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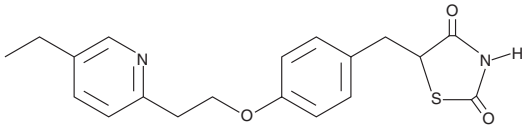
PRODUCT INFORMATION

Pioglitazone

Item No. 71745

CAS Registry No.: 111025-46-8
Formal Name: 5-[[4-[2-(5-ethyl-2-pyridinyl)ethoxy] phenyl]methyl]-2,4-thiazolidinedione
Synonym: U-72107
MF: $C_{19}H_{20}N_2O_3S$
FW: 356.4
Purity: ≥98%
UV/Vis.: λ_{max}: 267 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

Pioglitazone is supplied as a crystalline solid. A stock solution may be made by dissolving the pioglitazone in the solvent of choice. Pioglitazone is soluble in organic solvents such as DMSO and dimethyl formamide, which should be purged with an inert gas. The solubility of pioglitazone in these solvents is approximately 2.5 mg/ml.

Pioglitazone is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, pioglitazone should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Pioglitazone has a solubility of approximately 100 µg/ml in a 1:1 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Pioglitazone is an agonist of the peroxisome proliferator-activated receptor γ (PPARγ; EC_{50} = ~500-600 nM for both human and murine PPARγ).[1,2] It is selective for PPARγ over PPARα, exhibiting low level activation of PPARα at 1 µM and 5.4-fold activation at a concentration of 10 µM.[1] Pioglitazone inhibits pyruvate oxidation and glucose production in hepatocytes when used at a concentration of 10 µM.[3] *In vivo*, pioglitazone (0.3-3 mg/kg per day) reduces hyperglycemia, hyperlipidemia, and hyperinsulinemia in a dose-dependent manner in male Wistar fatty rats.[4] It reduces the number of lesions in a transgenic rat adenocarcinoma of prostate (TRAP) model.[5] Pioglitazone (2.5 mg/kg) also decreases production of neuroinflammatory cytokines and reduces immobility in the forced swim and tail suspension tests in a mouse model of chronic mild stress, indicating antidepressant-like activity that can be reversed by the PPARγ antagonist GW9662 (Item No. 70785).[6]

References

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3. Shannon, C.E., Daniele, G., Galindo, C., *et al. FEBS J.* **284(3)**, 451-465 (2017).
4. Sugiyama, Y., Taketomi, S., Shimura, Y., *et al. Arzneimittelforschung.* **40(3)**, 263-267 (1990).
5. Suzuki, S., Mori, Y., Nagano, A., *et al. Int. J. Mol. Sci.* **17(12)**, pii: E2071 (2016).
6. Zhao, Q., Wu, X., Yan, S., *et al. J. Neuroinflammation* **13(1)**, 259 (2016).

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