

Product Data Sheet

Product Name: MSDC-0160

Cat. No.: GC15936

Chemical Properties

Cas. No. 146062-49-9

SMILES CCC1=CN=C(C=C1)C(=O)COC2=CC=C(C=C2)CC3C(=O)NC(=O)S3

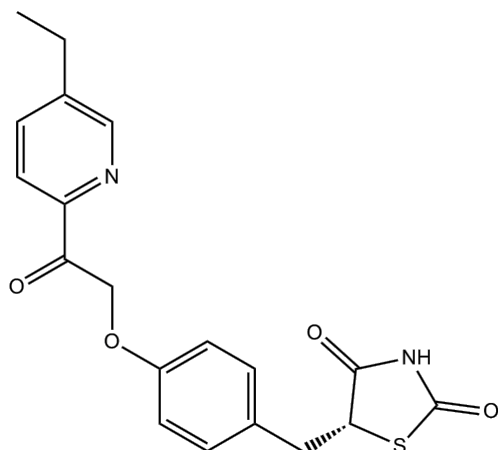
Formula $C_{19}H_{18}N_2O_4S$ M.Wt 370.42

Solubility $\geq 37\text{mg/mL}$ in DMSO 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



Protocol

Cell experiment [1]:

Cell lines LUHMES cells

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

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Limited solubility. General tips for obtaining a higher concentration: Please warm Preparation method the tube at 37 °C for 10 minutes and/or shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Reacting condition 10 or 100 µM, 1 hour

Applications MSDC-0160 (10 µM) pretreatment (1 hour) prevented the MPP⁺ (10 µM)-induced loss of both tyrosine hydroxylase (TH)-immunoreactive differentiated Lund human mesencephalic (LUHMES) cells. MSDC-0160 protected TH-immunoreactive neurons. MSDC-0160 counteracted both MPP⁺-induced shortening of neurite length and reduced branching in both LUHMES cells. MSDC-0160 (10 or 100 µM) prevented the loss of GFP-fluorescent dopaminergic neurons induced by MPP⁺ (0.75 mM) in nematodes. MSDC-0160 (10 µM) blocked LPS-induced increases in iNOS expression in BV2 cell lysates.

Animal experiment [1]:

Animal models MPTP mouse model of Parkinson's disease (PD), En1^{+/-} genetic mouse model of PD

Dosage form Oral administration, 30 mg/kg per day

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Application

MSDC-0160 (30 mg/kg per day, p.o.) treatment for 3 days after MPTP injection improved motor behavior, protects nigrostriatal neurons, and suppressed disease progression in the MPTP mouse model of Parkinson's disease (PD). MSDC-0160 improved motor behavior in the open-field and rotarod tests and prevented dopaminergic neurodegeneration in the En1+/- genetic mouse model of PD. MSDC-0160 modulated mTOR signaling in C. elegans and the MPTP mouse model of PD. MSDC-0160 down-regulated mTOR signaling and restored autophagy in the En1+/- genetic mouse model of PD.

Other notes

Please test the solubility of all compounds indoor, and the actual solubility may slightly differ with the theoretical value. This is caused by an experimental system error and it is normal.

References:

[1]. Rohatgi N, Aly H, Marshall C A, et al. Novel insulin sensitizer modulates nutrient sensing pathways and maintains β -cell phenotype in human islets. PloS one, 2013, 8(5): e62012.

Background

MSDC-0160 is a prototype mTOT-modulating insulin sensitizer [1].

MSDC-0160 is a thiazolidinedione insulin sensitizer without the peroxisome proliferator-activated receptor- γ (PPAR- γ)-dependent side effects. Co-incubation of islets with MSDC-0160 and IGF-1 reduces the resistance of insulin-signaling pathway and preserves insulin content. MSDC-0160 at 50 μ M alone also prevents the loss of insulin content significantly. Besides that, treatment of MSDC-0160 increases the phosphorylation of AMPK and reduces mTOR phosphorylation. Moreover, MSDC-0160 is also found to display pro-survival effects in human islets via reducing the level of cleaved caspase-3 and increasing the expression of apoptosis-related genes such as bcl2. In addition, MSDC-0160 exerts prevention of nuclear translocation with β -catenin localized on the cell membrane or cytoplasm in human β -cells [1].

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