



## Product Specification

Random Primers Unlabeled; Equimolar and GC rich (72%) Random Primers

### Random Primers Unlabeled

**For research use only.** Not for use in diagnostic procedures for clinical purposes. Commercial licenses may be obtained directly from Gene Link.

**Quantity** 100 µg  
**Shipping Condition** Ambient  
**Storage** -20°C

Item	Lot No.	Catalog No.	Product Description	nmol/100 µg	MW*
Equimolar Random Primers					
'N' denotes equimolar concentration of bases; approximately 25% of A, C, G and T					
<input type="checkbox"/>		26-4000-03	Random Hexamers ; d(N)6	~54	1791.70
<input type="checkbox"/>		26-4000-11	Random Heptamers; d(N)7	~46	2100.65
<input type="checkbox"/>		26-4000-12	Random Octamers; d(N)8	~40	2409.60
<input type="checkbox"/>		26-4000-06	Random Nonamers; d(N)9	~36	2718.55
<input type="checkbox"/>		26-4000-13	Random 12 mers; d(N)12	~27	3645.40
<input type="checkbox"/>		26-4000-16	Random 15 mers; d(N)15	~22	4572.25
<input type="checkbox"/>		26-4000-14	Random 24 mers; d(N)24	~13	7352.80
<input type="checkbox"/>		26-4000-15	Random 36 mers; d(N)36	~9	11060.20
<input type="checkbox"/>		26-4000-17	Random 60 mers; d(N)60	~5.6	18475.60
GC Rich Random Primers; 72% GC					
'N' denotes the following concentration of bases; 36% G, 36% C, 14% A and 14% T					
<input type="checkbox"/>		26-4001-13	Random Hexamers 72% GC	~54	1791.70
<input type="checkbox"/>		26-4001-16	Random Nonamers 72% GC	~36	2718.55
<input type="checkbox"/>		26-4001-17	Random 36mers 72% GC	~9	11060.20
<input type="checkbox"/>		26-4001-18	Random 60mers 72% GC	~5.6	18475.60
*An average molecular weight is reported					

#### 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).

#### 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  $\mu\text{M}$  solution of primer, use the "nmol/100  $\mu\text{g}$ " value of the lyophilized oligo and multiply by 20 to determine the volume of diluent in microliters to add.

Formula:

"Total nmol"  $\times$  20 =  $\mu\text{l}$  of diluent to add.

- 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 50 $\mu\text{M}$ . This is equivalent to 50 pmol/ $\mu\text{l}$ .

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

### Recommended Usage

Use 4  $\mu\text{l}$  of the 50  $\mu\text{M}$  solution for 1  $\mu\text{g}$  DNA or RNA as a template in a 20  $\mu\text{l}$  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)<sup>+</sup> 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) <sup>+</sup> RNA in sterile water Quantity ~1.0 $\mu\text{g}$	up to 10 $\mu\text{l}$	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 $\mu\text{M}$ Random Primer solution	4 $\mu\text{l}$	Final concentration is 10 $\mu\text{M}$ (10 pmol/ $\mu\text{l}$ ).
50 $\mu\text{M}$ oligo(dT)12-18 primer solution (50 pmol/ $\mu\text{l}$ = ~0.5 $\mu\text{g}/\mu\text{l}$ )	1 $\mu\text{l}$	Final concentration is 2.5 $\mu\text{M}$ (2.5 pmol/ $\mu\text{l}$ ).
Heat mixture to $70^{\circ}\text{C}$ for 10 min, and quick chill on ice.		
5X first strand buffer [250 mM Tris-HCl (pH 8.3), 375 mM KCl, 15 mM MgCl <sub>2</sub> ]	4 $\mu\text{l}$	
0.1 M DTT	2 $\mu\text{l}$	
dNTPs (5 mM each dNTP)	2 $\mu\text{l}$	Final concentration is 0.5 mM of each dNTP.
[ $\alpha$ - <sup>32</sup> P]dCTP (1 $\mu\text{Ci}/\mu\text{l}$ )	1 $\mu\text{l}$	Tracer optional. Add only if required.
Reverse transcriptase; 200 units	1- 2 $\mu\text{l}$	
<b>Total Volume</b>	<b>20 <math>\mu\text{l}</math></b>	

Incubate at  $37^{\circ}\text{C}$  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.	Price, \$
Random Hexamers	100ug	26-4000-03	\$45.00
Random Nonamers	100ug	26-4000-06	\$45.00
Random Heptamer Phosphorylated pd(N)7	50ug	26-4000-07	\$100.00
Random Octamer Phosphorylated pd(N)8	50ug	26-4000-08	\$100.00
Random Nonamer Phosphorylated pd(N)9	50ug	26-4000-09	\$100.00
Random Hexamer Phosphorylated pd(N)6	50ug	26-4000-10	\$100.00
Random Heptamer	100ug	26-4000-11	\$45.00
Random Octamer	100ug	26-4000-12	\$45.00
Random 12mers	100ug	26-4000-13	\$50.00
Random 15mer	100ug	26-4000-16	\$50.00
Random 24mers	100ug	26-4000-14	\$50.00
Random 36mers	100ug	26-4000-15	\$50.00
Random 60mer	100ug	26-4000-17	\$75.00
Random Hexamer 72%GC	100ug	26-4001-13	\$80.00
Random Nonamers 72%GC	100ug	26-4001-16	\$80.00
Random 36mer 72%GC	100ug	26-4001-17	\$100.00
Random 60mer 72%GC	100ug	26-4001-18	\$120.00
5'-Dig Random Hexamer	25ug	26-4000-81	\$200.00
5'-Dig Random Heptamer	25ug	26-4000-82	\$200.00
5'-Dig Random Octamer	25ug	26-4000-83	\$200.00
5'-Dig Random Nonamer	25ug	26-4000-84	\$200.00
5'-Amino C12 Random Hexamer	25ug	26-4000-91	\$150.00
5'-Amino C12 Random Heptamer	25ug	26-4000-92	\$150.00
5'-Amino C12 Random Octamer	25ug	26-4000-93	\$150.00
5'-Amino C12 Random Nonamer	25ug	26-4000-94	\$150.00
5'-Biotin Random Hexamer	25ug	26-4001-01	\$150.00
5'-Biotin Random Heptamer	25ug	26-4001-02	\$150.00
5'-Biotin Random Octamer	25ug	26-4001-03	\$150.00
5'-Biotin Random Nonamer	25ug	26-4001-04	\$150.00

## Random Primers Product Ordering Information

Product Description	Size	Catalog No.	Price, \$
5'-Cy3 Random Hexamer	25ug	26-4000-21	\$150.00
5'-Cy3 Random Heptamer	25ug	26-4000-22	\$150.00
5'-Cy3 Random Octamer	25ug	26-4000-23	\$150.00
5'-Cy3 Random Nonamer	25ug	26-4000-24	\$150.00
5'-Cy3 Random 36mer	25ug	26-4000-26	\$180.00
5'-Cy3 Random 60mer	25ug	26-4000-25	\$225.00
5'-Cy3 Random Hexamers 72%GC	25ug	26-4001-23	\$225.00
5'-Cy3 Random Nonamers 72%GC	25ug	26-4001-26	\$225.00
5'-Cy3 Random 36mers 72%GC	25ug	26-4001-27	\$250.00
5'-Cy3 Random 60mers 72%GC	25ug	26-4001-28	\$265.00
5'-Cy5 Random Hexamer	25ug	26-4000-31	\$150.00
5'-Cy5 Random Heptamer	25ug	26-4000-32	\$150.00
5'-Cy5 Random Octamer	25ug	26-4000-33	\$150.00
5'-Cy5 Random Nonamer	25ug	26-4000-34	\$150.00
5'-Cy5 Random 36mer	25ug	26-4000-36	\$180.00
5'-Cy5 Random 60mer	25ug	26-4000-35	\$225.00
5'-Cy5 Random Hexamers 72%GC	25ug	26-4001-33	\$225.00
5'-Cy5 Random Nonamers 72%GC	25ug	26-4001-36	\$225.00
5'-Cy5 Random 36mers 72%GC	25ug	26-4001-37	\$250.00
5'-Cy5 Random 60mers 72%GC	25ug	26-4001-38	\$265.00
5'-HEX Random Hexamer	25ug	26-4000-41	\$150.00
5'-HEX Random Heptamer	25ug	26-4000-42	\$150.00
5'-HEX Random Octamer	25ug	26-4000-43	\$150.00
5'-HEX Random Nonamer	25ug	26-4000-44	\$150.00
5'-FAM Random Hexamer	25ug	26-4000-51	\$150.00
5'-FAM Random Heptamer	25ug	26-4000-52	\$150.00
5'-FAM Random Octamer	25ug	26-4000-53	\$150.00
5'-FAM Random Nonamer	25ug	26-4000-54	\$150.00
5'-TET Random Hexamer	25ug	26-4000-61	\$150.00
5'-TET Random Heptamer	25ug	26-4000-62	\$150.00
5'-TET Random Octamer	25ug	26-4000-63	\$150.00
5'-TET Random Nonamer	25ug	26-4000-64	\$150.00
5'-FI Random Hexamer	25ug	26-4000-71	\$150.00
5'-FI Random Heptamer	25ug	26-4000-72	\$150.00
5'-FI Random Octamer	25ug	26-4000-73	\$150.00
5'-FI Random Nonamer	25ug	26-4000-74	\$150.00