Imiquimod (R837)

Imidazoquinoline compound; TLR7 ligand

Catalog codes: tlrl-imqs-1, tlrl-imq-10

https://www.invivogen.com/imiquimod

For research use only

Version 23L14-MM

PRODUCT INFORMATION

Contents

- Imiquimod (R837) is available in two quantities:
  - 2 x 500 µg Imiquimod: tlrl-imqs-1
  - 2 x 5 mg Imiquimod: tlrl-imq-10
- Sterile endotoxin-free water; 1.5 ml with #tlrl-imqs-1 and 10 ml with #tlrl-imq-10.

Storage and stability

- Imiquimod is provided lyophilized and shipped at room temperature. Upon receipt, store at -20 °C.
- Upon resuspension, prepare ailquots of Imiquimod and store at -20 °C for long term storage. Resuspended product is stable for 6 months at -20 °C. Avoid repeated freeze-thaw cycles.

Quality control

- Purity: ≥95% (UHPLC)
- TLR7 activity has been confirmed using HEK-Blue™ TLR7 cells.
- The absence TLR8 activity has been confirmed using HEK-Blue™ TLR8 cells.
- The absence of bacterial contamination (e.g. lipoproteins and endotoxins) has been confirmed using HEK-Blue™ TLR2 and HEK-Blue™ TLR4 cells.

DESCRIPTION

IImiquimod (also known as R837), an imidazoquinoline amine analogue to guanosine, is an immune response modifier with potent indirect antiviral activity. The antiviral activity of imiquimod was first shown in guinea pigs infected with herpes simplex virus[1]. Imiquimod is now an approved treatment for external genital warts caused by human papillomavirus infection. This low molecular synthetic molecule induces the production of cytokines such as IFN-α. Unlike R848, Imiquimod activates only TLR7 but not TLR8[2]. This activation is MyD88-dependent and leads to the induction of the transcription factor NF-κB[3].

1. Miller RL. *et al.*, 1999. Imiquimod applied topically: a novel immune response modifier and new class of drug.. Int J Immunopharmacol. 21(1):1-14. 2. Lee J. *et al.*, 2003. Molecular basis for the immunostimulatory activity of guanine nucleoside analogs: Activation of Toll-like receptor 7. PNAS 100(11):6646-51. 3. Hemmi, H. *et al.*, 2002. Small anti-viral compounds activate immune cells via the TLR7 MyD88-dependent signaling pathway. Nat Immunol. 3(2):196-200.

CHEMICAL PROPERTIES

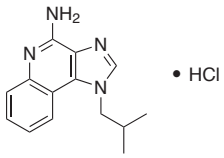
CAS number: 99011-78-6

Formula: $C_{14}H_{16}N_4 \bullet HCl$

Molecular weight: 276.8 g/mol

Solubility: 1 mg/ml in water

Structure:



METHODS

Preparation of a stock solution (1 mg/ml)

Stimulation of TLR7 can be achieved with 1-5 µg/ml Imiquimod.

- Add 500 µl endotoxin-free water to 500 µg of Imiquimod and vortex until completely dissolved.
- Add 5 ml endotoxin-free water to 5 mg of Imiquimod and vortex until completely dissolved.

TLR7 stimulation with Imiquimod

Imiquimod can be used to stimulate TLR7 in HEK-Blue™ TLR7 cells. These cells stably express an NF-κB-inducible secreted embryonic alkaline phosphatase (SEAP) and overexpress the human or murine TLR7 gene. For more information please visit: https://www.invivogen.com/hek-blue-tlr7.

1. Stimulate HEK-Blue™ TLR7 with1-5 µg/ml Imiquimod.
2. Incubate for 6-24 h at 37 °C, 5% CO_2.
3. Determine TLR stimulation using a SEAP detection medium, such as QUANTI-Blue™ Solution or HEK-Blue™ Detection or by assessing cytokine expression using an ELISA.

RELATED PRODUCTS

Product	Description	Cat. Code
R848 (Resiquimod)	TLR7/TLR8 ligand	tlrl-r848-1
HEK-Blue™ hTLR7 cells	Human TLR7 reporter cells	hkb-htlr7
HEK-Blue™ mTLR7 cells	Murine TLR7 reporter cells	hkb-mtlr7
HEK-Blue™ Detection	SEAP detection medium	hb-det2
QUANTI-Blue™ Solution	SEAP detection reagent	rep-qbs

TECHNICAL SUPPORT
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