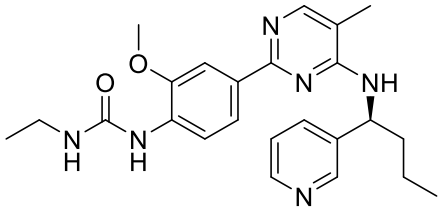
Product data sheet

MedKoo Cat#: 205748 Name: Lexibulin CAS#: 917111-44-5 Chemical Formula: $C_{24}H_{30}N_6O_2$ Exact Mass: 434.24302 Molecular Weight: 434.534	
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:
Lexibulin, also known as CYT997, is an orally bioavailable small-molecule with tubulin-inhibiting, vascular-disrupting, and potential antineoplastic activities. Lexibulin inhibits tubulin polymerization in tumor blood vessel endothelial cells and tumor cells, blocking the formation of the mitotic spindle and leading to cell cycle arrest at the G2/M phase; this may result in disruption of the tumor vasculature and tumor blood flow, and tumor cell death.

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	69.0	158.79
Ethanol	51.0	117.37

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.30 mL	11.51 mL	23.01 mL
5 mM	0.46 mL	2.30 mL	4.60 mL
10 mM	0.23 mL	1.15 mL	2.30 mL
50 mM	0.05 mL	0.23 mL	0.46 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. Wang Z, Yin F, Xu J, Zhang T, Wang G, Mao M, Wang Z, Sun W, Han J, Yang M, Jiang Y, Hua Y, Cai Z. CYT997(Lexibulin) induces apoptosis and autophagy through the activation of mutually reinforced ER stress and ROS in osteosarcoma. J Exp Clin Cancer Res. 2019 Jan 31;38(1):44. doi: 10.1186/s13046-019-1047-9. PMID: 30704503; PMCID: PMC6357486.
2. Teng Y, Cai Y, Pi W, Gao L, Shay C. Augmentation of the anticancer activity of CYT997 in human prostate cancer by inhibiting Src activity. J Hematol Oncol. 2017 Jun 12;10(1):118. doi: 10.1186/s13045-017-0485-0. PMID: 28606127; PMCID: PMC5469135.

In vivo study

1. Wang Z, Yin F, Xu J, Zhang T, Wang G, Mao M, Wang Z, Sun W, Han J, Yang M, Jiang Y, Hua Y, Cai Z. CYT997(Lexibulin) induces apoptosis and autophagy through the activation of mutually reinforced ER stress and ROS in osteosarcoma. J Exp Clin Cancer Res. 2019 Jan 31;38(1):44. doi: 10.1186/s13046-019-1047-9. PMID: 30704503; PMCID: PMC6357486.
2. Cao Y, Wang J, Tian H, Fu GH. Mitochondrial ROS accumulation inhibiting JAK2/STAT3 pathway is a critical modulator of CYT997-induced autophagy and apoptosis in gastric cancer. J Exp Clin Cancer Res. 2020 Jun 23;39(1):119. doi: 10.1186/s13046-020-01621-y. PMID: 32576206; PMCID: PMC7310559.

Product data sheet

7. Bioactivity

Biological target:

Lexibulin (CYT-997) is a potent and orally active tubulin polymerisation inhibitor with IC50s of 10-100 nM in cancer cell lines.

In vitro activity

It was next determined whether CYT997 can induce autophagy in OS cells. First, 143B and SJSA were transfected with GFP-LC3-encoding plasmids to analyze the formation of autophagosomes, and LysoTracker Red dye was used to label cellular acidic vesicular organelles (AVOs) such as lysosomes. Cells treated with CYT997 exhibited more acidic compartments in the cytoplasm and significantly higher numbers of GFP-LC3 puncta than did control cells. Compared to those in the control group, large numbers of autophagosomes were observed in the CYT997-treated group (Fig.2b and Fig. 3a). Furthermore, expression of autophagy-related proteins, including LC3B and Beclin-1, was assesed by western blotting and found that CYT997 increased expression of LC3B-II and beclin-1 in a concentration-dependent manner. To determine whether CYT997-induced autophagy is prosurvival or prodeath, 3-MA, CQ and ATG5 and ATG7-targeted shRNA was used to inhibit autophagy before CYT997 treatment. CCK-8 analysis and PI/Annexin-FITC flow cytometry indicated that pretreatment with autophagy inhibitor enhanced the effect of CYT997 on cell viability and apoptosis (Fig 2d, e and f and Additional file 2: Figure S1, Additional file 1: S2E). In conclusion, CYT997 induces autophagy in OS cells, and the induced autophagy promotes cell survival.

Reference: J Exp Clin Cancer Res. 2019; 38: 44. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6357486/

In vivo activity

To investigate the effect of CYT997 in tumor growth in vivo, mice bearing gastric cancer PDX xenografts were used. When tumors reached a volume of 50 mm3, mice were intraperitoneally injected with normal saline (NS) and CYT997 (15 mg/kg) respectively. Tumor size was measured every other day and tumors were excised after 10 days post injection. It was found that CYT997 significantly decreased tumor volume and tumor weight compared with control group (Fig. 7a-c). Furthermore, it was also found that the expressions of p-JAK2 and p-STAT3 were decreased after CYT997 treatment. And CYT997 increased the expression of cleaved caspase 3 and LC3B (Fig.7d-e;7d-e; Additional file 1: Fig. S9). In addition, it was found that there were no obvious changes in body weight and organ-related toxicities were scarce in mice (Fig.7f7f and g). Collectively, these results suggest that CYT997 inhibits tumor growth and cell proliferation in vivo.

Reference: J Exp Clin Cancer Res. 2020; 39: 119. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7310559/

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.