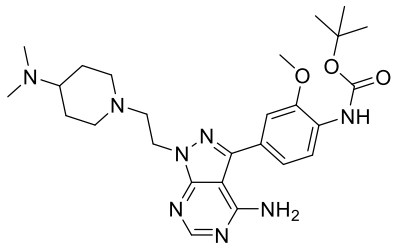
Product data sheet

MedKoo Cat#: 407331 Name: eCF506 CAS#: 1914078-41-3 Chemical Formula: $C_{26}H_{38}N_8O_3$ Exact Mass: 510.3067 Molecular Weight: 510.643	
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:

eCF506 is the first, potent and selective SRC inhibitor that inhibits SRC at subnanomolar concentration (IC50 < 0.5 nM) with a 1000-fold selectivity over ABL. eCF506 exhibits excellent water solubility, an optimal DMPK profile and oral bioavailability, halts SRC-associated neuromast migration in zebrafish embryos without inducing life-threatening heart defects, and inhibits SRC phosphorylation in tumor xenografts in mice. eCF506 targets a molecule called Src tyrosine kinase that is required for breast cancer cells to grow and spread. eCF506 may be highly effective at blocking growth of breast cancer cells.

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	15	29.38
Ethanol	15	29.38

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	1.96 mL	9.79 mL	19.58 mL
5 mM	0.39 mL	1.96 mL	3.92 mL
10 mM	0.20 mL	0.98 mL	1.96 mL
50 mM	0.04 mL	0.20 mL	0.39 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. Fraser C, Dawson JC, Dowling R, Houston DR, Weiss JT, Munro AF, Muir M, Harrington L, Webster SP, Frame MC, Brunton VG, Patton EE, Carragher NO, Unciti-Broceta A. Rapid Discovery and Structure-Activity Relationships of Pyrazolopyrimidines That Potently Suppress Breast Cancer Cell Growth via SRC Kinase Inhibition with Exceptional Selectivity over ABL Kinase. J Med Chem. 2016 May 26;59(10):4697-710. doi: 10.1021/acs.jmedchem.6b00065. Epub 2016 May 4. PMID: 27115835; PMCID: PMC4885109.

In vivo study

1. Fraser C, Dawson JC, Dowling R, Houston DR, Weiss JT, Munro AF, Muir M, Harrington L, Webster SP, Frame MC, Brunton VG, Patton EE, Carragher NO, Unciti-Broceta A. Rapid Discovery and Structure-Activity Relationships of Pyrazolopyrimidines That Potently Suppress Breast Cancer Cell Growth via SRC Kinase Inhibition with Exceptional Selectivity over ABL Kinase. J Med Chem. 2016 May 26;59(10):4697-710. doi: 10.1021/acs.jmedchem.6b00065. Epub 2016 May 4. PMID: 27115835; PMCID: PMC4885109.

2. Sergeys J, Van Hove I, Hu TT, Temps C, Carragher NO, Unciti-Broceta A, Feyen JHM, Moons L, Porcu M. The retinal tyrosine kinome of diabetic Akimba mice highlights potential for specific Src family kinase inhibition in retinal vascular disease. Exp Eye Res. 2020 Aug;197:108108. doi: 10.1016/j.exer.2020.108108. Epub 2020 Jun 23. PMID: 32590005.

7. Bioactivity

Biological target:

eCF506 is a highly potent and orally bioavailable inhibitor of the non-receptor tyrosine kinase Src with an IC50 of less than 0.5 nM.

In vitro activity

eCF506 induces a very potent antiproliferative effect in both MCF7 and MDA-MB-231 cells. eCF506 inhibits phosphorylation of SRC and FAK at low nanomolar levels, with complete inhibition observed at 100 nM. eCF506 significantly reduces cell motility at 10 nM as early as 6 h into the study, with equivalent efficacy to dasatinib. eCF506 exclusively inhibits SFK, with subnanomolar IC50 values against SRC and YES (IC50=0.5, 2.1 nM). It is important to highlight that eCF506 displays a vast difference in activity (>950-fold difference) between ABL and its primary target SRC.

Reference: J Med Chem. 2016 May 26;59(10):4697-710. https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/27115835/

In vivo activity

To determine the effects of eCF506 (11a) on cell migration in vivo, Tg(brn3c:mGFP) transgenic zebrafish53 that express green fluorescent protein (GFP) in the mechanosensory hair cells of the lateral line (which form part of the neuromasts) was treated with 11a for 2 d and measured the distance of the last neuromast to the tip of the tail (marked by the end of the notochord and the presence of black melanocytes, Figure7a, in red). 11a significantly reduced neuromast migration (>100 μm in average) with minimal effect on the development of the embryos (Figure7a–c). In contrast, dasatinib treatment at >10 μM resulted in severe cardiotoxicity and death of most embryos. At concentrations that were compatible with embryo survival (1–10 μM), dasatinib did not inhibit the migration of neuromasts, whereas it did still induce a patent cardiotoxic phenotype (note heart enlargement in Figure7c). Further safety studies (see Figure S8) showed that dual ABL/SRC inhibitor PP20 also induces severe cardiotoxicity in zebrafish even after short treatment. These results, which correlate with the essential role of ABL in heart development and healing, suggests that the selectivity of 11a over ABL might be advantageous for therapy when ABL inhibition is not required.

Reference: J Med Chem. 2016 May 26;59(10):4697-710. https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/27115835/