Product Data Sheet

Product Name: Protirelin (Synthetic thyrotropin-releasing factor)
Cat. No.: GC30588

Chemical Properties

Cas. No.	24305-27-9		
SMILES	{pGlu}-His-Pro-NH2		
Formula	$C_{16}H_{22}N_6O_4$	M.Wt	362.38
Solubility	DMF: 30 mg/ml,DMSO: 30 mg/ml,Ethanol: 30 mg/ml,PBS (pH 7.2): 10 mg/ml	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ 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			

Protocol

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com
Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

Animal experiment:

Rats[2]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.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com
Address: 10292 Central Ave. #205, Montclair, CA, USA

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.

Background

Thyrotropin-releasing Hormone (TRH) is a tropic hormone that stimulates release of thyroid-stimulating hormone (TSH) and prolactin.[1] It binds to the human TRH receptor (TRHR) expressed in CHO cells and to rat TRHR in rat brain membranes (IC_{50}s = 25 and 198 nM, respectively).[2,3] TRH (1 μM) decreases polyphosphoinositide and increases arachidonic and oleic acid diacylglycerol incorporation into lipids of GH3 rat pituitary

tumor cells.[4] *In vitro*, it dose-dependently increases TSH release from rat anterior pituitary slices and prolactin release from cultured anterior pituitary cells.[5,6] *In vivo*, TRH (0.01 mg/kg) increases TSH and prolactin plasma levels in rats.[1]

1.Dettmar, P.W., Lynn, A.G., Metcalf, G., et al.The ability of RX 77368 - a stabilised analogue of TRH - to provoke the secretion of prolactin and TSH in vivoNeuropeptides3(1)1-8(1982) 2.Yamada, M., Iwasaki, T., Satoh, T., et al.Activation of the thyrotropin-releasing hormone (TRH) receptor by a direct precursor of TRH, TRH-GlyNeurosci. Lett.196(1-2)109-112(1995) 3.Bhargava, H.N., and Das, S.Evidence for opiate action at the brain receptors for thyrotropin-releasing hormoneBrain Res.368(2)262-267(1986) 4.Martin, T.F.J.Thyrotropin-releasing hormone rapidly activates the phosphodiester hydrolysis of polyphosphoinositides in GH3 pituitary cells. Evidence for the role of a polyphosphoinositide-specific phospholipase C in hormone actionJ. Biol. Chem.258(24)14816-14822(1983) 5.Iriuchijima, T., Michimata, T., Miyashita, K., et al.Thyroid hormones regulate the formation of inositol phosphate in response to thyrotropin-releasing hormone in rat anterior pituitariesNeuropeptides21(1)49-53(1992) 6.Apfelbaum, M.E.Role of vasoactive intestinal peptide and 5-HT2 receptor subtype in serotonin stimulation of basal and thyrotropin-releasing-hormone-induced prolactin release in vitro from rat pituitary cellsNeuroendocrinology67(1)45-50(1998)

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com
Address: 10292 Central Ave. #205, Montclair, CA, USA