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Dexamethasone

Catalog No: tcsc1505

Available Sizes

Size: 1g

Size: 5g

Specifications

CAS No:
50-02-2

Formula:
$C_{22}H_{29}FO_5$

Pathway:
GPCR/G Protein;Autophagy;Autophagy

Target:
Glucocorticoid Receptor;Autophagy;Mitophagy

Purity / Grade:
>98%

Solubility:
DMSO : 10 mg/mL (21.16 mM; Need ultrasonic)

Storage Instruction:
Powder : -20°C for 3 years; 4°C for 2 years In solvent : -80°C for 6 months ; -20°C for 1 month

Alternative Names:
Hexadecadrol;Prednisolone F

Observed Molecular Weight:
392.46

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References

[1]. Eckhardt M, et al. 8-(3-(R)-aminopiperidin-1-yl)-7-but-2-ynyl-3-methyl-1-(4-methyl-quinazolin-2-ylmethyl)-3,7-dihydropurine-2,6-dione (BI 1356), a highly potent, selective, long-acting, and orally bioavailable DPP-4 inhibitor for the treatment of type 2 d [2]. Thomas L, et al. (R)-8-(3-amino-piperidin-1-yl)-7-but-2-ynyl-3-methyl-1-(4-methyl-quinazolin-2-ylmethyl)-3,7-dihydro-purine-2,6-dione (BI 1356), a novel xanthine-based dipeptidyl peptidase 4 inhibitor, has a superior potency and longer duration of action [3]. Schurmann C, et al. The dipeptidyl peptidase-4 inhibitor linagliptin attenuates inflammation and accelerates epithelialization in wounds of diabetic ob/ob mice. J Pharmacol Exp Ther. 2012 Jul;342(1):71-80. [4]. Huan Y, et al. The dual DPP4 inhibitor and GPR119 agonist HBK001 regulates glycemic control and beta cell function ex and in vivo. Sci Rep. 2017 Jun 28;7(1):4351.

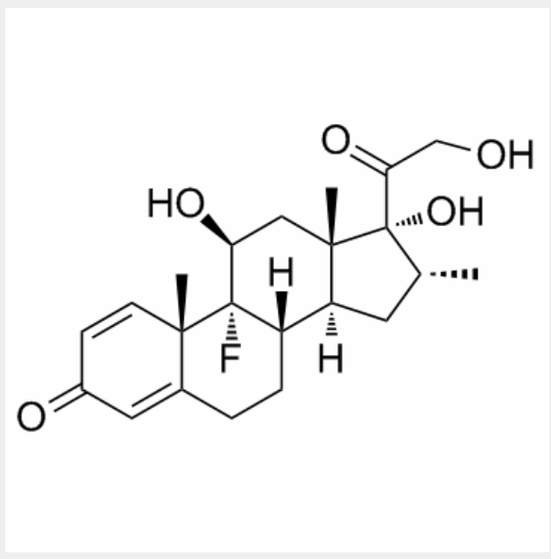
Product Description

Dexamethasone is a **glucocorticoid receptor** agonist.

IC50 & Target: Glucocorticoid receptor[1]

In Vitro: Dexamethasone regulates several transcription factors, including activator protein-1, nuclear factor-AT, and nuclear factor-kB, leading to the activation and repression of key genes involved in the inflammatory response[1]. Dexamethasone potently inhibits granulocyte-macrophage colony stimulating factor (GM-CSF) release from A549 cells with EC_{50} of 2.2 nM. Dexamethasone (EC_{50}=36 nM) induces transcription of the β_2-receptor is found to correlate with glucocorticoid receptor (GR) DNA binding and occurred at 10-100 fold higher concentrations than the inhibition of GM-CSF release. Dexamethasone (IC_{50}=0.5 nM) inhibits a 3×κB (NF-κB, IκBα, and I-κBβ), which is associated with inhibition of GM-CSF release[2].

In Vivo: It has previously been reported that treatment with Dexamethasone at a dose of 2×5 mg/kg efficiently inhibits lipopolysaccharide (LPS)-induced inflammation. In our experimental system, treatment with a single dose of Dexamethasone 10 mg/kg (i.p.) significantly decreases recruitment of granulocytes as well as spontaneous production of oxygen radicals compared with animals expose to LPS and injected with solvent alone (saline). The effects are statistically significant when administered both 1 h before and 1 h after inhalation of LPS. The number of granulocytes in BALF decreased to levels comparable to healthy animals (given an aerosol of water)[3]. Rats treated with Dexamethasone consume less food and weighed less than control rats. Treated rats also weigh less than pair-fed animals though their food intake is similar. Five days of Dexamethasone injection result in a significant increase in both the liver mass (+42%) and the liver to body weight ratio (+65%). The wet weight of gastrocnemius muscle decreases 20% after 5 days of treatment, but it remains unaffected relative to body weight (g/100 g body weight), indicating that muscle weight loss paralleled body weight loss[4].



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