Imiquimod hydrochloride

Cat. No.: HY-B0180A

CAS No.: 99011-78-6

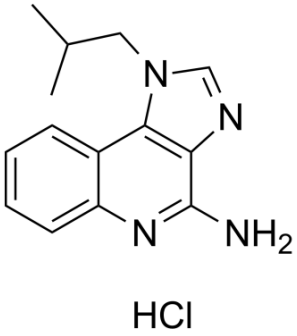
Molecular Formula: $C_{14}H_{17}ClN_4$

Molecular Weight: 276.76

Target: Toll-like Receptor (TLR); Autophagy; SARS-CoV; HSV

Pathway: Immunology/Inflammation; Autophagy; Anti-infection

Storage: 4°C, sealed storage, away from moisture
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

Methanol : 24 mg/mL (86.72 mM; Need ultrasonic)
DMSO : 8 mg/mL (28.91 mM; ultrasonic and warming and heat to 50°C)
Ethanol : 3.85 mg/mL (13.91 mM; Need ultrasonic)
H_2O : < 0.1 mg/mL (insoluble)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.6132 mL	18.0662 mL	36.1324 mL
	5 mM	0.7226 mL	3.6132 mL	7.2265 mL
	10 mM	0.3613 mL	1.8066 mL	3.6132 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: ≥ 0.8 mg/mL (2.89 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 0.8 mg/mL (2.89 mM); Suspended solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 0.8 mg/mL (2.89 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Imiquimod hydrochloride (R 837 hydrochloride) is a selective toll like receptor 7 (TLR7) agonist acting as an immune response modifier. Imiquimod hydrochloride exhibits antiviral and antitumor effects in vivo. Imiquimod hydrochloride can be used for the research of external genital, perianal warts, cancer and COVID 19[1][2].

IC_{50} & Target	TLR7	HSV-1

In Vivo	In animal models, imiquimod stimulates the innate immune response by increasing NK cell activity, activating macrophages to secretecytokines and nitric oxide, and inducing proliferation and differentiation of B lymphocytes. Imiquimod stimulates the innate immune response through induction, synthesis, and release of cytokines, including interferon-a (IFN-α), interleukin (IL)-6, and tumour necrosis factor (TNF)-α[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Nat Commun. 2016 May 25;7:11724.
- Nucleic Acids Res. 2021 Jan 8;49(D1):D1113-D1121.
- Cell Rep. 2021 Feb 2;34(5):108724.
- ACS Appl Bio Mater. 2019, 2, 874-883.

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REFERENCES

[1]. Athina Angelopoulou, et al. Imiquimod - A toll like receptor 7 agonist - Is an ideal option for management of COVID 19. Environ Res. 2020 Sep; 188: 109858.

[2]. Michael P Schön, et al. The small antitumoral immune response modifier imiquimod interacts with adenosine receptor signaling in a TLR7- and TLR8-independent fashion. J Invest Dermatol. 2006 Jun;126(6):1338-47.

[3]. Aditya K Gupta, et al. Imiquimod: a review. J Cutan Med Surg. Nov-Dec 2002;6(6):554-60.

[4]. Yuji Kan, et al. Imiquimod suppresses propagation of herpes simplex virus 1 by upregulation of cystatin A via the adenosine receptor A1 pathway. J Virol. 2012 Oct;86(19):10338-46.

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