

Six3/6 (M-108): sc-9126

BACKGROUND

The SIX proteins (sine oculis) are a family of homeodomain transcription factors that share a conserved DNA binding domain. Two of these family members Six3 and Six6 (also designated Optx2 and Six9) are required for the specification and proliferation of the eye field in vertebrates and, therefore, are the vertebrate homologues most closely related to the *Drosophila* sine oculis protein, which has an essential role in controlling compound eye development. Six3 and Six6 expression largely overlap during development of specific tissues, such as retina, hypothalamus and pituitary. The human Six6 gene maps to chromosome 14q23.1. Haploinsufficiency of Six6 may cause several developmental disorders, including bilateral anophthalmia and pituitary anomalies. The gene encoding the human Six3 protein maps to chromosome 2p21, a region associated with holoprosencephaly type 2 (HPE2). Deletion of Six3 may be associated with HPE2 disorder, a common, severe malformation of the brain that results from incomplete cleavage of the forebrain during early embryogenesis.

REFERENCES

1. Kawakami, K., et al. 1996. Identification and expression of six family genes in mouse retina. *FEBS Lett.* 393: 259-263.
2. Gallardo, M.E., et al. 1999. Genomic cloning and characterization of the human homeobox gene Six6 reveals a cluster of Six genes in chromosome 14 and associates Six6 hemizygosy with bilateral anophthalmia and pituitary anomalies. *Genomics* 61: 82-91.
3. Leppert, G.S., et al. 1999. Sequence and location of Six3, a homeobox gene expressed in the human eye. *Ophthalmic Genet.* 20: 7-21.
4. Lopez-Rios, J., et al. 1999. Six9 (Optx2), a new member of the Six gene family of transcription factors, is expressed at early stages of vertebrate ocular and pituitary development. *Mech. Dev.* 83: 155-159.
5. Pasquier, L., et al. 2000. A new mutation in the Six-domain of Six3 gene causes holoprosencephaly. *Eur. J. Hum. Genet.* 8: 797-800.
6. Lopez-Rios, J., et al. 2003. Six3 and Six6 activity is modulated by members of the groucho family. *Development* 130: 185-195.

CHROMOSOMAL LOCATION

Genetic locus: SIX3/SIX2 (human) mapping to 2p21, SIX6/SIX1 (human) mapping to 14q23.1; Six3/Six2 (mouse) mapping to 17 E4, Six6/Six1 (mouse) mapping to 12 C3.

SOURCE

Six3/6 (M-108) is a rabbit polyclonal antibody raised against amino acids 93-200 of Six3 of mouse origin.

PRODUCT

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

Available as TransCruz reagent for Gel Supershift and ChIP applications, sc-9126 X, 200 µg/0.1 ml.

APPLICATIONS

Six3/6 (M-108) is recommended for detection of Six3, Six6, and to a lesser extent, Six1 and Six2 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)], 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).

Six3/6 (M-108) is also recommended for detection of Six3, Six6, and to a lesser extent, Six1 and Six2 in additional species, including canine, porcine and avian.

Six3/6 (M-108) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of Six3/6: 43 kDa.

Positive Controls: NIH/3T3 nuclear extract: sc-2138, Jurkat nuclear extract: sc-2132 or NIH/3T3 whole cell lysate: sc-2210.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Yang, Y., et al. 2004. Transcriptional regulation of mouse α B- and γ F-crystallin genes in lens: opposite promoter-specific interactions between Pax-6 and large Maf transcription factors. *J. Mol. Biol.* 344: 351-368.

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.

PROTOCOLS

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



Try **Six3 (A-1): sc-398797**, our highly recommended monoclonal alternative to Six3/6 (M-108).