SANTA CRUZ BIOTECHNOLOGY, INC.

Egr-2 (1G5): sc-293195

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Egr proteins function in transcription regulatory activities surrounding cellular growth, differentiation and function. The deduced amino acid sequences of human Egr-2 and mouse Egr-1 are 92% identical in the zinc finger region but show no homology elsewhere. Egr-2 is a sequence-specific DNA-binding transcription factor that binds two specific DNA sites located in the promoter region of HoxA4 and localizes to the nucleus. Defects in the Egr-2 protein are a cause of congenital hypomyelination neuropathy (CHN). CHN is characterized clinically by early onset of hypotonia, areflexia, distal muscle weakness and very slow nerve conduction velocities. Mutations in the gene that encodes Egr-2 (EGR2) also cause Dejerine-Sottas syndrome (DSS), which is also known as Dejerine-Sottas neuropathy (DSN) or hereditary motor and sensory neuropathy III (HMSN3). DSS patients exhibit severe early onset motor and sensory neuropathy with very slow nerve conduction velocities and elevated cerebrospinal fluid protein concentrations.

REFERENCES

1. Joseph, L.J., et al. 1988. Molecular cloning, sequencing, and mapping of EGR2, a human early growth response gene encoding a protein with "zinc-binding finger" structure. Proc. Natl. Acad. Sci. USA 85: 7164-7168.
2. Chavrier, P., et al. 1989. Structure, chromosome location, and expression of the mouse zinc finger gene Krox-20: multiple gene products and coregulation with the proto-oncogene c-Fos. Mol. Cell. Biol. 9: 787-797.
3. Timmerman, V., et al. 1999. Novel missense mutation in the early growth response 2 gene associated with Dejerine-Sottas syndrome phenotype. Neurology 52: 1827-1832.
4. Boerkoel, C.F., et al. 2001. EGR2 mutation R359W causes a spectrum of Dejerine-Sottas neuropathy. Neurogenetics 3: 153-157.
5. Matsushima-Nishiu, M., et al. 2001. Growth and gene expression profile analyses of endometrial cancer cells expressing exogenous PTEN. Cancer Res. 61: 3741-3749.
6. Nagarajan, R., et al. 2001. EGR2 mutations in inherited neuropathies dominant-negatively inhibit myelin gene expression. Neuron 30: 355-368.
7. Unoki, M., et al. 2001. Growth-suppressive effects of BPOZ and EGR2, two genes involved in the PTEN signaling pathway. Oncogene 20: 4457-4465.
8. Street, V.A., et al. 2003. Mutation of a putative protein degradation gene LITAF/SIMPLE in Charcot-Marie-Tooth disease 1C. Neurology 60: 22-26.

CHROMOSOMAL LOCATION

Genetic locus: EGR2 (human) mapping to 10q21.3; Egr2 (mouse) mapping to 10 B5.1.

SOURCE

Egr-2 (1G5) is a mouse monoclonal antibody raised against amino acids 217-293 of Egr-2 of human origin.

PRODUCT

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

APPLICATIONS

Egr-2 (1G5) is recommended for detection of Egr-2 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 Egr-2 siRNA (h): sc-37827, Egr-2 siRNA (m): sc-37828, Egr-2 shRNA Plasmid (h): sc-37827-SH, Egr-2 shRNA Plasmid (m): sc-37828-SH, Egr-2 shRNA (h) Lentiviral Particles: sc-37827-V and Egr-2 shRNA (m) Lentiviral Particles: sc-37828-V.

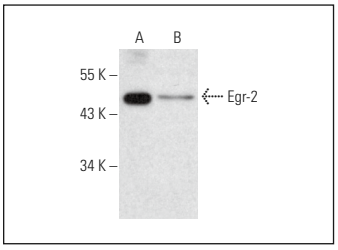
Molecular Weight of Egr-2: 50 kDa.

Positive Controls: human liver extract: sc-363766, mouse brain extract: sc-2253 or C6 whole cell lysate: sc-364373.

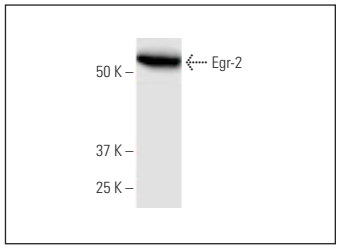
RECOMMENDED SUPPORT REAGENTS

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



Egr-2 (1G5): sc-293195. Western blot analysis of Egr-2 expression in mouse brain tissue extract (**A**) and C6 whole cell lysate (**B**).



Egr-2 (1G5): sc-293195. Western blot analysis of Egr-2 expression in human liver tissue extract.

SELECT PRODUCT CITATIONS

1. Mendes, K., et al. 2021. The epigenetic pioneer EGR2 initiates DNA demethylation in differentiating monocytes at both stable and transient binding sites. Nat. Commun. 12: 1556.
2. Zhang, Y., et al. 2023. Early growth response 2 in the mPFC regulates mouse social and cooperative behaviors. Lab. Anim. 52: 37-50.

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.