



## Certificate of Analysis & Product Specifications

Human Identification, Forensic Casework, Sample Collection  
Trace DNA Extraction, STR Analysis  
DNA Biometrics, Q-PCR

### Single Cell RNA Sequencing: Multi-Seq LMO

#### **Lignoceryl and Palmityl Modified Lipid Modified Oligos**

Lignoceric, Palmitic, Stearic, Cholesterol,  $\alpha$ -tocopherol

For Research Use Only. Not for use in diagnostic procedures for clinical purposes

#### **Lipid Modified Oligos (LMO)**

LMO Lig-Anchor


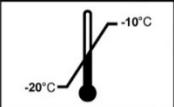



LMO Palm-Co Anchor

## Single Cell RNA Sequencing: Multi-Seq LMO

### Lignoceric and Palmitic Modified Lipid Modified Oligos

#### Product Label Information

	Content	Catalog No.	Description	Size
<b>REF</b>	<input type="checkbox"/>	26-2202-02	LMO Lig-Anchor (Lignoceryl modified oligo)	2 nmols
	<input type="checkbox"/>	26-2202-05	LMO Lig-Anchor (Lignoceryl modified oligo)	5 nmols
	<input type="checkbox"/>	26-2202-10	LMO Lig-Anchor (Lignoceryl modified oligo)	10 nmols
	<input type="checkbox"/>	26-2202-20	LMO Lig-Anchor (Lignoceryl modified oligo)	20 nmols
	<input type="checkbox"/>	26-2204-02	LMO Palm-Co Anchor (Palmityl modified oligo)	2 nmols
	<input type="checkbox"/>	26-2204-05	LMO Palm-Co Anchor (Palmityl modified oligo)	5 nmols
	<input type="checkbox"/>	26-2204-10	LMO Palm-Co Anchor (Palmityl modified oligo)	10 nmols
	<input type="checkbox"/>	26-2204-20	LMO Palm-Co Anchor (Palmityl modified oligo)	20 nmols

		<b>LOT</b>
<b>Research Use Only</b>	<b>Storage</b> Store at -20°C to -10°C	<b>Lot Number</b> Stated on product tube and packing slip
		
<b>Expiry</b> 6 months after reconstitution	<b>Instructions</b> Consult product description	<b>QR Code</b> Visit Gene Link website for product details

#### Certificate of Analysis & Product Specifications

The LMO are synthetic oligonucleotides manufactured by Gene Link, purified, and processed using molecular biology grade water and certified to be DNase and RNase Free. The LMO are of more than 98% purity as determined by 7M urea denaturing polyacrylamide gel electrophoresis.

Appropriate nuclease free handling, dispensing and storage conditions required.

**Manufacturing lot numbers are stated on the label of each product and accompanying packing slip.**

**Storage:** Shipped lyophilized. Store at -20°C after reconstitution.

**Caution:** Use RNase free tubes and reagents for further dilution and use.

## Product Description

MULTI-Seq LMO Lig Anchor and MULTI-Seq LMO Palm Co-Anchor oligos are lignoceryl and palmityl modified oligos as described by McGinnis, C. et al. (1) The synthetic oligos are purified by polyacrylamide gel electrophoresis. The purity and mw is confirmed by mass spec analysis The sequences of these LMO are given below.

Catalog No.	Description
26-2202-XX	LMO Lig-Anchor (Lignoceryl modified oligo)
Sequence:	5'-[5-Lig-C24] GTAACGATCCAGCTGTCACTTGGAAATCTCGGGTGCCAAGG-3'
26-2204-XX	LMO Palm-Co Anchor (Palmityl modified oligo)
Sequence:	5'-AGTGACAGCTGGATCGTTAC[3-Pal-C16]-3'

## Product Reconstitution

The recommended reconstitution of stock LMO is at 50 umolar. Please follow the guideline below to reconstitute the supplied lyophilized LMO in sterile water or your preferred buffer.

Catalog No.	Description	Size	Reconstitute in
26-2202-02	LMO Lig-Anchor Lignoceryl modified oligo)	2 nmols	40 µL
26-2202-05	LMO Lig-Anchor Lignoceryl modified oligo)	5 nmols	100 µL
26-2202-10	LMO Lig-Anchor Lignoceryl modified oligo)	10 nmols	200 µL
26-2202-20	LMO Lig-Anchor Lignoceryl modified oligo)	20 nmols	400 µL
26-2204-02	LMO Palm-Co Anchor (Palmityl modified oligo)	2 nmols	40 µL
26-2204-05	LMO Palm-Co Anchor (Palmityl modified oligo)	5 nmols	100 µL
26-2204-10	LMO Palm-Co Anchor (Palmityl modified oligo)	10 nmols	200 µL
26-2204-20	LMO Palm-Co Anchor (Palmityl modified oligo)	20 nmols	400 µL

## Custom Sequence LMO

Gene Link also synthesizes custom sequence LMO. Please see this [link](#) or email us at [support@genelink.com](mailto:support@genelink.com)

Lipid modified oligos (LMO; lignoceric, palmitic, cholesterol etc.); These LMO rapidly and stably incorporate into the plasma membrane of live cells by step-wise assembly. McGinnis, C. et al. (1) adapted LMOs into MULTI-seq: scRNA-seq (single-cell) and snRNA-seq (single-nucleus) sample multiplexing using lipid-tagged indices. MULTI-seq localizes sample barcodes to live cells and nuclei regardless of species or genetic background while preserving cell viability and endogenous gene expression patterns.

**Refer to the paper by McGinnis, C. et al. (1) for use of these LMO oligos and references (2-5) for detailed information on single-cell and single-nucleus RNA sequencing (scRNA-seq and snRNA-seq)**

Gene Link also offers custom conjugation of Lignoceric and Palmityl to other sequences. Contact Gene Link at [support@genelink.com](mailto:support@genelink.com) for custom modified oligos.

## References

1. McGinnis, C. et al. MULTI-seq: sample multiplexing for single-cell RNA sequencing using lipid-tagged indices. *Nat. Methods* **16**, 619-626 (2019).
2. Ramsköld, D. et al. Full-length mRNA-Seq from single cell levels of RNA and individual circulating tumor cells. *Nat. Biotechnol.* **30**, 777–782 (2012).
3. Hashimshony, T., Wagner, F., Sher, N. & Yanai, I. CEL-Seq: single-cell RNA-Seq by multiplexed linear amplification. *Cell Rep.* **2**, 666–673 (2012).
4. Gierahn, T. M. et al. Seq-Well: portable, low-cost RNA sequencing of single cells at high throughput. *Nat. Methods* **14**, 395–398 (2017).
5. Cao, J. et al. Comprehensive single-cell transcriptional profiling of a multicellular organism. *Science* **357**, 661–667 (2017).

## Ordering Information

Product	Catalog No.	Size
LMO Lig-Anchor (Lignoceryl modified oligo)	26-2202-02	2 nmols
LMO Lig-Anchor (Lignoceryl modified oligo)	26-2202-05	5 nmols
LMO Lig-Anchor (Lignoceryl modified oligo)	26-2202-10	10 nmols
LMO Lig-Anchor (Lignoceryl modified oligo)	26-2202-20	20 nmols
LMO Palm-Co Anchor (Palmityl modified oligo)	26-2204-02	2 nmols
LMO Palm-Co Anchor (Palmityl modified oligo)	26-2204-05	5 nmols
LMO Palm-Co Anchor (Palmityl modified oligo)	26-2204-10	10 nmols
LMO Palm-Co Anchor (Palmityl modified oligo)	26-2204-20	20 nmols

## Related Products Ordering Information

Product	Catalog No.	Size
TCEP 0.5M solution; 100 µL	40-5116-01	100 µL
TCEP 0.5M solution ; 1mL	40-5116-10	1 mL
RNase A solution, DNase Free. 2 mg/ml;; 1 mL	40-5101-10	2 mg
RNase A solution, DNase Free. 10 mg/ml; 1 mL	40-5101-01	10 mg
DNase I, RNase-free; 2u/µl	40-5111-05	500 units
Proteinase K; 10 mg/ml	40-5203-02	200 µL
Lytic Enzyme; 4000 units/ml	40-5205-02	200 µL
Glycogen Solution; 10 mg/ml	40-5112-02	200 µL

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