Store at –20°C

#2314

Phospho-SirT1 (Ser47) Antibody

☐ Small 100 µl (20 western blots)

☐ Large 300 µl (60 western blots)

Cell Signaling TECHNOLOGY®

Orders ■ 877-616-CELL (2355) orders@cellsignal.com

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rev. 01/11/10

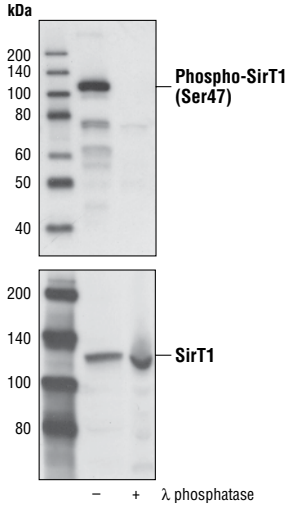
Entrez-Gene ID #23411
Swiss-Prot Acc. #Q96EB6

Applications	Species Cross-Reactivity*	Molecular Wt.	Source
W, IP, IF-IC, F Endogenous	H	120 kDa	Rabbit**

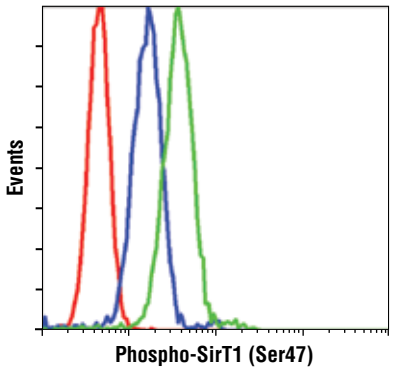
Background: The Silent Information Regulator (SIR2) family of genes is a highly conserved group of genes that encode nicotinamide adenine dinucleotide (NAD)-dependent protein deacetylases, also known as Class III histone deacetylases. The first discovered and best characterized of these genes is *Saccharomyces cerevisiae SIR2*, which is involved in silencing of mating type loci, telomere maintenance, DNA damage response and cell aging (1). SirT1, the mammalian ortholog of Sir2, is a nuclear protein implicated in the regulation of many cellular processes, including apoptosis, cellular senescence, endocrine signaling, glucose homeostasis, aging and longevity. Targets of SirT1 include acetylated p53 (2,3), p300 (4), Ku70 (5), forkhead (FoxO) transcription factors (5,6), PPARγ (7) and the PPARγ coactivator-1α (PGC-1α) protein (8). Deacetylation of p53 and FoxO transcription factors represses apoptosis and increases cell survival (2,3,5,6). Deacetylation of PPARγ and PGC-1α regulates the gluconeogenic/glycolytic pathways in the liver and fat mobilization in white adipocytes in response to fasting (7,8). SirT1 deacetylase activity is inhibited by nicotinamide and activated by resveratrol. In addition, SirT1 activity may be regulated by phosphorylation, since it is phosphorylated on serines 27 and 47 *in vivo*; however, the function of these phosphorylation sites has not yet been determined (9).

Specificity/Sensitivity: Phospho-SirT1 (Ser47) Antibody detects endogenous levels of SirT1 protein only when phosphorylated at serine 47. The antibody does not cross-react with other sirtuin proteins.

Source/Purification: Polyclonal antibodies are produced by immunizing animals with a synthetic phospho-peptide (KLH-coupled) corresponding to residues surrounding Ser47 of human SirT1. Antibodies are purified by protein A and peptide affinity chromatography.



Western blot analysis of 293 cell lysates treated or untreated with λ phosphatase, using Phospho-SirT1 (Ser47) Antibody #2314 (upper) or SirT1 Antibody #2310 (lower).



Flow cytometric analysis of K562 cells, λ phosphatase treated (blue) or untreated (green), using Phospho-SirT1 (Ser47) Antibody compared to a nonspecific negative control antibody (red).

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. 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	1:2000
Immunoprecipitation	1:25
Immunofluorescence (IF-IC)	1:50
Flow Cytometry	1:50

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.

Background References:

(1) Guarente, L. (1999) *Nat. Genet.* 23, 281–285.

(2) Vaziri, H. et al. (2001) *Cell* 107, 149–159.

(3) Luo, J. et al. (2001) *Cell* 107, 137–148.

(4) Bouras, T. et al. (2005) *J. Biol. Chem.* 280, 10264–10276.

(5) Brunet, A. et al. (2004) *Science* 303, 2011–2015.

(6) Motta, M.C. et al. (2004) *Cell* 116, 551–563.

(7) Picard, F. et al. (2004) *Nature* 429, 771–776.

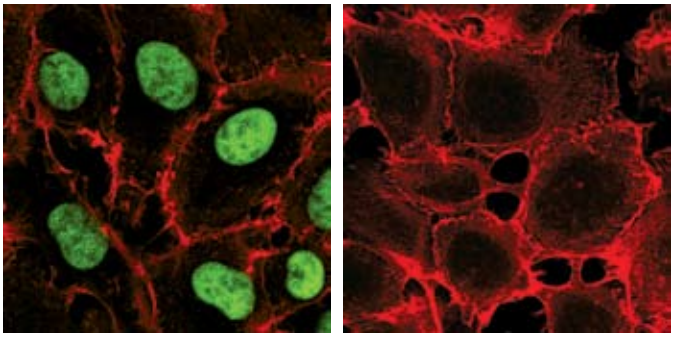
(8) Rodgers, J.T. et al. (2005) *Nature* 434, 113–118.

(9) Beausoleil, S.A. et al. (2004) *Proc. Natl. Acad. Sci. USA* 101, 12130–12135.

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.



Confocal immunofluorescent analysis of HT-1080 cells, untreated (left) and phosphatase-treated (right), using Phospho-SirT1 (Ser47) Antibody (green). Actin filaments have been labeled using DY-554 phalloidin (red).