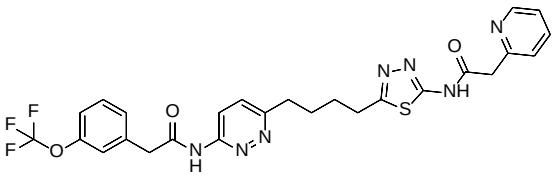
Product data sheet

MedKoo Cat#: 206153 Name: Telaglenastat CAS#: 1439399-58-2 Chemical Formula: $C_{26}H_{24}F_3N_7O_3S$ Exact Mass: 571.1613 Molecular Weight: 571.57	
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:
Telaglenastat, also known as CB-839, an is orally bioavailable inhibitor of glutaminase, with potential antineoplastic activity. Telaglenastat selectively and irreversibly inhibits glutaminase. By blocking glutamine utilization, proliferation in rapidly growing cells is impaired. Glutamine-dependent tumors rely on the conversion of exogenous glutamine into glutamate and glutamate metabolites to both provide energy and generate building blocks for the production of macromolecules, which are needed for cellular growth and survival.

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	10.0	17.50
DMSO	50.0	87.48
DMSO:PBS (pH 7.2) (1:2)	0.33	0.58

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.75 mL	8.75 mL	17.50 mL
5 mM	0.35 mL	1.75 mL	3.50 mL
10 mM	0.17 mL	0.87 mL	1.75 mL
50 mM	0.03 mL	0.17 mL	0.35 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. Wicker CA, Hunt BG, Krishnan S, Aziz K, Parajuli S, Palackdharry S, Elaban WR, Wise-Draper TM, Mills GB, Waltz SE, Takiar V. Glutaminase inhibition with telaglenastat (CB-839) improves treatment response in combination with ionizing radiation in head and neck squamous cell carcinoma models. Cancer Lett. 2021 Apr 1;502:180-188. doi: 10.1016/j.canlet.2020.12.038. Epub 2021 Jan 12. PMID: 33450358; PMCID: PMC7897292.

In vivo study

1. Lee P, Malik D, Perkons N, Huangyang P, Khare S, Rhoades S, Gong YY, Burrows M, Finan JM, Nissim I, Gade TPF, Weljie AM, Simon MC. Targeting glutamine metabolism slows soft tissue sarcoma growth. Nat Commun. 2020 Jan 24;11(1):498. doi: 10.1038/s41467-020-14374-1. PMID: 31980651; PMCID: PMC6981153.

7. Bioactivity
Biological target: Telaglenastat (CB-839) is a glutaminase 1 (GLS1) inhibitor with an IC50 of 24 nM.

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In vitro activity

The efficacy of ionizing radiation (IR) for head and neck cancer squamous cell carcinoma (HNSCC) is limited by poorly understood mechanisms of adaptive radioresistance. Elevated glutaminase gene expression is linked to significantly reduced survival ($p < 0.03$). Whether telaglenastat, a glutaminae inhibitor, enhances the cellular response to IR in HNSCC models was investigated. Telaglenastat significantly reduced the Oxygen Consumption Rate/Extracellular Acidification Rate ratio in CAL-27 and HN5 cells in the presence of glucose and glutamine ($p \leqslant 0.0001$). Telaglenastat also increased oxidative stress and DNA damage in irradiated CAL-27 cells. These data suggest that combination treatment with IR and telaglenastat leads to an enhanced anti-tumor response.

Reference: Cancer Lett. 2021 Apr 1;502:180-188. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7897292/

In vivo activity

CB-839 efficacy was evaluated in an autochthonous STS model using KP and KPH2 mice. After tumours were initiated with AdCre injection, bi-weekly computed tomography (CT) scans of mouse lower limbs were performed to track tumour growth. As minor limb size differences emerged, animals were treated with vehicle or CB-839 for ~2–3 weeks. CB-839 treatment did not impact mouse weights (Supplementary Fig. 7A, B). However, in marked contrast to previous in vivo studies, CB-839 administration to KP and KPH2 animals substantially inhibited tumour growth, as calculated from the difference in the muscular compartment of tumour-bearing limbs (red) relative to control limbs (green) (Fig. 7a–f). CT-quantified tumour size strongly correlated with tumour mass, and CB-839 treatment significantly reduced final tumour weight in KP and KPH2 animals compared to vehicle-treated mice (Fig. 7g), with stronger effects observed in KPH2 mice, much like allograft studies (Fig. 6a, b). Histological analyses showed CB-839 increased cell cycle arrest, decreased cell proliferation, and increased cell death in established tumours (Fig. 7h; Supplementary Fig. 7C).

Reference: Nat Commun. 2020 Jan 24;11(1):498. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6981153/