

# Msx-1 (5D11D11): sc-517211

## BACKGROUND

Msx homeobox genes encode for transcription factors that control morphogenesis and are expressed at sites of epithelial-mesenchymal interaction during embryogenesis, such as the tooth. Two of these genes, Msx-1 and Msx-2, are key factors for the development of tooth and craniofacial skeleton. Msx-1 also down-regulates a master gene of skeletal cells differentiation. Msx-1 and Msx-2 contribute to the initial patterning of dentition as well as playing a pivotal role in terminal cell differentiation. In addition, Msx-1 and Msx-2 are expressed in the epidermis, hair follicles and fibroblasts of the developing fetal skin. In adult skin, Msx-1 and Msx-2 expression is confined to epithelially derived structures. Msx-2 is detected as a diffuse cytoplasmic signal in fetal epidermis and portions of the hair follicle and dermis, but is localized to the nucleus in the adult epidermis. Msx-1 and Msx-2 are also expressed during critical developmental stages of neural tube and neural crest, suggesting that these genes play an important role in organogenesis.

## REFERENCES

1. Maas, R. and Bei, M. 1997. The genetic control of early tooth development. *Crit. Rev. Oral Biol. Med.* 8: 4-39.
2. Stelnicki, E.J., et al. 1997. The human homeobox genes MSX-1, MSX-2, and MOX-1 are differentially expressed in the dermis and epidermis in fetal and adult skin. *Differentiation* 62: 33-41.
3. Foerst-Potts, L. and Sadler, T.W. 1997. Disruption of Msx-1 and Msx-2 reveals roles for these genes in craniofacial, eye, and axial development. *Dev. Dyn.* 209: 70-84.
4. Lezot, F., et al. 2000. Biomineralization, life-time of odontogenic cells and differential expression of the two homeobox genes MSX-1 and DLX-2 in transgenic mice. *J. Bone Miner. Res.* 15: 430-441.
5. Blin-Wakkach, C., et al. 2001. Endogenous Msx1 antisense transcript: *In vivo* and *in vitro* evidences, structure, and potential involvement in skeleton development in mammals. *Proc. Natl. Acad. Sci. USA* 98: 7336-7341.

## CHROMOSOMAL LOCATION

Genetic locus: MSX1 (human) mapping to 4p16.2.

## SOURCE

Msx-1 (5D11D11) is a mouse monoclonal antibody raised against a recombinant protein corresponding to amino acids 16-243 of Msx-1 of human origin.

## PRODUCT

Each vial contains 100 µg IgG<sub>1</sub> 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

Msx-1 (5D11D11) is recommended for detection of Msx-1 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 Msx-1 siRNA (h): sc-43945, Msx-1 shRNA Plasmid (h): sc-43945-SH and Msx-1 shRNA (h) Lentiviral Particles: sc-43945-V.

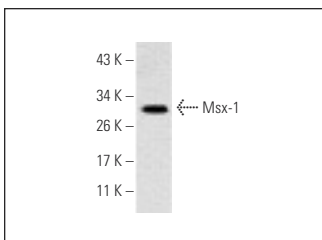
Molecular Weight of Msx-1: 31 kDa.

Positive Controls: NTERA-2 whole cell lysate.

## 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



Msx-1 (5D11D11): sc-517211. Western blot analysis of Msx-1 expression in NTERA-2 whole cell lysate.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.