

## Product Information

### Choline Oxidase from *Alcaligenes sp.*

Catalog Number **C5896**  
Storage Temperature  $-20\text{ }^{\circ}\text{C}$

CAS RN 9028-67-5  
EC 1.1.3.17  
Synonym: Choline:oxygen 1-oxidoreductase

#### Product Description

Choline oxidase is a flavoprotein, and is a member of the GMC-oxidoreductase family. Choline oxidase catalyzes the four-electron-oxidation of choline to glycine betaine via the intermediate betaine aldehyde,<sup>2</sup> in two sequential FAD-dependent reaction steps. Choline oxidase can be used for the enzymatic determination of phospholipids by coupling with phospholipase D and for cholinesterase activity assays.<sup>3,4</sup>

Inhibitors of choline oxidase include *p*-chloromercuribenzoate, and various metal ions such as Cu, Co, Hg, and Ag.

pH optimum: 8.0–8.5  
One publication indicates that choline oxidase from *Alcaligenes* is inhibited in the pH ranges of 3–6 and 9–11.<sup>5</sup>

pI: 4.1±0.1

Temperature optimum: 40–45 °C

Molecular mass:  
66 kDa (SDS-PAGE)  
72 kDa (gel filtration)<sup>1</sup>

#### Precautions and Disclaimer

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

#### Preparation Instructions

Solutions of choline oxidase may be prepared in 10 mM Trizma®-HCl, pH 8.0, with 2.0 mM EDTA and 134 mM KCl. One publication cites preparation of 2 mg/mL stock solutions of choline oxidase in carbonate buffer.<sup>5</sup>

#### Storage/Stability

Solution stability was measured as a plot of activity versus time for an enzyme concentration of 1.0 mg/mL in 0.1 M potassium phosphate buffer, pH 7.5, at 37 °C. Approximately 75% of the enzymatic activity remained after 16 hours. In the presence of 10 mM EDTA or 0.5 mg/mL BSA, approximately 90% enzymatic activity remains. Addition of both EDTA and BSA resulted in nearly 100% enzymatic activity remaining after 16 hours.

#### References

1. Ohta-Fukuyama, M. *et al.*, *J. Biochem.*, **88(1)**, 197-203 (1980).
2. Allouche-Arnon, H. *et al.*, *Chem. Commun.*, **49**, 7076-7078 (2013).
3. Takayama, M. *et al.*, *Clin. Chim. Acta*, **79(1)**, 93-98 (1977).
4. Okabe, H. *et al.*, *Clin. Chim. Acta*, **80(1)**, 87-94 (1977).
5. Hekmat, A. *et al.*, *Acta Biochim. Pol.*, **55(3)**, 549-557 (2008).
6. Sanz-Vicente, I. *et al.*, *Microchem. J.*, **123**, 259-266 (2015).

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GCY,DT,MWM,RXR,MAM 12/16-1