

## Product Information

### Choline Oxidase from *Arthrobacter globiformis*

Catalog Number **C4405**  
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>1,2</sup> in two sequential FAD-dependent reaction steps. The attachment site of the FAD cofactor to the enzyme has been mapped to His<sup>87</sup> in the protein sequence.<sup>3</sup>

The pH optimum of choline oxidase from *Arthrobacter globiformis* has been reported to be  $\sim 7.5$ .<sup>4</sup> Inhibitors of choline oxidase include *p*-chloromercuribenzoate, and various metal ions such as Cu, Co, Hg, and Ag.

One early study on choline oxidase from *A. globiformis* reported approximate molecular mass values of 71 kDa (SDS-PAGE) and 83 kDa (gel filtration chromatography, GFC).<sup>4</sup> However, a later study of recombinant choline oxidase from *A. globiformis* indicated that the enzyme is a homodimer, with an FAD:monomer ratio of 1:1, with an apparent molecular mass in the range of 117–122 kDa by GFC.

Mass spectrometric analysis of this recombinant choline oxidase indicated a molecular mass for the monomer of 60.6 kDa, resulting in a molecular mass for the dimeric form of 121.2 kDa.<sup>5</sup> Crystal structures for this recombinant choline oxidase from *A. globiformis* have been reported.<sup>6,7</sup>

Choline oxidase from *A. globiformis* has been used for the determination of phospholipase D activity.<sup>8</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.<sup>9</sup> Choline oxidase solutions may also be prepared in 200 mM Trizma®-HCl, pH 8.0.<sup>6</sup> Another publication cites preparation of 2 mg/mL stock solutions of choline oxidase in carbonate buffer, pH 9.0.<sup>10</sup>

#### References

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