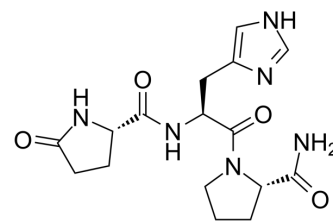


## Protirelin acetate

<b>Cat. No.:</b>	HY-P0002A
<b>CAS No.:</b>	120876-23-5
<b>Molecular Formula:</b>	$C_{16}H_{22}N_6O_4 \cdot 3/2 C_2H_4O_2$
<b>Molecular Weight:</b>	452.46
<b>Sequence:</b>	{pGlu}-His-Pro-NH <sub>2</sub>
<b>Sequence Shortening:</b>	{pGlu}-HP-NH <sub>2</sub>
<b>Target:</b>	Thyroid Hormone Receptor
<b>Pathway:</b>	Vitamin D Related/Nuclear Receptor
<b>Storage:</b>	Sealed storage, away from moisture
	Powder    -80°C    2 years
	-20°C    1 year



1.5 CH<sub>3</sub>COOH

\* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)

### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : 250 mg/mL (552.54 mM; Need ultrasonic)  
 H<sub>2</sub>O : 50 mg/mL (110.51 mM; Need ultrasonic)

Concentration	Solvent	Mass		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	2.2101 mL	11.0507 mL	22.1014 mL
	5 mM	0.4420 mL	2.2101 mL	4.4203 mL
	10 mM	0.2210 mL	1.1051 mL	2.2101 mL

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

#### In Vivo

- Add each solvent one by one: PBS  
Solubility: 100 mg/mL (221.01 mM); Clear solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline  
Solubility: ≥ 2.08 mg/mL (4.60 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
Solubility: ≥ 2.08 mg/mL (4.60 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil  
Solubility: ≥ 2.08 mg/mL (4.60 mM); Clear solution

### BIOLOGICAL ACTIVITY

#### Description

Protirelin Acetate is a highly conserved neuropeptide that exerts the hormonal control of thyroid-stimulating hormone (TSH) levels as well as neuromodulatory functions.

<b>IC<sub>50</sub> &amp; Target</b>	Thyroid hormone receptor
<b>In Vivo</b>	<p>Protirelin (TRH) is an evolutionarily ancient neuropeptide, having its origin before the divergence of protostomes and deuterostomes, and may ancestrally have been involved in the control of postembryonic growth and reproduction<sup>[1]</sup>. The effect of the thyrotropin-releasing hormone (Protirelin, TRH), one of the hypothalamic releasing hormones, on body temperature is investigated in the rat. Protirelin, in doses of 1, 5, 10 and 20 mg/kg, is injected intraperitoneally to male Wistar rats weighing 200-250 g. Protirelin causes a temporary rise in body temperature dose-dependently. The thyroidectomized rats injected 20 mg/kg of Protirelin which induces a significant hyperthermia in the sham-operated animals, fail to show a rise in body temperature. The present results suggest that a release of thyroid hormone might participate in the hyperthermic action of Protirelin<sup>[2]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

## PROTOCOL

<b>Animal Administration</b> <sup>[2]</sup>	<p><b>Rats</b><sup>[2]</sup></p> <p>Ninety male Wistar rats weighing 200-250 g are subjected to the study. In the first experiment, 50 rats are divided into five groups randomly. Four doses of Protirelin dissolved in physiological saline, i. e., 1 mg/kg, 5mg/kg, 10 mg/kg and 20 mg/kg, are administered intraperitoneally to the four groups and saline to the remaining control group. Rectal temperature is measured at the place 5 cm inner from the anus with the electronic thermister before and after treatment with Protirelin or saline. In the second experiment, 40 rats are thyroidectomized or sham-operated under the anesthesia by thiopental sodium. Ten days after the operation, 20 mg/kg of Protirelin or saline is administered to the thyroidectomized and sham-operated animals by i. p. and rectal temperature is measured using the same method as used in the first experiment. These two experiments are undertaken from 1 p, m, to 4 p. m. and the room temperature is kept at 24±1°C through the experiments including the breeding period. For a statistical analysis, Student's t test (two-tailed) is adopted.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>
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## REFERENCES

[1]. Van Sinay E, et al. Evolutionarily conserved TRH neuropeptide pathway regulates growth in *Caenorhabditis elegans*. Proc Natl Acad Sci U S A. 2017 May 16;114(20):E4065-E4074.

[2]. Noda Y, et al. Hyperthermia induced by thyrotropin-releasing hormone (TRH, Protirelin) in the rat. Kurume Med J. 1979;26(2):107-12.

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

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