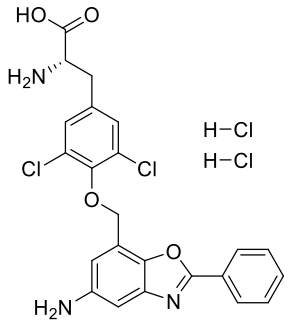
Product data sheet

MedKoo Cat#: 206813 Name: JPH203 HCl CAS: 1597402-27-1 (2HCl) Chemical Formula: $C_{23}H_{21}Cl_4N_3O_4$ Molecular Weight: 545.238	
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:

JPH203, also known as KYT-0353, is a potent and selective LAT1 selective (L-type amino acid transporter 1) inhibitor. JPH203 can very potently inhibit l-leucine uptake. JPH203 inhibits YD-38 cell growth. JPH203 up-regulated the population of apoptotic YD-38 cells through the activation of apoptotic factors, including caspases and PARP. (note: As per requested by patent owner, JPH203 can only be used solely for the purpose of obtaining information to be submitted to the regulatory authorization for obtaining a marketing approval of JPH203).

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	54.52	100.0

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.83 mL	9.17 mL	18.34 mL
5 mM	0.37 mL	1.83 mL	3.67 mL
10 mM	0.18 mL	0.92 mL	1.83 mL
50 mM	0.04 mL	0.18 mL	0.37 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. Oda K, Hosoda N, Endo H, Saito K, Tsujihara K, Yamamura M, Sakata T, Anzai N, Wempe MF, Kanai Y, Endou H. L-type amino acid transporter 1 inhibitors inhibit tumor cell growth. Cancer Sci. 2010 Jan;101(1):173-9. doi: 10.1111/j.1349-7006.2009.01386.x. Epub 2009 Oct 8. PMID: 19900191.

2. Cormerais Y, Giuliano S, LeFloch R, Front B, Durivault J, Tambutté E, Massard PA, de la Ballina LR, Endou H, Wempe MF, Palacin M, Parks SK, Pouyssegur J. Genetic Disruption of the Multifunctional CD98/LAT1 Complex Demonstrates the Key Role of Essential Amino Acid Transport in the Control of mTORC1 and Tumor Growth. Cancer Res. 2016 Aug 1;76(15):4481-92. doi: 10.1158/0008-5472.CAN-15-3376. Epub 2016 Jun 14. Erratum in: Cancer Res. 2017 Jul 1;77(13):3721. PMID: 27302165.

In vivo study

1. Häfliger P, Graff J, Rubin M, Stooss A, Dettmer MS, Altmann KH, Gertsch J, Charles RP. The LAT1 inhibitor JPH203 reduces growth of thyroid carcinoma in a fully immunocompetent mouse model. J Exp Clin Cancer Res. 2018 Sep 21;37(1):234. doi: 10.1186/s13046-018-0907-z. PMID: 30241549; PMCID: PMC6150977.

7. Bioactivity

Product data sheet

Biological target:

JPH203, also known as KYT-0353, is a potent and selective LAT1 selective (L-type amino acid transporter 1) inhibitor.

In vitro activity

The specific inhibition of LAT1 with JPH203 decreased LS174T proliferation by 60% (Fig. 3A and B, left). Consistent with the results for mTORC1 and GCN2 activity, LS174T-CD98KOand A549-CD98KD cells were able to maintain their proliferation at the same level as WT cells (Fig. 3A and B and Supplementary Fig. S3C). Furthermore, it was confirmed that this LAT1KO-specific antiproliferative effect (70% reduction) was observed in 3D culture assays (Fig. 3C). These findings demonstrate the essential role of LAT1 for maintenance of tumor cell AA homeostasis and proliferation.

Reference: Cancer Res. 2016 Aug 1;76(15):4481-92. https://cancerres.aacrjournals.org/content/76/15/4481.long

In vivo activity

Thyroid tumorigenesis was induced in 6-weeks old adult BrafCA/+;Pik3caLat/+;Thyro::CreERT2 mice by tamoxifen injection, which results in thyrocyte-specific expression of BRAFV600E and PIK3CAH1047R. A cohort of 12 mice was separated into two groups that were treated with either vehicle or 50 mg/kg JPH203 i.p. daily for five days per week during 6.5 weeks (Fig. 5a). Weekly ultrasound imaging revealed that JPH203 exerted an arrest of tumor growth already after 14 days of treatment, whereas tumors of vehicle-treated mice continued to grow until the end of the experiment (Fig. 5c). This data shows that LAT1 plays a critical role in tumor growth in mice, suggesting that LAT1 helps cells grow in the physiological environment that is low in amino acids.

Reference: J Exp Clin Cancer Res. 2018 Sep 21;37(1):234. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6150977/

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.