

Poly(I:C) HMW VacciGrade™

Polyinosinic-polycytidylic acid - TLR3-based adjuvant

Catalog # vac-pic

For research use only. Not for use in humans.

Version # 11E06-MT

PRODUCT INFORMATION

Content:

- 10 mg of lyophilized Poly(I:C) HMW VacciGrade™
 - 10 ml sterile endotoxin-free physiological water (NaCl 0.9%)
- Note: Poly(I:C) HMW is dispensed by weight of dry material. This weight includes polymer, residual salt and residual water. Content of polymer may vary from lot to lot.*

Storage and stability

- Poly(I:C) HMW VacciGrade™ is shipped at room temperature and should be stored at 4°C. Lyophilized product is stable 1 year at 4°C when properly stored.
- Upon resuspension, prepare aliquots of Poly(I:C) VacciGrade™ and store at -20°C for long term storage. Store at 4°C for short term storage.
- Resuspended product is stable 1 month at 4°C and 1 year at -20°C. 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).

CHEMICAL PROPERTIES

CAS Number: 31852-29-6

Average Size: 1.5 - 8 kb

Solubility: 5 mg/ml in water

Working Concentration: 10-100 µg/mouse

METHODS

Preparation of sterile stock solution (1 mg/ml)

- Add 10 ml of the endotoxin-free physiological water provided to the 10 mg Poly(I:C) VacciGrade™ vial.
- Mix the solution by pipetting up and down.
- 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.

DESCRIPTION

Polyinosinic-polycytidylic acid (poly(I:C)) is a synthetic analog of double stranded RNA (dsRNA), a molecular pattern associated with viral infection. 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 IFNs production, and improves MHC class II expression and cross-presentation of antigen¹. Stimulation of MDA-5 enhances the production of type I IFNs that play a critical role in enhancing T and B cell immunity¹. Poly(I:C) promotes Th1 (cellular) biased immunity through its induction of IL-12 and type I IFNs¹.

Poly(I:C) has been tested as an adjuvant in numerous animal models²⁻⁹. Promising results have been obtained using poly(I:C) as an adjuvant in flu vaccine delivered intranasally to mice². Poly(I:C) has also been shown to enhance the efficacy of peptide-based cancer vaccines by promoting tumor specific T cell responses in mice³⁻⁶. Immunization of mice with poly(I:C) resulted in a strong Th1 response⁷ and high levels of serum type I IFN⁸.

1. Coffman RL. 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 up-regulate B7-H1 expression and influence the magnitude of CD8 T cell responses to tumor vaccination. *J Immunol* 183(6):3634-3641. **4. Currie AJ. 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 ML. 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.

TECHNICAL SUPPORT

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RELATED PRODUCTS

Product	Description	Catalog Code
Vaccine Adjuvants		
AddaVax™	Squalene-Oil-in-water	vac-adx-10
Alhydrogel® adjuvant 2%	Aluminium hydroxide gel	vac-alu-50
IFA	Incomplete Freund's adjuvant	vac-ifa-10
MPLA VacciGrade™	TLR4 agonist	vac-mpla
Flagellin FliC VacciGrade™	TLR5 agonist	vac-fla
Gardiquimod VacciGrade™	TLR7 agonist	vac-gdq
Imiquimod VacciGrade™	TLR7 agonist	vac-imq
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-glycolyl-MDP VacciGrade™	NOD2 agonist	vac-gmdp
OVA Antigens		
EndoFit™ Ovalbumin	For <i>in vivo</i> use; endotoxin level <1EU/mg	vac-pova
Ovalbumin	For detection; Western, ELISA	vac-stova
Ova 257-264	For detection; ELISPOT	vac-sin
Ova 323-339	For detection; ELISPOT	vac-isq

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