

R848 (Resiquimod)

Imidazoquinoline compound; TLR7/TLR8 ligand

Catalog code: tlr1-r848-1, tlr1-r848-10

<https://www.invivogen.com/r848>

For research use only

Version 23L14-MM

PRODUCT INFORMATION

Contents

- R848 is provided lyophilized and is available in two quantities:
 - 2 x 500 µg: tlr1-r848-1
 - 2 x 5 mg: tlr1-r848-10

Note: R848 is sterile filtered prior to lyophilization.

- endotoxin-free water; 1.5 ml with #cat. code tlr1-r848-1 and 10 ml with #cat. code tlr1-r848-10.

Storage and stability

- R848 is shipped at room temperature. Store lyophilized product at 4°C or -20°C.
- Upon resuspension, prepare aliquots of R848 and store at -20°C. Resuspended product is stable for 6 months when properly stored. Avoid repeated freeze-thaw cycles.

Quality control

- Purity: ≥95% (UHPLC)
- The activation of human TLR7, human TLR8, and murine TLR7 by R848 has been confirmed using cellular assays.
- The absence of bacterial contamination (e.g. lipoproteins and endotoxins) has been confirmed using HEK-Blue™ TLR2 and HEK-Blue™ TLR4 cells.

DESCRIPTION

R848 (Resiquimod) is an imidazoquinoline compound with potent anti-viral activity^{1,3}. This low molecular weight synthetic molecule is a selective activating ligand for both TLR7 and TLR8 in humans but only TLR7 in mice. It activates immune cells via the TLR7/TLR8 MyD88-dependent signaling pathway with the subsequent activation of the transcription factors NF-κB and interferon regulatory factor^{2,3}. This ultimately leads to the production of pro-inflammatory cytokines and type I interferons.

Unlike other commercially available R848 preparations, InvivoGen's R848 is water soluble, validated for TLR7/TLR8 potency and tested to ensure the absence of TLR2 or TLR4 contamination (see Quality control above).

1. **Vanwalscappel B. et al., 2018.** Toll-like receptor agonist R848 blocks Zika virus replication by inducing the antiviral protein viperin. *Virology* 522:199-208. 2. **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. 3. **Jurk M. et al. 2002.** Human TLR7 or TLR8 independently confer responsiveness to the antiviral compound R848. *Nat Immunol*, 3(6):499.

CHEMICAL PROPERTIES

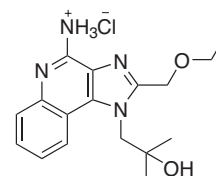
Structure:

CAS number: 144875-48-9 (free base)

Formula: C₁₇H₂₂N₄O₂ • HCl

Molecular weight: 350.8 g/mol

Solubility: 1 mg/ml in water



METHODS

Preparation of R848 stock solution (1 mg/ml)

Stimulation of TLR7 can be achieved with 10 ng-10 µg/ml R848, and stimulation of TLR8 with 100 ng-10 µg/ml R848.

- Resuspend R848 with the endotoxin-free water provided.
 - Add 500 µl to 500 µg
 - Add 5 ml to 5 mg
- Vortex until completely dissolved. Prepare aliquots and store at -20°C.

TLR stimulation of HEK-Blue™ cells with R848

R848 can be used to stimulate TLR7 or TLR8 in HEK-Blue™ TLR7 or TLR8 cells. These cells stably express an NF-κB-inducible secreted embryonic alkaline phosphatase (SEAP) and overexpress the TLR7 or the TLR8 gene.

For more information visit: <https://www.invivogen.com/hek-blue-trlr>.

1. Stimulate HEK-Blue™ TLR7 or TLR8 cells with 10 ng-10 µg/ml R848.
2. Incubate for 6-24 h at 37°C, 5% CO₂.
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	Catalog Code
HEK-Blue™ hTLR7 Cells	hkb-htlr7v2
HEK-Blue™ mTLR7 Cells	hkb-mtlr7
HEK-Blue™ hTLR8 Cells	hkb-htlr8
HEK-Blue™ mTLR8 Cells	hkb-mtlr8
HEK-Blue™ Detection	hb-det2
QUANTI-Blue™ Solution	rep-qbs
TLR7 ligands	
Gardiquimod™	tlr1-gdqs-1
Imiquimod (R837)	tlr1-imqs-1
Conjugatable TLR7 Ligands	
TL7-887	vac-tl7887
TL7-975	vac-tl7975
TLR8 ligands	
ssRNA40/LyoVec™	tlr1-lrna40

TECHNICAL SUPPORT

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