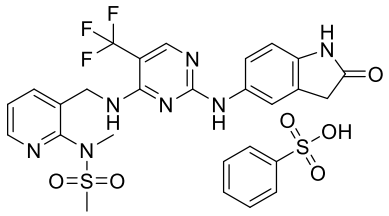
Product data sheet

MedKoo Cat#: 202228 Name: PF-562271 Besylate CAS#: 939791-38-5 (besylate) Chemical Formula: $C_{27}H_{26}F_3N_7O_6S_2$ Molecular Weight: 665.66	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:

PF-562271 Besylate, also known as PF-562,271 and PF-271, is an orally bioavailable small molecule and ATP-competitive focal adhesion kinase (FAK) inhibitor with potential antineoplastic and antiangiogenic activities. PF-562271 inhibits the tyrosine kinase FAK, and to a lesser extent, proline-rich tyrosine kinase (PYK2), which may inhibit tumor cell migration, proliferation, and survival. Note: PF-562271 benzesulfonate is also called PF-562271 besylate.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	0.4	0.6 mL
Water	0.8	1.2
Ethanol	0.7	1.05

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.50 mL	7.51 mL	15.02 mL
5 mM	0.30 mL	1.50 mL	3.00 mL
10 mM	0.15 mL	0.75 mL	1.50 mL
50 mM	0.03 mL	0.15 mL	0.30 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

1. Hu C, Chen X, Wen J, Gong L, Liu Z, Wang J, Liang J, Hu F, Zhou Q, Wei L, Shen Y, Zhang W. 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. PMID: 28406574; PMCID: PMC5497929.

2. Crompton BD, Carlton AL, Thorner AR, Christie AL, Du J, Calicchio ML, Rivera MN, Fleming MD, Kohl NE, Kung AL, Stegmaier K. High-throughput tyrosine kinase activity profiling identifies FAK as a candidate therapeutic target in Ewing sarcoma. Cancer Res. 2013 May 1;73(9):2873-83. doi: 10.1158/0008-5472.CAN-12-1944. Epub 2013 Mar 27. PMID: 23536552.

In vivo study

1. Chung IC, OuYang CN, Yuan SN, Li HP, Chen JT, Shieh HR, Chen YJ, Ojcius DM, Chu CL, Yu JS, Chang YS, Chen LC. Pyk2 activates the NLRP3 inflammasome by directly phosphorylating ASC and contributes to inflammasome-dependent peritonitis. Sci Rep. 2016 Oct 31;6:36214. doi: 10.1038/srep36214. PMID: 27796369; PMCID: PMC5087076.

2. Shang N, Arteaga M, Zaidi A, Cotler SJ, Breslin P, Ding X, Kuo P, Nishimura M, Zhang J, Qiu W. FAK Kinase Activity Is Required for the Progression of c-MET/β-Catenin-Driven Hepatoacellular Carcinoma. Gene Expr. 2016;17(1):79-88. doi: 10.3727/105221616X691604. Epub 2016 May 2. PMID: 27142958; PMCID: PMC5064945.

7. Bioactivity

Biological target:

PF-562271 besylate is an ATP-competitive, reversible inhibitor of FAK and Pyk2 kinase, with an IC50 of 1.5 nM and 13 nM, respectively.

In vitro activity

Phosphorylated FAK (Y397) was highly expressed in primary human osteosarcoma tumor samples and was associated with osteosarcoma prognosis and lung metastasis. PF562271 greatly suppressed proliferation and colony formation in human osteosarcoma cell lines. In addition, treatment of osteosarcoma cell lines with PF562271 induced apoptosis and downregulated the activity of the protein kinase B/mammalian target of rapamycin pathway. PF562271 also impaired the tube formation ability of endothelial cells in vitro.

Reference: Cancer Sci. 2017 Jul; 108(7): 1347–1356. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5497929/

In vivo activity

Mouse bone marrow-derived macrophages (BMDMs) were obtained and treated with ATP or nigericin in the presence and absence of the clinical trial-tested Pyk2/FAK dual inhibitor, PF-562271. Consistent with findings in human monocyte-derived macrophages and THP-1 cells (Fig. 1A,B), the IL-1β secretion induced by ATP or nigericin was significantly blocked by pretreatment of BMDMs with PF-562271 (Fig. 6A). Next, this study analyzed the inhibition effect of PF-562271 on MSU-induced peritonitis (Fig. 6B). In vivo, MSU induced the production of IL-1β and the recruitment of cells (e.g., Gr-1 + F4/80− neutrophils and F4/80 + monocytes and macrophages) to the peritoneal cavity. However, pretreatment with PF-562271 significantly reduced the amounts of IL-1β and the numbers of recruited cells, compared to the DMSO control (Fig. 6C,D). These results suggest that the PF-562271-induced blockade of Pyk2 and FAK signaling reduces IL-1β production and the recruitment of inflammatory cells to the peritoneal cavity, thus alleviating the inflammatory symptoms in this in vivo model.

Reference: Sci Rep. 2016; 6: 36214. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5087076/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.