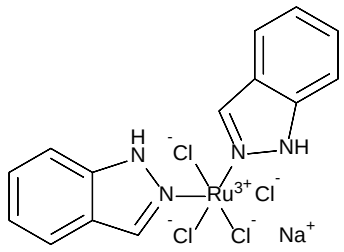
Product data sheet

MedKoo Cat#: 207118 Name: NKP-1339 CAS: 197723-00-5 Chemical Formula: $C_{14}H_{12}Cl_4N_4NaRu$ Molecular Weight: 502.1378	
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:

NKP-1339, also known as IT-139 and KP-1339, is a ruthenium-based anticancer drug in clinical development against solid cancer with limited side effects. NKP-1339 shows promising results in solid tumors, such as non-small cell lung cancer, colorectal carcinoma, and most distinctively in gastrointestinal neuroendocrine tumors.

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	59.0	117.50

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.99 mL	9.96 mL	19.91 mL
5 mM	0.40 mL	1.99 mL	3.98 mL
10 mM	0.20 mL	9.96 mL	1.99 mL
50 mM	0.04 mL	0.20 mL	0.40 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. Bakewell S, Conde I, Fallah Y, McCoy M, Jin L, Shajahan-Haq AN. Inhibition of DNA Repair Pathways and Induction of ROS Are Potential Mechanisms of Action of the Small Molecule Inhibitor BOLD-100 in Breast Cancer. Cancers (Basel). 2020 Sep 16;12(9):2647. doi: 10.3390/cancers12092647. PMID: 32947941; PMCID: PMC7563761.

2. Wernitznig D, Kiakos K, Del Favero G, Harrer N, Machat H, Osswald A, Jakupec MA, Wernitznig A, Sommergruber W, Keppler BK. First-in-class ruthenium anticancer drug (KP1339/IT-139) induces an immunogenic cell death signature in colorectal spheroids in vitro. Metallomics. 2019 Jun 19;11(6):1044-1048. doi: 10.1039/c9mt00051h. PMID: 30942231.

In vivo study

TBD

7. Bioactivity

Biological target:

NKP-1339 (IT-139; KP-1339) is the first-in-class ruthenium-based anticancer agent in development against solid cancer with limited side effects. NKP-1339 induces G2/M cell cycle arrest, blockage of DNA synthesis, and induction of apoptosis via the mitochondrial pathway.

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In vitro activity

To understand BOLD-100-mediated signaling mechanism in breast cancer cells, this study used estrogen receptor positive (ER+) MCF7 breast cancer cells to obtain gene-metabolite integrated models. At 100 μM, BOLD-100 significantly reduced cell proliferation and expression of genes involved in the DNA repair pathway. BOLD-100 also induced reactive oxygen species (ROS) and phosphorylation of histone H2AX, gamma-H2AX (Ser139), suggesting disruption of proper DNA surveillance.

Reference: Cancers (Basel). 2020 Sep 16;12(9):2647. https://pubmed.ncbi.nlm.nih.gov/32947941/

In vivo activity

TBD

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.