

SIM2s (3E6): sc-517035

BACKGROUND

The Per-Arnt-Sim (PAS) domain was identified as a 270 amino acid motif that mediates associations between various PAS family transcription factors. Several PAS domain family members have been identified including AhR, Arnt 1, and single-minded proteins (SIM1 and SIM2). The aromatic (aryl) hydrocarbon receptor, AhR, is a ligand dependent transcription factor that interacts with specific DNA sequences termed xenobiotic responsive elements (XREs) to activate several genes including CYP1A1, glutathione S-transferase Ya subunit and DT-diaphorase. The Ah receptor nuclear translocator protein 1 (Arnt 1) is required for ligand-dependent nuclear translocation of the Ah receptor and is also necessary for Ah receptor binding to the XRE element. Both SIM1 and SIM2 inhibit AhR/Arnt dimerization, thus inhibiting transcriptional activation. The SIM genes are thought to be involved in the directing and regionalization of tissues during development and the SIM2 gene, which is located on chromosome 21, is a candidate for the gene responsible for Down syndrome.

REFERENCES

1. Reyes, H., et al. 1992. Identification of the Ah receptor nuclear translocator protein (Arnt) as a component of the DNA binding form of the Ah receptor. *Science* 256: 1193-1195.
2. Huang, Z.J., et al. 1993. PAS is a dimerization domain common to *Drosophila* period and several transcription factors. *Nature* 364: 259-262.
3. Sogawa, K., et al. 1995. Transcriptional activation domains of the Ah receptor and Ah receptor nuclear translocator. *J. Cancer Res. Clin. Oncol.* 121: 612-620.
4. Ema, M., et al. 1996. Two new members of the murine Sim gene family are transcriptional repressors and show different expression patterns during mouse embryogenesis. *Mol. Cell. Biol.* 16: 5865-5875.
5. Fan, C.M., et al. 1996. Expression patterns of two murine homologs of *Drosophila* single-minded suggest possible roles in embryonic patterning and in the pathogenesis of Down syndrome. *Mol. Cell. Neurosci.* 7: 1-16.
6. Sogawa, K., et al. 1997. Ah receptor, a novel ligand-activated transcription factor. *J. Biochem.* 122: 1075-1079.

CHROMOSOMAL LOCATION

Genetic locus: SIM2 (human) mapping to 21q22.13.

SOURCE

SIM2s (3E6) is a mouse monoclonal antibody raised against amino acids 426-526 representing partial length SIM2s 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.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

SIM2s (3E6) is recommended for detection of SIM2s of 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).

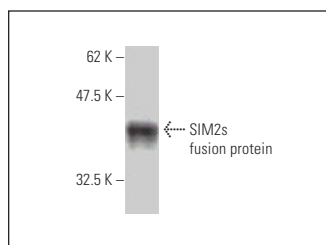
Suitable for use as control antibody for SIM2 siRNA (h): sc-38177, SIM2 shRNA Plasmid (h): sc-38177-SH and SIM2 shRNA (h) Lentiviral Particles: sc-38177-V.

Molecular Weight of SIM2s: 70 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, TBS Blotto A Blocking Reagent: sc-2333 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



SIM2s (3E6): sc-517035. Western blot analysis of human recombinant SIM2s fusion protein.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.