SANTA CRUZ BIOTECHNOLOGY, INC.

SIM1/2 (N-19): sc-8713

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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: SIM1 (human) mapping to 6q16.3, SIM2 (human) mapping to 21q22.13; Sim1 (mouse) mapping to 10 B3, Sim2 (mouse) mapping to 16 C4.

SOURCE

SIM1/2 (N-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of SIM1 of human origin.

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.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-8713 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

Available as TransCruz reagent for Gel Supershift and ChIP applications, sc-8713 X, 200 µg/0.1 ml.

APPLICATIONS

SIM1/2 (N-19) is recommended for detection of SIM1 and SIM2 of mouse, rat, human, *Drosophila melanogaster*, *Xenopus laevis* and zebrafish origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

SIM1/2 (N-19) is also recommended for detection of SIM1 and SIM2 in additional species, including equine, canine, bovine, porcine and avian.

SIM1/2 (N-19) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

PROTOCOLS

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