
Product Data Sheet

Product Name: Papain Inhibitor

Cat. No.: GP10078

Chemical Properties

Cas. No. 70195-20-9

Chemical Name (2S)-2-[[[(2R)-2-[[[2-[(2-aminoacetyl)amino]acetyl]amino]-3-(4-hydroxyphenyl)propanoyl]amino]-5-(diaminomethylideneamino)pentanoic acid

SMILES C1=CC(=CC=C1CC(C(=O)NC(CCCN=C(N)N)C(=O)O)NC(=O)CNC(=O)CN)OFormula $C_{19}H_{29}N_7O_6$ M.Wt 451.48Solubility ≥ 45.1 mg/mL in DMSO, ≥ 90.4 mg/mL in Water Storage Store at $-20^{\circ}C$

General tips For obtaining a higher solubility, please warm the tube at $37^{\circ}C$ and shake it in the ultrasonic bath for a while. Stock solution can be stored below $-20^{\circ}C$ for several months.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available size: ship with RT, or blue ice upon request.

Structure

Background

Papain Inhibitor peptide, ($C_{19}H_{29}N_7O_6$), a peptide with the sequence H-Gly-Gly-Tyr-Arg-OH, MW= 451.4, this peptide inhibits the peptidase activity of Papain. Papain, also known as papaya proteinase I, is a cysteine protease enzyme present in papaya and mountain papaya. The mechanism by which it breaks peptide bonds involves deprotonation of Cys-25 by His-159. Asparagine-175 helps to orient the imidazole ring of His-159 to allow this deprotonation to take place. Cys-25 then performs a nucleophilic attack on the carbonyl carbon of a peptide backbone. This frees the amino terminal of the peptide, and forms a covalent acyl-enzyme intermediate. The enzyme is then deacylated by a water molecule, and releases the carboxy terminal portion of the peptide. In immunology, papain is known to cleave the Fc (crystallisable) portion of immunoglobulins (antibodies) from the Fab (antigen-binding) portion¹. Papain prefers to cleave at: (hydrophobic) -(Arg or Lys)- cleaves here -(not Val). Hydrophobic is Ala, Val, Leu, Ile, Phe, Trp, or Tyr². Papain can be used to dissociate cells in the first step of

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

cell culture preparations. It is also used as an ingredient in various enzymatic debriding preparations, notably Accuzyme. These are used in the care of some chronic wounds to clean up dead tissue. Papain can also be found as an ingredient in some toothpastes or mints as teeth-whitener.

References:

1. Rawlings ND, Barrett AJ (1994). "Families of cysteine peptidases". Meth. Enzymol. 244: 461-486.
2. Lopes MC, Mascarini RC, da Silva BM, Flório FM, Basting RT (2007). "Effect of a papain-based gel for chemomechanical caries removal on dentin shear bond strength". J Dent Child (Chic) 74 (2): 93-7.

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA