

**Datasheet for 200-301-NF7****ModDetect® 2'-O-Methyl (2'OMe) Clone OME03****Overview**

|                      |                                                          |
|----------------------|----------------------------------------------------------|
| <b>Description:</b>  | ModDetect® 2'-O-Methyl (2'OMe) Clone OME03 - 200-301-NF7 |
| <b>Item No.:</b>     | 200-301-NF7                                              |
| <b>Size:</b>         | 100 µg                                                   |
| <b>Applications:</b> | ELISA, IF                                                |
| <b>Host Species:</b> | Mouse                                                    |

**Product Details**

|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Background:</b>   | Current studies focusing on RNA therapeutics use as potential drugs antisense oligonucleotides (ASO), short interfering RNA (siRNA), and micro RNA (miRNA). The choice of oligonucleotide chosen for a specific treatment is dependent on many factors. However, all oligo therapeutics must be modified in some manner, as unmodified nucleotides are difficult to identify and are highly susceptible to degradation by endogenous nucleases. Modifications can be created within the sugar-phosphate backbone (first generation), the ribose sugar (second and third generation), or at multiple locations (third generation). Antibodies to modified oligonucleotides are useful for basic immunoassays including, ELISA, IHC, and IF. In addition, several types of toxicology assays (immunogenicity assays), such as antibody-drug assays (ADA) or other pharmacokinetic (PK) and pharmacodynamic (PD) studies require oligonucleotide antibodies as analytical tools for general research and preclinical trial experiments. Antibodies to an oligonucleotide therapeutic allow researchers to assess cellular uptake, tissue distribution, and can serve as a positive control for immunogenicity studies. |
| <b>Synonyms:</b>     | 2'-O-Methyl, 2'OMe, ASO, anti-sense oligonucleotide, siRNA, RNA therapeutic, gapmer, aptamer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Host Species:</b> | Mouse                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Clonality:</b>    | Monoclonal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Clone ID:</b>     | OME03                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Format:</b>       | IgG2a                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

**Target Details**

|                        |       |
|------------------------|-------|
| <b>Immunogen Type:</b> | Other |
|------------------------|-------|

|                            |                                                                                                                                                                                        |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Immunogen:</b>          | ModDetect® 2'-O-Methyl (2'OMe) Clone OME03 was prepared from cell culture supernatant produced by repeated immunizations with a proprietary oligo sequence.                            |
| <b>Purity/Specificity:</b> | This Protein A purified ModDetect® 2'-O-Methyl (2'OMe) Clone OME03 is directed against 2'OMe modified ribose sugar. This product was Protein A purified from monospecific supernatant. |

## Application Details

|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Tested Applications:</b> | ELISA, IF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Application Note:</b>    | ModDetect® 2'-O-Methyl (2'OMe) Clone OME03 has been validated for use in ELISA and immunofluorescence. In antigen-down or immunometric ELISAs, the ModDetect® 2'-O-Methyl (2'OMe) Clone OME03 preferentially detects 2'OMe modified ribose sugar groups over native deoxyribose or ribose sugars. It is also likely to be functional in IF and IHC assays, however, its sensitivity, specificity, and conditions for optimal use in these assays has not yet been determined. All assays should be optimized by the user. |
| <b>Assay Dilutions:</b>     | All assays should be optimized by the user. Recommended dilutions (if any) may be listed below.                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>ELISA:</b>               | User Optimized                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>IF:</b>                  | 1:100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

## Formulation

|                        |                                                                        |
|------------------------|------------------------------------------------------------------------|
| <b>Physical State:</b> | Liquid (sterile filtered)                                              |
| <b>Concentration:</b>  | 1.0 mg/mL by nanodrop at 205 nm                                        |
| <b>Buffer:</b>         | 0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2             |
| <b>Preservative:</b>   | 0.01% (w/v) Sodium Azide                                               |
| <b>Stabilizer:</b>     | 10 mg/mL Bovine Serum Albumin (BSA) - Immunoglobulin and Protease free |

## Shipping & Handling

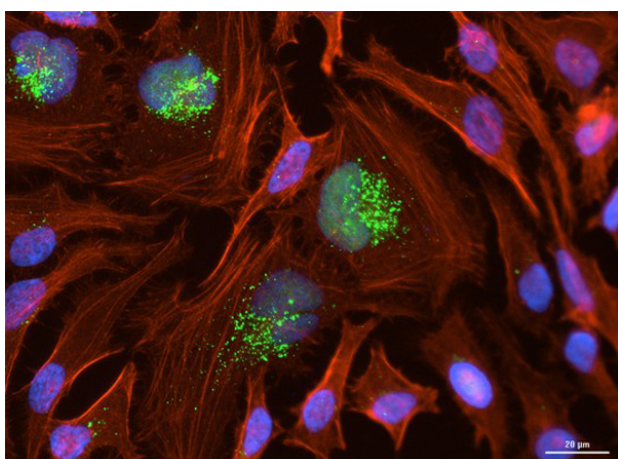
|                            |                                                                                                                                        |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Shipping Condition:</b> | Dry Ice                                                                                                                                |
| <b>Storage Condition:</b>  | Store vial at -20° C or below prior to opening. Store the vial at -20°C or below after dilution. Avoid cycles of freezing and thawing. |
| <b>Expiration:</b>         | Expiration date is one (1) year from date of receipt.                                                                                  |

## Images



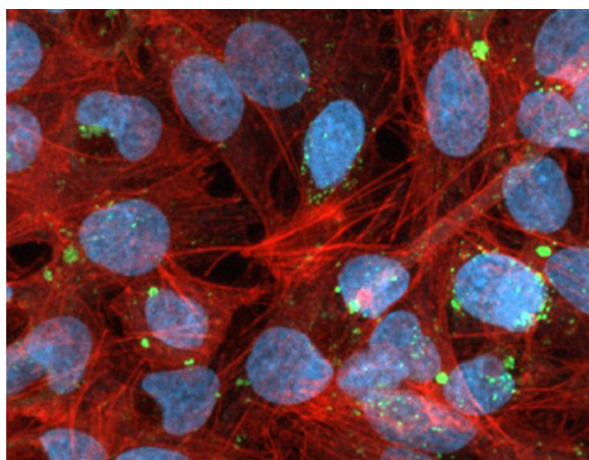
### Vial

ModDetect® 2'-O-Methyl (2'OMe) Clone OME03



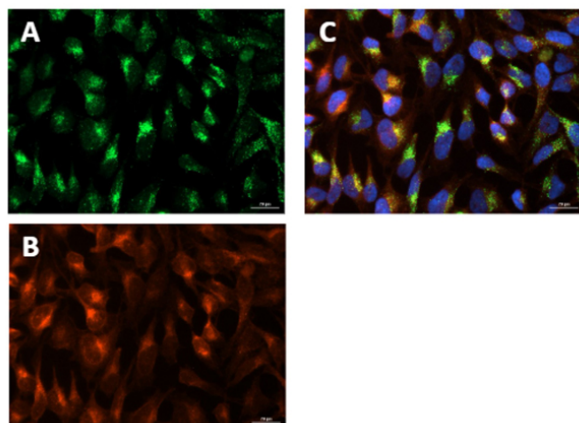
### Immunofluorescence Microscopy

ModDetect® Anti-2'-OMe antibodies enable clear visualization of 2'-O-methyl–modified siRNA within cells, providing spatial insight into intracellular distribution. In HeLa cells, lumasiran siRNA was detected using clone OME03 (p/n 200-301-NF7), with cytoplasmic staining observed in a pattern consistent with endosomal sequestration (green). Co-staining with phalloidin and DAPI provided structural context, confirming cellular localization relative to cytoskeletal (red) features and nuclei (blue). These data support the use of ModDetect® for assessing cellular uptake and intracellular positioning of OMe-modified oligonucleotides. 40X



### Immunofluorescence Microscopy

ModDetect® Anti-2'-OMe antibodies enable visualization of 2'-O-methyl–modified siRNA in physiologically relevant cell models. In Hep G2 cells, lumasiran siRNA was detected using clone OME03 (p/n 200-301-NF7), with punctate staining observed within the cytoplasmic consistent with entrapment (green). Co-staining with phalloidin and DAPI provided structural context, confirming localization relative to the actin cytoskeleton (red) and nuclei (blue). These results demonstrate the utility of ModDetect® for evaluating intracellular distribution of OMe-modified oligonucleotides in human derived liver cancer cells (hepatoblastoma). 20X

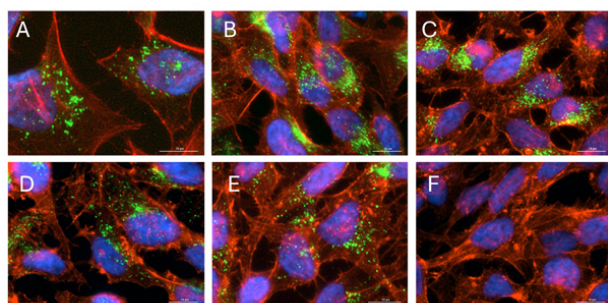


### Immunofluorescence Microscopy

ModDetect® Anti-2'-OMe antibodies enable clear visualization of 2'-O-methyl-modified siRNA within cells, providing spatial insight into intracellular distribution. In HeLa cells, lumasiran siRNA was detected using clone OME03 (p/n 200-301-NF7), with cytoplasmic staining observed in a pattern consistent with endosomal sequestration (green). Co-staining with RAB9A and DAPI provided structural context, confirming cellular localization relative to late endosomes (red) and nuclei (blue). Sequential secondary antibody staining using Goat anti-Mouse DyLight™ 488 (p/n 610-141-121) and Goat anti-Rabbit Texas Red™ (p/n 611-1902). This data supports the use of ModDetect® for assessing cellular uptake and intracellular positioning of OMe-modified oligonucleotides. 40X magnification.

### Immunofluorescence Microscopy

Rockland Immunochemicals ModDetect® 2'OMe antibodies detect FDA-approved Lumasiran, an siRNA used to treat Primary Hyperoxaluria type 1 (PH1). Briefly, HeLa cells were transfected with Lumasiran, fixed with 4% formaldehyde, and permeabilized with 0.3% Triton-X 100. After being blocked with 5% Goat Serum (p/n D204-00-0050), cells were incubated overnight at 4 °C with a panel of monoclonal antibodies separately, each reactive to the O-Methyl (OMe) chemical modification used to stabilize the siRNA. Unconjugated primary antibodies were used at dilutions ranging from 1:50 to 1:500 which were subsequently detected using Anti-Mouse-DyLight 488 secondary antibody (p/n610-141-121) for 1-hour at room temperature to identify the intracellular localization of siRNA (green). Cells were then counterstained with Phalloidin for actin to visualize the cytoskeleton (red) and Hoechst for nuclei (blue). Panel images show individual clones as follows (A) OME01(p/n 200-301-NF5), (B) OME02(p/n 200-301-NF6), (C) OME03(p/n 200-301-NF7), (D) OME04(p/n 200-301-NF8), (E) OME05(p/n 200-301-NF9). No staining is observed for siRNA in a negative control (panel F) where HeLa cells were similarly treated with antibodies but not transfected with siRNA. Only clone OME01 shows detection of endogenous O-methylation under certain conditions of staining.



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