SANTA CRUZ BIOTECHNOLOGY, INC.

Msx-2 (B-2): sc-393986

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 Msx-1 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: MSX2 (human) mapping to 5q35.2.

SOURCE

Msx-2 (B-2) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 11-37 near the N-terminus of Msx-2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_3 lambda light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-393986 X, 200 µg/0.1 ml.

Blocking peptide available for competition studies, sc-393986 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

RESEARCH USE

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

APPLICATIONS

Msx-2 (B-2) is recommended for detection of Msx-2 of human origin by Western Blotting (starting dilution 1:100, 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).

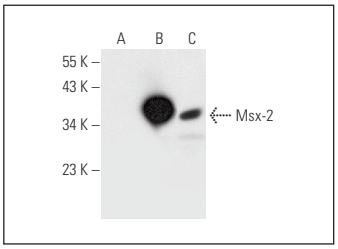
Suitable for use as control antibody for Msx-2 siRNA (h): sc-43946, Msx-2 shRNA Plasmid (h): sc-43946-SH and Msx-2 shRNA (h) Lentiviral Particles: sc-43946-V.

Msx-2 (B-2) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

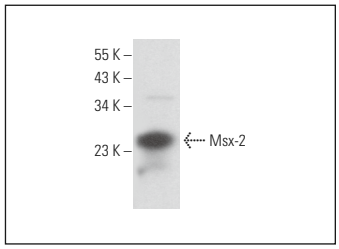
Molecular Weight of Msx-2: 29 kDa.

Positive Controls: Msx-2 (h): 293 Lysate: sc-113166, HeLa whole cell lysate: sc-2200 or JEG-3 whole cell lysate: sc-364255.

DATA



Msx-2 (B-2): sc-393986. Western blot analysis of Msx-2 expression in non-transfected 293: sc-110760 (**A**), human Msx-2 transfected 293: sc-113166 (**B**) and JEG-3 (**C**) whole cell lysates.



Msx-2 (B-2): sc-393986. Western blot analysis of Msx-2 expression in HeLa whole cell lysate. Detection reagent used: m-IgGλ BP-HRP (Cruz Marker): sc-516132-CM.

SELECT PRODUCT CITATIONS

1. Chen, Z., et al. 2021. Zinc ameliorates human aortic valve calcification through GPR39 mediated ERK1/2 signalling pathway. Cardiovasc. Res. 117: 820-835.
2. Praharaj, P.P., et al. 2023. CLU (clusterin) promotes mitophagic degradation of Msx-2 through an AKT-DNM1L/Drp1 axis to maintain SOX2-mediated stemness in oral cancer stem cells. Autophagy 19: 2196-2216.

STORAGE

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

PROTOCOLS

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