Poly(I:C) HMW VacciGrade™

Polyinosinic-polycytidylic acid; TLR3-based adjuvant

Catalog code: vac-pic

https://www.invivogen.com/polyic-vaccigrade

For research use only. Not for use in humans.

Version 22I23-MM

PRODUCT INFORMATION

Contents

- 10 mg of lyophilized Poly(I:C) HMW VacciGrade™
- 10 ml of sterile endotoxin-free physiological water (NaCl 0.9%)

Note: Poly(I:C) HMW VacciGrade™ is dispensed by weight of dry material. This weight includes polymer, residual salt, and residual water. The content of polymer may vary from lot to lot.

Storage and stability

- Poly(I:C) HMW VacciGrade™ is shipped at room temperature. Upon receipt, store at 4°C.
- Upon resuspension, prepare aliquots of Poly(I:C) VacciGrade™ and store at -20°C or at 4°C. Resuspended product is stable for 1 month at 4°C and for 1 year at -20°C when properly stored. Avoid repeated freeze-thaw cycles.

Quality control

Poly(I:C) HMW VacciGrade™ is a preclinical grade preparation of polyinosinic-polycytidylic acid (poly(I:C)). It is prepared under strict aseptic conditions.

It is tested for sterility and the presence of endotoxins. Poly(I:C) 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 10 ml of the endotoxin-free physiological water provided to the 10 mg Poly(I:C) VacciGrade™ vial.
2. Mix the solution by pipetting up and down.
3. Heat the mixture for 10 minutes at 65-70°C. Allow the solution to cool for 1 hour at room temperature to ensure proper annealing.

CHEMICAL PROPERTIES

CAS Number: 31852-29-6
Average Size: 1.5 - 8 kb
Solubility: 1 mg/ml in physiological water (NaCl 0.9%) heated for 10 minutes at 65-70°C

DESCRIPTION

Polyinosinic-polycytidylic acid (poly(I:C)) is a synthetic analog of double-stranded RNA (dsRNA), a molecular pattern associated with viral infections. Poly(I:C) can activate the immune response through two distinct pathogen recognition receptors (PRRs)[1]. Endosomal poly(I:C) activates TLR3 while cytosolic poly(I:C) activates RIG-I/MDA-5. Triggering the TLR3 pathway induces IL-12 and type I interferon (IFN) production, and improves MHC class II expression and cross-presentation of antigen[1]. Stimulation of MDA-5 enhances the production of type I IFNs that play a critical role in enhancing T and B cell immunity[1]. Poly(I:C) promotes Th1 (cellular) biased immunity through its induction of IL-12 and type I IFNs[1].

Poly(I:C) has been tested as an adjuvant in numerous animal models[2-9]. Promising results have been obtained using poly(I:C) as an adjuvant in flu vaccine delivered intranasally to mice[2]. Poly(I:C) has also been shown to enhance the efficacy of peptide-based cancer vaccines by promoting tumor-specific T-cell responses in mice[3-6]. Immunization of mice with poly(I:C) resulted in a strong Th1 response[7] and high levels of serum type I IFN[8].

1. Coffman R.L. *et al.*, 2010. Vaccine adjuvants: Putting innate immunity to work. Immunity 33(4):492-503. **2. Ichinohe T. *et al.*, 2005.** Synthetic double-stranded RNA poly(I:C) combined with mucosal vaccine protects against influenza virus infection. J Virol. 79(5):2910–2919. **3. Pulko V. *et al.*, 2009.** TLR3-stimulated dendritic cells upregulate B7-H1expression and influence the magnitude of CD8 T cell responses to tumor vaccination. J Immunol 183(6):3634–3641. **4. Currie A.J. *et al.*, 2008.** Targeting the effector site with IFN-alpha beta-inducing TLR ligands reactivates tumor-resident CD8 T cell responses to eradicate established solid tumors. J Immunol 180(3):1535–1544. **5. Salem M.L. *et al.*, 2005.** Defining the antigen-specific T-cell response to vaccination and poly(I:C)/TLR3 signaling:evidence of enhanced primary and memory CD8 T-cell responses and antitumor immunity. J Immunother 28(3):220–228. **6. Celis E. 2007.** Toll-like receptor ligands energize peptide vaccines through multiple paths. Cancer Res. 67(17):7945–7947. **7. Fransen F. *et al.*, 2007.** Agonists of Toll-like receptors 3, 4, 7, and 9 are candidates for use as adjuvants in an outer membrane vaccine against Neisseria meningitidis serogroup B. Infect Immun 75:5939-46. **8. Longhi MP. *et al.*, 2009.** Dendritic cells require a systemic type I interferon response to mature and induce CD4+ Th1 immunity with poly IC as adjuvant. J Exp Med 206: 1589-602. **9. Stahl-Hennig C. *et al.*, 2009.** Synthetic double-stranded RNAs are adjuvants for the induction of T helper 1 and humoral immune responses to human papillomavirus in rhesus macaques. PLoS Pathog 5:e1000373.

RELATED PRODUCTS

Product	Description	Cat. Code
AddaVax™	Squalene-o/w	vac-adx-10
Alhydrogel® adjuvant 2%	$Al(OH)_3$ gel	vac-alu-250
CFA	Complete Freund's Adjuvant	vac-cfa-10
2'3'-cGAMP VacciGrade™	STING agonist	vac-nacga23
ODN 1826 VacciGrade™	Murine TLR9 agonist	vac-1826-1
EndoFit™ Ovalbumin	For *in vivo* use	vac-pova

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

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