
Product Data Sheet

Product Name: AG 045572

Cat. No.: GC15147

Chemical Properties

Cas. No. 263847-55-8

Chemical Name 5-((3,5,5,8,8-pentamethyl-5,6,7,8-tetrahydronaphthalen-2-yl)methyl)-N-(2,4,6-trimethoxyphenyl)furan-2-carboxamide

SMILES O=C(C1=CC=C(CC2=C(C)C=C3C(C)(C)CCC(C)(C)C3=C2)O1)NC(C(OC)=CC(OC)=C4)=C4OCFormula C₃₀H₃₇NO₅

M.Wt 491.62

Solubility <49.16mg/ml in DMSO; <24.58mg/ml in ethanol

Storage Store at RT

General tips For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°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**

AG 045572, also called CMPD1, is a nonpeptidic antagonist of gonadotropin-releasing hormone (GnRH) [1], with K_i values of 6.0 nM and 2.2nM to human and mouse GnRH receptors, respectively [2].

GnRH is a neuroendocrine decapeptide (pGlu-His-Trp-Ser-Tyr-Gly-Leu-Arg-Pro- Gly-NH₂). It is synthesized in the neurovascular terminals of the hypothalamus and hence secreted directly into the hypophyseal portal blood supply in a pulsatile manner. GnRH selectively binds specific receptors on membranes of anterior pituitary gonadotroph cells to stimulate the synthesis and the release of the gonadotropic hormones [follicle-stimulating hormone (FSH) and luteinizing hormone (LH)]. FSH and LH stimulate gametogenesis and gonadal production of sex steroids, respectively [3].

In 293 cells expressing human GnRH receptors, GnRH concentration-dependently increased the accumulation of total [³H] inositol phosphate. This response to GnRH

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

showed an EC₅₀ value of 0.6 ± 0.15 nM ($n = 10$) with a Hill coefficient of 0.98 ± 0.05 . AG 045572 alone did not produce any change in basal levels of inositol phosphates. But AG 045572 concentration-dependently inhibited the response to GnRH. The mean KB \pm S.E. of six similar experiments was 25 ± 0.9 nM for AG 045572 at the human receptor. TRH concentration-dependently stimulate the accumulation of total inositol phosphate in GGH3 cells with an EC₅₀ value of 2.4 ± 0.16 . AG 045572 at concentrations up to 10 μ M had no appreciable inhibition of the accumulation of inositol phosphate stimulated by TRH [3].

After oral administration with AG 045572 at a single dose of 100mg/kg, the concentration of plasma LH in castrated male rats was completely suppressed up to 8 h. 0.5 h after a single intravenous administration with AG 045572 at 10mg/kg, LH levels were suppressed to almost baseline. But this effect lasted for less than 2 h. AG 045572 at a single intravenous dose of 20 mg/kg also reduced concentrations of testosterone in intact male rats [2]. To intact male rats, administration with AG 045572 at a single dose of 100 mg/kg, maintained the suppression of testosterone in the castrate range for 24 hours [4].

References:

- [1]. Barnes MJ, Burschka C, Büttner MW, et al. Silicon Analogues of the Nonpeptidic GnRH Antagonist AG-045572: Syntheses, Crystal Structure Analyses, and Pharmacological Characterization. *ChemMedChem*, 2011, 6(11): 2070-2080.
- [2]. Zhu YF, Chen C, Struthers RS. Nonpeptide gonadotropin releasing hormone antagonists. *Annu. Rep. Med. Chem*, 2004, 39(99): 110.
- [3]. Anderes KL, Luthin DR, Castillo R, et al. Biological characterization of a novel, orally active small molecule gonadotropin-releasing hormone (GnRH) antagonist using castrated and intact rats. *Journal of Pharmacology and Experimental Therapeutics*, 2003, 305(2): 688-695.
- [4]. Herbst KL. Gonadotropin-releasing hormone antagonists. *Current opinion in pharmacology*, 2003, 3(6): 660-666.

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