5 siRNA (m): sc-37945, HES5 shRNA Plasmid (h): sc-72197-SH, HES5 shRNA Plasmid (m): sc-37945-SH, HES5 shRNA (h) Lentiviral Particles: sc-72197-V and HES5 shRNA (m) Lentiviral Particles: sc-37945-V.

Molecular Weight of HES5: 41 kDa.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



HES5 (3B6): sc-293445. Western blot analysis of human recombinant HES5 fusion protein.

SELECT PRODUCT CITATIONS

1. Wu, A., et al. 2020. Transmissible gastroenteritis virus targets Paneth cells to inhibit the self-renewal and differentiation of LGR5 intestinal stem cells via Notch signaling. *Cell Death Dis.* 11: 40.
2. Wang, W., et al. 2021. GALNT2 promotes cell proliferation, migration, and invasion by activating the Notch/Hes1-PTEN-PI3K/Akt signaling pathway in lung adenocarcinoma. *Life Sci.* 276: 119439.
3. Zhang, J., et al. 2022. Lycopene alleviates chronic stress-induced spleen apoptosis and immunosuppression via inhibiting the Notch signaling pathway in rats. *J. Agric. Food Chem.* 70: 2889-2897.

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.