

## Cyclo(Gly-L-Pro)

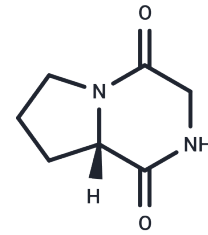
## Chemical Properties

CAS No. : 3705-27-9

Formula: C<sub>7</sub>H<sub>10</sub>N<sub>2</sub>O<sub>2</sub>

Molecular Weight: 154.17

Storage: Keep away from moisture, Store at low temperature,  
Keep away from direct sunlight  
Powder: -20°C for 3 years | In solvent: -80°C for 1 year  
*Actual storage temperature shall be subject to the COA.*



## Biological Description

|               |   |
|---------------|---|
| Description   | Cyclo(Gly-L-Pro), a cyclic dipeptide, demonstrates significant immunomodulatory activity by stimulating beneficial immune responses while simultaneously suppressing the release of the pro-inflammatory cytokine TNF- $\alpha$ , reducing mRNA expression of IL-1 $\beta$ and IL-6, and inhibiting nitric oxide (NO) production. It has also been shown to enhance memory and improve functional recovery in animal models, indicating substantial potential for neuroscience research due to its neuroprotective and immunostimulatory properties.  |
| Targets(IC50) | TNF   |
| In vitro      | <b>Methods:</b> CIK cells were stimulated with Cyclo(Gly-L-Pro) (1, 10, 100 $\mu$ g/ml), and the expression of MyD88, IL-1 $\beta$ , TNF- $\alpha$ , I-IFN, and IL-8 genes at different time points (2, 8, and 24 h) after stimulation was quantified by real-time fluorescence. Lipopolysaccharide (LPS), a known immunostimulant, was used as a positive control. To analyze whether these compounds were toxic to the cells, changes in cell viability were measured using a methyltetrazole assay. <b>Results:</b> Cyclo(Gly-L-Pro) and LPS significantly increased the transcription level of MyD88 as early as 2 h after exposure; Cyclo(Gly-L-Pro) also induced the gene expression of cytokines such as IL-1 $\beta$ , TNF- $\alpha$ , and I-IFN. Under the experimental conditions, Cyclo(Gly-L-Pro) was not toxic to CIK cells. [1] |

## Solubility Information

|                     |   |
|---------------------|---|
| Solubility          | H <sub>2</sub> O: 180 mg/mL (1167.54 mM), Sonication is recommended.<br>DMSO: 41.25 mg/mL (267.56 mM), Sonication is recommended.<br>( $< 1$ mg/ml refers to the product slightly soluble or insoluble)   |
| In vivo Formulation | 10% DMSO+90% Saline: 4.13 mg/mL (26.79 mM), Solution.<br><i>Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.</i> |

### Preparing Stock Solutions

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|       | 1mg       | 5mg        | 10mg       |
|-------|-----------|------------|------------|
| 1 mM  | 6.4863 mL | 32.4317 mL | 64.8635 mL |
| 5 mM  | 1.2973 mL | 6.4863 mL  | 12.9727 mL |
| 10 mM | 0.6486 mL | 3.2432 mL  | 6.4863 mL  |
| 50 mM | 0.1297 mL | 0.6486 mL  | 1.2973 mL  |

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Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

### Reference

Wu ZF, et al. Induction of immune-related gene expression in *Ctenopharyngodon idella* kidney cells by secondary metabolites from immunostimulatory *Alcaligenes faecalis* FY-3. *Scand J Immunol.* 2012 Aug;76(2):131-40.

Khan R, et al. Attenuation of TNF- $\alpha$  secretion by L-proline-based cyclic dipeptides produced by culture broth of *Pseudomonas aeruginosa*. *Bioorg Med Chem Lett.* 2015 Dec 15;25(24):5756-61.

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