Revision 1

Store at -20C

#8782

SirT5 (D8C3) Rabbit mAb

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W	H M R	Endogenous	30	Rabbit IgG	#Q9NXA8	23408

Product Usage Information

Application	Dilution
Western Blotting	1:1000

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

SirT5 (D8C3) Rabbit mAb recognizes endogenous levels of total SirT5 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 full-length human SirT5 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). SirT5, a mammalian homolog of Sir2, is localized to the mitochondria and has been implicated in the regulation of cell metabolism (2,3). SirT5 deacetylates carbamoyl phosphate synthetase 1 (CPS1) in the mitochondrial matrix and increases its activity in response to fasting, allowing for adaptation to increased amino acid catabolism (4). SirT5 has also been shown to deacetylate cytochrome c in the mitochondrial intermembrane space (5). In addition to its deacetylase activity, SirT5 contains lysine desuccinylase and demalonylase activity (6,7). Succinyl-lysine and malonyl-lysine modifications occur in a variety of organisms and these post-translational modifications are found on many metabolic enzymes (6-8). Like phosphorylation of serine, threonine, and tyrosine residues, lysine succinylation and malonylation induces a change of two negative charges from a +1 to a -1 charge at physiological pH, and are thought to serve similar functions in the regulation of protein activity, protein-protein interactions, and protein stability. SirT5 knockout mice show increased levels of succinyl-lysine and malonyl-lysine protein modifications in the liver, including increased succinylation of CPS1, a known target of SirT5, suggesting that SirT5 functions to regulate metabolic enzymes through its deacetylase, desuccinylase, and demalonylase activities (6,7).

Background References

1. Guarente, L. (1999) *Nat Genet* 23, 281-5.
2. Newman, J.C. et al. (2012) *J Biol Chem* , .
3. He, W. et al. (2012) *Trends Endocrinol Metab* 23, 467-76.
4. Nakagawa, T. et al. (2009) *Cell* 137, 560-70.
5. Schlicker, C. et al. (2008) *J Mol Biol* 382, 790-801.
6. Du, J. et al. (2011) *Science* 334, 806-9.
7. Peng, C. et al. (2011) *Mol Cell Proteomics* 10, M111.012658.
8. Zhang, Z. et al. (2011) *Nat Chem Biol* 7, 58-63.

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

Cross-Reactivity Key

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

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