

**CERTIFICATE OF ANALYSIS – TECHNICAL DATA SHEET**

<b>Product name</b>	TLR9 antagonist, ODN 2088, Mouse		
<b>Catalog number</b>	HC4074-1MG		
<b>Lot number</b>	xxxxxXxxxx-X	<b>Expiry date</b>	MMM YYYY
<b>Volume</b>	Reconstitute with 1 ml distilled/de-ionized water	<b>Activity</b>	N.A.
<b>Formulation</b>	Lyophilized in MilliQ	<b>Amount</b>	1 mg
<b>Host Species</b>	N.A.	<b>Concentration</b>	N.A.
<b>Endotoxin level</b>	< 24 EU/mg	<b>Purification</b>	N.A.
<b>Storage</b>	4°C	<b>Purity</b>	>85%

**Application notes**

	IHC-F	IHC-P	IF	FC	FS	IA	IP	W
Reference #								
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

Dilutions to be used depend on detection system applied. It is recommended that users test the reagent and determine their own optimal dilutions.

**General Information**

<b>Description</b>	TLR9 antagonist HC4074 is an ODN used to inhibit preferably mouse Toll-like receptor 9. ODN HC4075 can be used as control reagent. Toll-like receptors (TLRs) are highly conserved from Drosophila to humans and share structural and functional similarities. TLRs constitute of a family of pattern recognition receptors (PRRs) that mediate cellular responses to a large variety of pathogens (viruses, bacteria, and parasites) by specific recognition of so-called 'pathogen-associated molecular patterns'. Activation of TLRs leads to activation of NFκB-dependent and IFN regulatory factor-dependent signaling pathways. TLRs are differentially expressed among tissues and cell types by various cells of the immune system, such as macrophages and dendritic cells. They recognize and respond to molecules derived from bacterial, viral and fungal pathogens. Whereas most TLRs are expressed on the cell surface, TLR9 is expressed intracellularly within one or more endosomal compartments and recognizes nucleic acids. TLR9 detects a rather subtle difference in the DNA of vertebrates compared with that of pathogens. Vertebrate genomic DNAs have mostly methylated CpG dinucleotides where bacterial and viral DNAs have unmethylated CpG dinucleotides. TLR9 undergoes relocation from endoplasmic reticulum to CpG-ODN-containing endosomes. In these endosomes TLR9 becomes a functional receptor after proteolytic cleavage. TLR9 exists as a preformed homodimer and CpG-ODN binding promotes its conformational change, bringing the cytoplasmic TIR-like domains close to each other. This allows a recruitment of the key adapter protein MyD88 which initiates a signaling cascade. Certain DNA sequences can suppress innate immune activation and have been shown to be effective in e.g. arthritis and SLE. Suppressive synthetic ODNs prevent TLR9 activation by binding to unmethylated CpG DNA. ODN2088 was identified as one of the most potent G-stretched type inhibitor of mouse TLR9.
<b>Sequence</b>	5'- tcc tgg cgg gga agt-3'
<b>Molecular weight</b>	4874 g/mol
<b>Aliases</b>	Toll-like receptor 9, CD289
<b>Gene</b>	Gene name: Tlr9
<b>References</b>	<ol style="list-style-type: none"> <li>1. Ashman, R et al; Sequence requirements for oligodeoxyribonucleotide inhibitory activity. Int Immunology 2005, 17:411</li> <li>2. Lenert, P; Classification, Mechanisms of Action, and Therapeutic Applications of Inhibitory Oligonucleotides for Toll-Like Receptors (TLR) 7 and 9. Med of Inflamm 2010</li> </ol>
<b>Storage&amp;stability</b>	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.

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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  
Brenda Teunissen

Date  
10/10/2024

Do you have any questions or comments regarding this product? Please contact us via [support@hycultbiotech.com](mailto:support@hycultbiotech.com).