Loxoribine

Guanosine analog; a TLR7 ligand

Catalog # tlrl-lox

For research use only

Version # 16E12-MM

PRODUCT INFORMATION

Content:

- 50 mg (147 µmol) Loxoribine
- 25 ml sterile endotoxin-free water

Storage:

- Loxoribine is provided as a white to off-white solid and shipped at room temperature. Store at 4 °C. Loxoribine is stable for 1 year when properly stored.
- Upon resuspension, prepare aliquots of loxoribine and store at -20 °C. Resuspended product is stable for 6 months when properly stored. Avoid repeated freeze-thaw cycles.

QUALITY CONTROL

- Purity: ≥94% (UHPLC)
- The TLR7 activity has been confirmed using HEK-Blue™ TLR7 cells.
- The absence of TLR8 activity has been confirmed using HEK-Blue™ hTLR8 cells.
- The absence of bacterial contamination (e.g. lipoproteins and endotoxins) has been confirmed using HEK-Blue™ TLR2 and HEK-Blue™ TLR4 cells.

DESCRIPTION

Loxoribine is a guanosine analog derivatized at position N^7 and C^8. This nucleoside is a very powerful stimulator of the immune system but until recently the mechanism responsible for this immunostimulatory activity was unknown[1]. It appears that similarly to imiquimod, a small synthetic antiviral molecule, loxoribine activates the innate immune system through Toll-like receptor 7 and that this activation requires endosomal maturation[2]. Loxoribine recognition is restricted to TLR7.

1. Gorden KB. *et al*., 2005. Synthetic TLR agonists reveal functional differences between human TLR7 and TLR8. J Immunol. 174(3):1259-68. **2. Heil F. *et al*., 2003.** The Toll-like receptor 7 (TLR7)-specific stimulus loxoribine uncovers a strong relationship within the TLR7, 8 and 9 subfamily. Eur J Immunol. 33(11):2987-97.

CHEMICAL PROPERTIES

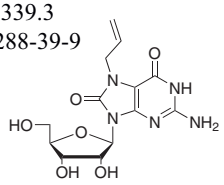
Synonym: 7-allyl-7,8-dihydro-8-oxo-guanosine

Formula: $C_{13}H_{17}N_5O_6$

Molecular weight: 339.3

CAS number: 121288-39-9

Structure:



METHODS

Preparation of stock solution (100 mM)

Stimulation of TLR7 can be achieved with Loxoribine at a concentration of 1 mM.

1. Resuspend Loxoribine in 1.47 ml DMSO to 50 mg of Loxoribine.
2. Further dilutions can be prepared using the endotoxin-free water (provided) or aqueous buffers.

TLR7 stimulation using Loxoribine

Loxoribine can be used to stimulate TLR7 in HEK-Blue™ TLR7 cells. HEK-Blue™ TLR7 cells stably express an NF-κB-inducible secreted embryonic alkaline phosphatase (SEAP) and overexpress the TLR7 gene. For more information visit: www.invivogen.com

1. Prepare a HEK-Blue™ TLR7 cell suspension according to the data sheet.
2. Add 20 µl of Loxoribine at a final concentration of 1 mM per well of a 96-well plate.
3. Add 180 µl of cell suspension per well.
2. Incubate cells and Loxoribine for 6-24 h at 37 °C, 5% CO_2.
3. Determine TLR7 stimulation with Loxoribine by assessing cytokine expression using an ELISA, or SEAP expression using a SEAP detection medium, such as QUANTI-Blue™ or HEK-Blue™ Detection.

RELATED PRODUCTS

Product	Catalog Code
CL264 (TLR7 ligand)	tlrl-c264e
HEK-Blue™ hTLR7 cells	hkb-htlr7
HEK-Blue™ mTLR7 cells	hkb-mtlr7
HEK-Blue™ Detection (SEAP detection medium)	hb-det2
pUNO1-hTLR7 (human gene)	puno1-htlr7
pUNO1-mTLR7 (mouse gene)	puno1-mtlr7
QUANTI-Blue™ (SEAP detection medium)	rep-qb1

TECHNICAL SUPPORT
InvivoGen USA (Toll-Free): 888-457-5873
InvivoGen USA (International): +1 (858) 457-5873
InvivoGen Europe: +33 (0) 5-62-71-69-39
InvivoGen Hong Kong: +852 3-622-34-80
E-mail: info@invivogen.com