

Native Microbial Creatinine Deiminase

Cat. No. NATE-0164

Lot. No. (See product label)

Introduction

Description

In enzymology, a creatinine deaminase (EC 3.5.4.21) is an enzyme that catalyzes the chemical reaction: creatinine + H₂O ↔ N-methylhydantoin + NH₃. Thus, the two substrates of this enzyme are creatinine and H₂O, whereas its two products are N-methylhydantoin and NH₃. This enzyme belongs to the family of hydrolases, those acting on carbon-nitrogen bonds other than peptide bonds, specifically in cyclic amidines. The systematic name of this enzyme class is creatinine iminohydrolase.

Applications

Creatinine deiminase has been used in a study to assess the application of a creatinine-sensitive biosensor for hemodialysis control. Creatinine deiminase has also been used in a study to investigate the bioelectronic tongue for the simultaneous determination of urea, creatinine and alkaline ions in clinical samples.

Synonyms

EC 3.5.4.21, creatinine hydrolase; creatinine desiminase; creatinine deaminase; 37289-15-9

Product Information

Source

Microbial

Form

Lyophilized powder containing mannitol as stabilizer

EC Number

EC 3.5.4.21

CAS No.

37289-15-9

Molecular Weight

mol wt ~260 kDa

Activity

> 25 units/mg protein

Isoelectric point

4.4

pH Stability

pH 7.0 – 11.0 (30°C, 20hr)

Optimum pH

8.5 – 9.5

Thermal stability

Below 65°C (pH 7.5, 1hr)

Optimum temperature

65 – 75°C

Michaelis Constant

3.5 x 10⁻³M (Creatinine)

Inhibitors

Ag⁺, Hg⁺⁺, o-phenanthroline, monoiodoacetate

Unit Definition

One unit will hydrolyze 1.0 μmole of creatinine to N-methylhydantoin and NH₃ per min at pH 7.5 at 37°C in a coupled system with L-glutamic dehydrogenase.

Storage and Shipping Information

Storage

–20°C