

# Imiquimod VacciGrade™

Imidazoquinoline compound - TLR7-based adjuvant

Catalog # vac-imq

For research use only. Not for use in humans.

Version # 12I25-MM

## 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. 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 endotoxin level is <5 EU/mg.

## METHODS

Working Concentration: 10-100 µg/mouse

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

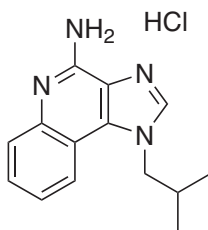
- Add 5 ml endotoxin-free physiological water to the 5 mg Imiquimod VacciGrade™ vial to obtain a solution at 1 mg/ml.
- Mix the solution by pipetting up and down.

## CHEMICAL PROPERTIES

Formula: C<sub>14</sub>H<sub>16</sub>N<sub>4</sub>, HCl

Molecular weight: 276.8

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 activities<sup>1</sup>. 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 immunity<sup>2</sup>. 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<sup>3,4</sup>. Preclinical studies in mice have shown the effectiveness of Imiquimod in inducing immune responses to immunization using various vaccination strategies<sup>5-7</sup>. 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 tumors<sup>6</sup>. 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
AddaVax™	Squalene-Oil-in-water	vac-adx-2
Alhydrogel 2%	Aluminium hydroxide gel	vac-alu-50
IFA	Incomplete Freund's adjuvant	vac-ifa-10
Pam3CSK4 VacciGrade™	TLR2 agonist	vac-pms
Poly(I:C) VacciGrade™	TLR3 agonist	vac-pic
MPLA VacciGrade™	TLR4 agonist	vac-mpl
MPLAs VacciGrade™ (synthetic MPLA)	TLR4 agonist	vac-mpls
Flagellin FliC VacciGrade™	TLR5 agonist	vac-fla
Gardiquimod VacciGrade™	TLR7 agonist	vac-r848
R848 VacciGrade™	TLR7 agonist	vac-imq
ODN 1585 VacciGrade™	murine TLR9 agonist	vac-1585-1
ODN 1826 VacciGrade™	murine TLR9 agonist	vac-1826-1
ODN 2006 VacciGrade™	human TLR9 agonist	vac-2006-1
N-glycolyl-MDP VacciGrade™	NOD2 agonist	vac-gmdp
<b>OVA Antigens</b>		
EndoFit™ Ovalbumin	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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