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1. Description

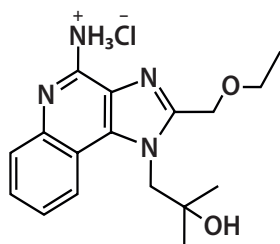
This product is for research use only.

Components 1 mg R848 (Resiquimod) in 500 µL sterile water.

Description Small molecule TLR7 / TLR8 agonist.

Product format Fully reconstituted without carrier protein or preservatives.
Sterile filtered; always handle under aseptic conditions.

Molecular formula C₁₇H₂₂N₄O₂·HCl



Endotoxin level Low endotoxin (<1 EU/mg) as determined by kinetic Limulus Amebocyte Lysate (LAL) assay.

Storage Store in aliquots at -20 °C. Aliquots are stable for 6 months. Avoid repeated freeze-thaw cycles. The expiration date is indicated on the vial label.

2. Background information

TLR7 and TLR8 are members of the toll-like-receptor (TLR) family recognizing pathogen-associated molecular patterns^{1,2}.

TLR7 and TLR8 are expressed on human cells with a distinct expression pattern. In human cells, plasmacytoid dendritic cell (pDCs) and B cells express predominantly TLR7, whereas TLR8 is mainly expressed on cells of the myeloid lineage, such as monocytes, macrophages, and myeloid dendritic cells (mDCs). In mice, TLR7 is also expressed on mDCs and monocytes whereas murine TLR8 is functionally impaired^{1,2}.

TLR7 and TLR8 recognize virally derived double- or single-

stranded RNA as well as small molecules like R848 (Resiquimod), both leading to a strong Myd88-dependent activation of immune cells^{3,4}.

R848 (Resiquimod) is an imidazoquinoline compound, which possesses antiviral and antitumoral activity^{3,4}. R848 (Resiquimod) is poorly soluble in water. Therefore, R848 (Resiquimod) is provided as its hydrochloride analog, which improves the solubility of R848 (Resiquimod) in aqueous solution without affecting potency.

3. Applications

3.1 General applications

- TLR7 and TLR8 agonists can be used for the activation of immune cells, such as human peripheral blood mononuclear cells (PBMCs), murine splenocytes, or isolated immune cells, e.g., B cells, pDCs, mDCs, and monocytes.

3.2 Specific applications

- R848 (Resiquimod) activates both human TLR7 and TLR8 as well as murine TLR7 and induces a broad spectrum of cytokines (IFN-γ, IL-6, and TNF-α)⁵.

4. Instructions for use

After thawing vortex the solution and spin down.

1 mg R848 (Resiquimod) in 500 µL sterile water is equivalent to a concentration of 5.70 mM.

The working concentration for stimulation of TLR7 and TLR8 in human PBMCs is 1–10 µM R848 (Resiquimod)^{5,6} or 1–10 µg/mL⁷.

5. References

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