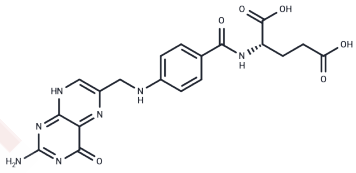
Data Sheet (Cat.No.T0062)

TargetMol

Folic acid

Chemical Properties



CAS No. : 59-30-3

Formula: C19H19N7O6

Molecular Weight: 441.4

Storage: 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	Folic acid is an orally active essential nutrient involved in the synthesis of DNA/RNA and the production and maintenance of new cells. It exhibits antidepressant-like effects and can reduce the risk of neural tube defects in newborns. Folate deficiency can cause megaloblastic anemia, macrocytic anemia, neural tube closure defects, tumors, and aging-related diseases. Folic acid is also commonly used in research on folate deficiency-related conditions and to induce acute kidney injury models.
Targets(IC50)	Endogenous Metabolite,DNA/RNA Synthesis
In vitro	**METHODS**: HUVEC cells were treated with Folic acid (2.5-100 μM) for 48 h. Cell proliferation was detected using xCELLigence RTCA real-time cell analyzer. **RESULTS**: Folic acid increased cell proliferation in the HUVEC cell line using a cytometric index to determine the EC50 dose of 50 μL.[1] **METHODS**: Neural tube explants were treated with Folic acid (90 μM) for 3 h and morphology was observed using microscopy. **RESULTS**: In the presence of Folic acid, cell migration from the neural tube explants was detected in 80% of the cultures within 2-3 h. The first cell to leave the initial explant was the first cell to leave the neural tube explant. The first cells leaving the initial explants were tightly organized neuroepithelial cells and the explants were firmly attached to the fibronectin layer. [2]
In vivo	**METHODS**: To investigate the role of Folic acid (1-100 mg/kg) in a behavioral model of depression, Swiss mice were administered Folic acid (1-100 mg/kg) in a single gavage dose and subjected to the forced swimming test (FST) and tail suspension test (TST). **RESULTS**: Oral administration of Folic acid reduced immobilization time in the FST (50-100 mg/kg) and TST (10-50 mg/kg). Folic acid produces antidepressant-like effects in the FST and TST. [3]
Cell Research	To determine the effect of FA supplementation on BRCA1 and BRCA2 mRNA expression, all cell lines were treated with 0, 25, 50, 75, or 100 nmol/L FA for 72 hours before harvesting in TRI Reagent according to the manufacturer's instructions. (Only for Reference)

Solubility Information

Solubility	DMSO: 25.00 mg/mL (56.64 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2.50 mg/mL (5.66 mM),Suspension. *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.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.2655 mL	11.3276 mL	22.6552 mL
5 mM	0.4531 mL	2.2655 mL	4.531 mL
10 mM	0.2266 mL	1.1328 mL	2.2655 mL
50 mM	0.0453 mL	0.2266 mL	0.4531 mL

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

Pakdemirli A, et al. Role of mesenchymal stem cell-derived soluble factors and folic acid in wound healing. Turk J Med Sci. 2019 May 9;49(3):914-21.

Zhao Y, Li Y, Zhu R, et al.RPS15 interacted with IGF2BP1 to promote esophageal squamous cell carcinoma development via recognizing m6A modification.Signal Transduction and Targeted Therapy.2023, 8(1): 224.

Boot MJ, et al. Folic acid and homocysteine affect neural crest and neuroepithelial cell outgrowth and differentiation in vitro. Dev Dyn. 2003 Jun;227(2):301-8.

Zhan X Z, Wei T H, Yin Y Q, et al.Determination and mechanism of Xiao-Ai Jie-Du decoction against diffuse large B-cell lymphoma: In silico and In vitro studies.Journal of Ethnopharmacology.2023: 117271.

Liu C, Lai H, Chen T. Boosting Natural Killer Cell-Based Cancer Immunotherapy with Selenocystine/Transforming Growth Factor-Beta Inhibitor-Encapsulated Nanoemulsion. ACS nano. 2020, 14(9): 11067-11082.

Brocardo PS, et al. Folic acid administration produces an antidepressant-like effect in mice: evidence for the involvement of the serotonergic and noradrenergic systems. Neuropharmacology. 2008 Feb;54(2):464-73.