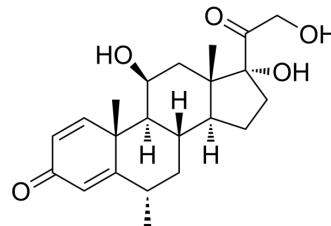


Methylprednisolone

Cat. No.:	HY-B0260
CAS No.:	83-43-2
Molecular Formula:	C ₂₂ H ₃₀ O ₅
Molecular Weight:	374.47
Target:	Glucocorticoid Receptor; Autophagy; SARS-CoV; Bacterial
Pathway:	Immunology/Inflammation; Vitamin D Related/Nuclear Receptor; Autophagy; Anti-infection
Storage:	4°C, protect from light * In solvent : -80°C, 1 year; -20°C, 6 months (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 125 mg/mL (333.81 mM; ultrasonic and warming and heat to 60°C)
H₂O : < 0.1 mg/mL (ultrasonic) (insoluble)

	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	2.6704 mL	13.3522 mL	26.7044 mL
	5 mM	0.5341 mL	2.6704 mL	5.3409 mL
	10 mM	0.2670 mL	1.3352 mL	2.6704 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

- Add each solvent one by one: 50% PEG300 >> 50% saline
Solubility: 25 mg/mL (66.76 mM); Suspended solution; Need ultrasonic and warming and heat to 60°C
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.08 mg/mL (5.55 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.08 mg/mL (5.55 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.08 mg/mL (5.55 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Methylprednisolone is a synthetic corticosteroid with anti-inflammatory and immunomodulating properties. Methylprednisolone improve severe or critical COVID-19 by activating ACE2 and reducing IL-6 levels^[3].

IC₅₀ & Target

Glucocorticoid Receptor

In Vitro

Methylprednisolone is typically used for its anti-inflammatory effects. Common uses include arthritis therapy and short-term treatment of bronchial inflammation or acute bronchitis due to various respiratory diseases. Methylprednisolone is used both in the treatment of acute periods and long-term management of autoimmune diseases, most notably systemic lupus erythematosus. It is also used for vestibular neuritis [1]. After six months the patients who were treated with methylprednisolone within eight hours of their injury had significant improvement as compared with those given placebo in motor function (neurologic change scores of 16.0 and 11.2, respectively; $P = 0.03$) and sensation to pinprick (change scores of 11.4 and 6.6; $P = 0.02$) and touch (change scores, 8.9 and 4.3; $P = 0.03$). Benefit from methylprednisolone was seen in patients whose injuries were initially evaluated as neurologically complete, as well as in those believed to have incomplete lesions [2].

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

CUSTOMER VALIDATION

- Nucleic Acids Res. 2021 Jan 8;49(D1):D1113-D1121.
- Int J Biol Sci. 2020 Jun 27;16(13):2382-2391.
- iScience. 2023 Apr 5,23.
- Drug Des Devel Ther. 2022, 16: 3929-3946.
- Exp Cell Res. 2020 Aug 1;393(1):112054.

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REFERENCES

- [1]. Strupp, M., et al., Methylprednisolone, valacyclovir, or the combination for vestibular neuritis. N Engl J Med, 2004. 351(4): p. 354-61.
- [2]. Bracken, M.B., et al., A randomized, controlled trial of methylprednisolone or naloxone in the treatment of acute spinal-cord injury. Results of the Second National Acute Spinal Cord Injury Study. N Engl J Med, 1990. 322(20): p. 1405-11.
- [3]. Zhen Xiang, et al. Glucocorticoids improve severe or critical COVID-19 by activating ACE2 and reducing IL-6 levels. Int J Biol Sci 2020; 16(13):2382-2391.

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

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