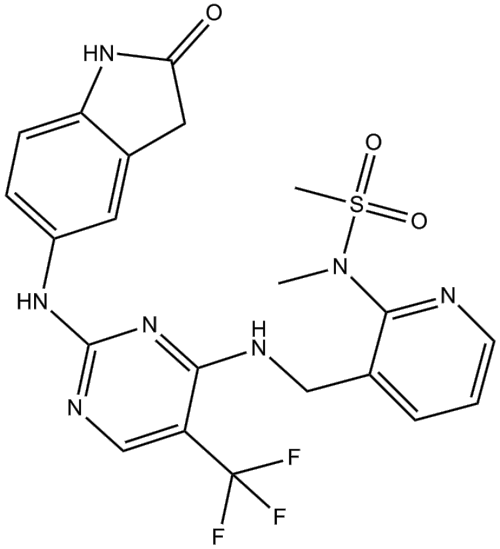
Product Data Sheet

Product Name: PF-562271
Cat. No.: GC15380

Chemical Properties

Cas. No.	717907-75-0		
Chemical Name	N-methyl-N-[3-[[[2-[(2-oxo-1,3-dihydroindol-5-yl)amino]-5-(trifluoromethyl)pyrimidin-4-yl]amino]methyl]pyridin-2-yl]methanesulfonamide		
SMILES	CN(C1=C(C=CC=N1)CNC2=NC(=NC=C2C(F)(F)F)NC3=CC4=C(C=C3)NC(=O)C4)S(=O)(=O)C		
Formula	$C_{21}H_{20}F_3N_7O_3S$	M.Wt	507.49
Solubility	≥ 25.35mg/mL in DMSO	Storage	Store at -20°C
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



Protocol

Cell experiment [1]:

Product Data Sheet

Cell lines	human glioblastoma CL-2 cells
Preparation Method	Cells were treated with 16nM PF-562271 and 100μM TMZ for 72h. Then live and dead cells were quantifed based on calcein and ethidium homodimer-1 staining for live and dead cells.
Reaction Conditions	16nM; 72h
Applications	PF-562271 treatment combined with TMZ reduces cell viability in primary glioblastoma human cell lines compared to TMZ monotherapy.

Animal experiment [1]:

Animal models	C57Bl/6-GL261 mouse glioma implantation model
Preparation Method	Beginning on the 5th day after tumor implantation, mice received 2weeks of 50mg/kg PF-562271 combined with 50mg/kg TMZ through oral gavage. Then Immunohistochemical evaluation of tumor size was performed to evaluate effect of PF-562271 on tumor growth.
Dosage form	50mg/kg/d; 2weeks; oral
Applications	Combined PF-562271 and TMZ treatment reduces tumor growth in a C57BL/6 GL261 mouse model

Caution: Product has not been fully validated for medical applications. For research use only.
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References:
[1]. Ortiz-Rivera J, Nuñez R, Kucheryavykh Y, et al. The PYK2 inhibitor PF-562271 enhances the effect of temozolomide on tumor growth in a C57Bl/6-Gl261 mouse glioma model. J Neurooncol. 2023 Feb;161(3):593-604. doi: 10.1007/s11060-023-04260-3. Epub 2023 Feb 15. PMID: 36790653; PMCID: PMC9992029.

Background

PF-562271 is a potent small-molecule inhibitor of focal adhesion kinase (FAK) and proline-rich tyrosine kinase 2 (Pyk2) with a IC_{50} of 1.5 and 14nmol/L, respectively[1][2]. PF-562271 is commonly utilized in the research of various cancers, including pancreatic cancer[3], osteosarcoma and glioblastoma[4], for its potential to inhibit tumor growth and metastasis.

PF-562271 (5μM; 48h) treatment can induce apoptosis and downregulated the activity of the protein kinase B/mammalian target of rapamycin pathway in human osteosarcoma cell lines[5]. PF-562271 (16nM; 72h) treatment combined with 100μM temozolomide (TMZ) signifcantly reduces viability, cell cycle progression, invasion and invadopodia in primary human glioma cell lines[6].

PF-562271(50mg/kg) combined with TMZ enhances the effect of TMZ on tumor growth inhibition and invasiveness in C57Bl/6-GL261 mouse glioma implantation model[6]. When administered orally at a dose of 5mg/kg, PF-562271 suppressed the growth and local spread of intratibial tumors and restored tumor-induced bone loss in nude rats with MDA-MB-231 cells implanted in their tibia[7].

References:
[1]. Michael Luzzio, Christopher Autry, Martin Berliner, et al. Design, synthesis, activity and properties of selective focal adhesion kinase inhibitors which are suitable for advanced preclinical evaluation: The discovery of PF-562271. Cancer Res 1 May 2007; 67 (9_Supplement): 5432.
[2]. Roberts WG, Ung E, Whalen P, et al. Antitumor activity and pharmacology of a selective focal adhesion kinase inhibitor, PF-562,271. Cancer Res. 2008 Mar 15;68(6):1935-44. doi: 10.1158/0008-5472.CAN-07-5155. PMID: 18339875.
[3]. Stokes JB, Adair SJ, Slack-Davis JK, et al. Inhibition of focal adhesion kinase by PF-562,271 inhibits the growth and metastasis of pancreatic cancer concomitant with altering the tumor

microenvironment. Mol Cancer Ther. 2011 Nov;10(11):2135-45. doi: 10.1158/1535-7163.MCT-11-0261. Epub 2011 Sep 8. PMID: 21903606; PMCID: PMC3213273.
[4]. Ortiz Rivera J, Velez Crespo G, Inyushin M, et al. Pyk2/FAK Signaling Is Upregulated in Recurrent Glioblastoma Tumors in a C57BL/6/GL261 Glioma Implantation Model. Int J Mol Sci. 2023 Aug 30;24(17):13467. doi: 10.3390/ijms241713467. PMID: 37686276; PMCID: PMC10487692.
[5]. Hu C, Chen X, Wen J, et al. Antitumor effect of focal adhesion kinase inhibitor PF562271 against human osteosarcoma in vitro and in vivo. Cancer Sci. 2017 Jul;108(7):1347-1356. doi: 10.1111/cas.13256. Epub 2017 Jun 8. Erratum in: Cancer Sci. 2018 Nov;109(11):3663-3664. doi: 10.1111/cas.13804. PMID: 28406574; PMCID: PMC5497929.
[6]. Ortiz-Rivera J, Nuñez R, Kucheryavykh Y, et al. The PYK2 inhibitor PF-562271 enhances the effect of temozolomide on tumor growth in a C57Bl/6-Gl261 mouse glioma model. J Neurooncol. 2023 Feb;161(3):593-604. doi: 10.1007/s11060-023-04260-3. Epub 2023 Feb 15. PMID: 36790653; PMCID: PMC9992029.
[7]. Bagi CM, Roberts GW, Andresen CJ. Dual focal adhesion kinase/Pyk2 inhibitor has positive effects on bone tumors: implications for bone metastases. Cancer. 2008 May 15;112(10):2313-21. doi: 10.1002/cncr.23429. PMID: 18348298.