

## SIRT3 Protein, Human (His, SUMO)

<b>Cat. No.:</b>	HY-P701610
<b>Synonyms:</b>	SIRT3; NAD-dependent protein deacetylase sirtuin-3; mitochondrial; hSIRT3; Regulatory protein SIR2 homolog 3; SIR2-like protein 3
<b>Species:</b>	Human
<b>Source:</b>	E. coli
<b>Accession:</b>	Q9NTG7 (S118-K399)
<b>Gene ID:</b>	23410
<b>Molecular Weight:</b>	

### PROPERTIES

<b>Appearance</b>	Solution.
<b>Formulation</b>	Supplied as a 0.22 µm filtered solution of 50 mM Tris-HCl, pH7.5, 200 mM NaCl, 20% glycerol.
<b>Endotoxin Level</b>	<1 EU/µg, determined by LAL method.
<b>Reconstitution</b>	Please use rapid thawing with running water to thaw the protein.
<b>Storage &amp; Stability</b>	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
<b>Shipping</b>	Shipping with dry ice.

### DESCRIPTION

<b>Background</b>	<p>SIRT3, a NAD-dependent protein deacetylase, intricately modulates the acetylation status of key lysine residues in various mitochondrial target proteins, including ACSS1, IDH, GDH, SOD2, PDHA1, LCAD, SDHA, and ATP synthase subunit ATP5PO. By catalyzing deacetylation, SIRT3 actively participates in the regulation of cellular energy metabolism, exerting influence on tissue-specific ATP levels and contributing to the fine-tuning of metabolic responses. Under metabolic stress conditions, SIRT3 deacetylates the transcription factor FOXO3, recruiting both FOXO3 and mitochondrial RNA polymerase POLRMT to mitochondrial DNA, thereby enhancing mtDNA transcription. Additionally, SIRT3 plays a crucial role in ceramide metabolism by deacetylating ceramide synthases CERS1, CERS2, and CERS6, promoting mitochondrial ceramide accumulation. Furthermore, SIRT3 regulates hepatic lipogenesis by utilizing NAD(+) substrate imported by SLC25A47, triggering downstream activation of the PRKAA1/AMPK-alpha signaling cascade. This activation ultimately leads to the downregulation of sterol regulatory element-binding protein (SREBP) transcriptional activities, mitigating ATP-consuming lipogenesis and restoring cellular energy balance.</p>
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**Caution: Product has not been fully validated for medical applications. For research use only.**

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