



## Product Information

### Trypsin inhibitor from *Phaseolus limensis* (lima bean)

Product Number **T 9378**  
Storage Temperature 2-8 °C

#### Product Description

CAS Number: 9035-81-8  
Extinction Coefficient:  $E^{1\%} = 9.94$   
(280 nm, pH 7.6 buffer)  
pI: 4.5<sup>1</sup>

Trypsin inhibitor from lima beans is a monomer with a molecular weight of 9 kDa which undergoes a concentration-dependent dimerization. The degree of self-association depends upon the type of variant and pH.<sup>7</sup>

Trypsin inhibitor from *Phaseolus limensis* has four variants whose inhibitory activities towards trypsin are essentially identical, whereas some differences exist towards inhibition of chymotrypsin. Trypsin inhibitor forms a 1:1 stoichiometric complex with the protease active site. The complex of the inhibitor with either trypsin or chymotrypsin has no further inhibitory effect toward more of the same enzyme, but has full activity towards the other enzyme (forming 1:1:1 complex).<sup>7,8</sup> This implies that there is one binding site for trypsin and another for chymotrypsin. Upon formation of this complex, trypsin may cleave a single arginine-isoleucine bond on the inhibitor.<sup>9,10</sup> Inhibition is both reversible and pH dependent. Dissociation of this complex may yield a modified or native form of the inhibitor.<sup>11</sup> The optimal pH for trypsin binding is 8.0 with an association constant of greater than  $10^9$  at pH 8.0 and  $0.15 - 2.6 \times 10^4$  at pH 3.6 to 4.4.<sup>12</sup>

A reference for a method of preparation has been published.<sup>13</sup>

#### Precautions and Disclaimer

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

#### Preparation Instructions

Trypsin inhibitor is soluble in water and phosphate buffers at 1 mg/ml. It is soluble in balanced salt solutions and in serum-free media. Solutions at concentrations higher than 10 mg/ml may be hazy and have a yellow to amber color.

#### Storage/Stability

A 10 mg/ml sterile-filtered solution stored for greater than 3 years at 2-8 °C showed no loss in trypsin inhibition activity. Solutions are stable in frozen aliquots at -20 °C, but freeze-thaw cycles should be avoided. This protein is reversibly denatured by short heating to 80 °C and irreversibly inhibited by heating to 90 °C.<sup>3</sup>

#### References

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