SIRT5 (human), (recombinant) (His-tag)

Highly active

SIRT5, along with SIRTs 3 and 4, is one of three human mitochondrial sirtuins (homologs of yeast Sir2). SIRT5, which is localized to both the mitochondrial matrix and the intermembrane space, is an NAD^+-dependent lysine deacetylase (class III HDAC). SIRT5's only known physiological target is the intermembrane space protein, cytochrome c, suggesting the possibility of regulatory roles in metabolism and/or apoptosis. SIRT5 has also been shown to deacetylate and thereby upregulate the matrix urea cycle enzyme carbamoyl phosphate synthetase 1. This implies an important role for SIRT5 in ammonia detoxification and adaptation to elevated amino acid catabolism during starvation, calorie restriction or a high protein diet. SIRT5 is most strongly expressed in thymus, lymphoblasts and heart muscle cells and its chromosomal location (6p23) has been implicated in chromosomal abnormalities associated with malignancies. SIRT5 deacetylase activity may be measured with the FLUOR DE LYS® Desuccinylase (Prod. No. BML-KI590) or SIRT1 (Prod. No. BML-KI177) substrates, and, like SIRT1, its activity is stimulated by polyphenols such as resveratrol and fisetin. Two SIRT5 crystal structures have been determined, one as a complex with ADP-ribose and the other a complex with the inhibitor suramin. This recombinant preparation, expressed in *E. coli*, comprises residues 37-310 of SIRT5 isoform 1, with an N-terminal His-tag. Recombinant human mitochondrial processing protease cleaves full-length SIRT5 after residue thirty-six, suggesting that the mature, *in vivo* form may begin with residue 37. Consistent with this, N-terminal sequence of mouse SIRT5 processed in 293T cells also commences at residue 37.

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Ordering Information

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BML-SE555-0050	50kU

Manuals, SDS & CofA

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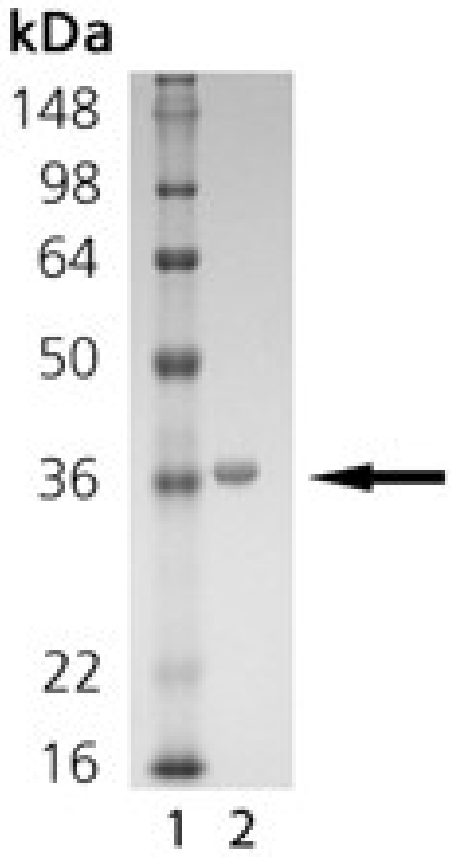

SDS-PAGE Analysis: Lane 1: MWM; Lane 2: 1.0 µg of purified SIRT5 protein.

Sample	SIRT5 Assay Buffer	SIRT5 (1 µg/µl)	Nicotinamide (5 mM)	2x Substrates	DeAc. Std. (10 µM)
Control	20 µl	5 µl	0	25 µl	0
+Inhibitor	15 µl	5 µl	5 µl	25 µl	0
Time 0	20 µl	5 µl	0	25 µl	0
Standard	20 µl	0	0	25 µl	5 µl

Figure 1

Handling & Storage

Use/Stability	The enzyme is stable on ice for the time typically required to set up an experiment (30-60 min.), but may lose activity with prolonged storage on ice. It is recommended that thawing and dilution of the enzyme be done within as short a time as possible before start of the assay. The remaining, unused enzyme should be refrozen quickly by, for example, snap freezing in a dry/ice ethanol bath or liquid nitrogen. The enzyme is stable to at least 4 freeze/thaw cycles. To minimize the number of freeze/thaw cycles, aliquot the SIRT5 into separate tubes and store at -80° C.NOTE: When stored under the above conditions, this enzyme is stable at the concentration supplied, in its current storage buffer. Procedures such as dilution of the enzyme followed by refreezing, could lead to loss of activity.
Handling	Avoid freeze/thaw cycles. After opening, prepare aliquots and store at -80°C.
Long Term Storage	-80°C
Shipping	Dry Ice

Regulatory Status

RUO - Research Use Only

Product Details

Alternative Name	Sirtuin 5, Sir2-like protein 5, SIR2L5, NAD-dependent deacetylase Sirtuin-5
Application Notes	Useful for studies of enzyme kinetics, modulator activity, drug discovery.
Formulation	Liquid. In 25mM TRIS, pH 7.5, 100mM sodium chloride, 5 mM DTT, containing 10% (v/v) glycerol.
MW	~32.3kDa
Purity	≥95% (SDS-PAGE)
Purity Detail	Purified by multi-step chromatography.
Source	Produced in *E. coli.*
Specific Activity	One unit = 1 pmol/min at 37°C, 250µM FLUOR DE LYS® Succinyl, Desuccinylase Substrate (Prod. No. BML-KI590), 2mM NAD^+.
UniProt ID	Q9NXA8

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