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Datasheet for KNA-200

ModDetect® 2'-O-Methoxyethyl (2'MOE) Panel

Overview

Description:	ModDetect® 2'-O-Methoxyethyl (2'MOE) Panel - KNA-200
Item No.:	KNA-200
Size:	1 Set
Applications:	ELISA, IF, Multiplex

Product Details

Synonyms:	2'-O-Methoxyethyl, 2'MOE, ASO, anti-sense oligonucleotide
Detection Kit Type:	Combo Pack

Application Details

Tested Applications:	ELISA, IF, Multiplex
Application Note:	The set includes five unlabeled ModDetect® 2'-O-Methoxyethyl (2'MOE) detection reagents [clone MOE1 (200-301-NF0S), clone MOE3 (200-301-NF1S), clone MOE4 (200-301-NF2S), clone MOE9 (200-301-NF3S), and clone MOEC (200-301-NF4S)] each supplied as a 25 µL aliquot at approximately 1.0 mg/mL, curated by binding characteristics, and three rabbit Anti-Mouse IgG reporter molecules labeled with peroxidase (610-403-C46S), 488 λ fluorophore (610-441-C46), and 649 λ fluorophore (610-443-C46) each supplied as 100µg. The different binding characteristics create opportunities to generate highly optimized immunoassays independent of oligonucleotide sequence, as opposed to spending significant efforts to optimize assays to underperforming reagents. Designed for use in various immunoassays, such as ELISA, IF, and IHC. NOTE: Panel detection reagents components are provided in a 0.02 M Potassium Phosphate, 0.15 M Sodium Chloride buffer, pH 7.2. This buffer contains 0.01 % Sodium Azide as a preservative and 10 mg/mL carrier protein as a stabilizing reagent.
Assay Dilutions:	All assays should be optimized by the user. Recommended dilutions (if any) may be listed below.
ELISA:	User Optimized
IF:	User Optimized

IHC:	User Optimized

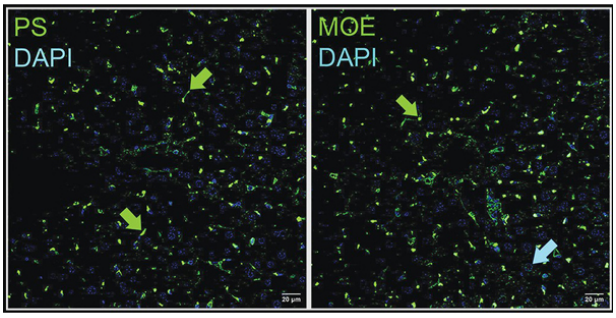
Formulation

Physical State:	Liquid and Lyophilized

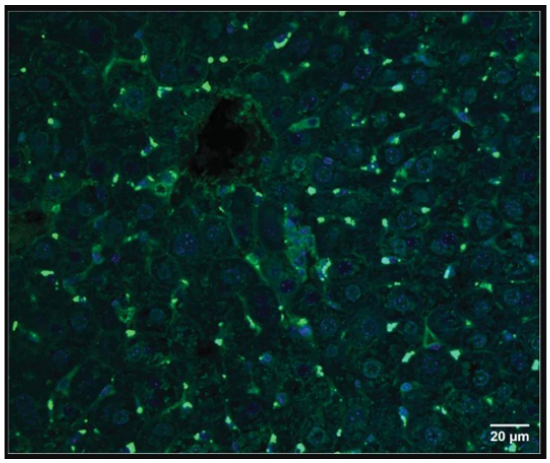
Shipping & Handling

Shipping Condition:	Dry Ice
Storage Condition:	Please see product page for complete product description. Store five 2'-O-Methoxyethyl vials at -20°C or below prior to opening. Store the vial at -20°C or below after dilution. Avoid cycles of freezing and thawing. Store three reporter molecule vials at 4°C or -20°C prior to restoration. For extended storage aliquot contents and freeze at -20°C or below. Avoid cycles of freezing and thawing. Centrifuge product if not completely clear after standing at room temperature. This product is stable for several weeks at 4°C as an undiluted liquid. Dilute only prior to immediate use.
Expiration:	Expiration date is one (1) year from date of receipt.

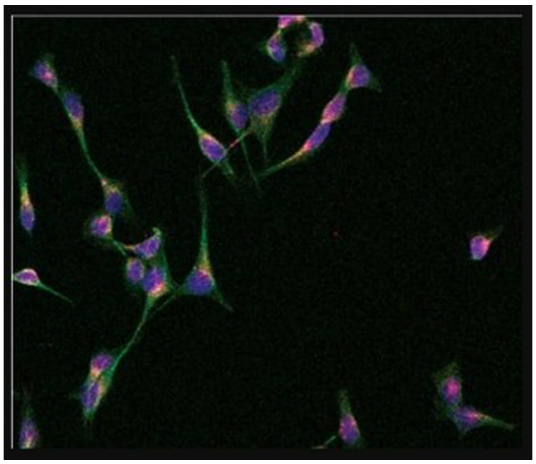
Images



Immunofluorescence Microscopy
Immunohistochemistry of a systemically delivered ASO in mice.
A 2′-MOE modified gapmer with PS bonds (MOE/PS) was delivered subcutaneously to mice and fixed liver tissue immunostained with ModDetect® anti-PS clone PS03 (p/n 200-301-MU9) or anti-MOE clone MOE4 (p/n 200-301-NF2) antibodies independently as indicated. Representative positive immunostaining (green arrows) indicates accumulation of the ASO in nonparenchymal cells surrounding hepatocytes (blue arrows indicate example large hepatic nuclei, DAPI). Images taken by confocal microscopy at 20x. Scale bars as indicated. FIG. 5A.
PMID: 40685980.



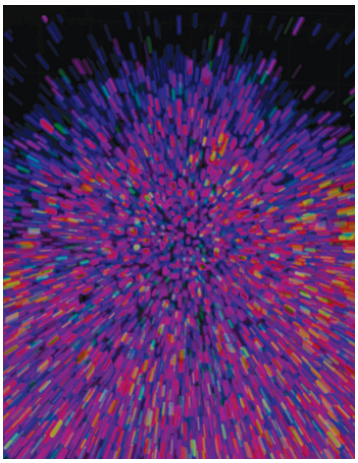
Immunofluorescence Microscopy
Biodistribution of ASO.
ModDetect® Anti-MOE antibody clone MOE4 [p/n 200-301-NF2] detection of a 2'-MOE modified ASO 20-mer (5-10-5 gapmer containing ten MOE/PS bonds) delivered subcutaneously to mice (50 mg/kg, 72h). Liver tissue was immunostained with anti-MOE antibody (green) diluted 1:1,000 (overnight) and counterstained with DAPI (blue). Representative positive immunostaining indicates accumulation of the ASO in nonparenchymal cells surrounding hepatocytes (arrows). PBS treated mice (negative control) showed no reaction (data not shown). Scale bar is indicated.



Immunofluorescence Microscopy
Colocalization of Cy5-conjugated PS-MOE ASO with ModDetect® Anti-MOE antibody.
HeLa cells were cultured and treated with 1 µM PS-MOE-modified ASO conjugated to the fluorochrome Cy5 by gymnotic uptake. After fixation with paraformaldehyde, cells were stained with DAPI (blue), anti-alpha tubulin (green), and ModDetect® anti-MOE antibody clone MOE-C (red) [p/n 200-301-NF4]. The fluorescence from Cy5-conjugated ASO (magenta) is shown to colocalize with anti-MOE antibody staining in the merged image.



Kit Box
This ModDetect® 2'-O-Methoxyethyl (2'MOE) Panel includes the following components: five unlabeled ModDetect® 2'-O-Methoxyethyl detection reagents, MOE1, MOE3, MOE4, MOE9, MOEC, and three reporter molecules labeled with peroxidase, 488 λ fluorophore and 649 λ fluorophore.



Immunocytochemistry
Immunocytochemistry using ModDetect®. This image, featured on the cover of OTS Nucleic Acid Therapeutics, Vol. 35, No. 4, August 2025, features a three-dimensional reconstruction with pseudo-color rendering of a spheroid culture with staining for cell nuclei and immunocytochemistry using antibodies to detect endosomes and the phosphorothioate (PS) modification of an antisense oligonucleotide. These cultures were used as part of a benchmarking study in cells and tissue to assess the ModDetect series of antibodies raised against PS and 2'-MOE.
Image provided by Peter Oliver of the Medical Research Council Nucleic Acid Therapy Accelerator, Research Complex at Harwell, Didcot, UK.

References

- Chimento DP et al. Bioanalytical Assays for Oligonucleotide Therapeutics: Adding Antibody-Based Immunoassays to the Toolbox as an Orthogonal Approach to LC-MS/MS and Ligand Binding Assays. *Nucleic Acid Ther.* (2025)
- Fial I et al. Characterizing Antibodies Targeting Antisense Oligonucleotide Phosphorothioate and 2'- O-Methoxyethyl Modifications for Intracellular Trafficking and Biodistribution Studies. *Nucleic Acid Ther.* (2025)
- Kashyap D et al. Harnessing BET-Bromodomain Assisted Nuclear Import for Targeted Subcellular Localization and Enhanced Efficacy of Antisense Oligonucleotides. *J Am Chem Soc.* (2025)

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