3050 Spruce Street, St. Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Product Information

Anti-RUNX1 (N-terminal)
produced in rabbit, affinity isolated antibody

Catalog Number: **R0406**

Product Description

Anti-RUNX1 (N-terminal) is produced in rabbit using as immunogen a synthetic peptide corresponding to amino acids 42-52 of human RUNX1 (GeneID: 861) conjugated to KLH. The corresponding sequence is identical in rat and mouse. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-RUNX1 (N-terminal) specifically recognizes human and mouse RUNX1 (other species not tested yet). The antibody may be used in several applications including immunoblotting (~48 kDa) and immunofluorescence. Staining of the RUNX1 band in immunoblotting is specifically inhibited with the immunizing peptide.

RUNX1 (also known as Core-binding factor, alpha 2 subunit, CBF-α2, and acute myeloid leukemia 1 protein, AML-1) encodes a DNA- binding subunit. It acts as an α-subunit that together with the non-DNA-binding β–subunit, forms a heterodimeric transcription factor, termed the core-binding factor (CBF). This complex activates and represses the transcription of many genes essential for both cell proliferation and differentiation during development [1, 2], including many mediators of hematopoiesis and osteogenesis, as well as regulators of cell cycle progeression.[3]

Three Runx genes have been identified in mammals and despite their structural similarity they exhibit diverse biological functions. *Runx1* is required for definitive hematopoiesis and is a frequently mutated gene in human leukemia. *Runx2* is required for osteogenesis and is associated with cleidocranial dysplasia. *Runx3* controls neurogenesis in the dorsal root ganglia and cell proliferation in the gastric epithelium, and is frequently deleted or silenced in human gastric cancer.[4, 5] The RUNX proteins contain within their N-terminus a conserved motif of 128 amino acid called the Runt Domain (RD), that mediates interactions with DNA and the β-subunit. The β-subunit increases the affinity of RUNX proteins for DNA by altering the conformation of the Runt Domain. The C-terminus contains transcriptional activation and repressor domain.

RUNX activity is regulated by several extracellular signaling pathways resulting in post-translational modifications, such as phosphorylation, acetylation, and ubiquitination.[6] RUNX1 is one of the most commonly targeted genes in acute leukemia, where it has been implicated in over 30 different translocations. The most frequently observed translocation of RUNX1 is the RUNX1-ETO, which occurs in 10-20% of acute myeloid leukemia. [7]

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody concentration: ~1.0 mg/mL

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is also not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working antibody concentration of 0.25-0.5 µg/mL is recommended using HeLa cell lysate.

Indirect immunofluorescence: a working antibody concentration of 2-5 µg/mL is recommended using paraformaldehyde-fixed HeLa cells.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining the optimal working dilutions by titration.

References

1. Mikhail, F., et al., *J. Cell Physiol*., **207**, 582–593 (2006).
2. Durst, K., et al., *Oncogene,* **23***,* 4220–42204 (2004).
3. Otto, F., et al., *J. Cell Biochem*., **89**, 9-18 (2003).
4. Coffman, J.A*., Cell Biol. internatl*., **27**, 315-324 (2003).
5. Blyth, K., et al., *Nature*, **5**, 376-387 (2005).
6. Bae, S.C., et al., *Gene*, **366**, 57-66 (2005).
7. Miyoshi, H., et al., *Proc. Natl. Acad. Sci. USA*, **88**, 10431-10434 (1991).

SG.KAA,PHC 09/08-1