Small Molecules

Rosiglitazone

PPARγ activator

Catalog # 72622 10 mg
72624 50 mg

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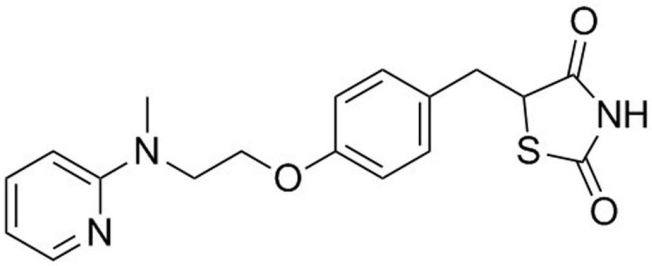
Product Description

Rosiglitazone is a potent and selective ligand for peroxisome proliferator-activated receptor gamma (PPARγ). It binds to the PPARγ ligand-binding domain with a Kd of 43 nM (Lehmann et al.). It activates luciferase-based expression constructs PPARγ1 and PPARγ2 with EC_{50} values of approximately 30 nM and 100 nM, respectively (Lehmann et al.).

Molecular Name: Rosiglitazone
Alternative Names: Avandia; BRL 49653
CAS Number: 122320-73-4
Chemical Formula: $C_{18}H_{19}N_3O_3S$
Molecular Weight: 357.4 g/mol
Purity: ≥ 98%
Chemical Name: 5-[[4-[2-(methyl-2-pyridinylamino)ethoxy]phenyl]methyl]-2,4-thiazolidinedione
Structure:



Properties

Physical Appearance: A crystalline solid

Storage: Product stable at -20°C as supplied. Protect from prolonged exposure to light.
Stable as supplied for 12 months from date of receipt.

Solubility:
· Absolute ethanol ≤ 2.7 mM
· DMSO ≤ 95 mM
For example, to prepare a 10 mM stock solution in DMSO, resuspend 10 mg in 2.8 mL of DMSO.

Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application.

Compound has low solubility in aqueous media. For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.

Published Applications

MAINTENANCE AND SELF-RENEWAL
· Stimulates embryonic mouse neural stem cell proliferation and inhibits neuronal differentiation (Wada et al.).
DIFFERENTIATION
· Induces adipocyte differentiation in C3H10T1/2 stem cells (Lehmann et al.).
· Promotes endothelial differentiation and inhibits smooth muscle differentiation in angiogenic progenitor cells (Wang et al.).
· Stimulates adipocyte differentiation and decreases osteogenesis in mouse and human bone marrow-derived mesenchymal stem cells (Ali et al.; Benvenuti et al.; Lecka-Czernik et al.; Sorocéanu et al.).
· Enhances osteoclast formation in mouse bone marrow cells stimulated with RANKL and M-CSF (Wu et al.).

References

Ali AA et al. (2005) Rosiglitazone causes bone loss in mice by suppressing osteoblast differentiation and bone formation. Endocrinology 146(3): 1226–35.
Benvenuti S et al. (2007) Rosiglitazone stimulates adipogenesis and decreases osteoblastogenesis in human mesenchymal stem cells. J Endocrinol Invest 30(9): RC26–30.
Lecka-Czernik B et al. (2002) Divergent effects of selective peroxisome proliferator-activated receptor-gamma 2 ligands on adipocyte versus osteoblast differentiation. Endocrinology 143(6): 2376–84.
Lehmann JM et al. (1995) An antidiabetic thiazolidinedione is a high affinity ligand for peroxisome proliferator-activated receptor (PPAR). J Biol Chem 270(22): 12953–6.
Sorocéanu MA et al. (2004) Rosiglitazone impacts negatively on bone by promoting osteoblast/osteocyte apoptosis. J Endocrinol 183(1): 203–16.
Wada K et al. (2006) Peroxisome proliferator-activated receptor gamma-mediated regulation of neural stem cell proliferation and differentiation. J Biol Chem 281(18): 12673–81.
Wang C-H et al. (2004) Rosiglitazone facilitates angiogenic progenitor cell differentiation toward endothelial lineage: a new paradigm in glitazone pleiotropy. Circulation 109(11): 1392–400.
Wu H et al. (2013) Regulation of selective PPARγ modulators in the differentiation of osteoclasts. J Cell Biochem 114(9): 1969–77.

Related Small Molecules

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This product is hazardous. Please refer to the Safety Data Sheet (SDS).