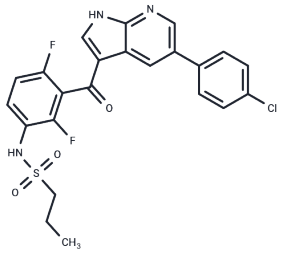
Data Sheet (Cat.No.T2382)

TargetMol

Vemurafenib

Chemical Properties



CAS No. : 918504-65-1

Formula: C23H18ClF2N3O3S

Molecular Weight: 489.92

Appearance: no data available

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	Vemurafenib (RG7204) is a B-RAF inhibitor that inhibits RAFV600E and c-RAF-1 (IC50=31/48 nM) selectively and potently. Vemurafenib exhibits antitumor activity and is used for the treatment of BRAF V600E mutation-positive melanoma.
Targets(IC50)	Raf,MAPK,ACK1,Autophagy,Src
In vitro	**METHODS**: Melanoma cells A375 and SK-Mel-28 were treated with Vemurafenib (0-8 μM) for 48 h. Cell viability was detected using CCK-8 assay. **RESULTS**: Vemurafenib dose-dependently inhibited the proliferation of A375 and SK-Mel-28 cells with IC50 of 0.8 μM and 1.8 μM, respectively.[1] **METHODS**: Melanoma cell lines Colo829 and LOX expressing BRAF V600E were treated with Vemurafenib (0.05-30 μmol/L) for 2 h, and the expression levels of target proteins were detected by Western Blot. **RESULTS**: Vemurafenib inhibited the phosphorylation of MEK and ERK in Colo829 and LOX cells. [2]
In vivo	**METHODS**: To assay anti-tumor activity in vivo, Vemurafenib (12.5-75 mg/kg, suspended in an aqueous vehicle containing 2% Klucel LF and adjusted to pH 4 with dilute HCl.) was orally administered to melanoma-carrying Athymic nude mice bearing LOX were administered orally twice daily for 11-13 days. **RESULTS**: Vemurafenib significantly inhibited tumor growth and induced tumor regression. [2] **METHODS**: In order to detect the anti-tumor activity in vivo, Vemurafenib (60 mg/kg) was administered orally to athymic mice bearing melanoma Colo-205 twice a day for 14 days. **RESULTS**: Vemurafenib effectively inhibited tumor growth in the Colo-205 xenograft mouse model. [3]
Kinase Assay	Expression and purification of B-RAF, structure determination, and protein kinase activity measurements were carried out as previously described. To obtain co-crystals of B-RAFV600E with PLX4032, the protein solution was initially mixed with the compound dissolved in DMSO at a final compound concentration of 1 mM. This complex was co-crystallized by a sitting drop vapor diffusion experiment in which equal volumes of complex (at 10 mg/ml concentration) and reservoir solution (100mM BisTris at pH 6.0, 12.5% 2,5-hexanediol, and 12% PEG3350) were mixed and allowed to equilibrate against the reservoir at 4°C. The crystal was soaked in cryosolvent, followed by flash-freezing in liquid nitrogen. The data were collected at Beamline ALS831 with the

	wavelength of 1.11?. The Ramachandran plot from the refined structure shows that 94%, 5.6% and 0.4% residues are in the most favored, additional allowed and generously allowed regions, respectively. A summary of the crystallography statistics is included in Supplementary Table 3. COLO205 tumor xenograft studies (Molecular Imaging Research, Ann Arbor, MI) were carried out as previously described either using a conventional formulation (5%DMSO, 1% methylcellulose) or using the MBP formulation [1].
Cell Research	Cellular proliferation was evaluated by MTT assay. Briefly, cells were plated in 96-well microtiter plates at a density of 1,000 to 5,000 cells per well in a volume of 180 µL. For the assay, RG7204 was prepared at 10 times the final assay concentration in media containing 1% DMSO. Twenty-four hours after cell plating, 20 µL of the appropriate dilution were added to plates in duplicate. The plates were assayed for proliferation 6 days after the cells were plated according to the procedure originally described by Mosmann [2].
Animal Research	All animal procedures were approved by the Ethical Commission of the Institute for Cancer Research and Treatment and by the Italian Ministry of Health. WiDr cells were injected subcutaneously into the right posterior flanks of 7-week-old immunodeficient NODSCID female mice (6 mice per group). Tumour formation was monitored twice a week, and tumour volume based on caliper measurements was calculated by the modified ellipsoidal formula: tumour volume = 1/2 length × width. When tumours reached a volume of approximately 200–250 mm^3, mice were randomly assigned to treatment with vehicle or drug(s) [3].

Solubility Information

Solubility	Ethanol: < 1 mg/mL (insoluble or slightly soluble), 10% DMSO+40% PEG300+5% Tween 80+45% Saline: 9 mg/mL (18.37 mM),Suspension. H2O: < 1 mg/mL (insoluble or slightly soluble), DMSO: 18.33 mg/mL (37.42 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.0411 mL	10.2057 mL	20.4115 mL
5 mM	0.4082 mL	2.0411 mL	4.0823 mL
10 mM	0.2041 mL	1.0206 mL	2.0411 mL
50 mM	0.0408 mL	0.2041 mL	0.4082 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.

Reference

Liu C, et al. Silencing TCF4 Sensitizes Melanoma Cells to Vemurafenib Through Inhibiting GLUT3-Mediated Glycolysis. Onco Targets Ther. 2020 May 29;13:4905-4915.
Cui S, Suo N, Yang Y, et al.The aminosteroid U73122 promotes oligodendrocytes generation and myelin formation. Acta Pharmacologica Sinica.2023: 1-12.
An effective two-stage NMBzA-induced rat esophageal tumor model revealing that the FAT-Hippo-YAP1 axis drives the progression of ESCC
Yang H, et al. RG7204 (PLX4032), a selective BRAFV600E inhibitor, displays potent antitumor activity in preclinical melanoma models. Cancer Res. 2010 Jul 1;70(13):5518-27.
Zhang J, et al. EBI-907, a novel BRAF(V600E) inhibitor, has potent oral anti-tumor activity and a broad kinase selectivity profile. Cancer Biol Ther. 2016;17(2):199-207.
Flaherty KT, et al. Inhibition of mutated, activated BRAF in metastatic melanoma. N Engl J Med. 2010 Aug 26;363 (9):809-19.