Data Sheet (Cat.No.T20029)

TargetMol

Buformin hydrochloride

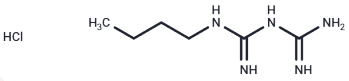
Chemical Properties

CAS No. : 1190-53-0

Formula: C6H16ClN5

Molecular Weight: 193.68

Storage: 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	Buformin hydrochloride (NSC-528218) is a potent AMPK activator,an oral antidiabetic drug of the biguanide class. Buformin delays the absorption of glucose from the gastrointestinal tract increases insulin sensitivity and glucose uptake into cells and inhibits synthesis of glucose by the liver. Biguanides may antagonize the action of glucagon, thus reducing fasting glucose levels.
Targets(IC50)	AMPK
In vitro	Buformin hydrochloride (0-10 mM; 5 days) inhibits SKBR3 and BT474 cells growth as a concentration-dependent manner, exhibits IC50 values of 246.7 μM and ?98.6 μM for erbB-2-overexpressing SKBR3 and BT474 cells, respectively[1]. Buformin hydrochloride (0-3 mM; 48 hours) increases the percentage of cells in G0/G1 phase and reduced the percentage of cells in S phase, especially in the SKBR3 cells[1]. Buformin hydrochloride (0-3 mM; 24 hours) suppresses RTK activation, including erbB-2 and IGF1R signaling downstream, and Akt activation/phosphorylation is inhibited in both SKBR3 and BT474 cells[1].
In vivo	Buformin hydrochloride (oral administation; 7.6?mmol/kg of chow; 7 days) exhibits significantly reduced tumor volumes and weights, and?hinders mammary morphogenesis and proliferation in MMTV-erbB-2 transgenic mice[1].

Solubility Information

Solubility	DMSO: 60 mg/mL (309.79 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 mg/mL (10.33 mM),Sonication is recommended. *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	5.1632 mL	25.8158 mL	51.6316 mL
5 mM	1.0326 mL	5.1632 mL	10.3263 mL
10 mM	0.5163 mL	2.5816 mL	5.1632 mL
50 mM	0.1033 mL	0.5163 mL	1.0326 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

Amanda B Parris, et al. Buformin hydrochloride Inhibits the Stemness of erbB-2-overexpressing Breast Cancer Cells and Premalignant Mammary Tissues of MMTV-erbB-2 Transgenic Mice. J Exp Clin Cancer Res
Jing Li, et al. Buformin hydrochloride Suppresses Proliferation and Invasion via AMPK/S6 Pathway in Cervical Cancer and Synergizes With Paclitaxel. Cancer Biol Ther. 2018 Jun 3;19(6):507-517.
Gutsche H, Blumenbach L, Losert W, Wiemann H. [Concentration of 14C-1-butylbiguanide in plasma of diabetic patients and its elimination after administration of a new Galenical formulation (author's transl)]. Arzneimittelforschung. 1976;26(6):1227-9. German. PubMed PMID: 989423.
Beckmann VR. [Reduction of serum triglycerides with a combined application of butylbiguanide and clofibrate in animal experiments]. Arzneimittelforschung. 1975 May;25(5):775-6. German. PubMed PMID: 1242321.