

ODN 1826 VacciGrade™

CpG ODN, type B (murine); TLR9-based adjuvant

Catalog code: vac-1826-1

<https://www.invivogen.com/odn1826-vaccigrade>

For research use only. Not for use in humans.

Version 20A30-MM

PRODUCT INFORMATION

Contents

- 1 mg (157.1 nmol) lyophilized ODN 1826 VacciGrade™
- 10 ml sterile endotoxin-free physiological water (NaCl 0.9%)

ODN 1826 sequence

5'-tccatgacgttcctgacgtt-3' (20 mer)

Note: Bases are phosphorothioate (nuclease resistant).

Storage and stability

- ODN 1826 VacciGrade™ is shipped at room temperature and should be stored at -20°C for 1 year when properly stored.
- Upon resuspension, prepare aliquots of ODN 1826 VacciGrade™ and store at -20°C. Product is stable for 6 months at -20°C when properly stored. Avoid repeated freeze-thaw cycles.

Quality control

ODN 1826 is VacciGrade™ (preclinical grade). It is prepared under strict aseptic conditions. It is tested for sterility and the presence of endotoxins. ODN 1826 VacciGrade™ is guaranteed sterile and its endotoxin level is <1 EU/mg (measurement by kinetic chromogenic LAL assay).

METHODS

Preparation of sterile stock solution (2 mg/ml)

- Add 500 µl of the endotoxin-free physiological water provided to 1 mg ODN 1826 VacciGrade™ to obtain a solution at 2mg/ml.
- Mix the solution by pipetting up and down.

Working Concentrations: 20-50 µg/mouse

DESCRIPTION

Synthetic oligodeoxynucleotides containing unmethylated CpG motifs (CpG ODNs), such as ODN 1826, 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 responses⁴.

Three types of stimulatory CpG ODNs have been identified, types A, B and C, which differ in their immune-stimulatory activities^{4,5}. Moreover, CpG ODNs activate TLR9 in a species-specific manner⁶. ODN 1826 VacciGrade™ is a type B CpG ODN specific for mouse TLR9. Type B CpG ODNs contain a full phosphorothioate backbone with one or more CpG dinucleotides and can strongly activate B cells⁴.

ODN 1826 has been tested as an adjuvant in numerous animal models^{7,9}. Research in mice demonstrated that ODN 1826 administration can induce the activation of antigen presenting cells⁸ and type I IFN anti-viral activity^{8,9}, indicative of a Th1 immune response.

1. Steinhagen F. *et al.*, 2010. 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-alpha/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. Xiong Z. *et al.*, 2008. Effective CpG immunotherapy of breast carcinoma prevents but fails to eradicate established brain metastasis. *Clin Cancer Res* 14: 5484-93.
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. Ank MB. *et al.*, 2008. An important role for type III interferon (IFN-lambda/IL-28) in TLR-induced antiviral activity. *J Immunol* 180: 2474-85.

RELATED PRODUCTS

Product	Description	Catalog Code
2'3'-cGAMP VacciGrade™	STING agonist	vac-nacga23
Alhydrogel® adjuvant 2%	Al(OH) ₃ gel	vac-alu-250
ODN 1585 VacciGrade™	Murine TLR9 agonist	vac-1585-1
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>.

TECHNICAL SUPPORT

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