

Dexamethasone Phosphate disodium

Chemical Properties

CAS No. : 2392-39-4

Formula: C₂₂H₂₈FNa₂O₈P

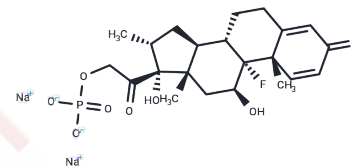
Molecular Weight: 516.4

Storage:

Keep away from direct sunlight, Keep away from moisture, Store at low temperature

Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Actual storage temperature shall be subject to the COA.



Biological Description

Description	Dexamethasone Phosphate disodium (EGP437. Dex-Phos) is a water-soluble form of the synthetic glucocorticoid dexamethasone.
Targets(IC50)	Glucocorticoid Receptor
In vitro	Dexamethasone regulates multiple transcription factors, including activator protein-1, nuclear factor-AT, and nuclear factor-kB, resulting in 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 EC50 of 2.2 nM. Dexamethasone (EC50=36 nM) induces transcription of the β2-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 (IC50=0.5 nM) inhibits a 3×κB (NF-κB, IκBα, and I-κBβ), which is associated with inhibition of GM-CSF release.
In vivo	Administering Dexamethasone at 2×5 mg/kg effectively reduces lipopolysaccharide (LPS)-induced inflammation. This treatment, particularly a single 10 mg/kg dose (i.p.), significantly lessens granulocyte mobilization and the spontaneous production of oxygen radicals in comparison to animals exposed to LPS and treated with saline. These benefits are pronounced when Dexamethasone is given both 1 hour before and after LPS inhalation, with granulocyte numbers in BALF dropping to those seen in healthy animals (exposed to an aerosol of water)[3]. However, rats receiving Dexamethasone show reduced food consumption and weight compared to control rats, and exhibit lower weights even compared to pair-fed rats with similar food intakes. Continuous Dexamethasone treatment for five days results in notable liver enlargement (+42%) and an increased liver-to-body weight ratio (+65%), while the gastrocnemius muscle's wet weight diminishes by 20% without affecting the muscle to body weight ratio (g/100 g body weight), suggesting muscle weight reduction aligns with overall body weight loss.

Solubility Information

A DRUG SCREENING EXPERT

Solubility	H2O: 128.75 mg/mL (249.32 mM), Sonication is recommended. DMSO: 1 mg/mL (1.94 mM), Sonication and heating to 80°C are recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
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Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.9365 mL	9.6824 mL	19.3648 mL
5 mM	0.3873 mL	1.9365 mL	3.873 mL
10 mM	0.1936 mL	0.9682 mL	1.9365 mL
50 mM	0.0387 mL	0.1936 mL	0.3873 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

- Torres MP, Entwistle F, Coote PJ. Effective immunosuppression with dexamethasone phosphate in the Galleria mellonella larva infection model resulting in enhanced virulence of Escherichia coli and Klebsiella pneumoniae. *Med Microbiol Immunol.* 2016 Aug;205(4):333-43. doi: 10.1007/s00430-016-0450-5. PubMed PMID: 26920133; PubMed Central PMCID: PMC4939170.
- Gao H, Huang X, Cai Z, et al. Generation of musculoskeletal cells from human urine epithelium-derived presomitic mesoderm cells. *Cell & Bioscience.* 2024, 14(1): 93.
- Xin Q, Niu R, Chen Q, et al. Stable cytoactivity of piscine satellite cells in rice bran-gelatin hydrogel scaffold of cultured meat. *International Journal of Biological Macromolecules.* 2024: 134242.
- Patane MA, Schubert W, Sanford T, Gee R, Burgos M, Isom WP, Ruiz-Perez B. Evaluation of ocular and general safety following repeated dosing of dexamethasone phosphate delivered by transscleral iontophoresis in rabbits. *J Ocul Pharmacol Ther.* 2013 Oct;29(8):760-9. doi: 10.1089/jop.2012.0175. PubMed PMID: 23844757.
- Martín-Sabroso C, Tavares-Fernandes DF, Espada-García JI, Torres-Suárez AI. Validation protocol of analytical procedures for quantification of drugs in polymeric systems for parenteral administration: dexamethasone phosphate disodium microparticles. *Int J Pharm.* 2013 Dec 15;458(1):188-96. doi: 10.1016/j.ijpharm.2013.09.026. PubMed PMID: 24120930.
- Keeler GD, Durdik JM, Stenken JA. Effects of delayed delivery of dexamethasone-21-phosphate via subcutaneous microdialysis implants on macrophage activation in rats. *Acta Biomater.* 2015 Sep;23:27-37. doi: 10.1016/j.actbio.2015.05.011. PubMed PMID: 25985913.

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