CL413 VacciGrade™

Dual TLR2 & TLR7-based adjuvant

Catalog # vac-c413, vac-c413-5

http://www.invivogen.com/cl413-vaccigrade

For research use only. Not for use in humans.

Version # 17C22-MM

PRODUCT INFORMATION

Content:

• CL413 VacciGrade™ is provided as a lyophilized powder and is available in 2 pack sizes;
  - vac-c413: 1 mg
  - vac-c413-5: 5 mg

• 10 ml sterile endotoxin-free physiological water (NaCl 0.9%)

Storage:

- CL413 VacciGrade™ is shipped at room temperature. Store lyophilized product at -20 °C. Lyophilized product is stable for 1 year at -20 °C.

- Upon resuspension, store at 4 °C. Resuspended product is stable for 6 months at 4 °C. Do not store resuspended product in plastic tubes.

Quality control

CL413 VacciGrade™ is a preclinical grade preparation of Adilipoline (CL413). It is prepared under strict aseptic conditions and is tested for the presence of endotoxins. CL413 VacciGrade™ is guaranteed sterile and its endotoxin level is <5 EU/mg.

BACKGROUND

InvivoGen has developed a series of novel molecules designed to induce potent immune responses through the combined activation of several pattern recognition receptors (PRRs) that trigger different innate immune signaling pathways. These molecules are agonists for TLR2, TLR7 or both. Agonists that activate TLR2 are derived from the well-established TLR2 ligand, Pam2CSK4, and those recognized by TLR7 are derived from the 8-hydroxyadenine derivative CL264, a TLR7 agonist recently developed by InvivoGen.

TLR2 and TLR7 are two PRRs with distinct characteristics. TLR2 is a cell surface receptor expressed by many cell types, while TLR7 is an endosomal receptor expressed predominantly in plasmacytoid dendritic cells (pDC) and to a lesser extent in B cells. TLR2 signaling triggers the NF-κB pathway and the production of pro-inflammatory cytokines, such as TNF-α, whereas TLR7 signaling induces mainly the IRF pathway and the production of IFN-α.

DESCRIPTION

CL413 VacciGrade™, also known as Adilipoline™, was generated by conjugation of an 8-hydroxyadenine moiety to the terminal acid function of Pam2CSK4. CL413 VacciGrade™ has the ability to efficiently stimulate both TLR7 and TLR2. *In vivo* tumor studies have demonstrated that it is a potent antitumor agent (data in InvivoGen Insight Spring 2013). Intratumoral injection of CL413 VacciGrade™ in established B16 tumors resulted in tumor regression, however, it provided no protection against tumor rechallenge. When tested as an adjuvant in mice, it exhibits a Th1-dominated immune response (see figures 1 & 2, on the next page).

CHEMICAL PROPERTIES

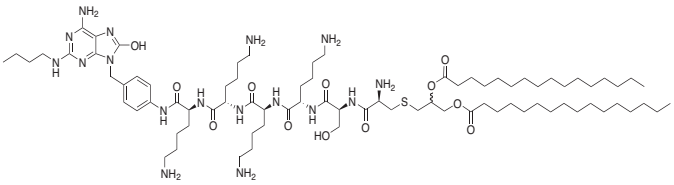
Synonym: S-(2,3-bis(palmitoyloxy)-(2RS)propyl)-(R)-cysteinyl-(S)-seryl-(S)-lysyl-(S)-lysyl-(S)-lysyl-(S)-lysyl 4-((6-amino-2-(butylamino)-8-hydroxy-9H-purin-9-yl)methyl) aniline

Formula: $C_{81}H_{145}N_{17}O_{12}S$

Molecular weight: 1581 g/mol

Solubility: H_2O (1 mg/ml)

Structure:



APPLICATIONS

CL413 VacciGrade™ can be used for its antitumoral and adjuvant activity.

METHODS

Working Concentration: 20-50 µg/mouse

Preparation of stock solution (1 mg/ml)

1. Resuspend CL413 VacciGrade™ by adding the appropriate volume of sterile endotoxin-free physiological water (provided) and vortexing until completely dissolved.
   - Add 1 ml of sterile physiological water to 1 mg of product.
   - Add 5 ml of sterile physiological water to 5 mg of product.
2. Store at 4 °C. Do not store resuspended product in plastic tubes.
3. Further dilutions can be prepared using sterile aqueous solutions for injection, such as sterile endotoxin-free physiological water.

TECHNICAL SUPPORT
InvivoGen USA (Toll-Free): 888-457-5873
InvivoGen USA (International): +1 (858) 457-5873
InvivoGen Europe: +33 (0) 5-62-71-69-39
InvivoGen Hong Kong: +852 3-622-34-80
E-mail: info@invivogen.com

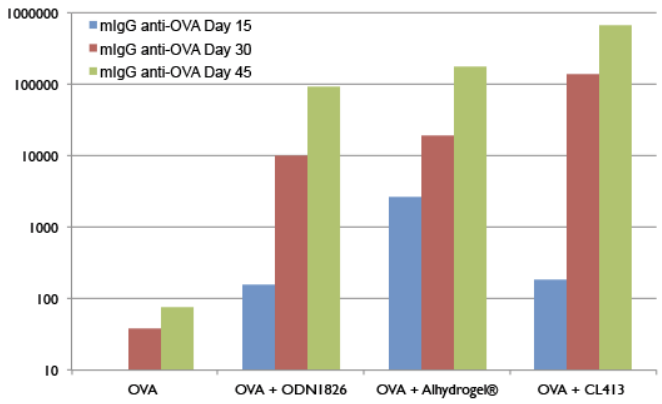


Figure 1. Anti-OVA mIgG levels at 15, 30 and 45 days after the initial immunization in different groups. Mice were immunized s.c at 0, 2 and 3 weeks with 1 µg of EndoFit™ Ovalbumin alone, 1 µg of EndoFit™ Ovalbumin/ODN1826 Vaccigrade™ (10 µg/ml), 1 µg of EndoFit™ Ovalbumin/Alhydrogel® adjuvant 2% (1:1, v/v), or 1 µg of EndoFit™ Ovalbumin/CL413 Vaccigrade™ (20 µg/ml), in a final volume of 100 µl. Serum anti-OVA total mIgG was monitored by ELISA (coated with ovalbumin at 10 µg/ml in PBS).

Alhydrogel® is a trademark which belongs to Brenntag Biosector A/S and which is registered in a large number of countries and regions worldwide.

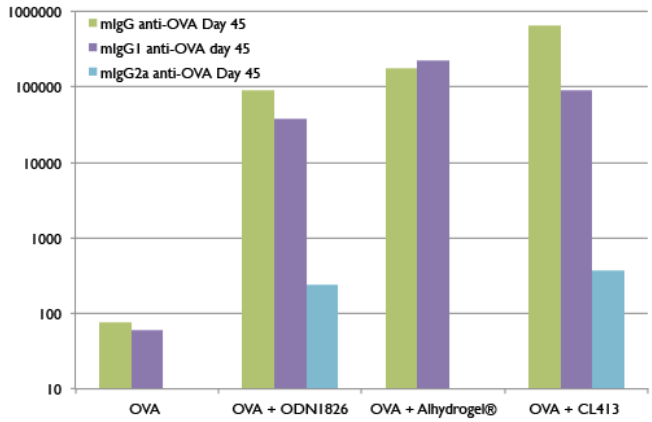


Figure 2. Anti-OVA mIgG levels 45 days after the initial immunization in different groups. Mice were immunized s.c at 0, 2 and 3 weeks with 1 µg of EndoFit™ Ovalbumin alone, 1 µg of EndoFit™ Ovalbumin/ODN1826 Vaccigrade™ (10 µg/ml), 1 µg of EndoFit™ Ovalbumin/Alhydrogel® adjuvant 2% (1:1, v/v), or 1 µg of EndoFit™ Ovalbumin/CL413 Vaccigrade™ (20 µg/ml), in a final volume of 100 µl. Serum anti-OVA total mIgG, anti-OVA mIgG1 and anti-OVA mIgG2a were monitored by ELISA (coated with ovalbumin at 10 µg/ml in PBS).

RELATED PRODUCTS

Product	Description	Catalog Code
AddaVax™	Squalene-Oil-in-water	vac-adx-10
Alhydrogel® adjuvant 2%	Aluminium hydroxide gel	vac-alu-250
CL429 VacciGrade™	TLR2 & NOD2 agonist	vac-c429
Flagellin FliC VacciGrade™	TLR5 agonist	vac-fla
Gardiquimod VacciGrade™	TLR7 agonist	vac-gdq
IFA	Incomplete Freund's adjuvant	vac-ifa-10
Imiquimod VacciGrade™	TLR7 agonist	vac-imq
MPLA VacciGrade™	TLR4 agonist	vac-mpla
MPLAs (synthetic) VacciGrade™	TLR4 agonist	vac-mpls
N-glycolyl-MDP VacciGrade™	NOD2 agonist	vac-gmdp
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
ODN 2395 VacciGrade™	Human/murine TLR9 agonist	vac-2395-1
Pam3CSK4 VacciGrade™	TLR2 agonist	vac-pms
Poly(I:C) VacciGrade™	TLR3 agonist	vac-pic
Quil-A® adjuvant	Saponin vaccine adjuvant	vac-quil
R848 VacciGrade™	TLR7/8 agonist	vac-r848
TDB VacciGrade™	Mincle agonist	vac-tdb
OVA Antigens		
EndoFit™ Ovalbumin	For *in vivo* 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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E-mail: info@invivogen.com