

Product Information

Lipoxidase preparation from *Glycine max* (soybean)

Product Number **L 7395**

Storage Temperature -0 °C

Product Description

CAS Number: 9029-60-1

Enzyme Commission (EC) Number: 1.13.11.12

Molecular weight: 108 kDa (homodimer)¹

pI: 5.65² (see below)

Synonyms: Lipoxygenase³

This enzyme has been characterized in terms of substrate specificity (specific for a *cis, cis*-1,4-pentadiene system),^{4,5} and in terms of the effects of pH, temperature, inhibitors, and substrate competition on activity.⁶

This enzyme has activity over a wide pH range. However, the enzymatic assay is performed at pH 9 to help keep the substrate (linoleic acid) in solution.⁷

Isoelectric focusing on this product indicates six bands in the pI range of 4.5-6.5, with a high proportion in the pH region of 6.0-6.5. It has not been determined which of those six bands represent isoenzymes of lipoxidase.

Several compounds have been tested for their ability to inhibit lipoxygenase.

1. The following compounds specifically inhibit all known lipoxygenases:
5,8,11,14-Eicosatetraynoic Acid (Product No. E 1768)
Nordihydroguaiaretic acid (Product No. N 1144),
3-*tert*-butyl-4-hydroxyanisole, (Product No. B 6655),
Salicylhydroxamic acid (Product No. S 60-7),
2. One compound, butylated hydroxytoluene (Product No. B 1378) inhibits some lipoxygenases.

3. The following compounds inhibit some related enzymes, but they are not inhibitors of lipoxygenase.
Acetylsalicylic acid (Product No. A 5376),
Indomethacin (Product No. I 7378),
Metyrapone (Product No. 85,652-5).

The concentration of each putative inhibitor is given in the reference.⁸

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in borate buffer, pH 9, (0.1 mg/ml), yielding a clear, colorless solution.

References

1. Arch. Biochem. Biophys., **136**, 413-421 (1973).
2. Catsimpoolas, N., Isolation of soybean lipoxidase by isoelectric focusing. Arch. Biochem. Biophys., **131(1)**, 185-190 (1969).
3. Enzyme Nomenclature, (1992), p. 120.
4. Tappel, A.L., Lipoxidase, Methods in Enzymology, **5(71)**, 541 (1962).
5. The Enzymes, Boyer, P.D., ed., **12**, 3rd Ed., pp. 149-150.
6. Arch. Biochem. Biophys., **15**, 403-413 (1947).
7. Grossman, S., and Zakut, R., Determination of the activity of lipoxygenase (lipoxidase). Methods in Biochem. Analysis, **25**, 303-329 (1979).
8. Schewe, T., et al., in Prostaglandins and Related Substances: A Practical Approach, Benedetto, C., ed., IRL Press (Washington, DC: 1987), p. 235.

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