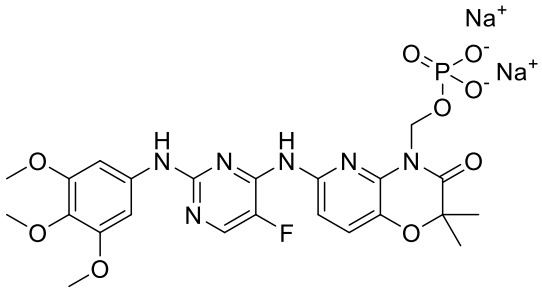
Product data sheet

MedKoo Cat#: 200393 Name: Fostamatinib sodium CAS#: 1025687-58-4 (sodium) Chemical Formula: $C_{23}H_{24}FN_6Na_2O_9P$ Molecular Weight: 624.42	
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:

Fostamatinib, also known as R 788 and R-935788, is an orally active, potent and selective Syk kinase inhibitor with potential anti-inflammatory and immunomodulating activities. Fostamatinib is also a pro-drug of R-406. Fostamatinib inhibits Syk kinase-mediated IgG Fc gamma receptor signaling, resulting in inhibition of the activation of mast cells, macrophages, and B-cells and related inflammatory responses and tissue damage.

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	50	80.07
Water	3	4.80

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	1.60 mL	8.01 mL	16.01 mL
5 mM	0.32 mL	1.60 mL	3.20 mL
10 mM	0.16 mL	0.80 mL	1.60 mL
50 mM	0.03 mL	0.16 mL	0.32 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. Braselmann S, Taylor V, Zhao H, Wang S, Sylvain C, Baluom M, Qu K, Herlaar E, Lau A, Young C, Wong BR, Lovell S, Sun T, Park G, Argade A, Jurcevic S, Pine P, Singh R, Grossbard EB, Payan DG, Masuda ES. R406, an orally available spleen tyrosine kinase inhibitor blocks fc receptor signaling and reduces immune complex-mediated inflammation. J Pharmacol Exp Ther. 2006 Dec;319(3):998-1008. doi: 10.1124/jpet.106.109058. Epub 2006 Aug 31. Erratum in: J Pharmacol Exp Ther. 2013 May;345(2):326. PMID: 16946104.

2. Buchner M, Fuchs S, Prinz G, Pfeifer D, Bartholomé K, Burger M, Chevalier N, Vallat L, Timmer J, Gribben JG, Jumaa H, Veelken H, Dierks C, Zirlik K. Spleen tyrosine kinase is overexpressed and represents a potential therapeutic target in chronic lymphocytic leukemia. Cancer Res. 2009 Jul 1;69(13):5424-32. doi: 10.1158/0008-5472.CAN-08-4252. Epub 2009 Jun 23. PMID: 19549911.

In vivo study

1. Suljagic M, Longo PG, Bennardo S, Perlas E, Leone G, Laurenti L, Efremov DG. The Syk inhibitor fostamatinib disodium (R788) inhibits tumor growth in the Eμ- TCL1 transgenic mouse model of CLL by blocking antigen-dependent B-cell receptor signaling. Blood. 2010 Dec 2;116(23):4894-905. doi: 10.1182/blood-2010-03-275180. Epub 2010 Aug 17. PMID: 20716772.

2. Young RM, Hardy IR, Clarke RL, Lundy N, Pine P, Turner BC, Potter TA, Refaeli Y. Mouse models of non-Hodgkin lymphoma reveal Syk as an important therapeutic target. Blood. 2009 Mar 12;113(11):2508-16. doi: 10.1182/blood-2008-05-158618. Epub 2008 Nov 3. PMID: 18981293; PMCID: PMC2947310.

7. Bioactivity

Biological target:

Fostamatinib disodium (R788, Tamatinib Fosdium), a prodrug of the active metabolite R406, is a Syk inhibitor with IC50 of 41 nM in a cell-free assay, strongly inhibits Syk but not Lyn, 5-fold less potent to Flt3.

In vitro activity

R406 is a competitive inhibitor for ATP binding to the Syk catalytic domain (Ki = 30 nM), and inhibits Syk kinase activity in vitro with an IC50 of 41 nM. Selectivity assessments using a panel of over 90 in vitro kinase assays showed that R406, whilst relatively specific for Syk, did demonstrate inhibitory activity on other kinases, including Flt3, Lyn (IC50 63 nM) and Lck (IC50 37 nM). When tested in cell-based assays, however, R406 inhibited all other kinases tested at 5- to 100-fold less potency than Syk as judged by phosphorylation of target proteins, despite the similar IC50 values on isolated kinase assays.

Reference: Drugs Future. 2011;36(4):273. https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/23284223/

In vivo activity

Fostamatinib (R788) has been shown to be highly active in two animal models of CLL - adoptively transferred T cell leukaemia 1 (TCL1) leukaemias and leukaemias that spontaneously develop in Emu-TCL1 transgenic mice. In addition, it has shown efficacy in murine models of non-Hodgkin's lymphoma (NHL), reducing tumour burden and prolonging survival in treated mice. Notably, this effect was not seen in tumours lacking surface expression on the BCR, in keeping with the drugs proposed mechanism of action. The effects of Fostamatinib (as either R788 or R406) have been more extensively studied in vivo in a diverse range of animal models of allergy, autoimmunity and inflammation, where its inhibitory action on FcR-mediated signalling is thought to be the key mechanism of action. For example, treatment with Fostamatinib effectively prevents the development thrombocytopenia and haemolytic anaemia induced by the passive transfer of anti-platelet and anti-red cell antibodies respectively to mice. In rodent models of asthma, R406 reduced airway hyperresponsiveness (AHR) and markers of airway inflammation following antigen challenge in sensitized mice, in two distinct models. Similarly, in mice passively sensitised with anti-OVA IgE, R406 treatment prevented the development of AHR.

Reference: Drugs Future. 2011;36(4):273. https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/23284223/

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.