D-3-Hydroxybutyrate Dehydrogenase (3-HBDH)

Catalog Number	LDG0022RG
Package	Customized package

For full product information, images and publications, please visit our website.

Overview

Description

D-3-Hydroxybutyrate dehydrogenase (3-HBDH) is an enzyme crucial in the metabolism of ketone bodies, specifically involved in the conversion of D-3-hydroxybutyrate to acetoacetate during ketogenesis. 3-HBDH plays a vital role in energy production, particularly under conditions such as fasting or prolonged exercise when ketone bodies serve as alternative energy sources. This enzyme is essential for maintaining metabolic balance and is found in various tissues, including the liver and kidneys. Understanding 3-HBDH's function is significant for insights into metabolic disorders and energy metabolism regulation.

Specifications

Expression system

Escherichia coli

Detection Method

Spectrophotometry

Concentration

≥300 U/ mg

Activity

Please refer to the manual for details.

Unit Definition

One unit is defined as the formation of one micromole of NADH per minute at 37°C under the conditions described below.
(0.1 M Tris-HCl pH 8.5, 25 mM 3-Hydroxybutyrate, 1.8 mM NAD+).

Reaction Condition

0.1 M Tris-HCl pH 8.5, 25 mM 3-Hydroxybutyrate, 1.8 mM NAD+

Form

Lyophilized

Instruction

Tainan Headquarter
+886-6-2536677
bd@leadgene.com.tw

Innovation & Research Center
+886-2-27065528

CLD Center
+886-6-2536677

Reconstitution

It is recommended to weight 10 mg of lyophilized powder, reconstitute in 250 µL double-distilled water directly (final activity is 40 U/ µL), and incubate the solution for at least 10 mins to ensure sufficient re-dissolved.

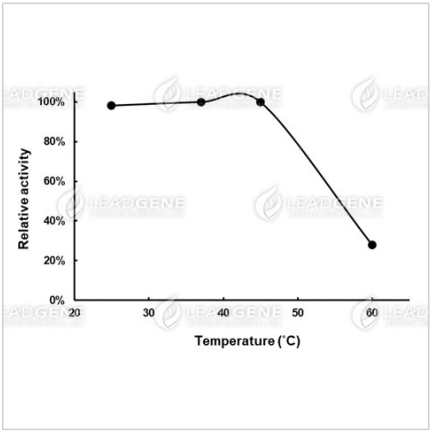
Stability & Storage

This product is stable at -20°C for long-term storage under sterile conditions.
Avoid repeated free-thaw cycles.

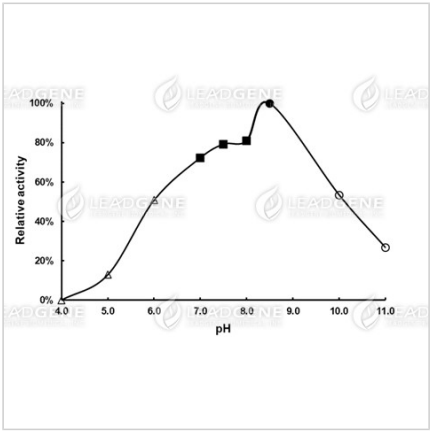
Shipping

The product is shipped with polar packs. Upon receipt, store it immediately at -20°C or lower for long term storage.

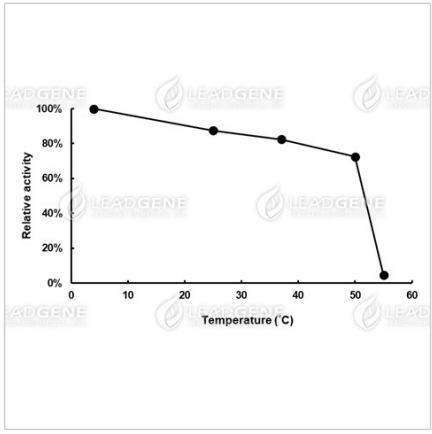
Image



Temperature activity of 3-HBDH.
The enzyme reactions in 0.1 M Tris-HCl buffer, pH 8.5, were carried out under different temperature.



pH activity of 3-HBDH.
The buffer conditions with various pH values were used in the reaction at 37°C. pH 4.0-6.0, 0.1 M Sodium citrate buffer; pH 7.0-8.0, 0.1 M Potassium phosphate buffer; pH 8.5, 0.1 M Tris-HCl buffer; pH 10.0-11.0, 0.1 M Carbonate-bicarbonate buffer.



Thermal stability of 3-HBDH.
The enzyme powder was reconstituted by double-distilled water and treated with different temperature for 15 minutes. Final concentration: 15.9 U/ mL.

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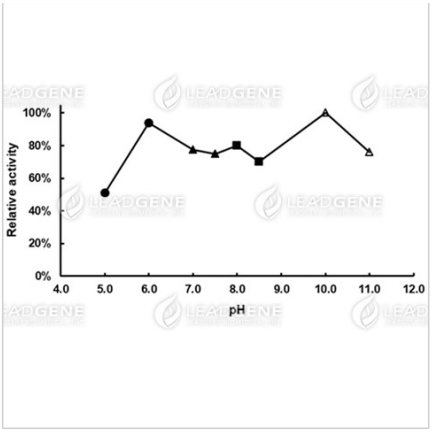

pH stability of 3-HBDH.
The enzyme powder was reconstituted by double-distilled water and treated with different pH buffer condition for 20 hours. pH 4.0-6.0, 0.1 M Sodium citrate buffer; pH 7.0-8.0, 0.1 M Potassium phosphate buffer; pH 8.5, 0.1 M Tris-HCl buffer; pH 10.0-11.0, 0.1 M Carbonate-bicarbonate buffer.

Disclaimer : For Research Use or Further Manufacturing Only.

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