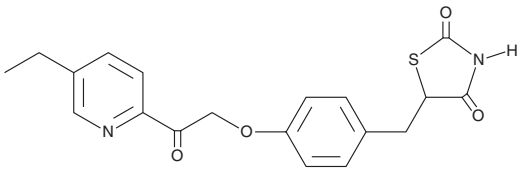
PRODUCT INFORMATION

MSDC-0160

Item No. 71748

CAS Registry No.:	146062-49-9
Formal Name:	5-[[4-[2-(5-ethyl-2-pyridinyl)-2-oxoethoxy] phenyl]methyl]-2,4-thiazolidinedione
MF:	$C_{19}H_{18}N_2O_4S$
FW:	370.4
Purity:	≥98%
UV/Vis.:	λ_{max}: 231, 273 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

MSDC-0160 is supplied as a crystalline solid. A stock solution may be made by dissolving the MSDC-0160 in the solvent of choice, which should be purged with an inert gas. MSDC-0160 is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of MSDC-0160 in ethanol is approximately 0.5 mg/ml and approximately 30 mg/ml in DMSO and DMF.

MSDC-0160 is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, MSDC-0160 should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. MSDC-0160 has a solubility of approximately 0.3 mg/ml in a 1:2 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

MSDC-0160 is a thiazolidinedione (TZD) with antidiabetic and neuroprotective activities.[1] It inactivates the mitochondrial pyruvate carrier (MPC; IC_{50} = 1.2 µM) without affecting peroxisome proliferator-activated receptor γ (PPARγ; IC_{50} = 31.65 µM) *in vitro*.[2] MSDC-0160 enhances the rate of insulin-stimulated lipogenesis in 3T3-L1 adipocytes in a dose-dependent manner.[1] Dietary administration of MSDC-0160 (100 mg/kg) lowers blood glucose levels in obese, hyperglycemic, hyperinsulinemic, and insulin-resistant KKAγ mice. MSDC-0160 prevents neurodegeneration in a *C. elegans* model of Parkinson's disease, an effect that is blocked by knockdown of the mammalian target of rapamycin (mTOR).[2] It also prevents overactivation of mTOR in the MPTP-induced and engrailed heterozygous ($En^{+/-}$) mouse models of Parkinson's disease.

References

1. Tanis, S.P., Parker, T.T., Colca, J.R., *et al.* Synthesis and biological activity of metabolites of the antidiabetic, antihyperglycemic agent pioglitazone. *J. Med. Chem.* **39(26)**, 5053-5063 (1996).
2. Quansah, E., Peelaerts, W., Langston, J.W., *et al.* Targeting energy metabolism via the mitochondrial pyruvate carrier as a novel approach to attenuate neurodegeneration. *Mol. Neurodegener.* **13(1)**, 28 (2018).

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