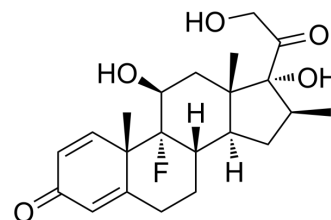


Betamethasone

Cat. No.:	HY-13570
CAS No.:	378-44-9
Molecular Formula:	C ₂₂ H ₂₉ FO ₅
Molecular Weight:	392.46
Target:	Glucocorticoid Receptor; Apoptosis
Pathway:	Immunology/Inflammation; Vitamin D Related/Nuclear Receptor; Apoptosis
Storage:	4°C, protect from light * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro	DMSO : ≥ 50 mg/mL (127.40 mM)					
	* "≥" means soluble, but saturation unknown.					
	Preparing Stock Solutions	Solvent Concentration	Mass	1 mg	5 mg	10 mg
			1 mM	2.5480 mL	12.7402 mL	25.4803 mL
			5 mM	0.5096 mL	2.5480 mL	5.0961 mL
10 mM			0.2548 mL	1.2740 mL	2.5480 mL	
Please refer to the solubility information to select the appropriate solvent.						
In Vivo	1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.5 mg/mL (6.37 mM); Clear solution					
	2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.5 mg/mL (6.37 mM); Clear solution					
	3. Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.5 mg/mL (6.37 mM); Clear solution					

BIOLOGICAL ACTIVITY

Description	Betamethasone is a synthetic glucocorticoid with anti-inflammatory and immunosuppressive activities. Betamethasone accelerates fetal lung maturation and induces gene expression and apoptosis ^{[1][2][3][4]} .
In Vitro	Betamethasone (0.1-1 μM; 12 h) induces gene expression in L929 cells ^[4] . Betamethasone (0.1-1 μM; 48 h) induces CEM C7 T-cells apoptosis ^[4] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Betamethasone (0.48 mg; i.v.gtt for 48 h) decreases the hypercapnia-induced increase in CBF due to decreased cerebral

vasodilatation^[1]. Betamethasone (0.05 ml (1 mg/L); topical injection) ameliorates spinal nerve transection induced mechanical allodynia and thermal hyperalgesia, and reduces the activation of NF- κ B and elevation of TNF α and IL-1 β , and induces the expression of IL-10 in the rats brain^[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Rambouillet-Colombia ewes bred on a single occasion are received hypercapnic challenges ^[1]
Dosage:	0.48 mg
Administration:	Injected into the fetal jugular vein at a rate of 1 ml/h (10 μ g betamethasone/h) and maintained over the next 48 h.
Result:	Decreased cerebral blood flow (CBF) in all brain regions measured except the hippocampus after 24 h of infusion. The reduction in CBF was diminished to about 25-30 % after 48 h of infusion.

CUSTOMER VALIDATION

- Proc Natl Acad Sci U S A. 2022 Apr 12;119(15):e2117004119.

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REFERENCES

- [1]. Schwab M, et, al. Effects of betamethasone administration to the fetal sheep in late gestation on fetal cerebral blood flow. J Physiol. 2000 Nov 1;528(Pt 3):619-32.
- [2]. Xie W, et, al. Betamethasone affects cerebral expressions of NF-kappaB and cytokines that correlate with pain behavior in a rat model of neuropathy. Ann Clin Lab Sci. Winter 2006;36(1):39-46.
- [3]. Kubin ME, et, al. Clinical Efficiency of Topical Calcipotriol/Betamethasone Treatment in Psoriasis Relies on Suppression of the Inflammatory TNF α - IL-23 - IL-17 Axis. Acta Derm Venereol. 2017 Apr 6;97(4):449-455.
- [4]. Hofmann TH, et, al. Various glucocorticoids differ in their ability to induce gene expression, apoptosis and to repress NF-kappaB-dependent transcription. FEBS Lett. 1998 Dec 28;441(3):441-6.

Caution: Product has not been fully validated for medical applications. For research use only.

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