# Prolylleucine

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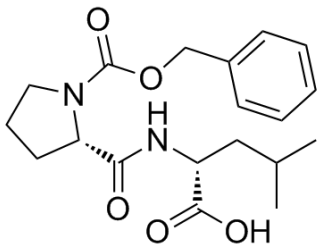
|---|---|
| **Cat. No.:** | HY-112173 |
| **CAS No.:** | 61596-47-2 |
| **Molecular Formula:** | $C_{19}H_{26}N_2O_5$ |
| **Molecular Weight:** | 362.42 |
| **Sequence:** | Z-Pro-{d-Leu} |
| **Sequence Shortening:** | ZP-{d-Leu} |
| **Target:** | Others |
| **Pathway:** | Others |

**Storage:**

| | | |
|---|---|---|
| Powder | -80°C | 2 years |
| | -20°C | 1 year |
| In solvent | -80°C | 6 months |
| | -20°C | 1 month |



## SOLVENT & SOLUBILITY

**In Vitro**

DMSO : ≥ 100 mg/mL (275.92 mM)

* "≥" means soluble, but saturation unknown.

| Preparing Stock Solutions | Solvent / Mass / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|---|
| | 1 mM | 2.7592 mL | 13.7961 mL | 27.5923 mL |
| | 5 mM | 0.5518 mL | 2.7592 mL | 5.5185 mL |
| | 10 mM | 0.2759 mL | 1.3796 mL | 2.7592 mL |

Please refer to the solubility information to select the appropriate solvent.

**In Vivo**

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (6.90 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (6.90 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (6.90 mM); Clear solution

## BIOLOGICAL ACTIVITY

**Description**

Prolylleucine is a dipeptide containing branched-chain amino acids. Prolylleucine can affect the circadian rhythms and behaviour of animals[1][2].

**In Vitro**

The addition of specific dipeptide containing branched-chain amino acids, such as Prolylleucine, to the growth medium

negatively affects cell envelope-associated proteinase (CEP) activity, whereas dipeptides without branched-chain amino acids had no effect on the enzyme's production. To determine if certain peptides are involved in the regulation of CEP biosynthesis, eight specific dipeptides, one tripeptide, and two peptide fractions (LMMP and HMMP) from Casitone are evaluated. The CEP activity levels of L. delbrueckii subsp. lactis CRL 581 grown in MDM supplemented with LMMP are similar to those obtained in cells grown in minimal defined medium (MDM) supplemented with Casitone (99-fold reduction). The addition of leucylglycylglycine (LGG), leucylleucine (LL), leucylproline (LP), or Prolylleucine (PL) (final concentration, 1 mM) to MDM leads to a 6.5-, 7-, 4-, or 3.5-fold reduction in CEP activity, respectively. An increase of up to 5 mM in the concentration of these dipeptides results in a further two- or threefold reduction of CEP activity compared to the activity obtained in the presence of 1 mM of the peptide mentioned above. LGG, LL, LP, and Prolylleucine contain leucine as a branched-chain amino acid (BCAA). In contrast, no effect on CEP activity is observed by the supplementation of MDM with 1 to 5 mM of GT, PA, TG, GM, GP (dipeptides without BCAA), or HMMP. No inhibitory effect on proteinase activity from the presence of high concentrations (10-fold increase) of each of the 20 amino acids in the growth medium is observed. However, a 50-fold increase in BCAA concentration in MDM leads to a repression of proteinase synthesis of 40%. L. delbrueckii subsp. lactis is auxotrophic for BCAA[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

## CUSTOMER VALIDATION

- Laurea Magistrale in Biomedical Engineering, Politecnico di Milano. 2019 Jun.

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## REFERENCES

[1]. Hebert EM, et al. Characterization of the pattern of alphas1- and beta-casein breakdown and release of a bioactive peptide by a cell envelope proteinase from Lactobacillus delbrueckii subsp. lactis CRL 581. Appl Environ Microbiol. 2008 Jun;74(12):3682-9.

[2]. E V Kravchenko, et al. Influence of changes in the state of brain neurotransmitter and peptidergic systems on circadian rhythms and behavior of rats. Zh Vyssh Nerv Deiat Im I P Pavlova. Jul-Aug 2012;62(4):453-64.



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