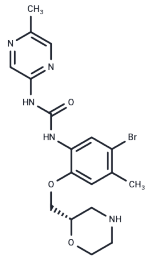
Data Sheet (Cat.No.T6084)

TargetMol

Rabusertib

Chemical Properties



CAS No. : 911222-45-2

Formula: C18H22BrN5O3

Molecular Weight: 436.3

Storage: Store at low temperature
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	Rabusertib (IC-83) is an inhibitor of the cell cycle checkpoint kinase 1 (chk1) with potential chemopotentiating activity. Rabusertib has been used in trials studying the treatment of Cancer, Solid Tumors, Advanced Cancer, Pancreatic Neoplasms, and Non-Small Cell Lung Cancer.
Targets(IC50)	PDK,Autophagy,Chk
In vitro	Chk1 is an ATP-dependent serine-threonine kinase and a key component in the DNA replication-monitoring checkpoint system activated by double-stranded breaks (DSBs). Chk1 contributes to all currently defined cell cycle checkpoints, including G1/S, intra-S-phase, G2/M, and the mitotic spindle checkpoint. By inhibiting the activity of chk1, Rabusertib prevents the repair of DNA caused by DNA-damaging agents, thus potentiating the antitumor efficacies of various chemotherapeutic agents. However, preClinicalal data involving Rabusertib has not been published until now. [1] Inhibition of Chk1 is predicted to enhance the effects of antimetabolites, such as gemcitabine. [2] Rabusertib treatment impairs DNA synthesis, increases DNA damage (via mitotic defects), induces apoptosis, and has synergistic activity with pemetrexed, especially in p53 mutant tumor cells. [3]
In vivo	In xenograft models, LY2603618 delays tumor growth when given in combination with pemetrexed. [3]
Kinase Assay	Protein kinase assays are performed variously. Assays are performed on the following protein kinases: ABL, AKT1, ARG, CAMK2, CDK1, CDK2, CHK1, CHK2, DAPK1, EGFR, EPHA1, EPHB2, EPHB3, EPHB4, ERK1, ERK2, FES, FGFR1, FGFR3, FGFR4, FGR, HCK, HER2, INSR, JNK1, JNK2, LCK, MET, NTRK1, NTRK2, p38α, p38β, p38δ, p38γ, p70S6K, PDGFRα, PDGFRβ, PDK1, PKCα, ROCK2, ROS, RSK2, SGK1, SRC, SYK, TAK1, TYRO3, VEGFR2, VEGFR3, YES, ZAP70[1].
Cell Research	LY2603618 is prepared in DMSO (10 mM) and stock, and then diluted 1000-fold into medium[1]. Cells are plated at 2.5×103 per well, on 96-well tissue culture plates and incubated for one cell doubling (18-24 h). Gemcitabine dilutions are set up by half-log steps across a final concentration range of 1-1000 nM. LY2603618 is prepared by dilutions in DMSO to 5000× final concentration, and then diluted 1000-fold into medium to generate 5× stocks for addition to wells. Approximately 24 h after Gemcitabine addition, LY2603618 is added. Each combination is done in triplicate. After a period of

Cell Research	two cell doublings following LY2603618 addition, MTS/PMS reagent is added to each well according to the manufacturer's instructions. Absorbance is read on a Spectra Max 250 spectrophotometer at 490 nm and the data analyzed with GraphPad Prism 4.0. Dose-response curves are fit by non-linear regression, with bottom fits constrained to 0 % inhibition[1].

Solubility Information

Solubility	DMSO: 40 mg/mL (91.68 mM),Sonication is recommended. H2O: < 1 mg/mL (insoluble or slightly soluble), Ethanol: < 1 mg/mL (insoluble or slightly soluble), (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 1 mg/mL (2.29 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	2.292 mL	11.460 mL	22.920 mL
5 mM	0.4584 mL	2.292 mL	4.584 mL
10 mM	0.2292 mL	1.146 mL	2.292 mL
50 mM	0.0458 mL	0.2292 mL	0.4584 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

King C, et al. Invest New Drugs. 2014, 32(2):213-26.
Zhang L, Wirth M, Patra U, et al.Actionable loss of SLF2 drives B-cell lymphomagenesis and impairs the DNA damage response.EMBO Molecular Medicine.2023: e16431.
Emiliano Calvo1, et al. Mol Cancer Ther, 2011, A94.
Govindan R. J Thorac Oncol, 2011, 6(11 Suppl 4), S1757.