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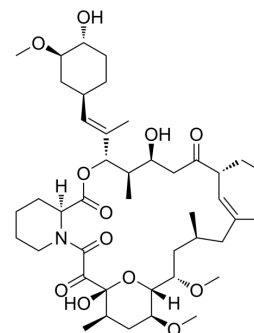
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Ascomycin

Cat. No.:	HY-13557
CAS No.:	104987-12-4
Molecular Formula:	C ₄₃ H ₆₉ NO ₁₂
Molecular Weight:	792.01
Target:	FKBP; Parasite; Antibiotic; Fungal
Pathway:	Apoptosis; Autophagy; Immunology/Inflammation; Anti-infection
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 : ≥ 39 mg/mL (49.24 mM)
 * "≥" means soluble, but saturation unknown.

	Solvent Concentration	Mass	1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM		1.2626 mL	6.3131 mL	12.6261 mL
	5 mM		0.2525 mL	1.2626 mL	2.5252 mL
	10 mM		0.1263 mL	0.6313 mL	1.2626 mL

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

In Vivo

- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
 Solubility: 2.5 mg/mL (3.16 mM); Suspended solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
 Solubility: ≥ 2.08 mg/mL (2.63 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
 Solubility: ≥ 2.08 mg/mL (2.63 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Ascomycin (Immunomycin; FR-900520; FK520) is an ethyl analog of Tacrolimus (FK506) with strong immunosuppressant properties. Ascomycin is also a macrocyclic polyketide antibiotic with multiple biological activities such as anti-malarial, anti-fungal and anti-spasmodic. Ascomycin prevents graft rejection and has potential for varying skin ailments research^{[1][2]}.

IC₅₀ & Target

Plasmodium

In Vitro	Ascomycin (FR-900520) suppresses immune response in vitro with an IC₅₀ value of 0.55 nM for mouse mixed lymphocyte reaction^[1]. Ascomycin is a powerful calcium-dependent serine/threonine protein phosphatase (calcineurin [CaN], protein phosphatase 2B) inhibitors. Its mechanism of action involves the formation of a molecular complex with the intracellular FK506-binding protein-12 (FKBP12), thereby acquiring the ability to interact with CaN and to interfere with the dephosphorylation of various substrates^[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.								
In Vivo	Ascomycin (FR-900520; i.m.; 0.32-32 mg/kg; 5 days a week; for 2 weeks) clearly prolongs skin allograft survival in rats^[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only. <table> <tr> <td>Animal Model:</td><td>WKA rats (8-10 weeks old) transplanted with F344 skin allografts^[1]</td></tr> <tr> <td>Dosage:</td><td>0.32 mg/kg, 1 mg/kg, 3.2 mg/kg, 10 mg/kg, 32 mg/kg</td></tr> <tr> <td>Administration:</td><td>i.m.; 5 days a week; for 2 weeks</td></tr> <tr> <td>Result:</td><td>Clearly prolonged skin allograft survival in rats</td></tr> </table>	Animal Model:	WKA rats (8-10 weeks old) transplanted with F344 skin allografts ^[1]	Dosage:	0.32 mg/kg, 1 mg/kg, 3.2 mg/kg, 10 mg/kg, 32 mg/kg	Administration:	i.m.; 5 days a week; for 2 weeks	Result:	Clearly prolonged skin allograft survival in rats
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CUSTOMER VALIDATION

- Proc Natl Acad Sci U S A. 2021 Jan 12;118(2):e2009539118.
- MBio. 2017 Oct 24;8(5). pii: e01752-17.
- Pharmaceutics. 2023, 15(2), 473.
- Neurochem Res. 2019 Feb;44(2):465-471.
- Biopharm Drug Dispos. 2023 Feb 25.

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REFERENCES

- [1]. Hatanaka H, et al. FR-900520 and FR-900523, novel immunosuppressants isolated from a Streptomyces. II. Fermentation, isolation and physico-chemical and biological characteristics. J Antibiot (Tokyo). 1988 Nov;41(11):1592-601.
- [2]. Krishika Sambyal, et al. Bioprocess and genetic engineering aspects of ascomycin production: a review. J Genet Eng Biotechnol. 2020 Nov 19;18(1):73.
- [3]. Germán Sierra-Paredes, et al. Ascomycin and FK506: pharmacology and therapeutic potential as anticonvulsants and neuroprotectants. CNS Neurosci Ther. Spring 2008;14(1):36-46.

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

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