Native Bovine Plasma Amine Oxidase

Cat. No. NATE-0069

Lot. No. (See product label)

Introduction

Description Amine oxidase (also known as histaminase) is an enzyme involved in the metabolism, oxidation, and inactivation of histamine within the digestive tract. Bovine plasma amine oxidase has a molecular weight of 170 kDa and an optimum pH of 6.2 for spermine and 7.2 for spermidine. Amine oxidases are divided into two classes:the pyridoxal and copper containing enzyme to which plasma amine oxidase belongs, and the FAD-containing amino oxidases. Natural substrates include catecholamines, tryptamine derivatives and other physiologically active amines. Plasma amine oxidase is used in research requiring nitrogen group transfers. The molecule is composed of two identical polypeptide chains. There are two pyridoxal phosphates and two atoms of Cu+ per molecule. Bovine plasma amine oxidase is inhibited by copper chelating agents, many carboxyl reagents such as cuprizone, hydroxylamine and cyanide. Benzoic acid and benzyl alcohol are both non-competitive inhibitors (KI = 30 and 34mM respectively).

Synonyms Amine oxidase; EC 1.4.3.21; histaminase; Plasma Amine Oxidase

Product Information

Species Bovine

Source Bovine Plasma

Form lyophilized powder

EC Number EC 1.4.3.21

Molecular Weight 170 kDa

Purity Chromatographically purified

Activity > 17 Tabor units/mg dw

Optimum pH For spermine, 6.2, for spermidine, 7.2. Other amines may have other pH optima (Tabor et al. 1954).

Composition Achee et al. (1968) indicate that the enzyme is composed of two identical polypeptide chains. There are two pyridoxal phosphates and two atoms of Cu2+ per molecule (Yamada and Yasunobu 1962 and 1963). The amino acid composition is listed by Malmström et al. (1975).

Specificity The major physiological amines oxidized are spermine and spermidine (Yamada and Yasunobu 1962; Yasunobu and Smith 1970; Tabor et al. 1954) and some activity is also seen with benzylamine, homosulfanilamide, furfurylamine and simple aliphatic monoamines. (See also Malmström 1975). There is only slight activity with tyramine, and none with tryptamine, epinephrine, serotonin, or agmatine (Yamada and Yasunobu 1962; Tabor et al. 1954).

Inhibitors Copper chelating agents, many carboxyl reagents such as cuprizone and hydroxylamine; cyanide (Yamada and Yasunobu 1963). Benzoic acid and benzyl alcohol are both non-competitive inhibitors (Ki=30 and 34 mM respecitvely), (Wang et al. 1968). Tabor et al. (1954) give good summary of inhibitors and the paper by Bardsley et al. (1974) dealing with human placental amine oxidases has a large amount of inhibitor data that may be relevant to this bovine plasma amine oxidase also.

Unit 1 international unit oxidizes 1umole of benzylamine per minute at 25°C, pH 7.2

Unit Definition	1 international unit oxidizes 1μmole of benzylamine per minute at 25°C, pH 7.2.

Storage and Shipping Information

Storage	Store at -20°C
Stability	Stable for 12 months at-20°C. Store at -20°C.