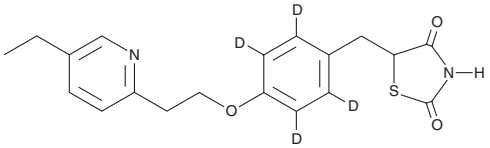
PRODUCT INFORMATION

Pioglitazone-d_4

Item No. 18259

CAS Registry No.: 1134163-29-3
Formal Name: 5-[[4-[2-(5-ethyl-2-pyridinyl)ethoxy]phenyl-2,3,5,6-d_4]methyl]-2,4-thiazolidinedione
MF: $C_{19}H_{16}D_4N_2O_3S$
FW: 360.5
Chemical Purity: ≥98% (Pioglitazone)
Deuterium Incorporation: ≥99% deuterated forms (d_1-d_4); ≤1% d_0
Supplied as: A 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-d_4 is intended for use as an internal standard for the quantification of pioglitazone (Item Nos. 71745 | 10028 | 22263) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

Pioglitazone-d_4 is supplied as a solid. A stock solution may be made by dissolving the pioglitazone-d_4 in the solvent of choice. Pioglitazone-d_4 is soluble in organic solvents such as DMSO and dimethyl formamide, which should be purged with an inert gas. The solubility of pioglitazone-d_4 in these solvents is approximately 2.5 mg/ml.

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 GW 9662 (Item No. 70785).[6]

References

1. Sakamoto, J., Kimura, H., Moriyama, S., *et al. Biochem. Biophys. Res. Commun.* **278(3)**, 704-711 (2000).
2. Willson, T.M., Brown, P.J., Sternbach, D.D., *et al. J. Med. Chem.* **43(4)**, 528-550 (2000).
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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