

MPLAs VacciGrade™

Synthetic Monophosphoryl lipid A - TLR4-based adjuvant

Catalog # vac-mpls

For research use only. Not for use in humans.

Version # 11K25-MM

PRODUCT INFORMATION

Content:

- 1 mg (2 x 500 µg) MPLAs VacciGrade™
- 10 ml sterile endotoxin-free physiological water (NaCl 0.9%)

Storage and stability

- MPLAs VacciGrade™ is provided as a clear, lipidic film and shipped at room temperature. Store at -20°C. Product is stable 1 year when properly stored.
- Upon resuspension, prepare aliquots of MPLAs VacciGrade™ and store at -20°C. Resuspended product is stable 6 months when properly stored. Avoid repeated freeze-thaw cycles.

Quality control

MPLAs VacciGrade™ is a preclinical grade. It is prepared under strict aseptic conditions. MPLAs VacciGrade™ is guaranteed sterile.

METHODS

Preparation of sterile stock solution (1 mg/ml)

To each 500 µg vial:

- Add 50 µl of DMSO and vortex until complete solubilization.
- Add 450 µl endotoxin-free physiological water provided and vortex to homogenize.
- Prepare aliquots of stock solution and store at -20°C.

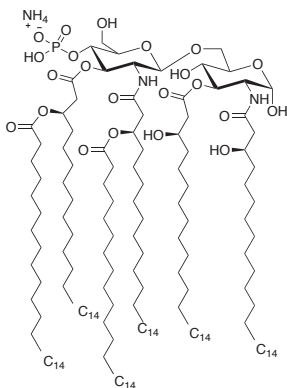
Working Concentration: 2 - 20 µg/mouse

CHEMICAL PROPERTIES

CAS Number: 1246298-63-4

Formula: C₉₆H₁₈₄N₃O₂₂P

Molecular weight: 1763.47



DESCRIPTION

Synthetic lipid A from *E. coli* (MPLAs) is a pure monophosphoryl lipid A compound produced by chemical synthesis. MPLAs activates TLR4 but does not activate TLR2 reflecting its high purity. MPLAs contains 6 fatty acyl groups, while MPLA purified from bacteria contains a mixture of 5, 6, and 7 acyl lipid A.

MPLA is a low-toxicity derivative of lipopolysaccharide (LPS), that retains the immunologically active lipid A portion of the parent molecule¹. While the toxicity associated with LPS prohibits its potential clinical use, MPLA is being developed as a vaccine adjuvant². Both LPS and MPLA are TLR4 agonists, but they signal through different adaptors, MyD88 and TRIF, respectively. The reduced toxicity of MPLA is attributed to the preferential recruitment of TRIF upon TLR4 activation, resulting in decreased induction of inflammatory cytokines³. MPLA has been tested as an adjuvant in mice and reported to induce a strong Th1 response^{4,5}. Although the mechanism of action of MPLA has not been fully elucidated, it has been suggested that MPLA improves vaccine immunogenicity by enhancing antigen presenting cell maturation⁶.

1. Okemoto K. et al., 2006. A potent adjuvant monophosphoryl lipid A triggers various immune responses, but not secretion of IL-1beta or activation of caspase-1. *J Immunol.* 176(2):1203-8. **2. Casella CR. et al., 2008.** Putting endotoxin to work for us: monophosphoryl lipid A as a safe and effective vaccine adjuvant. *Cell Mol Life Sci.* 65(20):3231-40. **3. Mata-Haro V. et al., 2007.** The vaccine adjuvant monophosphoryl lipid A as a TRIF-biased agonist of TLR4. *Science.* 316(5831):1628-32. **4. Franssen 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. *Infect Immun.* 75(12):5939-46. **5. Rhee EG. et al., 2010.** TLR4 Ligands Augment Antigen-Specific CD8+ T Lymphocyte Responses Elicited by a Viral Vaccine Vector. *J. Virol.* 84: 10413 - 10419. **3. Didierlaurent A. et al., 2009.** AS04, an aluminum salt- and TLR4 agonist-based adjuvant system, induces a transient localized innate immune response leading to enhanced adaptive immunity. *J Immunol* 183(10): 6186-97.

TECHNICAL SUPPORT

Toll free (US): 888-457-5873
Outside US: (+1) 858-457-5873
Europe: +33 562-71-69-39
E-mail: info@invivogen.com
Website: www.invivogen.com



3950 Sorrento Valley Blvd. Suite 100
San Diego, CA 92121 - USA

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™ (purified from <i>S.minnesota</i>)	TLR4 agonist	vac-mpl
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-efova
Ovalbumin	For detection; Western, ELISA	vac-ova
Ova 257-264	For detection; ELISPOT	vac-sin
Ova 323-339	For detection; ELISPOT	vac-isq

TECHNICAL SUPPORT

Toll free (US): 888-457-5873
Outside US: (+1) 858-457-5873
Europe: +33 562-71-69-39
E-mail: info@invivogen.com
Website: www.invivogen.com



3950 Sorrento Valley Blvd. Suite 100
San Diego, CA 92121 - USA