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ProductInformation

SIRT1
human, recombinant,
N-terminal histidine tagged,
expressed in *E. coli*

Catalog Number **S8446**
Storage Temperature –20 °C

Synonyms: Sirtuin1; SIR2L1; SIR2α

Product Description

Sirtuins are a family of NAD^+ dependent deacetylases that remove an acetyl group from the ε-amino group of lysine residues. These histone/protein deacetylases tightly couple the cleavage of NAD^+ and the deacetylation of protein substrates. The reaction products are nicotinamide, the deacetylated product, and a novel metabolite, 2′-O-acetyl-ADP-ribose.[1,2]

The proteins within the Sirtuin family are named after the first protein discovered in yeast called Sir2 (**S**ilent **I**nformation **R**egulator 2). These proteins are conserved from bacteria to higher eukaryotes. In humans, there are seven Sir2 family members (SIRT1 to SIRT7). SIRT1 plays a pivotal role in the regulation of cellular differentiation, metabolism, cell cycle, apoptosis, and regulation of p53. Several substrate sites for SIRT1 were identified, among them Lys^{382} of p53.[4] Using RNA interference, additional sites were identified. It was demonstrated that reduced levels of human SIRT1 led to increased acetylation of Histone H4-Lys^{16}, H4-Lys^{20}, Histone H3-Lys^{9}, and Histone H1-Lys^{26}.[5]

The product is supplied in a solution containing 50 mM Tris, pH 7.4, 100 mM NaCl, 1 mM DTT, Protease inhibitors (Catalog Number P8340) 1:200 (v/v), and 10% glycerol (w/v). The protein concentration is provided on the label.

Specific activity: ≥10 units/mg protein (Bradford)

Unit definition: One unit of SIRT1 will deacetylate 1 nmole of substrate (Boc-Lys(Ac)-AMC per minute at pH 7.5 at 37 °C.

Purity: >90% (SDS-PAGE)

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

The product is shipped on dry ice and storage at –20 °C is recommended. It is stable for at least 2 years. Upon first use it is recommended to store the remaining product in working aliquots at –20 °C.

Related Products

SIRT1 Assay Kit, Catalog Number CS1040
Monoclonal Anti-Sirt1, antibody produced in mouse, Clone SIR11, Catalog Number S5196

References

1. Borra, M.T., *et al*., Mechanism of human SIRT1 activation by resveratrol, *J. Biol. Chem*., **280**, 17187-17195 (2005).
2. Tanner, K.J., *et al.,* Silent information regulator 2 family of NAD-dependent histone/protein deacetylases generates a unique product, 1-O-acetyl-ADP-ribose, *Proc. Natl. Acad. Sci. USA*., **97**, 14178–14182 (2000).
3. Blander, G., *et al*., SIRT1 shows no substrate specificity *in vitro*. *J. Biol. Chem*., **280**, 9780-9785, (2005).
4. Vaziri, H., *et al*., hSIR2-SIRT1 functions as an NAD-dependent p53 deacetylase. *Cell,* **107**, 149-159 (2001).
5. Vaquero, A., *et al*., Human SirT1 interacts with histone H1 and promotes formation of facultative heterochromatin. *Mol. Cell*, **16**, 93-105 (2004).

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