

Product Information

Anti-Sirt5

produced in rabbit, affinity isolated antibody

Catalog Number **S4947**

Product Description

Anti-Sirt5 is produced in rabbit using as immunogen a synthetic peptide corresponding to amino acids 273-285 of mouse Sirt5 (GenelD: 68346), conjugated to KLH via an N-terminal cysteine residue. The corresponding sequence differs by one and two amino acids in rat and human Sirt5, respectively. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-Sirt5 recognizes mouse, rat and human Sirt5 by immunoblotting (~36 kDa) and immunofluorescence. Detection of the Sirt5 band by immunoblotting is specifically inhibited with the immunizing peptide.

Eukaryotic genomes are organized as functional domains that facilitate the fundamental processes of transcription, replication, and DNA repair. Inactivation of large domains of DNA by packaging them into a specialized inaccessible chromatin structure leads to gene silencing. This type of inactivation is involved in the regulation of gene expression and is also associated with the chromosomal structure required for chromosome maintenance and inheritance.¹ Genetic and biochemical studies in budding yeasts have identified the main regulatory sites and proteins that collaborate to assemble silenced DNA.² Sir2, one of the silent information regulator genes in yeast, is a nicotinamide adenine dinucleotide (NAD)-dependent deacetylase that modulates gene silencing, aging and energy metabolism.³ Sir2 maintains the heterochromatic state at the mating-type loci, telomers, and rRNA-encoding DNA repeats.⁴ Sir2 controls the activity of acetyl-coenzyme A synthetase (AceCS), a metabolic evolutionarily conserved enzyme that converts acetate to acetyl-CoA, and mediates the effect of caloric restriction on life span extension.^{3, 5, 6}

Sir2 belongs to a family of proteins that is found in organisms ranging from bacteria to complex eukaryotes. Members of this family contain a 250 amino acid core domain that shares about 25-60% sequence identity.⁷ The mammalian Sir2 gene family is comprised of seven members which are designated SIRT1-7.⁸

Sirt5 is an NAD(+)-dependent histone deacetylase localized to the mitochondria, an organelle that links aging and energy metabolism.^{9, 10} Suramin was found to bind human Sirt5 and inhibit its NAD(+)-dependent deacetylase activity.¹¹ Human Sirt5 is broadly expressed with the highest levels in heart muscle cells and in lymphoblasts.^{9, 12}

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 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 1-2 µg/mL is recommended using whole extracts of human HepG2 and rat Rat1 cells.

Immunofluorescence: a working antibody concentration of 2.5-5 µg/mL is recommended using mouse 3T3 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. Karpen, G.H., *Curr. Opin. Genet. Dev.*, **4**, 281-291(1994).

2. Gartenberg, M.R., *Curr. Opin. Microbiol.*, **3**, 132-137 (2000).
3. Hallows, W.C., et al., *Proc. Natl. Acad. Sci. USA*, **103**, 10230-10235 (2006).
4. Onyango, P., et al., *Proc. Natl. Acad. Sci. USA*, **99**, 13653-13658 (2002).
5. Schwer, B., et al., *Proc. Natl. Acad. Sci. USA*, **103**, 10224-10229 (2006).
6. Shi, T., et al., *J. Biol. Chem.*, **280**, 13560-13567 (2005).
7. Brachmann, C.B., et al., *Genes Dev.*, **9**, 2888-2902 (1995).
8. Schwer, B., et al., *J. Cell Biol.*, **158**, 647-657 (2002).
9. Michishita, E., et al., *Mol. Biol. Cell*, **16**, 4623-4635 (2005).
10. Blander, G., and Guarente, L., *Annu. Rev. Biochem.*, **73**, 417-435 (2004).
11. Schuetz, A., et al., *Structure*, **15**, 377-389 (2007).
12. Mahlkecht, U., et al., *Cytogenet. Genome Res.*, **112**, 208-212 (2006).

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