

RayBiotech, Inc.

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Certificate of Analysis and Data Sheet

Recombinant Urease

Catalog No.
228-11599

Source
Escherichia Coli.

Description

Urease (EC 3.5.1.5) is an enzyme that catalyzes the hydrolysis of urea into carbon dioxide and ammonia. The reaction occurs as follows: $(\text{NH}_2)_2\text{CO} + \text{H}_2\text{O} = \text{CO}_2 + 2\text{NH}_3$. In 1926 James Sumner showed that urease is a protein. Urease is found in bacteria, yeast and several higher plants. Characteristics: Active site metal: nickel(II); Molecular weight: 480 kDa or 545 kDa for Jack Bean Urease (calculated mass from the amino acid sequence); Optimum pH: 7.4; Optimum Temperature: 60 degrees Celsius; Enzymatic specificity: urea and hydroxyurea; Inhibitors: heavy metals. The multi-subunit enzyme usually has a 3:3 (alpha:beta) stoichiometry with a 2-fold symmetric structure (note that the image above gives the structure of the asymmetric unit, one third of the true biological assembly). An exceptional urease is found in *Helicobacter pylori*, which combines four of the regular six subunit enzymes in an overall tetrahedral assembly of 24 subunits (a12b12). This supra-molecular assembly is thought to confer additional stability for the enzyme in this organism, which functions to produce ammonia in order to neutralize gastric acid. The presence of urease is used in the diagnosis of *Helicobacter* species.

Physical Appearance

Sterile Lyophilized Powder.

Formulation

Each mg of protein contains 345µg Potassium Phosphate and 25µg EDTA Na2.

Solubility

It is recommended to reconstitute the lyophilized Urease in sterile 18MΩ-cm H₂O.

Purity

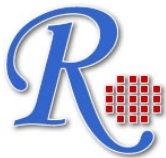
Greater than 95.0% as determined by

- (a) Analysis by RP-HPLC.
- (b) Analysis by SDS-PAGE.

Stability

Urease although stable at 4°C for 3 weeks, should be stored desiccated below -18°C. Please prevent freeze-thaw cycles.

**The products are furnished for LABORATORY RESEARCH USE ONLY.
Not for diagnostic or therapeutic use.**



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Biological Activity

The specific activity was found to be 150 IU/mg.

Unit Definition

One Unit oxidizes one micromole of NADH per minute at 25°C, at pH 7.6.

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