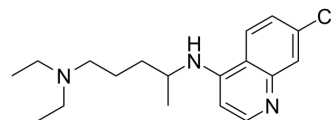


## Chloroquine

Cat. No.:	HY-17589A
CAS No.:	54-05-7
Molecular Formula:	C <sub>18</sub> H <sub>26</sub> ClN <sub>3</sub>
Molecular Weight:	319.87
Target:	SARS-CoV; HIV; Toll-like Receptor (TLR); Autophagy; Parasite; Antibiotic
Pathway:	Anti-infection; Immunology/Inflammation; Autophagy
Storage:	4°C, protect from light * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



### SOLVENT & SOLUBILITY

In Vitro	Ethanol : 100 mg/mL (312.63 mM; Need ultrasonic)						
	DMSO : 50 mg/mL (156.31 mM; Need ultrasonic)						
	Preparing Stock Solutions	Solvent Concentration	Mass	1 mg	5 mg	10 mg	
				1 mM	3.1263 mL	15.6314 mL	31.2627 mL
				5 mM	0.6253 mL	3.1263 mL	6.2525 mL
10 mM				0.3126 mL	1.5631 mL	3.1263 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 (7.82 mM); Clear solution						
	2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.5 mg/mL (7.82 mM); Clear solution						
	3. Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.5 mg/mL (7.82 mM); Clear solution						

### BIOLOGICAL ACTIVITY

Description	Chloroquine is an antimalarial and anti-inflammatory agent widely used to treat malaria and rheumatoid arthritis. Chloroquine is an autophagy and toll-like receptors (TLRs) inhibitor. Chloroquine is highly effective in the control of SARS-CoV-2 (COVID-19) infection in vitro (EC <sub>50</sub> =1.13 μM) <sup>[1][2][3][4]</sup> .			
IC <sub>50</sub> & Target	Plasmodium	Malaria	TLRs	SARS-COV-2
	HIV-1			

<p><b>In Vitro</b></p>	<p>Chloroquine (CHQ, 20 <math>\mu</math>M) inhibits IL-12p70 release and reduces Th1-priming capacity of activated human monocyte-derived Langerhans-like cells (MoLC). Chloroquine (20 <math>\mu</math>M) enhances IL-1-induced IL-23 secretion in MoLC and subsequently increases IL-17A release by primed CD4<sup>+</sup> T cells<sup>[1]</sup>. Chloroquine (25 <math>\mu</math>M) suppresses MMP-9 mRNA expression in normoxia and hypoxia in parental MDA-MB-231 cells. Chloroquine has cell-, dose- and hypoxia-dependent effects on MMP-2, MMP-9 and MMP-13 mRNA expression<sup>[2]</sup>. TLR7 and TLR9 inhibition using IRS-954 or chloroquine significantly reduces HuH7 cell proliferation in vitro<sup>[3]</sup>.</p> <p>Chloroquine (0.01-100 <math>\mu</math>M; 48 hours) potently blocked virus infection (vero E6 cells infected with SARS-CoV-2) at low-micromolar concentration (EC<sub>50</sub>=1.13 <math>\mu</math>M). Chloroquine blocks virus infection by increasing endosomal pH required for virus/cell fusion, as well as interfering with the glycosylation of cellular receptors of SARS-CoV<sup>[4]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>
<p><b>In Vivo</b></p>	<p>Chloroquine (80 mg/kg, i.p.) does not prevent the growth of the triple-negative MDA-MB-231 cells with high or low TLR9 expression levels in the orthotopic mouse model<sup>[2]</sup>.</p> <p>TLR7 and TLR9 inhibition using IRS-954 or chloroquine significantly inhibits tumour growth in the mouse xenograft model. HCC development in the DEN/NMOR rat model is also significantly inhibited by Chloroquine<sup>[3]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

## CUSTOMER VALIDATION

- Nature. 2022 Dec;612(7941):725-731.
- Nat Biotechnol. 2022 Dec;40(12):1834-1844.
- Mol Cancer. 2019 Apr 10;18(1):85.
- J Infection. 2020 Jun;80(6):e19-e26.
- Circ Res. 2018 May 25;122(11):1532-1544.

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## REFERENCES

- [1]. Said A, et al. Chloroquine promotes IL-17 production by CD4<sup>+</sup> T cells via p38-dependent IL-23 release by monocyte-derived Langerhans-like cells. *J Immunol*. 2014 Dec 15;193(12):6135-43.
- [2]. Tuomela J, et al. Chloroquine has tumor-inhibitory and tumor-promoting effects in triple-negative breast cancer. *Oncol Lett*. 2013 Dec;6(6):1665-1672.
- [3]. Mohamed FE, et al. Effect of toll-like receptor 7 and 9 targeted therapy to prevent the development of hepatocellular carcinoma. *Liver Int*. 2014 Jul 2. doi: 10.1111/liv.12626.
- [4]. Colson P, et al. Chloroquine and hydroxychloroquine as available weapons to fight COVID-19. *Int J Antimicrob Agents*. 2020;55(4):105932.
- [5]. Savarino A, et al. The anti-HIV-1 activity of chloroquine. *J Clin Virol*. 2001;20(3):131-135.

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

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