

EN-2 (1E1): sc-293311

BACKGROUND

The engrailed-2 gene, EN2, a murine homolog of the *Drosophila* homeobox gene engrailed (EN), is required for midbrain and cerebellum development and dorsal/ventral patterning of the limbs as well as apical ectodermal ridge formation. In *Drosophila*, the EN gene plays an important role during development in segmentation, where it is required for the formation of posterior compartments. Human EN-1 and EN-2 are homeodomain-containing proteins and have been implicated in the control of pattern formation during development of the central nervous system. Different mutations in the mouse homologs, EN-1 and EN-2, produce different developmental defects that frequently are lethal. EN-1 is highly expressed by essentially all dopaminergic neurons in the substantia nigra and ventral tegmentum. EN-1 and EN-2 regulate expression of α -synuclein, a gene that is genetically linked to Parkinson's disease. During early brain development mouse EN-2 is expressed in a broad band across most of the mid-hindbrain region. EN-2 is also expressed in mouse myoblasts and has been associated with cerebellar hypoplasia.

REFERENCES

- Goldfarb, A.N., et al. 1992. T cell acute lymphoblastic leukemia—the associated gene SCL/tal codes for a 42-Kd nuclear phosphoprotein. *Blood* 80: 2858-2866.
- Hanks, M.C., et al. 1998. *Drosophila* engrailed can substitute for mouse Engrailed1 function in mid-hindbrain, but not limb development. *Development* 125: 4521-4530.
- Ohuchi, H., et al. 1999. FGF10 can induce FGF8 expression concomitantly with En1 and R-fng expression in chick limb ectoderm, independent of its dorsoventral specification. *Dev. Growth Differ.* 41: 665-673.
- Gemel, J., et al. 1999. Fibroblast growth factor-8 expression is regulated by intronic engrailed and Pbx1-binding sites. *J. Biol. Chem.* 274: 6020-6026.
- Li Song, D. and Joyner, A.L. 2000. Two Pax2/5/8-binding sites in Engrailed2 are required for proper initiation of endogenous mid-hindbrain expression. *Mech. Dev.* 90: 155-165.
- Simon, H.H., et al. 2001. Fate of midbrain dopaminergic neurons controlled by the engrailed genes. *J. Neurosci.* 21: 3126-3134.
- Degenhardt, K., et al. 2001. A role for Engrailed-2 in determination of skeletal muscle physiologic properties. *Dev. Biol.* 231: 175-189.

CHROMOSOMAL LOCATION

Genetic locus: EN2 (human) mapping to 7q36.3.

SOURCE

EN-2 (1E1) is a mouse monoclonal antibody raised against amino acids 86-210 of EN-2 of human origin.

PRODUCT

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

APPLICATIONS

EN-2 (1E1) is recommended for detection of EN-2 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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).

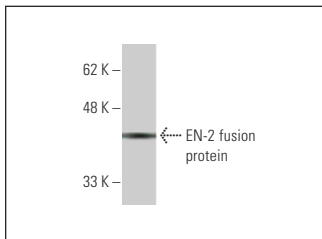
Suitable for use as control antibody for EN-2 siRNA (h): sc-45658, EN-2 shRNA Plasmid (h): sc-45658-SH and EN-2 shRNA (h) Lentiviral Particles: sc-45658-V.

Molecular Weight of EN-2: 34 kDa.

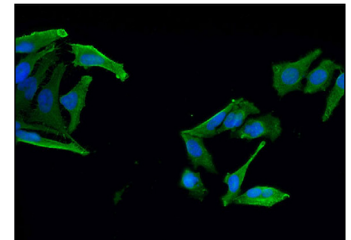
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgG κ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



EN-2 (1E1): sc-293311. Western blot analysis of human recombinant EN-2 fusion protein.



EN-2 (1E1): sc-293311. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic and nuclear localization.

SELECT PRODUCT CITATIONS

- Li, Y., et al. 2021. MicroRNA-27b inhibits cell proliferation and invasion in bladder cancer by targeting engrailed-2. *Biosci. Rep.* 41: BSR20201000.

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.