

CpG-A DNA (ODN 2216) oligo

CpG-A DNA (ODN 2216), Human/Mouse

CATALOG #
AAA77803

PRODUCT SYNONYMS

CpG-A DNA (ODN 2216); Human/Mouse; CpG-A DNA (ODN 2216) oligo

PRODUCT SPECIFICATIONS

Purity/Purification	>95%
Form/Format	Lyophilized purified 20-mer CpG ODN
Endotoxin	<003 EU/mg
Reconstitution	Reconstitute with distilled / deionized water
Preparation and Storage	Store at 4°C. Caution: vial is under vacuum . Lyophilized product should be stored at 4°C. Store stock solution in aliquots at -20°C. Repeated freeze and thaw cycles will cause loss of activity. Under recommended storage conditions, product is stable for one year.

IMAGES

	HC.F	HC.P	IF	FC	FS	IA	IP	W
Reference #					3-4			
Yes					•			
No						•	•	•
N.D.	•	•	•	•				

N.D. = Not Determined; HC = Immune Inhibitory; F = Fucose; HC.P = Fucose; IF = Immune Fluorescence; FC = Flow Cytometry; FS = Functional Studies; IA = Immune Assays; IP = Immune Precipitation; W = Western blot

• FS: CpG-A DNA can be used in biological assays in vitro to activate cells. Furthermore, CpG-A DNA can be used as an immune modulating agent. For in-vivo stimulation, 0.05 to 3 µM can be used. It is recommended that users test the reagent and determine their own optimal concentrations.

Application Data

ADDITIONAL INFORMATION

Related Product Information for CpG-A DNA (ODN 2216) oligo

Product Description: ODN 2216 is a prototype of the class of CpG-A oligodeoxynucleotides (ODN), also known as 'D'-type ODN, and contains a phosphodiester (PO) backbone. It is particularly effective for activating NK cells and inducing IFN-alpha production in plasmacytoid dendritic cell (PDC) precursors. The vertebrate immune system has evolved innate immune defense pattern recognition receptors (PRRs) that detect unmethylated cytosine-phosphate-guanine (CpG) motifs within bacterial DNA. Cellular activation by CpG motifs occurs via the Toll signal pathway. The Toll-like receptor-9 (TLR9, CD289) appears to be a major component of the CpG-DNA receptor, acting by direct binding to CpG-DNA, which triggers the induction of cell signaling pathways including the mitogen activated protein kinase (MAPKs) and NF degree B, leading to stimulation of various cells of the immune system. The human TLR9 is expressed in B cells and PDC. Mice also express TLR9 in the myeloid compartment. Optimal sequences for activating TLR9 vary among species. Synthetic ODN contain CpG-DNA motifs mimicking the immunostimulatory effects of bacterial DNA and can, therefore, be used as immunoprotective agents, vaccine adjuvants and anti-allergic agents. CpG ODN also affects immune tolerance and autoimmunity. Different classes of CpG ODN are characterized each with distinct effects on the immune response: CpG-A ('D'-type), CpG-B ('K'-type), and CpG-C. CpG-A ODN are characterized by poly-G motifs with phosphorothioate (PS) linkages at the 5' and 3' ends (facilitating cellular uptake) and a PO palindromic CpG-containing sequence in the ODN center. CpG-A ODN induces large amounts of IFN-alpha in PDC (unlike CpG-B), resulting in strong activation and IFN-gamma production in NK cells and gamma-delta T cells, but fails to activate B cells. Human monocytes exposed to the cytokine milieu elicited by CpG-A can differentiate into dendritic cells. The prototype sequence of a CpG-A is the 20-mer ODN 2216 that mimics viral infection of PDC and is able to modulate the immune response in both human and mice. It has the following sequence: 5'-ggGGGACGATCGTCgggggG-3'. Lowercase letters represent PS linkage, uppercase letters represent PO linkage 3' of the base and bold letters represent CpG dinucleotides.

References

1. Krieg, A; CpG motifs in bacterial DNA and their immune effects. Annu Rev Immunol 2002, 20: 709
2. Vollmer, J et al; Characterization of three CpG oligodeoxynucleotide classes with distinct immunostimulatory activities. Eur J Immunol 2004, 34: 251
3. Kerkmann, M et al; Activation with CpG-A and CpG-B oligonucleotides reveals two distinct regulatory pathways of type I IFN synthesis in human plasmacytoid dendritic cells. J Immunol 2003, 170: 4465
4. Krug, A et al; CpG-A oligonucleotides induce a monocyte-derived dendritic cell-like phenotype that preferentially activates CD8 T cells. J Immunol 2003, 170: 3468

For Research Use Only. Not for use in diagnostic or therapeutic procedures. Small volumes of product may become entrapped in the seal of the vial during shipment and storage; if necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the cap.

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Online datasheet: <https://stage.aaabiotech.com/oligo/cpg-a-dna-odn-2216/77803>