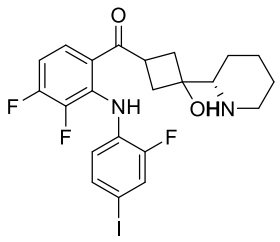
Product data sheet

MedKoo Cat#: 203185 Name: Cobimetinib CAS#: 934660-93-2 (free base) Chemical Formula: $C_{22}H_{22}F_3IN_2O_2$ Exact Mass: 530.06781 Molecular Weight: 530.32196	
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:

Cobimetinib, also known as GDC-0973 and XL-518, RG 7420, is an orally bioavailable small-molecule inhibitor of mitogen-activated protein kinase kinase 1 (MAP2K1 or MEK1), with potential antineoplastic activity. MEK inhibitor GDC-0973 specifically binds to and inhibits the catalytic activity of MEK1, resulting in inhibition of extracellular signal-related kinase 2 (ERK2) phosphorylation and activation and decreased tumor cell proliferation. Preclinical studies have demonstrated that this agent is effective in inhibiting the growth of tumor cells bearing a B-RAF mutation, which has been found to be associated with many tumor types.

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	75.0	141.42
DMF	33.0	62.23
Ethanol	29.0	54.68

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.89 mL	9.43 mL	18.86 mL
5 mM	0.38 mL	1.89 mL	3.77 mL
10 mM	0.19 mL	0.94 mL	1.89 mL
50 mM	0.04 mL	0.19 mL	0.38 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. Tong X, Wang Q, Wu D, Bao L, Yin T, Chen H. MEK inhibition by cobimetinib suppresses hepatocellular carcinoma and angiogenesis in vitro and in vivo. Biochem Biophys Res Commun. 2020 Feb 26;523(1):147-152. doi: 10.1016/j.bbrc.2019.12.032. Epub 2019 Dec 11. PMID: 31836141.
2. Singh A, Ruan Y, Tippett T, Narendran A. Targeted inhibition of MEK1 by cobimetinib leads to differentiation and apoptosis in neuroblastoma cells. J Exp Clin Cancer Res. 2015 Sep 18;34(1):104. doi: 10.1186/s13046-015-0222-x. PMID: 26384788; PMCID: PMC4575431.

In vivo study

1. Tong X, Wang Q, Wu D, Bao L, Yin T, Chen H. MEK inhibition by cobimetinib suppresses hepatocellular carcinoma and angiogenesis in vitro and in vivo. Biochem Biophys Res Commun. 2020 Feb 26;523(1):147-152. doi: 10.1016/j.bbrc.2019.12.032. Epub 2019 Dec 11. PMID: 31836141.

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7. Bioactivity

Biological target:

Cobimetinib (GDC-0973, RG7420) is a potent, selective and oral MEK1 inhibitor with an IC50 of 4.2 nM for MEK1.

In vitro activity

Neuroblastoma cell lines IMR-32, SHEP and IMR-5 were incubated in the absence or presence of cobimetinib (1 μM) for 24 hour and cell lysates were analyzed by western blot. IMR-32 and SHEP showed PARP cleavage as indication of apoptosis induction. To further confirm this finding an Annexin V/PI binding assay was performed (Fig. 6a and b). This data revealed an increased percentage of early apoptotic cells (Annexin V+/PI−) after treatment of IMR-32 and IMR-5 cells with cobimetinib for 24 h.

Reference: J Exp Clin Cancer Res. 2015; 34(1): 104. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4575431/

In vivo activity

In addition, this study validated the in vitro findings in HCC xenograft mouse model and demonstrated that cobimetinib inhibited ERK signaling, promoted apoptosis, and was active against resistant HCC growth and angiogenesis in vivo, without causing significant toxicity in mice.

Reference: Biochem Biophys Res Commun. 2020 Feb 26;523(1):147-152. https://pubmed.ncbi.nlm.nih.gov/31836141/

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.