

Imiquimod VacciGrade™

Imidazoquinoline compound - TLR7-based adjuvant

Catalog # vac-imq

For research use only. Not for use in humans.

Version # 11E11-MT

PRODUCT INFORMATION

Content:

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

Storage and stability

- Imiquimod VacciGrade™ is shipped at room temperature and should be stored at -20°C. Lyophilized product is stable 1 year when properly stored.
- Upon resuspension, prepare aliquots of Imiquimod VacciGrade™ and store at -20°C for long term storage. Resuspended product is stable 6 months when properly stored. Avoid repeated freeze-thaw cycles.

Quality control

Imiquimod VacciGrade™ is a preclinical grade preparation of imiquimod. It is prepared under strict aseptic conditions and is tested for the presence of endotoxins. Imiquimod VacciGrade™ is guaranteed sterile and its measurable endotoxin level is <5 EU/mg.

METHODS

Working Concentration: 10-100 µg/mouse

Preparation of sterile stock solution (1 mg/ml)

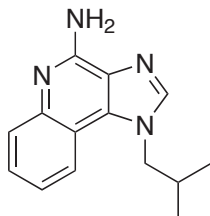
- Add 5 ml endotoxin-free physiological water to 5 mg Imiquimod VacciGrade™ vial to obtain a solution at 1 mg/ml.
- Mix the solution by pipetting up and down.

CHEMICAL PROPERTIES

Formula: C₁₄H₁₆N₄

Molecular weight: 240.3

Solubility: 1 mg/ml in physiological water



DESCRIPTION

Imiquimod (R837), an imidazoquinoline amine analogue to guanosine, is an immune response modifier with potent antiviral and antitumor activities¹. Imiquimod is approved for the topical treatment of genital warts, basal cell carcinoma, and bladder cancer. Imiquimod exerts its immune-modulating activity by inducing the production of pro-inflammatory cytokines, such as IFN-α and IL-12, leading to the activation of both innate and acquired immunity². This activity of Imiquimod is in part due to its capacity to bind to and stimulate Toll-like receptor (TLR)-7, suggesting a potential role of Imiquimod to act as an adjuvant^{3,4}. Preclinical studies in mice have shown the effectiveness of Imiquimod in inducing immune responses to immunization using various vaccination strategies⁵⁻⁷. Imiquimod has been shown to increase both antibody and cell-mediated immune responsiveness induced by a DNA vaccine. In a genetically engineered mouse model, a DNA vaccine encoding HER2/neu adjuvanted with Imiquimod was reported to significantly delay the development of spontaneous mammary tumors⁶. This antitumor effect was accompanied by a significant increase in Ag-specific antibody (Ab) production and in CTL activity, and a switch from IgG1 to IgG2a Ab isotype, suggesting a Th1 polarization of the immune response.

1. Suader DN., 2000. Immunomodulatory and pharmacologic properties of Imiquimod. *J Am Acad Dermatol* 43: S6-S11. **2. Stanley MA., 2002.** Imiquimod and the imidazoquinolines: mechanism of action and therapeutic potential. *Clin Dermatol* 27: 571-577. **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. **4. Schon MP & Schon M., 2004.** Immune modulation and apoptosis induction: two sides of the antitumoral activity of Imiquimod. *Apoptosis* 9: 291-298. **5. Thomsen LL et al., 2004.** Imiquimod and resiquimod in a mouse model: adjuvants for DNA vaccination by particle-mediated immunotherapeutic delivery. *Vaccine* 22: 1799-1809. **6. Smorlesi A. et al., 2005.** Imiquimod and S-27609 as adjuvants of DNA vaccination in a transgenic murine model of HER2/neu-positive mammary carcinoma. *Gene Ther.* 12(17):1324-32. **7. Triozzi PL. et al., 2010.** Regulation of the activity of an adeno-associated virus vector cancer vaccine administered with synthetic Toll-like receptor agonists. *Vaccine*. 28(50):7837-43.

TECHNICAL SUPPORT

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RELATED PRODUCTS

Product	Description	Catalog Code
Adjuvants		
AddaVax™	Squalene-Oil-in-water	vac-adx-2
Alhydrogel 2%	Aluminium hydroxide gel	vac-alu-50
IFA	Incomplete Freund's adjuvant	vac-ifa-10
Poly(I:C) VacciGrade™	TLR3 agonist	vac-pic
MPLA VacciGrade™	TLR4 agonist	vac-mpl
Flagellin FliC VacciGrade™	TLR5 agonist	vac-fla
Gardiquimod VacciGrade™	TLR7 agonist	vac-gdq
R848 VacciGrade™	TLR7/8 agonist	vac-r848
ODN 1826 VacciGrade™	murine TLR9 agonist	vac-1826-1
ODN 2006 VacciGrade™	human TLR9 agonist	vac-2006-1
N-glycyl-L-MDP VacciGrade™	NOD2 agonist	vac-gmdp
OVA Antigens		
EndoFit™ Ovalbumin (Endotoxin-free)	For <i>in vivo</i> use; endotoxin level <1EU/mg	vac-efova
Ovalbumin	For detection; Western, ELISA	vac-ova
Ova 257-264	For detection; ELISPOT	vac-sin
Ova 323-339	For detection; ELISPOT	vac-isq

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