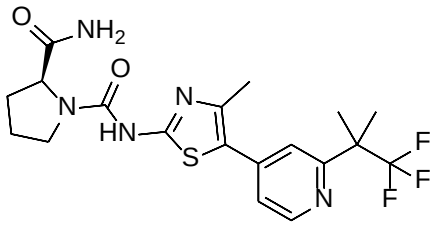
Product data sheet

MedKoo Cat#: 204780 Name: Alpelisib CAS#: 1217486-61-7 Chemical Formula: $C_{19}H_{22}F_3N_5O_2S$ Exact Mass: 441.1446 Molecular Weight: 441.47	
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:
Alpelisib, also known as BLY719, is an orally bioavailable phosphatidylinositol 3-kinase (PI3K) inhibitor with potential antineoplastic activity. Alpelisib is equipotent against both wild type and several mutant isoforms (IC50s = 4.0-4.8 nM). eCollection 2020. Navitoclax combined with Alpelisib effectively inhibits Merkel cell carcinoma cell growth in vitro. Alpelisib Plus Letrozole Shows Promise After CDK 4/6 Inhibitor Therapy in PIK3CA-Mutated HR+/HER2- Advanced Breast Cancer.

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
DMF	30.0	67.95
DMSO	67.11	152.01
DMSO:PBS (pH 7.2) (1:1)	0.50	1.13
Ethanol	1.50	3.40

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.27 mL	11.33 mL	22.65 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. Berquez M, Gadsby JR, Festa BP, Butler R, Jackson SP, Berno V, Luciani A, Devuyst O, Gallop JL. The phosphoinositide 3-kinase inhibitor alpelisib restores actin organization and improves proximal tubule dysfunction in vitro and in a mouse model of Lowe syndrome and Dent disease. Kidney Int. 2020 Oct;98(4):883-896. doi: 10.1016/j.kint.2020.05.040. Epub 2020 Sep 9. PMID: 32919786; PMCID: PMC7550850.
2. Keam B, Kim S, Ahn YO, Kim TM, Lee SH, Kim DW, Heo DS. In vitro anticancer activity of PI3K alpha selective inhibitor BYL719 in head and neck cancer. Anticancer Res. 2015 Jan;35(1):175-82. PMID: 25550549.

In vivo study

1. Berquez M, Gadsby JR, Festa BP, Butler R, Jackson SP, Berno V, Luciani A, Devuyst O, Gallop JL. The phosphoinositide 3-kinase inhibitor alpelisib restores actin organization and improves proximal tubule dysfunction in vitro and in a mouse model of Lowe syndrome and Dent disease. Kidney Int. 2020 Oct;98(4):883-896. doi: 10.1016/j.kint.2020.05.040. Epub 2020 Sep 9. PMID: 32919786; PMCID: PMC7550850.

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7. Bioactivity

Biological target: Alpelisib (BYL-719) is a PI3Kα inhibitor with IC50 of 5 nM in a cell-free assay.

In vitro activity

Whether the effect of alpelisib on the cytoskeletal and vesicular defects observed in mPTCs (mouse proximal tubule cells) resulted in changes in the endocytic uptake capacity was assessed. To differentiate the effect of alpelisib on binding and/or internalization of the ligand, mPTCs were first incubated with labeled bovine serum albumin (BSA), to induce binding of the probe with the endocytic receptors, and then incubated with growth medium, to follow the internalization of albumin (Figure 5a). Treatment with alpelisib rescued both the binding and the uptake of albumin in the OcrlY/− cells, with a 50% overall rescue of endocytic uptake (Figure 5b and c).

Reference: Kidney Int. 2020 Oct;98(4):883-896. https://pubmed.ncbi.nlm.nih.gov/32919786/

In vivo activity

The potential therapeutic effect of alpelisib on PT (proximal tubule) dysfunction was tested in vivo. Ocrl mice were administered with either vehicle or alpelisib (50 mg/kg body weight per day) by oral gavage for 6 weeks (Figure 6a). Alpelisib treatment led to a significant increase in glycosuria in both Ocrl Y/+ and Ocrl Y/− mice, which could be considered as a biomarker for drug dosing (Supplementary Table S1). After 6 weeks of alpelisib treatment, the OcrlY/− mice displayed a significant reduction in the urinary excretion of the LMW proteins CC16 (−34%) and albumin (−38%), compared with vehicle-treated controls (Figure 6b and c), whereas volume of urine and other parameters were unaffected (Supplementary Table S1).

Reference: Kidney Int. 2020 Oct;98(4):883-896. https://pubmed.ncbi.nlm.nih.gov/32919786/