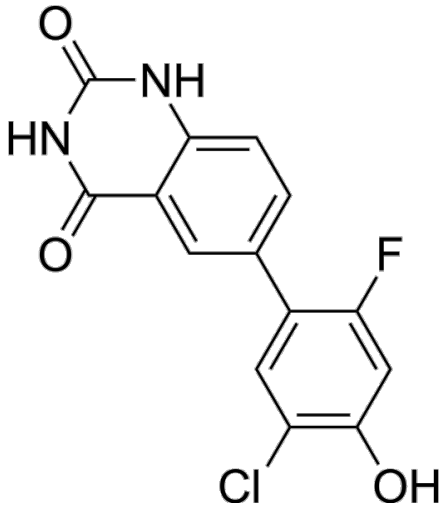
Product Data Sheet

Product Name: iMQT_020
Cat. No.: GC81546

Chemical Properties

Cas. No.	2463893-46-9		
Formula	$C_{14}H_8ClFN_2O_3$	M.Wt	306.68
Solubility	DMSO: 100 mg/mL (326.07 mM; Need ultrasonic)	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		

Structure



Background

iMQT_020 is a selective allosteric SLC1A5_var inhibitor. iMQT_020 disrupts the trimeric assembly of SLC1A5_var, causing metabolic crisis in cancer cells and selectively suppressing their growth. iMQT_020 reduces glutamine anaplerosis and oxidative phosphorylation, resulting in a broad

disruption of cancer metabolism. iMQT_020 reduces GSH levels and increases cellular ROS and mitochondrial ROS. iMQT_020 induces apoptosis and ferroptosis. iMQT_020 can epigenetically upregulate PD-L1 expression. iMQT_020 can be used for the study of pancreatic cancer, lung cancer, and colon cancer [1].

In Vivo, iMQT_020 (75 mg/kg, i.p., once daily for 35 days) inhibits tumor growth in mice xenografted with MIA PaCa-2 cells by inducing apoptosis and ferroptosis[1]. iMQT_020 (75 mg/kg, i.p., once daily for 35 days) inhibits tumor growth in a mouse orthotopic transplantation model of MIA PaCa-2 cells[1]. iMQT_020 (75 mg/kg, i.p., once daily for 35 days) inhibits the growth of xenografted tumors of NCI-H1299 human lung cancer cells and COLO 205 human colon cancer cells in mice[1]. iMQT_020 (25 mg/kg, i.p., once daily for 21 days), when used in combination with an anti-PD-L1 antibody (aPD-L1), synergistically inhibits the growth of allogeneic tumors formed from KPC, LLC, or MC-38 cells in mice[1].

In Vitro, iMQT_020 shows the strongest inhibitory effect on mitochondrial glutamine uptake (IC_{50} = 6.156 μM) at a concentration of 10 μM[1]. iMQT_020 (0-100 μM) directly binds to SLC1A5_var WT protein (Kd = 4.473 μM), but does not bind to FIL/AAA mutants[1]. iMQT_020 (4 μM) significantly reduces the CD signal of the SLC1A5_var WT protein, indicating a structural change[1]. iMQT_020 (10 μM) reduces glutamine-derived TCA cycle metabolites (such as glutamate, αKG, succinic acid, etc.) and downstream products (such as glutathione, proline) in MIA PaCa-2 cells[1]. iMQT_020 (10 μM, 24 h) reduces GSH levels in MIA PaCa-2 cells and increases cellular ROS and mitochondrial ROS[1]. iMQT_020 (10 μM, 24 h) reduces OCR and ECAR in SLC1A5_var WT-overexpressing MIA PaCa-2 cells, but did not affect FIL/AAA mutants[1]. iMQT_020 (10 μM, 24 h) alters mitochondrial morphology in MIA PaCa-2 cells (reducing fragmentation) and decreases mitochondrial membrane potential (reduced TMRE staining)[1]. iMQT_020 (48 h) selectively inhibits the viability of cancer cells (IC_{50} 5-40 μM) without affecting normal cells [1]. iMQT_020 (10 μM, 24 h) upregulates PD-L1 mRNA and protein expression in human PDAC cell lines (such as SU.86.86, SW1990) and mouse carcinoma cell lines (KPC, LLC, MC-38)[1].

References:

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[1]. Sung Y, et al. Targeting cancer glutamine dependency with a first-in-class inhibitor of the mitochondrial glutamine transporter SLC1A5_var. Nat Commun. 2025 Nov 3;16(1):9690.

Caution: Product has not been fully validated for medical applications. For research use only.
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