

#2627 Store at -20°C

SirT3 (C73E3) Rabbit mAb

✓ 100 µl
(10 western blots)



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This product is intended for research purposes only. This product is not intended to be used for therapeutic or diagnostic purposes in humans or animals.

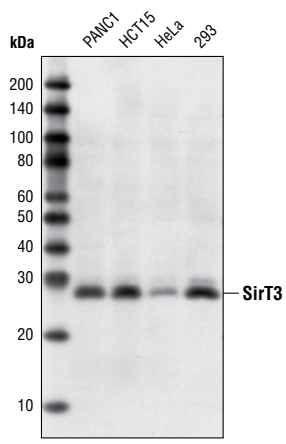
Applications	Species Cross-Reactivity*	Molecular Wt.	Isotype
W, IP, IHC-P Endogenous	H, R, Mk	28 kDa	Rabbit IgG**

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). SirT3, a mammalian homolog of Sir2, exists in human cells in two forms. The full-length 44 kDa protein localizes to the nucleus, while a processed 28 kDa protein lacking 142 amino terminal residues localizes exclusively to the mitochondria (2-4). The single murine form of SirT3 is equivalent to the processed human SirT3 protein (2). Full-length SirT3 protein is processed in the mitochondrial matrix by the mitochondrial matrix processing peptidase (MMP) (3). Both full-length and processed forms of SirT3 are enzymatically active and de-acetylate histone H3 at Lys9 and histone H4 at Lys16 *in vitro* (2). SirT3 also de-acetylates Lys642 of acetyl-CoA synthetase 2 (AceCS2) and activates AceCS2 activity in the mitochondria (5). Restricted caloric intake, which is linked to increased lifespan in multiple organisms, increases SirT3 expression in white and brown adipocytes of obese mice, suggesting a role for SirT3 in aging (6). Two observations implicate SirT3 in the regulation of mitochondrial thermogenesis. First, exposure to cold temperatures increases SirT3 expression in brown adipocytes, while elevated temperatures reduce SirT3 expression (6). Second, over-expression of SirT3 results in increased levels of the mitochondrial uncoupling protein 1 (UCP1) (6). SirT3 protein levels are also elevated in certain breast cancers (7).

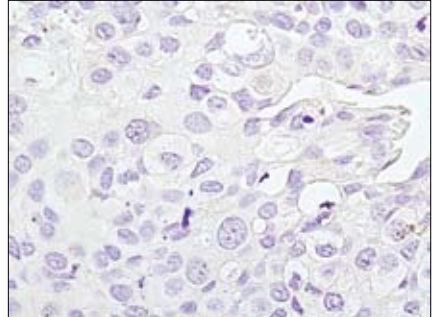
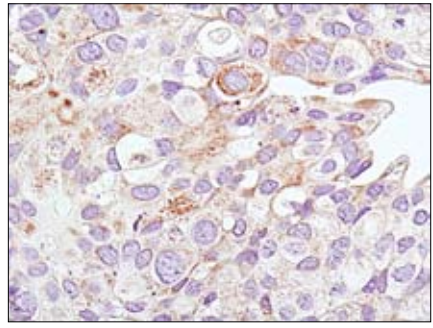
Specificity/Sensitivity: SirT3 (C73E3) Rabbit mAb detects endogenous levels of SirT3 protein, both the uncleaved 45 kDa precursor protein and the cleaved 28 kDa protein. The antibody does not cross-react with other Sirtuin proteins.

Source/Purification: Monoclonal antibody is produced by immunizing animals with a synthetic peptide (KLH-coupled) derived from the sequence of human SirT3 protein.

Immunohistochemical analysis of paraffin-embedded human breast carcinoma using SirT3 (C7E3) Rabbit mAb in the presence of control peptide (upper) or antigen specific peptide (lower).



Western blot analysis of various cell extracts using SirT3 (C73E3) Rabbit mAb.



Entrez-Gene ID # 23410
Swiss-Prot Acc. # Q9NTG7

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.

*Species cross-reactivity is determined by western blot.

**Anti-rabbit secondary antibodies must be used to detect this antibody.

Recommended Antibody Dilutions:

Western blotting	1:1000
Immunoprecipitation	1:50
Immunohistochemistry (Paraffin)	1:100
Unmasking buffer:	Citrate
Antibody diluent:	TBST-5%NGS

Background References:

- (1) Guarente, L. (1999) *Nat Genet* 23, 281-5.
- (2) Scher, M.B. et al. (2007) *Genes Dev* 21, 920-8.
- (3) Schwer, B. et al. (2002) *J Cell Biol* 158, 647-57.
- (4) Onyango, P. et al. (2002) *Proc Natl Acad Sci USA* 99, 13653-8.
- (5) Schwer, B. et al. (2006) *Proc Natl Acad Sci USA* 103, 10224-9.
- (6) Shi, T. et al. (2005) *J Biol Chem* 280, 13560-7.
- (7) Ashraf, N. et al. (2006) *Br J Cancer* 95, 1056-61.

For application specific protocols please see the web page for this product at www.cellsignal.com.

Please visit www.cellsignal.com for a complete listing of recommended companion products.

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

Applications Key: W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide
Species Cross-Reactivity Key: H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebrafish B—bovine
 Dg—dog Pg—pig Sc—S. cerevisiae Ce—C. elegans Hr—Horse All—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.

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