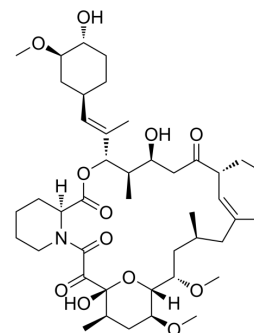


## Ascomycin

<b>Cat. No.:</b>	HY-13557												
<b>CAS No.:</b>	104987-12-4												
<b>Molecular Formula:</b>	C <sub>43</sub> H <sub>69</sub> NO <sub>12</sub>												
<b>Molecular Weight:</b>	792.01												
<b>Target:</b>	FKBP; Parasite; Antibiotic; Fungal												
<b>Pathway:</b>	Apoptosis; Autophagy; Immunology/Inflammation; Anti-infection												
<b>Storage:</b>	<table border="0"> <tr> <td>Powder</td> <td>-20°C</td> <td>3 years</td> </tr> <tr> <td></td> <td>4°C</td> <td>2 years</td> </tr> <tr> <td>In solvent</td> <td>-80°C</td> <td>2 years</td> </tr> <tr> <td></td> <td>-20°C</td> <td>1 year</td> </tr> </table>	Powder	-20°C	3 years		4°C	2 years	In solvent	-80°C	2 years		-20°C	1 year
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### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : ≥ 39 mg/mL (49.24 mM)  
 \* "≥" means soluble, but saturation unknown.

Concentration	Mass		
	1 mg	5 mg	10 mg
<b>1 mM</b>	1.2626 mL	6.3131 mL	12.6261 mL
<b>5 mM</b>	0.2525 mL	1.2626 mL	2.5252 mL
<b>10 mM</b>	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<sup>[1][2]</sup>.

#### IC<sub>50</sub> & Target

Plasmodium

<b>In Vitro</b>	<p>Ascomycin (FR-900520) suppresses immune response in vitro with an IC<sub>50</sub> value of 0.55 nM for mouse mixed lymphocyte reaction<sup>[1]</sup>.</p> <p>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<sup>[3]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>								
<b>In Vivo</b>	<p>Ascomycin (FR-900520; i.m.; 0.32-32 mg/kg; 5 days a week; for 2 weeks) clearly prolongs skin allograft survival in rats<sup>[1]</sup>. MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <table border="1" data-bbox="345 478 1515 716"> <tr> <td data-bbox="345 478 618 541">Animal Model:</td> <td data-bbox="618 478 1515 541">WKA rats (8-10 weeks old) transplanted with F344 skin allografts<sup>[1]</sup></td> </tr> <tr> <td data-bbox="345 541 618 604">Dosage:</td> <td data-bbox="618 541 1515 604">0.32 mg/kg, 1 mg/kg, 3.2 mg/kg, 10 mg/kg, 32 mg/kg</td> </tr> <tr> <td data-bbox="345 604 618 667">Administration:</td> <td data-bbox="618 604 1515 667">i.m.; 5 days a week; for 2 weeks</td> </tr> <tr> <td data-bbox="345 667 618 716">Result:</td> <td data-bbox="618 667 1515 716">Clearly prolonged skin allograft survival in rats</td> </tr> </table>	Animal Model:	WKA rats (8-10 weeks old) transplanted with F344 skin allografts <sup>[1]</sup>	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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