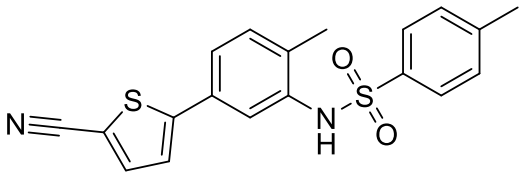
Product data sheet

MedKoo Cat#: 406612 Name: ELR510444 CAS#: 1233948-35-0 Chemical Formula: $C_{19}H_{16}N_2O_2S_2$ Exact Mass: 368.06532 Molecular Weight: 368.47	
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:
ELR510444 is a potent microtube disruptor with potential anticancer activity. ELR510444 has potent microtubule-disrupting activity, causing a loss of cellular microtubules and the formation of aberrant mitotic spindles and leading to mitotic arrest and apoptosis of cancer cells. ELR510444 potently inhibited cell proliferation with an IC(50) value of 30.9 nM in MDA-MB-231 cells, inhibited the rate and extent of purified tubulin assembly, and displaced colchicine from tubulin, indicating that the drug directly interacts with tubulin at the colchicine-binding site.

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	73	198.12
Ethanol	24	65.13

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	2.71 mL	13.57 mL	27.14 mL
5 mM	0.54 mL	2.71 mL	5.43 mL
10 mM	0.27 mL	1.36 mL	2.71 mL
50 mM	0.05 mL	0.27 mL	0.54 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. Carew JS, Esquivel JA 2nd, Espitia CM, Schultes CM, Mülbaier M, Lewis JD, Janssen B, Giles FJ, Nawrocki ST. ELR510444 inhibits tumor growth and angiogenesis by abrogating HIF activity and disrupting microtubules in renal cell carcinoma. PLoS One. 2012;7(1):e31120. doi: 10.1371/journal.pone.0031120. Epub 2012 Jan 25. PMID: 22295124; PMCID: PMC3266297.

2. Risinger AL, Westbrook CD, Encinas A, Mülbaier M, Schultes CM, Wawro S, Lewis JD, Janssen B, Giles FJ, Mooberry SL. ELR510444, a novel microtubule disruptor with multiple mechanisms of action. J Pharmacol Exp Ther. 2011 Mar;336(3):652-60. doi: 10.1124/jpet.110.175331. Epub 2010 Dec 9. PMID: 21148249; PMCID: PMC3061540.

In vivo study

1. Carew JS, Esquivel JA 2nd, Espitia CM, Schultes CM, Mülbaier M, Lewis JD, Janssen B, Giles FJ, Nawrocki ST. ELR510444 inhibits tumor growth and angiogenesis by abrogating HIF activity and disrupting microtubules in renal cell carcinoma. PLoS One. 2012;7(1):e31120. doi: 10.1371/journal.pone.0031120. Epub 2012 Jan 25. PMID: 22295124; PMCID: PMC3266297.

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2. Risinger AL, Westbrook CD, Encinas A, Mülbaier M, Schultes CM, Wawro S, Lewis JD, Janssen B, Giles FJ, Mooberry SL. ELR510444, a novel microtubule disruptor with multiple mechanisms of action. J Pharmacol Exp Ther. 2011 Mar;336(3):652-60. doi: 10.1124/jpet.110.175331. Epub 2010 Dec 9. PMID: 21148249; PMCID: PMC3061540.

7. Bioactivity

Biological target:

ELR-510444 is a novel microtubule disruptor with potential antivascular effects and in vivo antitumor efficacy, causing a loss of cellular microtubules and the formation of aberrant mitotic spindles and leading to mitotic arrest and apoptosis of cancer cells.

In vitro activity

ELR510444 has potent microtubule-disrupting activity, causing a loss of cellular microtubules and the formation of aberrant mitotic spindles and leading to mitotic arrest and apoptosis of cancer cells. ELR510444 potently inhibited cell proliferation with an IC(50) value of 30.9 nM in MDA-MB-231 cells, inhibited the rate and extent of purified tubulin assembly, and displaced colchicine from tubulin, indicating that the drug directly interacts with tubulin at the colchicine-binding site. ELR510444 is not a substrate for the P-glycoprotein drug transporter and retains activity in βIII-tubulin-overexpressing cell lines, suggesting that it circumvents both clinically relevant mechanisms of drug resistance to this class of agents. These data show a close correlation between the concentration of ELR510444 required for inhibition of cellular proliferation and that required to cause significant loss of cellular microtubule density, consistent with its activity as a microtubule depolymerizer.

Reference: J Pharmacol Exp Ther. 2011 Mar;336(3):652-60. https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/21148249/

In vivo activity

To further investigate the anticancer activity of ELR510444, its efficacy was evaluated in the 786-O and A498 RCC mouse xenograft models. 786-O and A498 tumor-bearing animals were randomized into groups and given 8 mg/kg ELR510444 orally for 2 weeks on a QDx5 (every day for 5 days) schedule. Treatment with ELR510444 significantly decreased mean tumor volume in both xenograft models compared to the vehicle-treated controls (Figure 6A). Importantly, ELR510444 was very well tolerated as no significant animal weight loss was observed throughout the duration of the study (Figure 6B). Further analysis of tumors harvested at the end of the study revealed a significant reduction in tumor cell proliferation as measured by PCNA staining (Figure 6C) and an increase in cleaved caspase-3 levels, a marker of apoptosis (Figure 6D). Collectively, these data demonstrate that ELR510444 has significant in vivo activity in RCC tumor models.

Reference: PLoS One. 2012;7(1):e31120. https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/22295124/

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.