

## Product Information

### Alcohol Dehydrogenase from *Saccharomyces cerevisiae*

Catalog Number **A3263**

Storage Temperature  $-20\text{ }^{\circ}\text{C}$

#### Product Description

EC Number: 1.1.1.1

CAS Number: 9031-72-5

Molecular Weight: 141-152 kDa<sup>1,2</sup>

Extinction Coefficient:  $E^{1\%} = 14.6$  (280 nm, water)<sup>3</sup>

pI: 5.4-5.8<sup>4</sup>

Synonym: ADH

Alcohol dehydrogenase from yeast is a tetramer consisting of 4 equal subunits. Each subunit contains one zinc atom, two reactive sulfhydryl groups, and a histidine residue in the active site. Each subunit also contains a second zinc atom (conformational zinc), which stabilizes the enzyme's tertiary structure.<sup>3,5,6,7</sup>

Yeast alcohol dehydrogenase is most active with ethanol as the substrate and its activity decreases as the size of the alcohol increases or decreases. Branched chain alcohols and secondary alcohols also have a very low activity. The following  $K_M$  values have been reported in the literature: ethanol (21 mM), methanol (130 mM), and isopropanol (140 mM).<sup>4,8</sup>

This product has been tested for use in the recycling microassay of  $\beta$ -NAD and  $\beta$ -NADH. A preparation of ADH to be used in this assay must be virtually devoid of any bound NAD.<sup>9</sup>

Alcohol dehydrogenase does not require any activators, but is inhibited by N-alkylmaleimides, iodoacetamide, 1,10-phenanthroline, 8-hydroxyquinoline, 2,2'-bipyridyl, thiourea,  $\beta$ -NAD analogs, purine and pyrimidine derivatives, chloroethanol, and fluoroethanol.<sup>10,11</sup>

#### 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

This enzyme is soluble in water (10 mg/ml), yielding a clear solution.

#### Storage/Stability

Solutions of ADH are quite sensitive to oxidation and should be prepared fresh, directly before use.

#### References

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8. Green, D. W., et al., Inversion of the substrate specificity of yeast alcohol dehydrogenase. *J. Biol. Chem.*, **268(11)**, 7792-7798 (1993).

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10. Heitz, J. R., et al., Inactivation of yeast alcohol dehydrogenase by N-alkylmaleimides. *Arch. Biochem. Biophys.*, **127(1)**, 627-636 (1968).
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RC,GY,PHC 01/14-1