PRODUCT INFORMATION

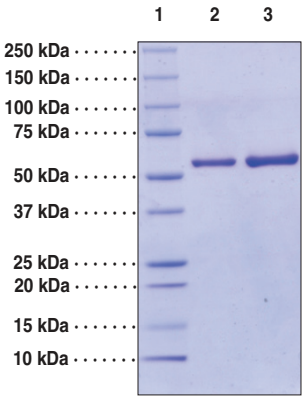
SIRT5 (human, recombinant)

Item No. 10318

Overview and Properties

Synonyms:	Mitochondrial Regulatory Protein SIR2 Homolog 5, NAD-dependent Deacetylase 5, NAD-dependent Protein Deacylase Sirtuin-5, Silent Information Regulator 5, SIR2L5, SIR2-like Protein 5, Sirtuin 5
Source:	Recombinant human N-terminal GST-tagged enzyme purified from *E. coli*
Amino Acids:	33-310
Uniprot No.:	Q9NXA8
Molecular Weight:	60.6 kDa
Storage:	-80°C (as supplied)
Stability:	≥2 years
Purity:	***batch specific*** (≥85% estimated by SDS-PAGE)
Supplied in:	50 mM NaPO4, pH 7.2, with 100 mM sodium chloride, 5 mM DTT, 20% glycerol
Protein Concentration:	***batch specific*** mg/ml
Additional Information:	This protein has not been tested for enzyme activity.

Image



Lane 1: MW Markers
Lane 2: SIRT5 (4 µg)
Lane 3: SIRT5 (2 µg)

Representative gel image shown; actual purity may vary between each batch but protein will be ≥85% pure.

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM

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Description

Sirtuin 5 (SIRT5) is an enzyme that catalyzes the NAD-dependent removal of malonyl, succinyl, and glutaryl groups from target proteins.[1,2] Although it was originally characterized as a class III histone deacetylase (HDAC), SIRT5 exhibits weak NAD-dependent deacetylase activity *in vitro* and *in vivo*. SIRT5 is localized to mitochondria and is composed of a zinc binding domain and a Rossmann fold domain with the NAD and substrate binding sites located at the domain interface.[1] Knockdown of *Sirt5* induces hepatic and muscle protein hypersuccinylation, as well as fatty acid oxidation defects and hypertrophic cardiomyopathy in mice.[3] SIRT5 protein and mRNA expression is elevated in human non-small cell lung cancer (NSCLC) tumors and is predictive of tumor recurrence and poor survival.[4] SIRT5 also interacts with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) non-structural protein 14 (Nsp14), an exoribonuclease component of the viral replicase-transcriptase complex.[5] Cayman's SIRT5 (human, recombinant) protein can be used for ELISA and western blot applications.

References

1. Yang, L., Ma, X., He, Y., *et al.* Sirtuin 5: A review of structure, known inhibitors and clues for developing new inhibitors. *Sci. China Life Sci.* **60**, 249-256 (2017).
2. Roessler, C., Tüting, C., Meleshin, M., *et al.* A novel continuous assay for the deacylase sirtuin 5 and other deacetylases. *J. Med. Chem.* **58(18)**, 7217-7223 (2015).
3. Sadhukhan, S., Liu, X., Ryu, D., *et al.* Metabolomics-assisted proteomics identifies succinylation and SIRT5 as important regulators of cardiac function. *PNAS* **113(16)**, 4320-4325 (2016).
4. Bringman-Rodenbarger, L.R., Guo, A.H., Lyssiotis, C.A., *et al.* Emerging roles for SIRT5 in metabolism and cancer. *Antioxid. Redox Signal.* **28(8)**, 677-690 (2018).
5. Gordon, D.E., Jang, G.M., Bouhaddou, M., *et al.* A SARS-CoV-2-human protein-protein interaction map reveals drug targets and potential drug-repurposing. *BioRxiv* (2020).

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