

Product Information

Anti-Sin3A, N-Terminal

Produced in Rabbit, IgG fraction of antiserum

Product Number **S 4445**

Product Description

Anti-Sin3A, N-terminal is developed in rabbit using as immunogen a synthetic peptide corresponding to amino acids 1-18 of human Sin3A, conjugated to KLH via a C-terminal added cysteine residue. The immunizing peptide is conserved in human, mouse, and rat. It is not present in Sin3B. Whole antiserum is fractionated and then further purified by ion-exchange chromatography to provide the IgG fraction of antiserum that is essentially free of other rabbit serum proteins.

Anti-Sin3A, N-terminal specifically recognizes mammalian Sin3A (160 kDa). Applications include immunoblotting, immunofluorescence, and immunoprecipitation. Staining of the Sin3A band in immunoblotting is specifically inhibited by the immunizing peptide.

Gene transcription in eukaryotes is controlled by a dynamic interplay between transcriptional activation and repression, both taking place in the context of chromatin.^{1, 2} Therefore, chromatin remodeling is one of the critical steps in gene silencing.^{3, 4} Chromatin remodeling factors drive mobilization of the nucleosome by both, catalyzation of ATP hydrolysis, as well as by histone deacetylation.⁵⁻⁷ The acetylation status of histones at specific DNA regulatory sequences depends on the recruitment of histone acetyltransferase or histone deacetylase (HDAC) activities, usually as part of large multiprotein complexes of coactivators or corepressors, respectively.^{2, 7} Sin3A and Sin3B were initially identified in mouse as proteins required for the transcription and growth suppressor functions of the Mad1 and Mx1 proteins.⁸ Since then, mSin3A and mSin3B have been implicated as corepressors with the ability to interact with several transcriptional repressors with functions in diverse cellular processes including proliferation, differentiation, apoptosis, oncogenesis, and cell fate determination.^{2, 9, 10}

Sin3A is a 1273 amino acids protein containing paired amphipathic helix (PAH) domains, important for protein-protein interactions.⁸ The Sin3A/HDAC corepressor complex contains a module composed of Sin3A, HDAC1, HDAC2, RbAp46, RbAp48, SAP30, and others.¹¹ Several transcription repressors exert their effects by recruitment of the Sin3A/HDAC complex. For example, Snail mediates repression of E-cadherin through formation of a multimolecular complex with Sin3A/HDAC.¹² Interestingly, the methyl-CpG binding protein MeCP2 can recruit the Sin3-HDAC complex to CpG-methylated DNA by binding to Sin3A; recruitment of the corepressor complex by chromatin-bound MeCP2 may lead to local deacetylation of core histones and elimination of transcription.⁹ Repression of transcription by the Sin3A/HDAC complex can yet be achieved through its interaction with O-GlcNAc transferase (OGT); Sin3A targets OGT to promoters, inactivating transcription factors and RNA Polymerase II through the addition of O-GlcNAc residues.¹³

Reagent

The antibody is supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Precautions and Disclaimer

Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazardous 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 is not recommended. 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

By immunoblotting, a working antibody dilution of 1:500-1:1,000 is recommended using HeLa nuclear extracts.

By immunoprecipitation, 5-10 µL of the antibody immunoprecipitates Sin3A from HEK 293T cell lysates.

Recommendation: For immunoblotting, dilute the antibody in phosphate buffered saline containing 1% non-fat dry milk and 0.05% Tween™ 20.

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

References

1. Lee, T.I., and Young, R.A., *Ann. Rev. Genet.*, **34**, 77-137 (2000).
2. Jepsen, K., and Rosenfeld, M.G., *J. Cell Sci.*, **115**, 689-698 (2002).
3. Bird, A.P., and Wolffe, A.P., *Cell*, **99**, 451-454 (1999).
4. Riggs, A.D., and Pfeifer, G.P., *Trends Genet.*, **8**, 169-174 (1992).
5. Wang, W., et al., *EMBO J.*, **15**, 5370-5382 (1996).
6. Muchardt, C., et al, *EMBO J.*, **15**, 3394-3402 (1996).
7. Strahl, B.D., and Allis, C.D., *Nature*, **403**, 41-45 (2000).
8. Ayer, D.E., et al., *Cell*, **80**, 767-776 (1995).
9. Nan, X., et al., *Nature*, **393**, 386-389 (1998).
10. Ahringer, J., *Trends Genet.*, **16**, 351-356 (2000).
11. Fleischer, T.C., et al., *Mol. Cell. Biol.*, **23**, 3456-3467 (2003).
12. Peinado, H., et al., *Mol. Cell. Biol.*, **24**, 306-319 (2004).
13. Yang, X., et al., *Cell*, **110**, 69-80 (2002).

KAA/NV 04/05

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.