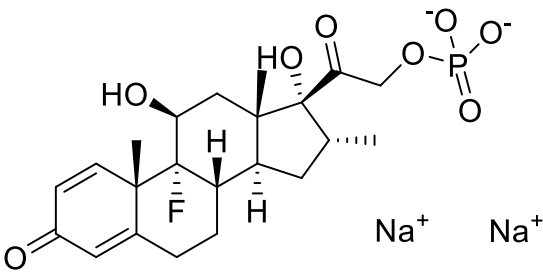


Product data sheet



MedKoo Cat#: 530479 Name: Dexamethasone phosphate disodium CAS#: 2392-39-4 (phosphate sodium) Chemical Formula: C ₂₂ H ₂₈ FN ₂ O ₈ P Molecular Weight: 516.41	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:

Dexamethasone phosphate disodium is a water-soluble form of the synthetic glucocorticoid dexamethasone. Dexamethasone is a glucocorticoid receptor agonist, apoptosis inducer, and common disease inducer in experimental animals. Dexamethasone inhibits the production of inflammatory miRNA-155 exosomes in macrophages and significantly reduces the expression of inflammatory factors in neutrophils and monocytes. Dexamethasone also has potential for use in COVID-19 research.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under “QC And Documents” section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	1	1.94

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.94 mL	9.68 mL	19.36 mL
5 mM	0.39 mL	1.94 mL	3.87 mL
10 mM	0.19 mL	0.97 mL	1.94 mL
50 mM	0.04 mL	0.19 mL	0.39 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of “Calculator”

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

- Gao Z, Schwieger J, Matin-Mann F, Behrens P, Lenarz T, Scheper V. Dexamethasone for Inner Ear Therapy: Biocompatibility and Bio-Efficacy of Different Dexamethasone Formulations In Vitro. *Biomolecules*. 2021 Dec 17;11(12):1896. doi: 10.3390/biom11121896. PMID: 34944539; PMCID: PMC8699596.
- Adcock IM, Nasuhara Y, Stevens DA, Barnes PJ. Ligand-induced differentiation of glucocorticoid receptor (GR) trans-repression and transactivation: preferential targeting of NF-kappaB and lack of I-kappaB involvement. *Br J Pharmacol*. 1999 Jun;127(4):1003-11. doi: 10.1038/sj.bjp.0702613. PMID: 10433509; PMCID: PMC1566089.

In vivo study

- Lara-Espinosa JV, Arce-Aceves MF, Barrios-Payán J, Mata-Espinosa D, Lozano-Ordaz V, Becerril-Villanueva E, Ponce-Regalado MD, Hernández-Pando R. Effect of Low Doses of Dexamethasone on Experimental Pulmonary Tuberculosis. *Microorganisms*. 2023 Jun 10;11(6):1554. doi: 10.3390/microorganisms11061554. PMID: 37375056; PMCID: PMC10305529.
- LaLone CA, Villeneuve DL, Olmstead AW, Medlock EK, Kahl MD, Jensen KM, Durhan EJ, Makynen EA, Blanksma CA, Cavallin JE, Thomas LM, Seidl SM, Skolness SY, Wehmas LC, Johnson RD, Ankley GT. Effects of a glucocorticoid receptor agonist, dexamethasone, on fathead minnow reproduction, growth, and development. *Environ Toxicol Chem*. 2012 Mar;31(3):611-22. doi: 10.1002/etc.1729. Epub 2012 Feb 6. PMID: 22189798.

Product data sheet



7. Bioactivity

Biological target:

Dexamethasone reduces levels of activated NF- κ B in immature dendritic cells (DCs) and inhibits differentiation into mature DCs. It also induces differentiation of human mesenchymal stem cells (MSCs) and is used in the generation of liver organoids. Dexamethasone induces autophagy in acute lymphoblastic leukemia (ALL) cell lines. Dexamethasone acts as viral transduction enhancer by promoting intracellular shuttling of HIV-1 pre-integration complex to the nucleus.

In vitro activity

This study suggests that the anti-inflammatory properties of glucocorticoids relate to their ability to transrepress rather than transactivate genes. Dexamethasone inhibited GM-CSF release from A549 cells with an EC50 value of 2.2×10^{-9} M). Dexamethasone's (EC50 = 3.6×10^{-8} M) ability to induce transcription of the beta2-receptor was correlated with GR DNA binding. Dexamethasone's (IC50= 0.5×10^{-9} M) ability to inhibit a 3 x kappaB was associated with inhibition of GM-CSF release.

Reference: Br J Pharmacol. 1999 Jun;127(4):1003-11. <https://pubmed.ncbi.nlm.nih.gov/10433509/>

In vivo activity

The administration of low doses of dexamethasone represents a promising adjuvant treatment for pulmonary tuberculosis (TB). In a mice model of progressing TB, dexamethasone administered with conventional antibiotics in late disease stage decreased the lung bacilli load and lung pneumonia, and increased mouse survival. Dexamethasone also decreased the inflammatory response in the SNC and, therefore, sickness behavior and neurological abnormalities in the infected animals.

Reference: Microorganisms. 2023 Jun 10;11(6):1554. <https://pubmed.ncbi.nlm.nih.gov/37375056/>

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.