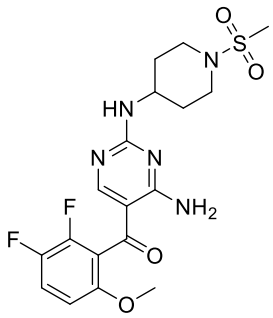
Product data sheet

MedKoo Cat#: 202420 Name: R547 CAS: 741713-40-6 (free base) Chemical Formula: $C_{18}H_{21}F_2N_5O_4S$ Exact Mass: 441.12823 Molecular Weight: 441.45	
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.

Product description:
R547 is orally bioavailable diaminopyrimidine cyclin-dependent kinase inhibitor (CDKI) with potential antineoplastic activity. CDKI CDKs are ATP-dependent serine/threonine kinases that are important regulators of cell cycle progression and are frequently overexpressed in tumor 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	60	135.92

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.27 mL	11.33 mL	22.66 mL
5 mM	0.45 mL	2.27 mL	4.53 mL
10 mM	0.23 mL	1.13 mL	2.27 mL
50 mM	0.05 mL	0.23 mL	0.45 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. Hacioğlu B, Kuş G, Kutlu HM, Kabadere S. The effect of R547, a cyclin-dependent kinase inhibitor, on hepatocellular carcinoma cell death. Turk J Biol. 2020 Feb 17;44(1):24-33. doi: 10.3906/biy-1907-3. PMID: 32123493; PMCID: PMC7049457.
2. Sorf A, Novotna E, Hofman J, Morell A, Staud F, Wsol V, Ceckova M. Cyclin-dependent kinase inhibitors AZD5438 and R547 show potential for enhancing efficacy of daunorubicin-based anticancer therapy: Interaction with carbonyl-reducing enzymes and ABC transporters. Biochem Pharmacol. 2019 May;163:290-298. doi: 10.1016/j.bcp.2019.02.035. Epub 2019 Feb 28. PMID: 30826329.

In vivo study

1. DePinto W, Chu XJ, Yin X, Smith M, Packman K, Goelzer P, Lovey A, Chen Y, Qian H, Hamid R, Xiang Q, Tovar C, Blain R, Nevins T, Higgins B, Luistro L, Kolinsky K, Felix B, Hussain S, Heimbrook D. In vitro and in vivo activity of R547: a potent and selective cyclin-dependent kinase inhibitor currently in phase I clinical trials. Mol Cancer Ther. 2006 Nov;5(11):2644-58. doi: 10.1158/1535-7163.MCT-06-0355. PMID: 17121911.
2. Chu XJ, DePinto W, Bartkovitz D, So SS, Vu BT, Packman K, Lukacs C, Ding Q, Jiang N, Wang K, Goelzer P, Yin X, Smith MA, Higgins BX, Chen Y, Xiang Q, Moliterni J, Kaplan G, Graves B, Lovey A, Fotouhi N. Discovery of [4-Amino-2-(1-methanesulfonylpiperidin-4-ylamino)pyrimidin-5-yl](2,3-difluoro-6- methoxyphenyl)methanone (R547), a potent and selective

cyclin-dependent kinase inhibitor with significant in vivo antitumor activity. J Med Chem. 2006 Nov 2;49(22):6549-60. doi: 10.1021/jm0606138. PMID: 17064073.

7. Bioactivity

Biological target:

R547 selectively binds to and inhibits CDKs, especially CDK1/cyclin B, CDK2/cyclin E, and CDK4/cyclin D1. The inhibition of CDKs results in cell cycle arrest, inhibition of tumor cell proliferation, and induction of apoptosis. Through CDK inhibition, this agent also reduces phosphorylation of the retinoblastoma (Rb) protein, thus preventing activation of transcription factor E2F and so further suppressing tumor cell proliferation.

In vitro activity

This study indicates that R547 has an apoptotic effect on H-4-II-E cells in 24 h. The apoptosis morphology at 24 h of treatment was clearly observed with microscopic examinations. According to their results, R547 has antiproliferative action when compared to cisplatin.

Reference: Turk J Biol. 2020 Feb 17;44(1):24-33. https://pubmed.ncbi.nlm.nih.gov/32123493/

In vivo activity

R547 showed antitumor activity in six human tumor xenografts and an orthotopic syngeneic rat model. The selective kinase inhibition profile and the preclinical antitumor activity of R547 suggest that it may be promising for development for use in the treatment of solid tumors. As of 2006, R547 was being evaluated in phase I clinical trials.

Reference: Mol Cancer Ther. 2006 Nov;5(11):2644-58. https://pubmed.ncbi.nlm.nih.gov/17121911/

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.