Revision 4

Store at -20C

#8056

SIN3A (D9D6) Rabbit mAb

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IP, IF-IC, ChIP, C&R	H Mk	Endogenous	145	Rabbit IgG	#Q96ST3	25942

Product Usage Information

For optimal ChIP and ChIP-seq results, use 10 µl of antibody and 10 µg of chromatin (approximately 4 x 10^6 cells) per IP. This antibody has been validated using SimpleChIP® Enzymatic Chromatin IP Kits.

The CUT&RUN dilution was determined using CUT&RUN Assay Kit #86652.

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:50
Immunofluorescence (Immunocytochemistry)	1:200
Chromatin IP	1:50
CUT&RUN	1:50

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

Specificity/Sensitivity

SIN3A (D9D6) Rabbit mAb recognizes endogenous levels of total SIN3A protein. Based on protein sequence, this antibody is not predicted to cross-react with SIN3B protein.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Leu530 of human SIN3A protein.

Background

SIN3 was originally identified as a negative regulator of transcription in budding yeast (1,2). Since then, three isoforms of the SIN3 proteins have been identified in mammalian cells, as products of two different genes, SIN3A and SIN3B (3,4). Both SIN3A and SIN3B are nuclear proteins that function as scaffolding subunits for the multi-subunit SIN3 transcriptional repressor complex, containing SIN3A or SIN3B, HDAC1, HDAC2, SDS3, RBBP4/RBAP48, RBBP7/RBAP46, SAP30, and SAP18 (3,4). SIN3 proteins contain four paired amphipathic alpha-helix (PAH) motifs that function in the recruitment of the SIN3 complex to target genes by binding a multitude of DNA-binding transcriptional repressor proteins, including Mad1, p53, E2F4, HCF-1, AML1, Elk-1, NRSF, CTCF, ERα, and MeCP2 (3,4). In addition, SIN3 proteins contain an HDAC interaction domain (HID), which mediates binding of HDAC1 and HDAC2 via the SDS3 bridging protein, and a highly conserved region (HCR) at the carboxy terminus, which contributes to repressor protein binding (3,4). RBBP4 and RBBP7 proteins also bind to SDS3 and contribute to nucleosome binding of the complex. The SIN3 complex functions to repress transcription, in part, by deacetylating histones at target gene promoters (3,4). In addition, recent studies have shown that SIN3 is recruited to the coding regions of repressed and active genes, where it deacetylates histones and suppresses spurious transcription by RNA polymerase II (3,5). In addition to histone deacetylase activity, the SIN3 complex associates with histone methyltransferase (ESET), histone demethylase (JARID1A/RBP2), ATP-dependent chromatin remodeling (SWI/SNF), methylcytosine dioxygenase (TET1), and O-GlcNAc transferase (OGT) activities, all of which appear to contribute to the regulation of target genes (5-9). The SIN3 complex is critical for proper regulation of embryonic development, cell growth and proliferation, apoptosis, DNA replication, DNA repair, and DNA methylation (imprinting and X-chromosome inactivation) (3,4).

Background References

1. Sternberg, P.W. et al. (1987) *Cell* 48, 567-77.
2. Nasmyth, K. et al. (1987) *Cell* 48, 579-87.
3. Grzenda, A. et al. *Biochim Biophys Acta* 1789, 443-50.
4. McDonel, P. et al. (2009) *Int J Biochem Cell Biol* 41, 108-16.
5. van Oevelen, C. et al. (2008) *Mol Cell* 32, 359-70.
6. Yang, L. et al. (2003) *Biochem J* 369, 651-7.
7. Sif, S. et al. (2001) *Genes Dev* 15, 603-18.
8. Williams, K. et al. (2011) *Nature* 473, 343-8.
9. Yang, X. et al. (2002) *Cell* 110, 69-80.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting **IP:** Immunoprecipitation **IF-IC:** Immunofluorescence (Immunocytochemistry) **ChIP:** Chromatin IP **C&R:** CUT&RUN

Cross-Reactivity Key

H: Human **Mk:** Monkey

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Limited Uses