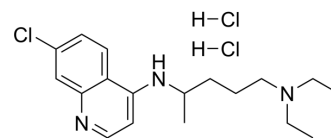


## Chloroquine dihydrochloride

Cat. No.:	HY-17589B
CAS No.:	3545-67-3
Molecular Formula:	C <sub>18</sub> H <sub>28</sub> Cl <sub>3</sub> N <sub>3</sub>
Molecular Weight:	392.79
Target:	Antibiotic; Parasite; Autophagy; SARS-CoV; Toll-like Receptor (TLR); HIV
Pathway:	Anti-infection; Autophagy; Immunology/Inflammation
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



### BIOLOGICAL ACTIVITY

<b>Description</b>	Chloroquine dihydrochloride is an antimalarial and anti-inflammatory agent widely used to treat malaria and rheumatoid arthritis. Chloroquine dihydrochloride is an autophagy and toll-like receptors (TLRs) inhibitor. Chloroquine dihydrochloride 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> .			
<b>IC<sub>50</sub> &amp; Target</b>	Plasmodium	Malaria	TLRs	SARS-COV-2
	HIV-1			
<b>In Vitro</b>	Chloroquine dihydrochloride (20 μM) inhibits IL-12p70 release and reduces Th1-priming capacity of activated human monocyte-derived Langerhans-like cells (MoLC). Chloroquine dihydrochloride (20 μM) enhances IL-1-induced IL-23 secretion in MoLC and subsequently increases IL-17A release by primed CD4+ T cells <sup>[1]</sup> . Chloroquine dihydrochloride (25 μM) suppresses MMP-9 mRNA expression in normoxia and hypoxia in parental MDA-MB-231 cells. Chloroquine dihydrochloride 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 dihydrochloride significantly reduces HuH7 cell proliferation in vitro <sup>[3]</sup> . Chloroquine dihydrochloride (0.01-100 μM; 48 hours) potently blocked virus infection (vero E6 cells infected with SARS-CoV-2) at low-micromolar concentration (EC <sub>50</sub> =1.13 μM). Chloroquine dihydrochloride 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> . MCE has not independently confirmed the accuracy of these methods. They are for reference only.			
<b>In Vivo</b>	Chloroquine dihydrochloride (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> . TLR7 and TLR9 inhibition using IRS-954 or Chloroquine dihydrochloride 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> . MCE has not independently confirmed the accuracy of these methods. They are for reference only.			

### CUSTOMER VALIDATION

- Nature. 2023 Jun;618(7966):799-807.
- Nature. 2022 Dec;612(7941):725-731.
- Nat Biotechnol. 2022 Dec;40(12):1834-1844.

- Cell Res. 2023 Jul 17.
- Mol Cancer. 2019 Apr 10;18(1):85.

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## REFERENCES

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- [1]. Said A, et al. Chloroquine promotes IL-17 production by CD4+ 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.
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**Caution: Product has not been fully validated for medical applications. For research use only.**

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