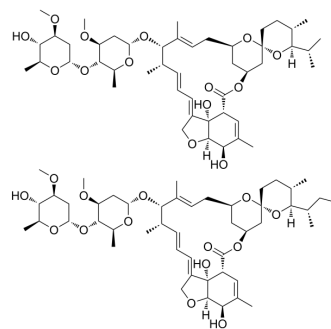


Ivermectin

Cat. No.:	HY-15310
CAS No.:	70288-86-7
Molecular Formula:	C ₄₈ H ₇₄ O ₁₄
Molecular Weight:	875
Target:	Parasite; Mitophagy; Autophagy; HSV; Antibiotic; SARS-CoV; HIV; Bacterial; Flavivirus; Dengue virus
Pathway:	Anti-infection; Autophagy
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 2 years -20°C 1 year



SOLVENT & SOLUBILITY

In Vitro	DMSO : 250 mg/mL (285.71 mM; Need ultrasonic)					
	H ₂ O : < 0.1 mg/mL (ultrasonic) (insoluble)					
	Preparing Stock Solutions	<div><div>Solvent</div><div>Concentration</div></div>	Mass	1 mg	5 mg	10 mg
		1 mM		1.1429 mL	5.7143 mL	11.4286 mL
		5 mM		0.2286 mL	1.1429 mL	2.2857 mL
		10 mM		0.1143 mL	0.5714 mL	1.1429 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 (2.86 mM); Clear solution					
	2. Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.08 mg/mL (2.38 mM); Clear solution					

BIOLOGICAL ACTIVITY

Description	Ivermectin (MK-933) is a broad-spectrum anti-parasite agent. Ivermectin (MK-933) is a specific inhibitor of Impα/β1-mediated nuclear import and has potent antiviral activity towards both HIV-1 and dengue virus. It is a positive allosteric effector of P2X ₄ and the α7 neuronal nicotinic acetylcholine receptor (nAChRs). Ivermectin also inhibits bovine herpesvirus1 (BoHV-1) replication and inhibits BoHV-1 DNA polymerase nuclear import ^{[1][2][3][4]} . Ivermectin is a candidate therapeutic against SARS-CoV-2/COVID-19 ^[5] .			
IC ₅₀ & Target	HIV-1	HSV-1	BoHV-1	SARS-CoV-2

In Vitro

In the submicromolar range ($EC_{50}=250$ nM) the action of Ivermectin (MK-933) is rapid and reversible, resulting in increased amplitude and slowed deactivation of $P2X_4$ channel currents evoked by ATP^[1].

Ivermectin (MK-933) markedly increases the potency of ATP and that of the normally low-potency agonist α , β -methylene-ATP in a use- and voltage-independent manner without changing the ion selectivity of $P2X_4$ channels^[1].

Ivermectin (MK-933) activates glutamate-gated chloride channels in the nerves and muscles of the parasite, leading to membrane hyperpolarization and muscle paralysis^[2].

Ivermectin (MK-933) strongly inhibits the binding of $Imp\alpha/\beta 1$ to NS5 ($IC_{50}=17$ μ M), but not of $Imp\beta 1$ alone to NS5^[3].

Ivermectin (MK-933) has potent antiviral activity towards both HIV-1 and dengue virus, both of which are strongly reliant on importin α/β nuclear import, with respect to the HIV-1 integrase and NS5 (non-structural protein 5) polymerase proteins respectively^[3].

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

CUSTOMER VALIDATION

- Cell Mol Immunol. 2022 May 30;1-15.
- Adv Sci (Weinh). 2022 Oct 18;e2203088.
- Nucleic Acids Res. 2021 Jan 8;49(D1):D11113-D11121.
- Autophagy. 2022 Mar;18(3):559-575.
- EMBO J. 2022 Apr 22:e110324.

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[1]. Khakh BS, et al. Allosteric control of gating and kinetics at $P2X_4$ receptor channels. J Neurosci. 1999 Sep 1;19(17):7289-99.

[2]. Priel A, et al. Mechanism of ivermectin facilitation of human $P2X_4$ receptor channels. J Gen Physiol. 2004 Mar;123(3):281-93.

[3]. Wagstaff KM, et al. Ivermectin is a specific inhibitor of importin α/β -mediated nuclear import able to inhibit replication of HIV-1 and dengue virus. Biochem J. 2012 May 1;443(3):851-6.

[4]. Raza S, et al. Ivermectin Inhibits Bovine Herpesvirus 1 DNA Polymerase Nuclear Import and Interferes with Viral Replication. Microorganisms. 2020 Mar 13;8(3). pii: E409.

[5]. Khan Sharun, et al. Ivermectin, a New Candidate Therapeutic Against SARS-CoV-2/COVID-19. Ann Clin Microbiol Antimicrob. 2020 May 30;19(1):23.

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

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