

## Native *Alcaligenes faecalis* 3-Hydroxybutyrate Dehydrogenase

Cat. No. NATE-0005

Lot. No. (See product label)

### Introduction

**Description** In mammalian systems,  $\beta$ -hydroxybutyrate dehydrogenase is localized on the inner mitochondrial membrane and requires phosphatidyl choline for activity. In contrast, the enzyme from *Pseudomonas* is a soluble cytosolic enzyme that does not require a phospholipid allosteric activator. The enzyme is required for the utilization of ketone bodies as a source of metabolic energy. It catalyzes the oxidation of 3-hydroxybutyrate to acetoacetate, the first step in the conversion of ketone bodies to citric acid, which is then further metabolized via the tricarboxylic acid cycle (Krebs cycle).

**Applications** Useful for enzymatic determination of ketone bodies

**Synonyms** 3-hydroxybutyrate dehydrogenase; 3-HBDH; NAD- $\beta$ -hydroxybutyrate dehydrogenase; hydroxybutyrate oxidoreductase;  $\beta$ -hydroxybutyrate dehydrogenase; D- $\beta$ -hydroxybutyrate dehydrogenase; D-3-hydroxybutyrate dehydrogenase; D-(-)-3-hydroxybutyrate dehydrogenase;  $\beta$ -hydroxybutyric acid dehydrogenase; 3-D-hydroxybutyrate dehydrogenase;  $\beta$ -hydroxybutyric dehydrogenase; EC 1.1.1.30; 9028-38-0

### Product Information

**Source** *Alcaligenes faecalis*

**Appearance** White powder

**Form** Freeze dried powder

**EC Number** EC 1.1.1.30

**CAS No.** 9028-38-0

**Molecular Weight** 60 $\pm$ 5 kDa (TSK G-3000SW); 30 $\pm$ 5 kDa (SDS-PAGE)

**Activity** > 1,500 U/mg

**Contaminants** NADH oxidase < 0.0004%

**Isoelectric point** pH 5.0 $\pm$ 0.2

**pH Stability** 5.5-11.0 (37°C, 60 mins)

**Optimum pH** 8.5

**Thermal stability** Stable at 37°C and below (pH 8.5, 10 mins)

**Optimum temperature** 45°C (Tris-HCl buffer)

**Michaelis Constant** D-3-Hydroxybutyrate 1.6  $\times$  10<sup>-3</sup>M

**Unit Definition** One unit is defined as the amount of enzyme which converts 1  $\mu$  mole of 3-Hydroxybutyrate to acetoacetate per minute at 37°C under the conditions specified in the assay procedure.

***Storage and Shipping Information***

**Storage**      -20°C