

SirT7 (D3K5A) Rabbit mAb

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications: W, IP	Reactivity: H M R Mk	Sensitivity: Endogenous	MW (kDa): 45	Source/Isotype: Rabbit IgG	UniProt ID: #Q9NRC8	Entrez-Gene Id: 51547
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Product Usage Information**Application**

Western Blotting
Immunoprecipitation

Dilution

1:1000
1:200

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

SirT7 (D3K5A) Rabbit mAb recognizes endogenous levels of total SirT7 protein. This antibody does not cross-react with other sirtuin proteins.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a recombinant protein specific to the amino terminus of human SirT7 protein.

Background

The Silent Information Regulator (SIR2) family of genes is a highly conserved group of genes that encode nicotinamide adenine dinucleotide (NAD)-dependent protein deacetylases, also known as Class III histone deacetylases. The first discovered and best characterized of these genes is *Saccharomyces cerevisiae* Sir2, which is involved in silencing of mating type loci, telomere maintenance, DNA damage response, and cell aging (1). SirT7, a mammalian homolog of Sir2, is localized primarily in the nucleolus and is most prominently expressed in hematopoietic cells, especially myeloid progenitor cells (2). SirT7 is recruited to chromatin by sequence-specific DNA binding transcription factors such as Elk-4, where it functions to deacetylate Lys18 of histone H3 at gene promoters and facilitate transcriptional repression (3). Interestingly, overexpression of SirT7 induces a global decrease in histone H3 Lys18 acetylation levels, a phenotype that has been associated with poor prognosis in prostate, lung, kidney, and pancreatic cancers in the research literature (3-5). Furthermore, studies have also shown that SirT7 is required for the maintenance of several transformed phenotypes of cancer cells, including anchorage-independent cell growth, growth in low serum conditions, and tumor formation in xenograft assays (3). SirT7 is also required for the E1A-induced decrease in histone H3 Lys18 acetylation, induction of cell-cycle entry, and escape from contact inhibition (3). Taken together, these findings strongly suggest that SirT7 is an important regulator of cellular transformation. Research has shown that the SirT7 gene is located on chromosome 17q25.3, a region that is frequently altered in acute leukemia and lymphoma (2), and SirT7 overexpression and amplification have been detected in multiple types of cancer (6-8).

Background References

1. Guarente, L. (1999) *Nat Genet* 23, 281-5.
2. Voelter-Mahlknecht, S. et al. (2006) *Int J Oncol* 28, 899-908.
3. Barber, M.F. et al. (2012) *Nature* 487, 114-8.
4. Manuyakorn, A. et al. (2010) *J Clin Oncol* 28, 1358-65.
5. Seligson, D.B. et al. (2009) *Am J Pathol* 174, 1619-28.
6. Ashraf, N. et al. (2006) *Br J Cancer* 95, 1056-61.
7. de Nigris, F. et al. (2002) *Br J Cancer* 86, 917-23.
8. Frye, R. (2002) *Br J Cancer* 87, 1479.

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

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat **Mk:** Monkey

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