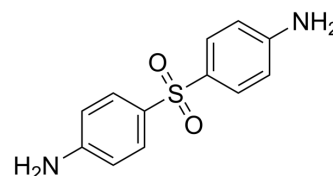


## Dapsone

<b>Cat. No.:</b>	HY-B0688		
<b>CAS No.:</b>	80-08-0		
<b>Molecular Formula:</b>	C <sub>12</sub> H <sub>12</sub> N <sub>2</sub> O <sub>2</sub> S		
<b>Molecular Weight:</b>	248.3		
<b>Target:</b>	Bacterial; Reactive Oxygen Species; Antibiotic; Parasite		
<b>Pathway:</b>	Anti-infection; Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB		
<b>Storage:</b>	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	2 years
		-20°C	1 year



### SOLVENT & SOLUBILITY

<b>In Vitro</b>	DMSO : 250 mg/mL (1006.85 mM; Need ultrasonic)					
		Solvent Concentration	Mass	1 mg	5 mg	10 mg
	<b>Preparing Stock Solutions</b>	1 mM		4.0274 mL	20.1369 mL	40.2739 mL
		5 mM		0.8055 mL	4.0274 mL	8.0548 mL
10 mM			0.4027 mL	2.0137 mL	4.0274 mL	
Please refer to the solubility information to select the appropriate solvent.						
<b>In Vivo</b>	<ol style="list-style-type: none"> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 40% PEG300 &gt;&gt; 5% Tween-80 &gt;&gt; 45% saline Solubility: ≥ 2.5 mg/mL (10.07 mM); Clear solution</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.5 mg/mL (10.07 mM); Clear solution</li> <li>Add each solvent one by one: 10% DMSO &gt;&gt; 90% corn oil Solubility: ≥ 2.5 mg/mL (10.07 mM); Clear solution</li> </ol>					

### BIOLOGICAL ACTIVITY

<b>Description</b>	Dapsone (4,4'-Diaminodiphenyl sulfone) is an orally active and blood-brain penetrant sulfonamide antibiotic with bacteriostatic, antimycobacterial and antiprotozoal activities <sup>[1]</sup> . Dapsone exerts effective antileprosy activity and inhibits folate synthesis in cell extracts of <i>M. leprae</i> . Dapsone is used for dermatologic disorder research, including leprosy, dermatitis herpetiformis, acne vulgaris et al <sup>[2][3]</sup> .
<b>IC<sub>50</sub> &amp; Target</b>	IC50: bacteriostatic; folate synthesis <sup>[3]</sup>

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<b>In Vitro</b>	Dapsone are added to cell lysates (100 µg of protein) and DHPS activity assay is tested. Dapsone exhibits an IC <sub>50</sub> of 3.0 µg/ml for E. coli C600 in DHPS activity assay, but the growth of E. coli C600 is not inhibited at 256 µg/ml Dapsone. For the recombinant strain carrying M. leprae folP1 (pML101), Dapsone shows an IC <sub>50</sub> of 0.06 µg/ml and a MIC of 1 µg/ml <sup>[3]</sup> . MCE has not independently confirmed the accuracy of these methods. They are for reference only.
<b>In Vivo</b>	In L. major-infected BALB/c Mice Dapsone (topical treatment; 50 mg/kg; twice daily; 30 days) leads to sizes lesions around 186 mm <sup>2</sup> compared to 125 mm <sup>2</sup> for control mice. Furthermore, the amount of DAP quantified in the lesions treated with DAP cream is 9.6±8.5 µg of DAP/mg of skin. However, the number of parasites found in the spleen is significantly lower in mice treated with the cream than in non-treated mice <sup>[4]</sup> . MCE has not independently confirmed the accuracy of these methods. They are for reference only.

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## REFERENCES

- [1]. Yi Zhu, et al. Dapsone and sulfones in dermatology: overview and update. J Am Acad Dermatol
- [2]. Dapsone, Drug.com
- [3]. D Voeller, et al. Interaction of Pneumocystis carinii dihydropteroate synthase with sulfonamides and diaminodiphenyl sulfone (dapsone). J Infect Dis. 1994 Feb;169(2):456-9.
- [4]. Esther Moreno, et al. Evaluation of Skin Permeation and Retention of Topical Dapsone in Murine Cutaneous Leishmaniasis Lesions. Pharmaceutics. 2019 Nov 13;11(11):607.
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**Caution: Product has not been fully validated for medical applications. For research use only.**

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