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

Invertase
from baker's yeast (*S. cerevisiae*)

Catalog Number **I4504**
Storage Temperature –20 °C

CAS RN 9001-57-4
EC 3.2.1.26
Synonyms: Saccharase, β-Fructofuranosidase, β-D-Fructofuranoside fructohydrolase

Product Description

Molecular mass:[1] 270 kDa
Extinction coefficient:[1] $E^{1\%}$ = 23.0 (280 nm)
pI:[2] 3.4–4.4

Invertase from baker's yeast is a glycoprotein containing 50% mannan and 2-3% glucosamine. During purification, a small percentage of the enzyme may have part of the carbohydrate moiety removed leaving a heterogeneous enzyme with a lower or even negligible mannan content. This difference in carbohydrate content has led to the conclusion that two forms of the enzyme exist. An external invertase (predominant form), carbohydrate containing, located outside of the cell membrane and an internal invertase, which is located entirely within the cytoplasm and devoid of any carbohydrate.[1,3]

Invertase catalyzes the following reaction:

$$\text{Sucrose} + H_2O \rightarrow \text{Glucose} + \text{Fructose}$$

Raffinose and methyl-β-D-fructofuranoside may also be utilized as substrates.

Reported K_M values are 25 mM for sucrose and 150 mM for raffinose. At high substrate concentrations (1 M), invertase exhibits transferase activity by transferring the β-D-fructofuranosyl residue to primary alcohols including ethanol, methanol, and n-propanol. Invertase does not require any activators and is inhibited by iodine, Zn^{2+}, and Hg^{2+}.[1,3]

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.

References

1. Lampen, J.O., The Enzymes, Boyer, P.D., ed., Academic Press (New York, NY:1971), pp. 291-303.
2. Righetti, P.G., and Caravaggio, T., Isoelectric points and molecular weights of proteins. J. Chromatogr., **127**, 1-28 (1976).
3. Goldstein, A., and Lampen, J.O., β-D-fructofuranoside fructohydrolase from yeast. Methods Enzymol., **42**, 504-511 (1975).

TMG,AJH,MAM 03/13-1