



NAD(+)-Dependent Deacetylase SIRT6

Product Data Sheet

For Research Use Only, Not for use in diagnostic procedures

NAD(+)-Dependent Deacetylase SIRT6 Human, recombinant protein expressed in *E. coli*, Active

Cat# CY-E1156

Amount: 100µg (1.0 µg/µl)

Lot: 22C11

Specific Activity: 0.026 units/µg

Introduction:

Sir2 is a conserved protein and was recently shown to regulate lifespan extension both in budding yeast and nematode. In 2000, it was reported that the yeast Sir2 protein is a NAD(+)-dependent histone deacetylase that plays a critical role in transcriptional silencing, genome stability and longevity. In mammals, the homologs of Sir2 have been named Sirtuins (SIRT6), with seven members in a family termed SIRT1 through SIRT7. They share a conserved central deacetylase domain but have different N- and C termini and display distinct subcellular localization, suggesting different biological functions (1).

The distant mammalian Sir2 homolog SIRT6 is a broadly expressed, predominantly nuclear protein (2) like SIRT1. Inactivation of the Sirt6 gene in mice leads to dramatically shortened life span and a premature aging-like phenotype (3). It was shown that SIRT6 is a histone H3 lysine 9 deacetylase, and identified a role for SIRT6 activity at telomeric chromatin, where it prevents telomere dysfunction in human cells (4). In addition, SIRT6 also deacetylates histone H3 acetylated lysine 56 in vivo to promote genomic stability (5). In term of function, SIRT6 binds to the NF-κB subunit RELA and attenuates NF-κB signaling by modifying chromatin at NF-κB target genes (6). Thus SIRT6-mediated control of NF-κB prevents aging-associated, hyperactive NF-κB-dependent gene expression, and inhibition of NF-κB can rescue the early lethality of Sirt6 knockout mice. Overexpression of wild-type Sirt6, but not the catalytically inactive form, consistently resulted in increased tumor necrosis factor protein production relative to its mRNA levels (7).

Product Description:

Full-length human SIRT6, containing an N-terminal GST tag, expressed in *E. coli*. and purified by GSH agarose chromatography.

Gene Information:

The gene accession number is NM_016539.1

Gene Aliases:

SIR2L6, Sirtuin 6

Formulation:

Recombinant SIRT6 is supplied frozen in a buffer containing 20mM HEPES-KOH (pH7.5), 50mM NaCl, 0.5mM EDTA, 1mM DTT, 0.1% BSA, 50% Glycerol. Use a same buffer without glycerol for dilution when needed.

Molecular Weight:

Recombinant SIRT6 demonstrates approximately 64 kDa band by SDS-PAGE analysis.



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Storage:

Store product at -70°C. For optimal storage, aliquot target into smaller quantities after centrifugation and store at recommended temperature. For most favorable performance, AVOID REPEATED HANDLING AND MULTIPLE FREEZE/THAW CYCLES.

Stability:

Unopened vial at -70 °C, for 1 year after delivery.

Unit Definitions:

One unit is defined as the amount of deacetylase required to release 1 nmol of acetyl groups from CycLex's Fluoro-Substrate Peptide included in Cat# CY-1156 with 0.8mM NAD per minute at 20°C. Specific Activity will vary among production lots.

References:

1. North, B.J., and Verdin, E.; Sirtuins: SIRT6-related NAD-dependent protein deacetylases. *Genome Biol.* 5: 224, 2004
2. Michishita E et al.; Evolutionarily conserved and nonconserved cellular localizations and functions of human SIRT proteins. *Mol Biol Cell.* 16: 4623, 2005
3. Mostoslavsky R et al.; Genomic instability and aging-like phenotype in the absence of mammalian SIRT6. *Cell.* 124: 315, 2006
4. Michishita E et al.; SIRT6 is a histone H3 lysine 9 deacetylase that modulates telomeric chromatin. *Nature.* 452: 492, 2008
5. Yang B et al.; The sirtuin SIRT6 deacetylates H3 K56Ac in vivo to promote genomic stability. *Cell Cycle.* 8: 2662, 2009
6. Kawahara TL et al.; SIRT6 links histone H3 lysine 9 deacetylation to NF-kappaB-dependent gene expression and organismal life span. *Cell.* 136: 62, 2009
7. Van Gool F, et al.; Intracellular NAD levels regulate tumor necrosis factor protein synthesis in a sirtuin-dependent manner. *Nat Med.* 15: 206, 2009



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Related Products

- * CycLex NAD(+)-Dependent Deacetylase SIRT1: Cat# CY-E1151
- * CycLex NAD(+)-Dependent Deacetylase SIRT2: Cat# CY-E1152
- * CycLex NAD(+)-Dependent Deacetylase SIRT3: Cat# CY-E1153
- * CycLex NAD(+)-Dependent Deacetylase SIRT6: Cat# CY-E1156
- * CycLex HDACs Deacetylase Fluorometric Assay Kit: Cat# CY-1150
- * CycLex SIRT1 Deacetylase Fluorometric Assay Kit: Cat# CY-1151
- * CycLex SIRT2 Deacetylase Fluorometric Assay Kit: Cat# CY-1152
- * CycLex SIRT3 Deacetylase Fluorometric Assay Kit: Cat# CY-1153
- * CycLex SIRT6 Deacetylase Fluorometric Assay Kit: Cat# CY-1156
- * CycLex HDAC8 Deacetylase Fluorometric Assay Kit: Cat# CY-1158
- * CycLex NAMPT (Nicotinamide Phosphoribosyltransferase): Cat# CY-E1251
- * CycLex NMNAT1 (Nicotinamide Mononucleotide Adenylyltransferase 1): Cat# CY-E1252

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