

ODN 1018 VacciGrade™

CpG ODN, type B (human/mouse); TLR9-based adjuvant

Catalog code: vac-1018-1

<https://www.invivogen.com/odn1018-vaccigrade>

For research use only. Not for use in humans.

Version 23K28-AK

PRODUCT INFORMATION

Contents

- 1 mg (139.8 nmol) lyophilized ODN 1018 VacciGrade™
- 10 ml sterile endotoxin-free physiological water (NaCl 0.9 %)

ODN 1018 sequence

5'-tgactgtgaacgttcgagatga-3' (22 mer)

Storage and stability

- ODN 1018 VacciGrade™ is shipped at room temperature and should be stored at -20°C.
- Upon resuspension, prepare aliquots of ODN 1018 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 1018 VacciGrade™ is a preclinical grade preparation of the CpG ODN 1018. It is prepared under strict aseptic conditions and is tested for the presence of endotoxins. ODN 1018 VacciGrade™ is guaranteed sterile and its endotoxin level is <1 EU/mg.

PROPERTIES

Description: Murine and human TLR9 agonist

Synonym: 1018 ISS, CpG 1018®

CAS number: 937402-51-2

Polarization of adaptive immune response: Th1 response

Solubility: 2 mg/ml in physiological water

METHODS

Working concentration: 1 ng/ml - 10 µg/ml

Preparation of sterile stock solution (2 mg/ml)

- Add 500 µl of the endotoxin-free physiological water provided to 1 mg ODN 1018 VacciGrade™ to obtain a solution at 2 mg/ml.
- Mix the solution by pipetting up and down.

DESCRIPTION

ODN 1018 VacciGrade™ (CpG 1018®, 1018 ISS) is a synthetic immunostimulatory oligonucleotide (ODN) that contains unmethylated CpG dinucleotides. It is a class B CpG ODN and a ligand of the human and murine Toll-like receptor 9 (TLR9). ODN 1018 has been described to increase antibody concentrations and stimulate CD4⁺ Th1 cell populations¹.

Interestingly, ODN 1018 VacciGrade™ successfully activates the murine (m)TLR9, but not the human (h)TLR9 in HEK-derived cells. In monocytic THP1-Dual™ hTLR9 cells, however, it shows a strong hTLR9-mediated NF-κB and IRF induction (see validation data sheet).

CpG 1018® is a registered trademark of Dynavax Technologies.

BACKGROUND

ODN 1018 mimics bacterial single-stranded (ss) DNA to activate innate immunity through binding to TLR9¹. This important the pattern recognition receptor is expressed on human B cells and plasmacytoid dendritic cells (pDCs), thereby inducing Th1-dominated immune responses².

The GMP-produced CpG 1018® is currently the only CpG adjuvant component of several FDA-approved vaccines, including the licensed hepatitis B virus vaccine HEPLISAV-B®³. Various pre-clinical and clinical trials are ongoing using ODN 1018 either alone or together with alum in vaccines against infectious diseases (e.g. SARS-CoV-2) or cancer⁴.

RELATED PRODUCTS

Product	Cat. Code
HEK-Blue™ hTLR9 Cells	hkb-htlr9
HEK-Blue™ mTLR9 Cells	hkb-mtlr9
THP1-Dual™ hTLR9 Cells	thpd-htlr9
EndoFit Ovalbumin	vac-pova
Alhydrogel® adjuvant 2%	vac-alu-250

1. Campbell JD, 2017. Development of the CpG Adjuvant 1018: A Case Study. Methods Mol Biol. 1494:15-27. 2. Coffman RL, et al., 2010. Vaccine adjuvants: Putting innate immunity to work. Immunity 33(4):492-503. 3. Strohmeier S, et al., 2022. A CpG 1018 adjuvanted neuraminidase vaccine provides robust protection from influenza virus challenge in mice. NPJ Vaccines. 2022 Jul 22;7(1):81. 4. clinicaltrials.gov/search?term=CpG1018.

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

TECHNICAL SUPPORT

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