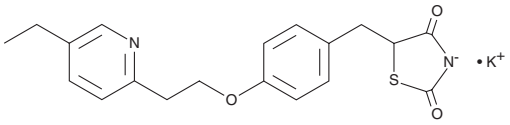
PRODUCT INFORMATION

Pioglitazone (potassium salt)

Item No. 10028

CAS Registry No.: 1266523-09-4
Formal Name: 5-[[4-[2-(5-ethyl-2-pyridinyl)ethoxy] phenyl]methyl]-2,4-thiazolidinedione, monopotassium salt
MF: $C_{19}H_{19}N_2O_3S \bullet K$
FW: 394.5
Purity: ≥98%
UV/Vis.: λ_{max}: 267 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

Pioglitazone (potassium salt) is supplied as a crystalline solid. A stock solution may be made by dissolving the pioglitazone (potassium salt) in the solvent of choice, which should be purged with an inert gas. Pioglitazone (potassium salt) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of pioglitazone (potassium salt) in ethanol and DMSO is approximately 10 mg/ml, and approximately 30 mg/ml in DMF.

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

1. Sakamoto, J., Kimura, H., Moriyama, S., *et al.* Activation of human peroxisome proliferator-activated receptor (PPAR) subtypes by pioglitazone. *Biochem. Biophys. Res. Commun.* **278(3)**, 704-711 (2000).
2. Willson, T.M., Brown, P.J., Sternbach, D.D., *et al.* The PPARs: From orphan receptors to drug discovery. *J. Med. Chem.* **43(4)**, 527-550 (2000).
3. Shannon, C.E., Daniele, G., Galindo, C., *et al.* Pioglitazone inhibits mitochondrial pyruvate metabolism and glucose production in hepatocytes. *FEBS J.* **284(3)**, 451-465 (2017).
4. Sugiyama, Y., Taketomi, S., Shimura, Y., *et al.* Effects of pioglitazone on glucose and lipid metabolism in Wistar fatty rats. *Arzneimittelforschung.* **40(3)**, 263-267 (1990).
5. Suzuki, S., Mori, Y., Nagano, A., *et al.* Pioglitazone, a peroxisome proliferator-activated receptor γ agonist, suppresses rat prostate carcinogenesis. *Int. J. Mol. Sci.* **17(12)**, pii: E2071 (2016).
6. Zhao, Q., Wu, X., Yan, S., *et al.* The antidepressant-like effects of pioglitazone in a chronic mild stress mouse model are associated with PPARγ-mediated alteration of microglial activation phenotypes. *J. Neuroinflammation* **13(1)**, 259 (2016).

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