

## Native Bovine Chymotrypsinogen A

Cat. No. NATE-0134

Lot. No. (See product label)

### Introduction

#### Description

Chymotrypsinogen is a proteolytic enzyme and a precursor (zymogen) of the digestive enzyme chymotrypsin. It is a single polypeptide chain consisting of 245 amino acid residues. It is synthesized in the acinar cells of the pancreas and stored inside membrane-bounded granules at the apex of the acinar cell. The cell is then stimulated by either a hormonal signal or a nerve impulse and the contents of the granules spill into a duct leading into the duodenum.

#### Synonyms

chymotrypsinogen A; Chymotrypsinogen; Chymotrypsin

### Product Information

#### Species

Bovine

#### Source

Bovine Pancreas

#### Form

lyophilized powder

#### CAS No.

9035-75-0

#### Purity

Purified, Five times crystallized, electrophoretically homogeneous

#### Activity

Activates to at least 45 units per mg protein

#### Specificity

In addition to bonds involving aromatic amino acids, chymotrypsin catalyzes at a high rate the hydrolysis of bonds of leucyl, methionyl, asparaginy, and glutamyl residues. A recent study has been made by Berezin and Martinek (1970) and Baumann et al. (1970).

#### Inhibitors

The enzyme is inhibited by heavy metals, the natural trypsin inhibitors to various degrees (Birk 1961), an inhibitor from potato (Ryan and Balls 1962), and organophosphorus compounds. Gel filtration of chymotrypsin removes autolysis products and other contaminants (Yapel et al. 1966). The specificity of  $\alpha$ -chloroketone as  $\alpha$ -chymotrypsin inhibitor has been studied by Kumar and Hein (1970). Erlanger et al. (1970) report phenothiazine-N-carbonyl chloride to be specific for chymotrypsin inhibition.

#### Pathway

Activation of Matrix Metalloproteinases, organism-specific biosystem; Defective AMN causes hereditary megaloblastic anemia 1, organism-specific biosystem; Defective CUBN causes hereditary megaloblastic anemia 1, organism-specific biosystem

#### Unit Definition

One Unit hydrolyzes one micromole of benzoyl-L-tyrosine ethyl ester per minute at 25°C, pH 7.8 in the presence of calcium. An activity of 45 units per mg using the above definition, is the equivalent of 10 kDa optical density of 1330 N.F. units per mg using ATEE as a substrate.

### Storage and Shipping Information

#### Storage

Store at 2-8°C

#### Stability

The enzyme is stable for days in solution at pH 3.0 and for years as a dry powder

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The enzyme is stable for days in solution at pH 9.0 and for years as a dry powder when stored refrigerated.