# Product Specifications & Manual

Custom Oligo Synthesis, antisense oligos, RNA oligos, chimeric oligos,
Fluorescent dye labeled oligos, Molecular Beacons, siRNA, phosphonates
Affinity Ligands, 2'-5' linked Oligos


## Random Primers Biotin & Digoxigenin Labeled

### Random Primers Affinity Ligand Labeled

Storage Condition: See Material Supplied List

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

## Material Supplied

| | |
|---|---|
| **Quantity** | **25 µg** |
| **Shipping Condition** | **Ambient** |
| **Storage** | **-20°C** |

| Content | Catalog No. | Product Description | MW | nmol/25 µg |
|---|---|---|---|---|
| | | | | |
| ☐ | 26-4001-01 | 5'-Biotin Random Hexamer | 2,229.7 | ~13 |
| ☐ | 26-4001-02 | 5'-Biotin Random Heptamer | 2,538.7 | ~12 |
| ☐ | 26-4001-03 | 5'-Biotin Random Octamer | 2,847.6 | ~10 |
| ☐ | 26-4001-04 | 5'-Biotin Random Nonamer | 3,156.5 | ~9 |
| | | | | |
| ☐ | 26-4000-81 | 5'-Digoxigenin Random Hexamer | 2,432.9 | ~13 |
| ☐ | 26-4000-82 | 5'-Digoxigenin Random Heptamer | 2,741.9 | ~12 |
| ☐ | 26-4000-83 | 5' Digoxigenin Random Octamer | 3,050.9 | ~10 |
| ☐ | 26-4000-84 | 5' Digoxigenin Random Nonamer | 3,359.8 | ~9 |
| | | | | |

## Certificate of Analysis & Product Specifications

All random primers are manufactured at Gene Link with the appropriate hapten and or ligand and then purified. These are qualified to be used for random priming labelling reactions and for streptavidin based detection using horseradish peroxidase (HRP) or alkaline phosphatase (AP) using chromogenic or chemiluminescent substrates. Appropriate nuclease free handling, dispensing and storage conditions required.

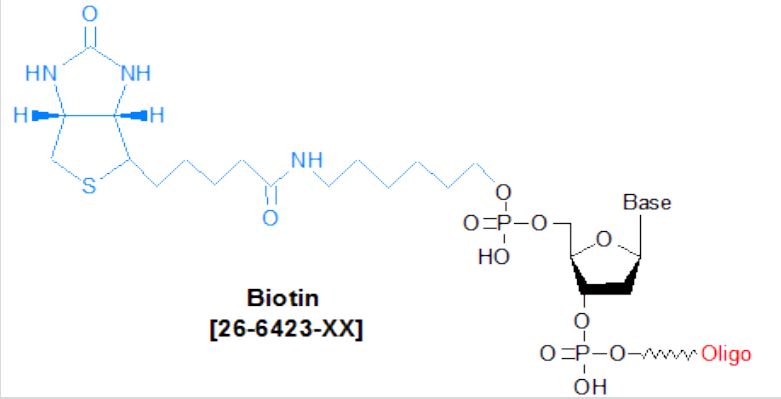
**Lot Number:**
Manufacturing lot number is stated on the label of product and accompanying packing slip.

## Description

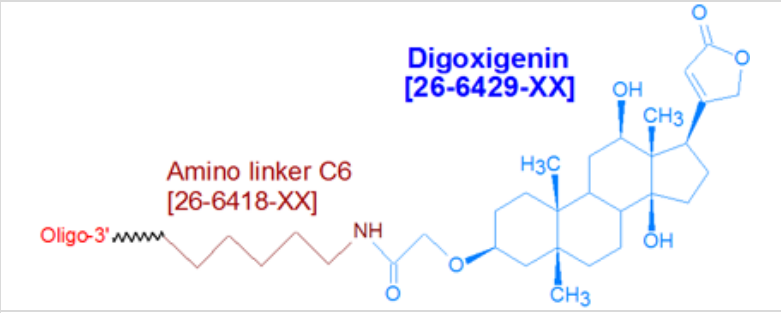
Random Primers are a mixture of oligonucleotides representing all possible sequence for that size. Random Primers can be used to prime synthesis in oligo-labeling similar to using hexamers (1,2) and cDNA synthesis. Random prime labeling yields high specific activity labeled DNA probe which can be used for all southern, northern and in situ hybridization studies. Random Primers can be also used similar to using hexamers in cDNA synthesis in combination with oligo d(T) to yield more 5' end cDNA sequence.

Recently random primers have been used to detect DNA polymorphism. These polymorphisms, simply detected as DNA segments which amplify from one parent but not the other, are inherited in a Mendelian fashion and can be used to construct genetic maps in a variety of species. The authors suggested that these polymorphisms be called RAPD (pronounced RAPID) makers, after Random Amplified Polymorphic DNA (3).

Biotin and Digoxigenin random primers are qualified to be used for random priming labelling reactions and for streptavidin based detection using horseradish peroxidase (HRP) or alkaline phosphatase (AP) using chromogenic or chemiluminescent substrates.




Biotin labeled Oligo




Digoxigenin labeled Oligo

**Reconstitution**

Recommended reconstitution is at a concentration of 50 µM (50 pmol/ µL) in RNase-free DEPC treated water or 10mM Tris pH 8.0. The stock solution can be further diluted to an appropriate working concentration as required. To prepare a 50 µM solution of primer, use the approximate nmol value of the lyophilized oligo and multiply by 20 to determine the volume of diluent in microliters to add.
Formula:
"Total nmol" x 20 = µL of diluent to add. For an approximate 13 nmol material supplied dissolve in 260 µL for a 50 µM solution.

- Spin the tube briefly to bring down the contents of the tube that may have lodged in the cap during shipment. Pellet may be very small and not visible.
- Add appropriate amount of RNAse free water or 10mM Tris pH 8.0 directly to the tube. Vortex briefly.
- The above solution is 50µM. This is equivalent to 50 pmol/µL.

Fluorescent-labeled probes should be protected from light to avoid photo bleaching.
Store at -20$^{o}$C or below after reconstitution.

**Recommended Usage**
Use 4 µL of the 50 µM solution for 1 µg DNA or RNA as a template in a 20 µL reaction volume.
See reaction conditions for more details.

**Quality Control Data**

This product is certified to prime first strand cDNA reaction using reverse transcriptase and poly $(A)^{+}$ RNA as a template, and probe labeling in random prime labeling reactions using klenow DNA polymerase.

**Functional Assay Conditions**

The conditions given below have been tested to yield first strand cDNA synthesis and is given as an example. Variations and other protocols have been used by other laboratories using this product to yield excellent first strand synthesis. Investigators can substitute their own reaction conditions.

The quality of RNA is very important for the reverse transcription reaction. It is essential to have intact full length RNA as the template material that is free of even trace amounts of RNases and contaminating chemicals. Poor quality RNA template is usually the cause of truncated and incomplete cDNA products.

Add components in the order given below. Reaction volume can be scaled up.

| Component | Volume | Comments |
|---|---|---|
| poly(A)$^+$ RNA in sterile water<br>Quantity ~1.0 µg | up to 10 µL | Use RNAse free reagents and disposables. |
| RNase-free water | variable | Calculate total volume and add appropriate volume of RNase-free water at this stage. |
| 50 µM Random Primer solution | 4 µL | Final concentration is 10 µM (10 pmol/ µL). |
| 50 µM oligo(dT)12-18 primer solution<br>(50 pmol/µL = ~0.5 µg/µL) | 1 µL | Final concentration is 2.5 µM (2.5 pmol/ µL). |
| Heat mixture to 70°C for 10 min, and quick chill on ice. | | |
| 5X first strand buffer<br>[250 mM Tris-HCl (pH 8.3), 375 mM KCl, 15 mM MgCl2] | 4 µL | |
| 0.1 M DTT | 2 µL | |
| dNTPs (5 mM each dNTP) | 2 µL | Final concentration is 0.5 mM of each dNTP. |
| [α-$^{32}$P]dCTP (1 µCi/µL) | 1 µL | Tracer optional. Add only if required. |
| Reverse transcriptase; 200 units | 1- 2 µL | |
| **Total Volume** | **20 µL** | |
| Incubate at 37°C for 1 hour. | | |

**Related Products**

Gene Link stocks various oligo dT primers, oligo dTVN primer, Oligo dT T7 primer, random primers, including an array of fluorescent dye labeled primers for genetic analysis using florescent detecting instruments. The C-12 amino labeled primers are ready to be conjugated to the investigators choice of NHS-activated ligand.

**References**

1. Feinberg, A.P. & Vogelstein, B. (1983) Anal. Biochem. 132:6-13.
2. Feinberg, A.P. & Vogelstein, B. (1984) Anal. Biochem. 137:266-267.
3. Williams J. G., Kubelik A.R., Livak K.J., Rafalski J.A. & Tingey S.V. (1990) Nucleic Acid Res. 18(22):6531-5.

## **Random Primers** Product Ordering Information

| Product Description | Size | Catalog No. |
|---|---|---|
| Random Hexamers | 100ug | 26-4000-03 |
| Random Nonamers | 100ug | 26-4000-06 |
| Random Heptamer Phosphorylated pd(N)7 | 50ug | 26-4000-07 |
| Random Octamer Phosphorylated pd(N)8 | 50ug | 26-4000-08 |
| Random Nonamer Phosphorylated pd(N)9 | 50ug | 26-4000-09 |
| Random Hexamer Phosphorylated pd(N)6 | 50ug | 26-4000-10 |
| Random Heptamer | 100ug | 26-4000-11 |
| Random Octamer | 100ug | 26-4000-12 |
| Random 12mers | 100ug | 26-4000-13 |
| Random 15mer | 100ug | 26-4000-16 |
| Random 24mers | 100ug | 26-4000-14 |
| Random 35mers | 100ug | 26-4000-18 |
| Random 36mers | 100ug | 26-4000-15 |
| Random 60mer | 100ug | 26-4000-17 |
| Random Hexamer 72%GC | 100ug | 26-4001-13 |
| Random Nonamers 72%GC | 100ug | 26-4001-16 |
| Random 36mer 72%GC | 100ug | 26-4001-17 |
| Random 60mer 72%GC | 100ug | 26-4001-18 |
| | | |
| 5'-Dig Random Hexamer | 25ug | 26-4000-81 |
| 5'-Dig Random Heptamer | 25ug | 26-4000-82 |
| 5'-Dig Random Octamer | 25ug | 26-4000-83 |
| 5'-Dig Random Nonamer | 25ug | 26-4000-84 |
| | | |
| 5'-Amino C12 Random Hexamer | 25ug | 26-4000-91 |
| 5'-Amino C12 Random Heptamer | 25ug | 26-4000-92 |
| 5'-Amino C12 Random Octamer | 25ug | 26-4000-93 |
| 5'-Amino C12 Random Nonamer | 25ug | 26-4000-94 |
| | | |
| 5'-Biotin Random Hexamer | 25ug | 26-4001-01 |
| 5'-Biotin Random Heptamer | 25ug | 26-4001-02 |
| 5'-Biotin Random Octamer | 25ug | 26-4001-03 |
| 5'-Biotin Random Nonamer | 25ug | 26-4001-04 |
| | | |

## **Random Primers** Product Ordering Information

| Product Description | Size | Catalog No. |
|---|---|---|
| 5'-Cy3 Random Hexamer | 25ug | 26-4000-21 |
| 5'-Cy3 Random Heptamer | 25ug | 26-4000-22 |
| 5'-Cy3 Random Octamer | 25ug | 26-4000-23 |
| 5'-Cy3 Random Nonamer | 25ug | 26-4000-24 |
| 5'-Cy3 Random 36mer | 25ug | 26-4000-26 |
| 5'-Cy3 Random 60mer | 25ug | 26-4000-25 |
| | | |
| 5'-Cy3 Random Hexamers 72%GC | 25ug | 26-4001-23 |
| 5'-Cy3 Random Nonamers 72%GC | 25ug | 26-4001-26 |
| 5'-Cy3 Random 36mers 72%GC | 25ug | 26-4001-27 |
| 5'-Cy3 Random 60mers 72%GC | 25ug | 26-4001-28 |
| | | |
| 5'-Cy5 Random Hexamer | 25ug | 26-4000-31 |
| 5'-Cy5 Random Heptamer | 25ug | 26-4000-32 |
| 5'-Cy5 Random Octamer | 25ug | 26-4000-33 |
| 5'-Cy5 Random Nonamer | 25ug | 26-4000-34 |
| 5'-Cy5 Random 36mer | 25ug | 26-4000-36 |
| 5'-Cy5 Random 60mer | 25ug | 26-4000-35 |
| | | |
| 5'-Cy5 Random Hexamers 72%GC | 25ug | 26-4001-33 |
| 5'-Cy5 Random Nonamers 72%GC | 25ug | 26-4001-36 |
| 5'-Cy5 Random 36mers 72%GC | 25ug | 26-4001-37 |
| 5'-Cy5 Random 60mers 72%GC | 25ug | 26-4001-38 |
| | | |
| 5'-HEX Random Hexamer | 25ug | 26-4000-41 |
| 5'-HEX Random Heptamer | 25ug | 26-4000-42 |
| 5’-HEX Random Octamer | 25ug | 26-4000-43 |
| 5’-HEX Random Nonamer | 25ug | 26-4000-44 |
| | | |
| 5’-FAM Random Hexamer | 25ug | 26-4000-51 |
| 5’-FAM Random Heptamer | 25ug | 26-4000-52 |
| 5’-FAM Random Octamer | 25ug | 26-4000-53 |
| 5’-FAM Random Nonamer | 25ug | 26-4000-54 |
| | | |
| 5’-TET Random Hexamer | 25ug | 26-4000-61 |
| 5’-TET Random Heptamer | 25ug | 26-4000-62 |
| 5'-TET Random Octamer | 25ug | 26-4000-63 |
| 5'-TET Random Nonamer | 25ug | 26-4000-64 |
| | | |
| 5’-Fl Random Hexamer | 25ug | 26-4000-71 |
| 5’-Fl Random Heptamer | 25ug | 26-4000-72 |
| 5’-Fl Random Octamer | 25ug | 26-4000-73 |
| 5’-Fl Random Nonamer | 25ug | 26-4000-74 |

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