

Product Information

Cholesterol Oxidase from microorganisms

Catalog Number **C5421**

Storage Temperature $-70\text{ }^{\circ}\text{C}$

CAS RN 9028-76-6

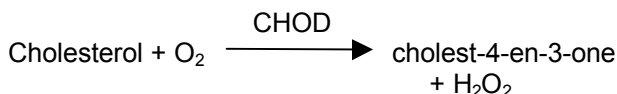
EC 1.1.3.6

Synonyms: Cholesterol:oxygen oxidoreductase, 3β -hydroxysteroid oxidoreductase, CHOD, 3β -hydroxysteroid:oxygen oxidoreductase, cholesterol- O_2 oxidoreductase

Product Description

Cholesterol oxidase (CHOD) catalyzes the first step in cholesterol catabolism. Some non-pathogenic bacteria, such as *Streptomyces* are able to utilize cholesterol as a carbon source. Pathogenic bacteria, such as *Rhodococcus equi*, require CHOD to infect a host's macrophage.¹

CHOD is bifunctional. Cholesterol is initially oxidized to cholest-5-en-3-one in an FAD-requiring step. The cholest-5-en-3-one is isomerized to cholest-4-en-3-one.¹ The isomerization reaction may be partially reversible.² The activity of CHOD depends on the physical properties of the membrane to which the substrate is bound.³ The net reaction is:



Typically, cholesterol oxidase is isolated from Gram-positive bacteria. CHOD from *Streptomyces*, *Cellulomonas*, and *Brevibacterium* have been found to be essentially equivalent analytically.⁴

CHOD is used to determine serum cholesterol.^{4,5} It is the second most widely used enzyme in diagnostic applications after glucose oxidase.⁶ CHOD also finds application in the microanalysis of steroids in food samples and in distinguishing 3-ketosteroids from 3β -hydroxysteroids.⁷

Transgenic plants expressing cholesterol oxidase are being investigated in the fight against the cotton boll weevil.⁸ Cholesterol oxidase has also been used as a molecular probe to elucidate cellular membrane structures.^{1,9}

Cholesterol oxidase is a monomeric flavoprotein containing FAD.¹

Molecular mass: 62 kDa (SDS-PAGE)

Cofactor: FAD

Isoelectric point (pI): 4.5

pH Optimum: 7.0–7.5

pH Stability: 5.7–7.8

Temperature optimum: $50\text{ }^{\circ}\text{C}$

Supplied in a solution of 10 mM Tris-HCl, pH 8.0.

Specific activity: ≥ 30 units/mg protein (biuret).

Unit definition: one unit will convert 1.0 μmole of cholesterol to 4-cholesten-3-one per minute at pH 7.5 at $25\text{ }^{\circ}\text{C}$.

Note: 4-cholesten-3-one may undergo isomerization.

CHOD is assayed spectrophotometrically in a 3.0 ml reaction mixture containing 38 mM potassium phosphate, 0.009% (w/v) *o*-dianisidine, 0.017% (w/v) cholesterol, 0.33% (v/v) Triton™ X-100, 10 units of peroxidase, and 0.01–0.02 unit of cholesterol oxidase.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

Thaw CHOD on ice. The product can be diluted in cold 50 mM potassium phosphate buffer, pH 7.0. Prepare dilutions immediately before use.

Storage/Stability

Store product at $-70\text{ }^{\circ}\text{C}$. When stored at $-70\text{ }^{\circ}\text{C}$, the enzyme retains activity for at least one year.

A solution of CHOD at $65\text{ }^{\circ}\text{C}$ at pH 7.0 will retain activity for 10 minutes.

References

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