

# R848 VacciGrade™

Imidazoquinoline compound; a TLR7/8-based adjuvant

Catalog code: vac-r848

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

**For research use only. Not for use in humans.**

Version 23A19-MM

## PRODUCT INFORMATION

### Contents

- 5 mg of lyophilized R848 VacciGrade™
- 10 ml of sterile endotoxin-free physiological water (NaCl 0.9%)

### Storage and stability

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

### Quality control

R848 VacciGrade™ is a preclinical grade preparation of R848 (Resiquimod). It is prepared under strict aseptic conditions. It is tested for sterility and the presence of endotoxins. R848 VacciGrade™ is guaranteed sterile and its endotoxin level is <1 EU/mg (measurement by kinetic chromogenic LAL assay).

## METHODS

**Working Concentration:** 10-100 µg/mouse

### Preparation of sterile stock solution (1 mg/ml)

1. Add 5 ml of the endotoxin-free physiological water provided to the 5 mg of R848 VacciGrade™.
2. Mix the solution by pipetting up and down.

## CHEMICAL PROPERTIES

**CAS Number:** 144875-48-9 (free base)

**Formula:** C<sub>17</sub>H<sub>22</sub>N<sub>4</sub>O<sub>2</sub> • HCl

**Molecular weight:** 350.8 g/mol

**Solubility:** 1 mg/ml in physiological water

## DESCRIPTION

R848 (resiquimod), a small molecular weight imidazoquinoline compound, is an immune response modifier with potent antiviral and antitumor activities<sup>1</sup>. R848's immune properties result from its ability to induce the production of pro-inflammatory cytokines through the activation of Toll-like receptor (TLR)-7 and TLR8<sup>2</sup>. *In vitro* and *in vivo* studies have shown that R848 promotes the secretion of Th1 cytokines, including IFN-γ, IFN-α, IL-12 and TNF-α<sup>3,7</sup>. R848 is capable of skewing antibody responses toward a Th1 IgG2a response and away from a Th2 IgE response, a feature mediated in part by IFN-α and IL-12. Unlike most adjuvants, R848 can be administered by a different route than the antigen, suggesting that it does not produce a depot effect. Preclinical studies in mice have shown that R848 is able to promote adaptive immune responses to codelivered antigens and provide protection against live infection challenges<sup>4,6,8,9</sup>.

**1. Stanley M.A., 2002.** Imiquimod and the imidazoquinolines: mechanism of action and therapeutic potential. *Clin Dermatol* 27:571-7. **2. Hemmi H. et al., 2002.** Small anti-viral compounds activate immune cells via the TLR7 MyD88-dependent signaling pathway. *Nat. Immunol.* 3:196-200. **3. Wagner T.L. et al., 1999.** Modulation of TH1 and TH2 cytokine production with the immune response modifiers, R-848 and imiquimod. *Cell. Immunol.* 191, 10-19. **4. Vasilakos J.P. et al., 2000.** Adjuvant activities of immune response modifier R-848: comparison with CpG ODN. *Cell. Immunol.* 204:64-74. **5. Thomsen L. et al., 2004.** Imiquimod and resiquimod in a mouse model: adjuvants for DNA vaccination by particle-mediated immunotherapeutic delivery. *Vaccine* 22:1799-1809. **6. Baldwin S.L. et al., 2009.** Intradermal immunization improves protective efficacy of a novel TB vaccine candidate. *Vaccine* 27:3063-3071. **7. Ma Y. et al., 2010.** Assessing the immunopotency of Toll-like receptor agonists in an *in vitro* tissue engineered immunological model. *Immunology* 130:374-387. **8. Tomai M.A. et al., 2000.** The immune response modifiers imiquimod and R-848 are potent activators of B lymphocytes. *Cell. Immunol.* 203:55-65. **9. Zhang W.W. & Matlashewski G. 2008.** Immunization with a Toll-like receptor 7 and/or 8 agonist vaccine adjuvant increases protective immunity against *Leishmania major* in BALB/c mice. *Infect. Immun.* 76:3777-3783.

## RELATED PRODUCTS

Product	Description	Cat. Code
AddaSO3™	Squalene-based adjuvant	vac-as03-10
AddaVax™	Squalene-o/w	vac-adx-10
Alhydrogel® adjuvant 2%	Al(OH) <sub>3</sub> gel	vac-alu-50
CFA	Complete Freund's adjuvant	vac-cfa-10
2'3'-cGAMP VacciGrade™	STING agonist	vac-nacga23
Imiquimod VacciGrade™	TLR7 ligand	vac-imq
ODN 1826 VacciGrade™	Murine TLR9 ligand	vac-1826-1
EndoFit™ Ovalbumin	For <i>in vivo</i> use	vac-pova
TL7-887	Conjugatable TLR7 ligand	vac-tl7887
TL7-975	Conjugatable TLR7 ligand	vac-tl7975

For a complete list of adjuvants provided by InvivoGen, please visit <https://www.invivogen.com/vaccine-adjuvants>.

## 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 Asia: +852 3622-3480

E-mail: [info@invivogen.com](mailto:info@invivogen.com)

