3050 Spruce Street, St. Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Product Information

Choline Oxidase from *Arthrobacter sp.*, recombinant, expressed in *Escherichia coli*

Catalog Number **SAE0044**
Storage Temperature –20 °C

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

Product Description

Choline oxidase from *Arthrobacter sp.* is a flavoprotein, and is a member of the GMC-oxidoreductase family. The enzyme catalyzes the four-electron oxidation of choline to glycine betaine via the intermediate betaine aldehyde, in two sequential FAD-dependent reaction steps. The enzyme is useful for enzymatic determination of phosphatidylcholine by coupling with phospholipase D,[1] determination of sphingomyelin by coupling with sphingomyelinase,[2] and for cholinesterase activity assays.[3]

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

It is recommended to reconstitute the Choline Oxidase product in phosphate buffer, pH 7.5, with 10 mM EDTA. Reconstituted material can be stored at 2–8 °C for at least 2 weeks.

Storage

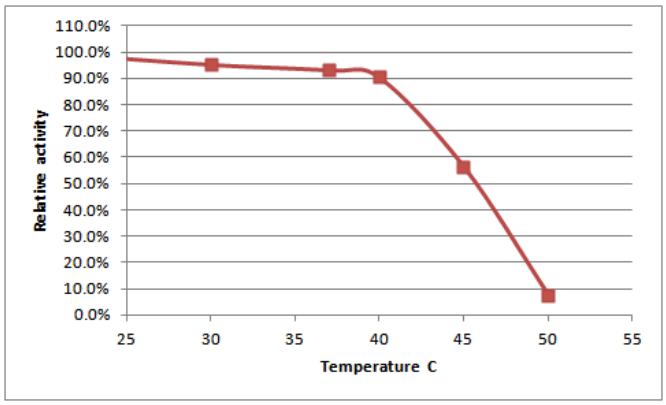
Store the product desiccated at –20 °C.

Unit definition:

One unit will form 1 µmole of H_2O_2 with oxidation of 1 µmole of choline to betaine aldehyde per minute at pH 8.0 at 37 °C.
Note: During the conversion of choline to betaine by choline oxidase, 2 µmoles of H_2O_2 are produced for every µmole of choline.

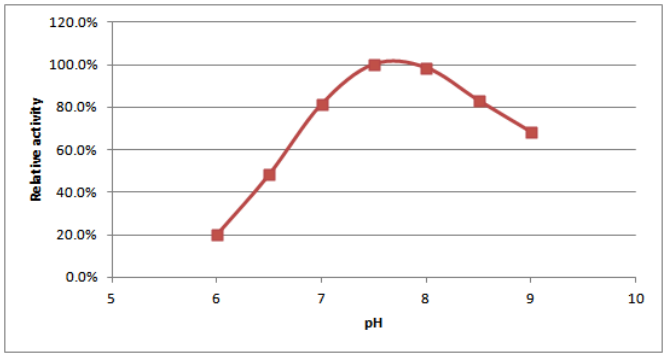
Product Profile

Figure 1.
Short Term Thermal Stability of Choline Oxidase from *Arthrobacter Sp*.



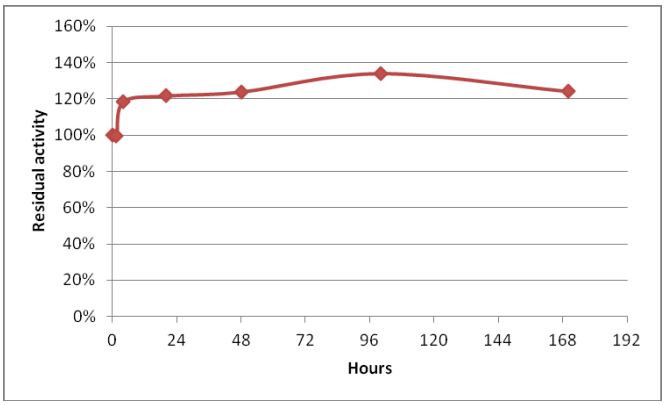
Reconstituted enzyme was incubated for 15 minutes at indicated temperatures and then assayed under standard conditions. Activity is shown as percent of control.

Figure 2.
pH Dependence of Choline Oxidase from *Arthrobacter sp*.



Activity is shown as percent of control.

Figure 3.
Extended Stability Study of Reconstituted Choline Oxidase from *Arthrobacter sp*. at 37 °C.



Activity is shown as percent of control.

References

1. Takayama, M., *et al.*, A new enzymatic method for determination of serum choline-containing phospholipids. *Clin. Chim. Acta*, **79(1)**, 93-98 (1977).
2. Hojjati, M.R., and Jiang, X.C., Rapid, specific, and sensitive measurements of plasma sphingomyelin and phosphatidylcholine. *J. Lipid Res*., **47(3)**, 673-676 (2006).
3. Okabe, H., *et al.*, New enzymatic assay of cholinesterase activity. *Clin. Chim. Acta*, **80(1)**, 87-94 (1977).

DT,GCY,MAM 01/16-1