SANTA CRUZ BIOTECHNOLOGY, INC.

HES3 (B-6): sc-398654

BACKGROUND

The *Drosophila* Hairy 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* Hairy 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. Sasai, Y., et al. 1992. Two mammalian helix-loop-helix factors structurally related to *Drosophila* Hairy and Enhancer of split. Genes Dev. 6: 2620-2634.
2. 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.
3. Ishibashi, M., et al. 1993. Molecular characterization of HES2, a mammalian helix-loop-helix factor structurally related to *Drosophila* Hairy 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 Hairy-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.

CHROMOSOMAL LOCATION

Genetic locus: Hes3 (mouse) mapping to 4 E2.

SOURCE

HES3 (B-6) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 44-73 near the N-terminus of HES3 of mouse 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. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-398654 X, 200 µg/0.1 ml.

Blocking peptide available for competition studies, sc-398654 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

HES3 (B-6) is recommended for detection of HES3 of mouse and rat 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for HES3 siRNA (m): sc-37942, HES3 shRNA Plasmid (m): sc-37942-SH and HES3 shRNA (m) Lentiviral Particles: sc-37942-V.

HES3 (B-6) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

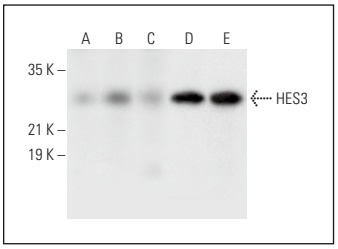
Molecular Weight of HES3: 22 kDa.

Positive Controls: rat brain extract: sc-2392, rat cerebellum extract: sc-2398 or mouse cerebellum extract: sc-2403.

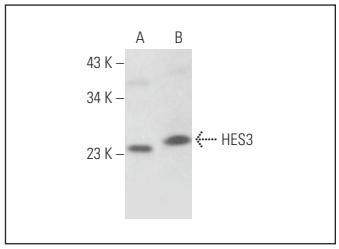
RECOMMENDED SUPPORT REAGENTS

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). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



HES3 (B-6): sc-398654. Western blot analysis of HES3 expression in mouse brain (**A**), mouse cerebellum (**B**), mouse embryo (**C**), rat brain (**D**) and rat cerebellum (**E**) tissue extracts.



HES3 (B-6): sc-398654. Western blot analysis of HES3 expression in C6 whole cell lysate (**A**) and rat brain tissue extract (**B**).

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.