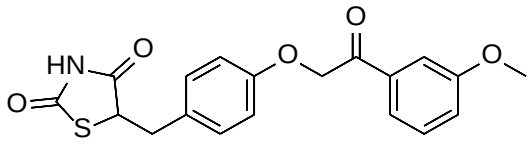
Product data sheet

MedKoo Cat#: 529205 Name: MSDC-0602 CAS: 1133819-87-0 Chemical Formula: $C_{19}H_{17}NO_5S$ Exact Mass: 371.0827 Molecular Weight: 371.407	
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:
MSDC-0602 is an insulin sensitizer potentially for the treatment of diabetes (metabolic modulator).

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	80.77
DMSO	77.5	208.67
DMSO:PBS (pH 7.2) (1:3)	0.25	0.67
Ethanol	10.0	26.92

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	2.69 mL	13.46 mL	26.92 mL
5 mM	0.54 mL	2.69 mL	5.38 mL
10 mM	0.27 mL	1.35 mL	2.69 mL
50 mM	0.05 mL	0.27 mL	0.54 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. McCommis KS, Chen Z, Fu X, McDonald WG, Colca JR, Kletzien RF, Burgess SC, Finck BN. Loss of Mitochondrial Pyruvate Carrier 2 in the Liver Leads to Defects in Gluconeogenesis and Compensation via Pyruvate-Alanine Cycling. Cell Metab. 2015 Oct 6;22(4):682-94. doi: 10.1016/j.cmet.2015.07.028. Epub 2015 Sep 3. PMID: 26344101; PMCID: PMC4598280.

In vivo study

1. Zhu B, Wei X, Narasimhan H, Qian W, Zhang R, Cheon IS, Wu Y, Li C, Jones RG, Kaplan MH, Vassallo RA, Braciale TJ, Somerville L, Colca JR, Pandey A, Jackson PEH, Mann BJ, Krawczyk CM, Sturek JM, Sun J. Inhibition of the mitochondrial pyruvate carrier simultaneously mitigates hyperinflammation and hyperglycemia in COVID-19. Sci Immunol. 2023 Feb 23:eadf0348. doi: 10.1126/sciimmunol.adf0348. Epub ahead of print. PMID: 36821695; PMCID: PMC9972900.

2. McCommis KS, Hodges WT, Brunt EM, Nalbantoglu I, McDonald WG, Holley C, Fujiwara H, Schaffer JE, Colca JR, Finck BN. Targeting the mitochondrial pyruvate carrier attenuates fibrosis in a mouse model of nonalcoholic steatohepatitis. Hepatology. 2017 May;65(5):1543-1556. doi: 10.1002/hep.29025. Epub 2017 Mar 30. PMID: 28027586; PMCID: PMC5397348.

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7. Bioactivity

Biological target:

Azemiglitazone (MSDC-0602), a PPARγ-sparing thiazolidinedione (TZD), interacts with the mitochondrial pyruvate carrier (MPC) and inhibits its activity and has the potential for type 2 diabetes study with reducing risk of PPARγ-mediated side effects.

In vitro activity

Isolated hepatocytes from LS-*Mpc2*$^{-/-}$ mice produced significantly less glucose compared to fl/fl hepatocytes when stimulated with pyruvate *in vitro* (Figure 2A). Chemical inhibition of pyruvate import by UK-5099 or MSDC-0602 also decreased glucose production in fl/fl hepatocytes, but were largely without effect on glucose production by LS-*Mpc2*$^{-/-}$ hepatocytes (Figure 2A).

Reference: Cell Metab. 2015 Oct 6;22(4):682-94. https://pubmed.ncbi.nlm.nih.gov/26344101/

In vivo activity

In a subset of mice, HTF-C (fat, fructose, and cholesterol) diet was fed for 4 weeks, and then MSDC-0602 was added to the HTF-C diet for the remaining 12 weeks (HTF-C+0602). MSDC-0602 feeding suppressed body weight gain (Figure 1A) and adiposity (Supplemental Figure 1A,B) independently of changes in food intake (Supplemental Figure 1C). The attenuation in body weight gain and adiposity was correlated with a marked increase in the mass of the intrascapular brown adipose tissue (Supplemental Figure 1D), consistent with MSDC-0602 directly stimulating differentiation of brown adipocyte progenitor cells and suggesting that increased energy expenditure explains the effects on body weight.

Reference: Hepatology. 2017 May;65(5):1543-1556. https://pubmed.ncbi.nlm.nih.gov/28027586/

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.