

ODN 1585 VacciGrade™

CpG ODN, type A (mouse); TLR9-based adjuvant

Catalog code: vac-1585-1

<https://www.invivogen.com/odn1585-vaccigrade>

For research use only. Not for use in humans.

Version 20A30-MM

PRODUCT INFORMATION

Contents

- 1 mg (155.5 nmol) lyophilized ODN 1585 VacciGrade™
- 10 ml sterile endotoxin-free physiological water (NaCl 0.9%)

ODN 1585 sequence:

5'- ggGGTCAACGTTGAgggggg -3' (20 mer)

Note: Bases in capital letters are phosphodiester and those in lower case are phosphorothioate.

Storage and stability:

- ODN 1585 VacciGrade™ is shipped at room temperature and should be stored at -20°C. Lyophilized product is stable for 1 year when properly stored.

- Upon resuspension, prepare aliquots of ODN 1585 VacciGrade™ and store at -20°C. Resuspended product is stable for 6 months when properly stored. Avoid repeated freeze-thaw cycles

Quality control:

ODN 1585 VacciGrade™ is a preclinical grade preparation of the CpG ODN 1585. It is prepared under strict aseptic conditions and is tested for the presence of endotoxins. ODN 1585 VacciGrade™ is guaranteed sterile and its endotoxin level is <1 EU/mg.

METHODS

Working Concentrations: 20-50 µg/mouse

Preparation of sterile stock solution (2 mg/ml)

- Add 500 µl endotoxin-free physiological water to 1 mg ODN 1585 VacciGrade™ to obtain a solution at 2 mg/ml.

- Mix the solution by pipetting up and down.

DESCRIPTION

Synthetic oligodeoxynucleotides containing unmethylated CpG motifs (CpG ODNs), such as ODN 1585, have been extensively studied as adjuvants¹. These CpG motifs are present at a 20-fold greater frequency in bacterial DNA compared to mammalian DNA². CpG ODNs are recognized by TLR9, which is expressed exclusively on human B cells and plasmacytoid dendritic cells (pDCs), thereby inducing Th1-dominated immune responses³. Pre-clinical studies, conducted in rodents and non-human primates, and human clinical trials have demonstrated that CpG ODNs can significantly improve vaccine-specific antibody responses¹.

Three types of stimulatory CpG ODNs have been identified, types A, B and C, which differ in their immune-stimulatory activities^{4,5}. Furthermore, CpG ODNs activate TLR9 in a species-specific manner⁶. ODN 1585 is a type A CpG ODN specific for mouse TLR9⁷. Type A CpG ODNs are characterized by a phosphodiester central CpG-containing palindromic motif and a phosphorothioate 3' poly-G string. They induce high IFN-α production from plasmacytoid dendritic cells (pDC) but are weak stimulators of TLR9-dependent NF-κB signaling.

ODN 1585 has been tested as an adjuvant in animal models. Research has demonstrated that ODN 1585 provides protective immunity against HPV16-associated-tumors in mice when combined with a peptide vaccine⁸.

1. Steinhagen F. *et al.*, 2011. TLR-based immune adjuvants. *Vaccine* 29(17):3341-55.
2. Hemmi H. *et al.*, 2000. A Toll-like receptor recognizes bacterial DNA. *Nature* 408:740-5.
3. Coffman RL. *et al.*, 2010. Vaccine adjuvants: Putting innate immunity to work. *Immunity* 33(4):492-503.
4. Krug A. *et al.*, 2001. Identification of CpG oligonucleotide sequences with high induction of IFN-α/beta in plasmacytoid dendritic cells. *Eur J Immunol*, 31(7):2154-63.
5. Marshall JD. *et al.*, 2005. Superior activity of the type C class of ISS *in vitro* and *in vivo* across multiple species. *DNA Cell Biol*. 24(2):63-72.
6. Bauer S. *et al.*, 2001. Human TLR9 confers responsiveness to bacterial DNA via species-specific CpG motif recognition. *PNAS*, 98(16):9237-42.
7. Ballas ZK. *et al.*, 2001. Divergent therapeutic and immunologic effects of oligodeoxynucleotides with distinct CpG motifs. *J Immunol*. 167(9):4878-86.
8. Reinis M. *et al.*, 2010. Induction of protective immunity against MHC class I-deficient, HPV16-associated tumours with peptide and dendritic cell-based vaccines. *Int J Oncol*. 36(3):545-51.

RELATED PRODUCTS

Product	Description	Catalog Code
2'3'-cGAMP VacciGrade™	STING agonist	vac-nacga23
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
EndoFit™ Ovalbumin	For <i>in vivo</i> use	vac-pova
ODN 1826 VacciGrade™	Murine TLR9 agonist	vac-1826-1
ODN 2006 VacciGrade™	Human TLR9 agonist	vac-2006-1
Poly(I:C) VacciGrade™	TLR3 agonist	vac-pic

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

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