

# RUNX2 (27-K): sc-101145

## BACKGROUND

The mammalian Runt-related transcription factor (RUNX) family comprises three members, RUNX1 (also designated AML-1, PEBP2 $\alpha$ B, CBFA2), RUNX2 (also designated AML-3, PEBP2 $\alpha$ A, CBFA1, Osf2) and RUNX3 (also designated AML-2, PEBP $\alpha$ C, CBFA3). RUNX family members are DNA-binding proteins that regulate the expression of genes involved in cellular differentiation and cell cycle progression. RUNX2 is essential for skeletal mineralization in that it stimulates osteoblast differentiation of mesenchymal stem cells, promotes chondrocyte hypertrophy and contributes to endothelial cell migration and vascular invasion of developing bones. Regulating RUNX2 expression may be a useful therapeutic tool for promoting bone formation. Mutations in the C-terminus of RUNX2 are associated with cleidocranial dysplasia syndrome, an autosomal-dominant skeletal dysplasia syndrome that is characterized by widely patent calvarial sutures, clavicular hypoplasia, supernumerary teeth and short stature.

## CHROMSOMAL LOCATION

Genetic locus: RUNX2 (human) mapping to 6p21.1; Runx2 (mouse) mapping to 17 B3.

## SOURCE

RUNX2 (27-K) is a mouse monoclonal antibody raised against recombinant RUNX2 of human origin.

## PRODUCT

Each vial contains 50  $\mu$ g IgG<sub>2b</sub> in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

RUNX2 (27-K) is recommended for detection of RUNX2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (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 RUNX2 siRNA (h): sc-37145, RUNX2 siRNA (m): sc-37146, RUNX2 shRNA Plasmid (h): sc-37145-SH, RUNX2 shRNA Plasmid (m): sc-37146-SH, RUNX2 shRNA (h) Lentiviral Particles: sc-37145-V and RUNX2 shRNA (m) Lentiviral Particles: sc-37146-V.

Molecular Weight of RUNX2: 55 kDa.

Positive Controls: PC-3 cell lysate: sc-2220, K-562 whole cell lysate: sc-2203 or Saos-2 cell lysate: sc-2235.

## RESEARCH USE

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

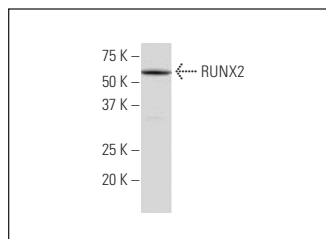
## PROTOCOLS

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

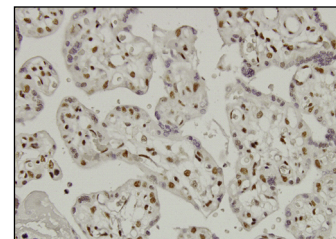
## STORAGE

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

## DATA



RUNX2 (27-K): sc-101145. Western blot analysis of RUNX2 expression in K-562 whole cell lysate.



RUNX2 (27-K): sc-101145. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human placenta tissue showing nuclear localization.

## SELECT PRODUCT CITATIONS

1. Akech, J., et al. 2010. Runx2 association with progression of prostate cancer in patients: mechanisms mediating bone osteolysis and osteoblastic metastatic lesions. *Oncogene* 29: 811-821.
2. Ren Y.R., et al. 2011. Structural analysis of the cancer-specific promoter in mesothelin and in other genes overexpressed in cancers. *J. Biol. Chem.* 286: 11960-11969.
3. Zhang, H., et al. 2011. FOXO1 inhibits Runx2 transcriptional activity and prostate cancer cell migration and invasion. *Cancer Res.* 71: 3257-3267.
4. Zhang, Z.J., et al. 2012. miRNA expression profile during osteogenic differentiation of human adipose-derived stem cells. *J. Cell. Biochem.* 113: 888-898.
5. Wen, Q., et al. 2012. Change in hepatocyte growth factor concentration promote mesenchymal stem cell-mediated osteogenic regeneration. *J. Cell. Mol. Med.* 16: 1260-1273.
6. Wang, Z.Q., et al. 2013. Inhibition of RUNX2 transcriptional activity blocks the proliferation, migration and invasion of epithelial ovarian carcinoma cells. *PLoS ONE* 8: e74384.
7. Hassiotou, F., et al. 2013. Expression of the pluripotency transcription factor OCT4 in the normal and aberrant mammary gland. *Front. Oncol.* 3: 79.
8. Stewart, S., et al. 2014. Sequential and opposing activities of Wnt and BMP coordinate zebrafish bone regeneration. *Cell Rep.* 6: 482-498.
9. Ying, M., et al. 2016. The E3 ubiquitin protein ligase MDM2 dictates all-*trans* retinoic acid-induced osteoblastic differentiation of osteosarcoma cells by modulating the degradation of RAR $\alpha$ . *Oncogene* 35: 4358-4367.

## CONJUGATES

See **RUNX2 (F-2): sc-390351** for RUNX2 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor<sup>®</sup> 488, 546, 594, 647, 680 and 790.