

CERTIFICATE OF ANALYSIS – TECHNICAL DATA SHEET

Product name	CpG-B DNA, Rat	Expiry date	-
Catalog number	HC4040	Activity	N.A.
Lot number	-	Amount	200 nmol (1416 µg)
Volume	Reconstitute with distilled/de ionized water	Concentration	N.A.
Formulation	Lyophilized purified 22-mer CpG ODN	Purification	N.A.
Host Species	22-mer CpG ODN	Purity	>95%
Endotoxin	<24 EU/mg		
Storage	4°C		

Application notes

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

N.D.= Not Determined; IHC = Immuno histochemistry; F = Frozen sections; P = Paraffin sections; IF = Immuno Fluorescence; FC = Flow Cytometry; FS = Functional Studies; IA = Immuno Assays; IP = Immuno Precipitation; W = Western blot

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

General Information

Description	The rat CpG-B DNA belongs to the class of CpG-B oligodeoxynucleotides (ODN), also known as 'K'-type ODN, with a full phosphorothioate (PS) backbone. It is particularly effective for activating B cells. 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 NFκB, leading to stimulation of various cells of the immune system. The human TLR9 is expressed in B cells and plasmacytoid dendritic cells (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-B ODN are characterized by a full phosphorothioate backbone with one or more CpG motifs without poly -G motifs. CpG-B ODN are weak inducers of IFN-alpha but are very potent Th1 adjuvants and strong B cell response stimulators. CpG-B ODN promote survival, activation, and maturation of both monocyte derived dendritic cells and PDC. This CpG-B is a 22-mer that is able to modulate the immune response in rat. It has the following sequence: 5'-tgactgtgaac ggttc gagatga-3'. Regular letters represent phosphorothioate linkage and bold letters represent CpG dinucleotides.
References	<ol style="list-style-type: none"> 1. Carpentier, A et al; Successful treatment of intracranial gliomas in rat by oligodeoxynucleotides containing CpG motifs. Clin Cancer Res 2000, 6: 2469 2. Krieg, A; CpG motifs in bacterial DNA and their immune effects. Annu Rev Immunol 2002, 20: 709 3. Lavelle, S et al; Investigation into self-assembling microcrystals as an alternative to polysaccharide-based conjugate vaccins. Thesis 2015.
Storage&stability	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.

Precautions

For research use only. Not for use in or on humans or animals or for diagnostics. It is the responsibility of the user to comply with all local/state and federal rules in the use of this product. Hycult Biotech is not responsible for any patent infringements that might result from the use or derivation of this product.

We hereby certify that the above-stated information is correct and that this product has been successfully tested by the Quality Control Department. This product was released for sale according to the existing specifications. This document has been produced electronically and is valid without a signature.

Approved by Manager of QC
Robbert Zwinkels

Date
12/11/2018

Do you have any questions or comments regarding this product? Please contact us via support@hycultbiotech.com.