

# Oligonucleotide Synthesis

Individual needs, high throughput or bulk quantities, Bioneer has your oligo bases covered.

- **Free Bio-RP purification**
- **Near HPLC purity**
- **100% guaranteed performance for your application, or we'll make it again**

Bioneer, founded in 1992, is one of the world's leading suppliers of synthetic oligonucleotides (DNA and RNA). In-house production of raw materials (phosphoramidites, reagents & solvents) along with automated synthesis and purification systems result in superior quality oligo at great price. Since Bioneer manufactures all the components of our oligo, we manage the quality control every step of the way—ensuring that you receive only the highest quality product. Every Bioneer oligo is purified free of charge utilizing our unique Bio-RP cartridge purification technology (a \$15 value).

Bio-RP removes many impurities and synthesis failure products that are still present in an oligo after desalting\*. These impurities contribute to the OD measurement of competitor that are merely desalted—and artificially inflate their yield (see below). The end result of Bioneer's Bio-RP cartridge purification is near HPLC quality purification with only full-length product. We are so confident in our oligo that we are only company to offer a 100% guarantee that they will work for your PCR or qPCR application!

With high throughput oligo synthesis facilities around the world, Bioneer's daily capacity is unsurpassed. Bioneer is unrivalled in its ability to address the needs of customers requiring a few oligos on a regular basis and those customers that require very large numbers of oligos on a less frequent basis. We respond to your needs—personally.

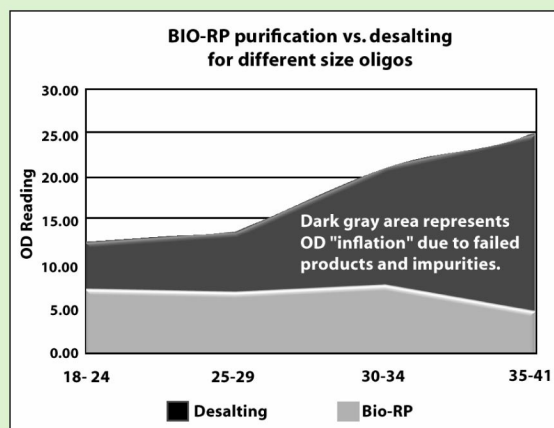
## Did you know?

### Oligo desalting vs Bio-RP™ Purification:

Most oligos sold are merely deprotected/desalted. The process of deprotection/desalting only partially purifies the oligo and leaves behind many impurities and failure products (truncated oligos that will not amplify, and can even interfere with certain applications). These can lead to artificially inflated OD readings that increase with oligo length. Bio-RP purification removes all these contaminants and failure products, resulting in an oligo that is near HPLC purity. The advantage to you is that our product contains only quality oligo without impurities that can inhibit some PCR reactions, and potentially skew qPCR reactions. We have the same amount of active oligo as our competitors: they just have more "other" inflating their OD. To demonstrate this, plates of Oligos of various sizes were tested for concentration in 2 steps: 1) After a deprotection/desalting step only, and 2) after Bio-RP purification. (Fig. 1)

The results of these tests show that the amount of failed sequences and impurities increase with length (as expected), but are not removed by deprotection/desalting alone. This results in inflated OD reading for oligos depending on oligo size. (Table 1)

\*Impurities in desalted oligos may include: Acetonitrile, Pyridine, Iodine, Ethylthio tetrazole, Dichloromethane, Acetic acid, Acrylonitrile, Benzamide and Isobutyramide.



**Fig 1.** Plates of Oligos of various lengths were tested for concentration after desalting and then by Bio-RP cartridge purification. Note inflated OD readings when deprotection/desalting alone is used.

Oligo Size	18 - 24	24 - 29	30 - 34	35 - 41
OD Inflation	38%	45%	60%	77%

**Table 1.** Average OD inflation seen for oligos of various sizes when protection/desalting alone is employed. Note for longer oligos, up to 77% of product does not consist of functional oligo.

## What we offer-personal service! ●●●

Based on volume, modification and scale, Bioneer oligos can be classified as follows:

- **Standard Custom**

Based on volume, modification and scale, Bioneer oligos can be classified as follows:

- **Modified for qPCR and other applications**

Most common modifications are available and can be ordered in tubes or plates.

- **Purified**

All oligos are Bio-RP purified free-of-charge; HPLC and PAGE purification is also available.

- **Extendamers™ (Long oligomers)**

Oligos up to 200 mers can be synthesized with Bio-RP or PAGE purification.

- **Large Scale(Bulk)**

Milligram to tens of grams of oligos, including standard, modified and purified.

- **High Throughput**

Very large numbers of oligos supplied in 96-or 384-well plate format.

- **Stock/Pre-made Primers**

Stock primers pre-made, PAGE purified and available off-the-shelf from Bioneer.

### Tell us what you need

Bioneer's production can accommodate orders ranging from milligrams to tens of grams of the purest DNA and RNA, including both standard and modified. Our list of synthesis services are below, but if you need something else, please ask us!

Synthesis Services		
Type	Scale	Base Limitation
Custom/Standard	25 nmole 50 nmole 200 nmole 1 umole 10 umole 15 umole	25 nmole: 15-60 mer 50 nmole: 10-75 mer 200 nmole: 2-110 mer 1 umole: 5-130 mer 10 umole: 5-50 mer 15 umole: 5-50 mer
High Throughput	25 nmole 50 nmole 200 nmole 1 umole 10 umole 15 umole	

## So many Modifications... ●●●

All common modifications are available including those in the table at right. Our fluorogenic oligonucleotides for qPCR, are unsurpassed in quality, and priced for value. In addition to the modifications listed, we may be able to accommodate custom modifications to fit your needs. Please contact [export1@bioneer.com](mailto:export1@bioneer.com) for more information.

Available Modifications*		
Common		
5'-DIG	3'-DIG	Internal Amine-dT
5'-C6 Amine	3'-C6 Amine	Internal Biotin-dT
5'-Phosphate	3'-Phosphate	Internal FAM-dT
5'-Biotin	3'-Biotin	Internal C3 spacer
5'-Thiol	3'-C3 spacer	Internal C6 spacer
5'-C3 spacer	3'-C6 spacer	Internal C12 spacer
5'-C6 spacer	3'-C12 spacer	Internal 18 atom spacer
5'-C12 spacer	3'-C18 atom spacer	Internal dS spacer
5'-18 atom spacer	3'-dS spacer	Internal Phosphorothioate (per insertion)
5'-dS spacer	3'-FAM	Internal 5-Methyl dC
5'-FAM	3'-TAMRA	Internal Inosine
5'-TAMRA	3'-Thiol	Internal Deoxy Uridine
5'-HEX	3'-Texas Red	Internal 2'-O-Methyl
5'-TET	3'-JOE	Internal 5-Bromo dU
5'-Texas Red	3'-ROX	Internal 8-Oxo-dA
5'-JOE	3'-Cy5	Internal 8-Oxo-dG
5'-ROX	3'-Cy3	Internal Ferrocene-dT
5'-Cy5	3'-DabcyI	Internal 5-hydroxymethyl-dC
5'-Cy3	3'-BHQ1	Internal 5-Hydroxy-dU
5'-IRD700	3'-BHQ2	Internal 5-hydroxymethyl-dU
5'-IRD800	3'-Cholesteryl	Internal 5-F-du
5'-C10 Carboxylic Acid	3'-Inverted dT	Internal Ara-dC
5'-C2 Aldehyde	3'-Inverted dA	Internal 5-F-dU
5'-Cy5.5	3'-Inverted dC	Internal N6-methyl-2'-deoxyadenosine
5'-Cholesteryl	3'-Inverted dG	Internal PC (photo-cleavable) Linker
5'-DabcyI	3'-Ara-dC	Internal DNP (2,4-dinitrophenyl)-TEG
5'-Ara-dC	3'-5-F-dU	Internal Cy3
5'-5-F-dU	3'-2',3'-ddC	Internal Cy5
5'-2',3'-ddA	3'-AlexaFluor 488	Internal Cy3.5
5'-2',3'-ddC	3'-AlexaFluor 532	Internal Cy5.5
5'-2',3'-ddG	3'-AlexaFluor 546	Internal Puromycine
5'-2',3'-ddT	3'-AlexaFluor 594	Internal Yakima Yellow
5'-AlexaFluor 488	3'-AlexaFluor 647	Internal 3'-dA
5'-AlexaFluor 532	3'-AlexaFluor 660	Internal 3'-dC
5'-AlexaFluor 546	3'-AlexaFluor 750	Internal 3'-dG
5'-AlexaFluor 594	3'-N6-methyl-2'-deoxyadenosine	Internal 3'-dT
5'-AlexaFluor 647	3'-DNP (2,4-dinitrophenyl)-TEG	Internal 5'-Nitroindole
5'-AlexaFluor 660	3'-Cy3.5	Internal 2'-F-dA
5'-AlexaFluor 750	3'-Cy5.5	Internal 2'-F-dC
5'-N6-methyl-2'-deoxyadenosine	3'-Puromycine	Internal 2'-F-dG
5'-PC (photo-cleavable) Amine Linker	3'-Yakima Yellow	Internal 2'-F-dT
5'-PC (photo-cleavable) Biotin Linker	3'-dA	Internal 2-Aminopurine
5'-DNP (2,4-dinitrophenyl)-TEG	3'-dC	Internal 2,6-Diaminopurine

## So many Modifications... ●●●

Available Modifications*		
Common		
5'-Cy3.5	3'-dG	Internal Dithiol
5'-3'-dA	3'-dT	Internal EDTA-C2-dT
5'-3'-dC	3'-5-Nitroindole	Internal Thymidine Glycol
5'-3'-dG	3'-2'-F-dA	Internal Zebularine
5'-3'-dT	3'-2'-F-dC	Internal Biotin-TEG
5'-5-Nitroindole	3'-2'-F-dG	Internal HEX-dT
5'-2'-F-dA	3'-2'-F-dT	Internal Methylene Blue
5'-2'-F-dC	3'-Maleimide	Internal Carboxy-dT
5'-2'-F-dG	3'-2-Aminopurine	Internal Tamra-dT
5'-2'-F-dTr	3'-2,6-Diaminopurine	Internal BHQ1-dT
5'-Maleimide	3'-Dithiol	Internal BHQ2-dT
5'-2-Aminopurine	3'-EDTA-C2-dT	Internal Dabcyl-dT
5'-2,6-Diaminopurine	3'-Thymidine Glycol	Internal Deoxypurine (2'-Deoxy Nebu larine)
5'-Dithiol	3'-Zebularine	Internal Azide
5'-BHQ2	3'-Methylene Blue	Internal Trebler Branching
5'-EDTA-C2-dT	3'-AMCA (amino-methyl-coumarin-acetate)	
5'-Thymidine Glycol	3'-PEG-2000	
5'-Zebularine	3'-Azide	
5'-Methylene Blue	3'-Acrylamide (acrydite)	
5'-AMCA (amino-methyl-coumarin-acetate)	3'-BHQ2	
5'-Carboxy-dT	3'-Cholesteryl	
5'-Deoxypurine (2'-DeoxyNebu larine)		
5'-PEG-2000		
5'-BromoHexyl (Br)		
5'-Acridine		
5'-Acrylamide (acrydite)		
5'-Yakima Yellow		
5'-C12-Amine		
Dual Labeled		
5'FAM-3'TAMRA	5'FAM-3'BHQ1	5'FAM-3'BHQ2
5'HEX-3'TAMRA	5'HEX-3'BHQ1	5'HEX-3'BHQ2
5'TET-3'TAMRA	5'TET-3'BHQ1	5'TET-3'BHQ2
5'JOE-3'TAMRA	5'JOE-3'BHQ1	5'JOE-3'BHQ2
5'FAM-3'DABCYL	5'TAMRA-3'BHQ1	5'TAMRA-3'BHQ2
5'HEX-3'DABCYL	5'ROX-3'BHQ1	5'ROX-3'BHQ2
5'TET-3'DABCYL	5'Texas Red-3'BHQ1	5'Texas Red-3'BHQ2
5'TAMRA-3'DABCYL	5'Cy3-3'BHQ1	5'Cy5-3'BHQ2
5'JOE-3'DABCYL		5'Cy3-3'BHQ2
5'FAM-BHQ1-dT-Amine-3'		
5'FAM-Tamra-dT-PO4-3'		
Antisense		
Chimeric RNA Bases	Chimeric RNA Bases (HPLC purified)	2'-O-Me-RNA Bases

## What we offer - Purity above and beyond! ●●●

● **Purification options**

All Oligos synthesized by Bioneer are purified using the Bio-RP purification system. This service is available free of charge on all oligos. We also offer HPLC purification and PAGE purification.

● **Features of Purification options**

Bio-RP(OPC-Oligonucleotide Purification Cartridge)-Free-of-charge on all scales:

- Better than ethanol precipitation or Sephadex G-25 column chromatography.
- Bio-RP not only desalts, but also removes virtually all of the failed products of synthesis.
- Near HPLC quality.

● **HPLC (High Performance Liquid Chromatography) available on all scales, except 25 nmole**

- For applications such as cloning, site-directed mutagenesis, or qPCR.
- RP-HPLC purification for added purity.
- >90% purification efficiency(range varies according to the length of oligos).

● **PAGE (Polyacrylamide Gel Electrophoresis) Available on all scales, except 25 nmole**

- Recommended purification method for long oligos, up to 200 mer.
- >95% purification efficiency.
- Ultra pure oligo, but lower yields than OPC and HPLC.

## What we deliver - Value! ●●●

● **Free MALDI-TOF Quality Control**

Bioneer is one of the few oligo producers that checks all oligonucleotides (single or high throughput orders) by MALDI-TOF and provides mass data with each oligo - free of charge. Oligos greater than 50 bases are also quality checked by gel electrophoresis.

Bioneer's Oligo Synthesis Report accompanies each oligo order. The contents of the Data Sheet include: Oligo Name, OD, total nmole, scale, length, purification, modification(s), GC content, molecular weight, and volume for 100 uM solution.

## Shipping Information and Turnaround Time

We know that time is of the essence and we always do our best to please. In our production process, quality is our first priority, followed very closely by time. We ship as soon as we are able and have 24 hour production.

Turnaround Time	
Service	Description of Service
Standard, non-modified, Bio-RP	Order by 5:00 PM PST (8:00 PM EST) any week day. oligos are shipped lyophilized within 48 hours
Standard, non-modified, HPLC	Order by 5:00 PM PST (8:00 PM EST) any week day. oligos are shipped lyophilized within 48 hours
Standard, non-modified, PAGE	Order by 5:00 PM PST (8:00 PM EST) any week day. oligos are shipped lyophilized within 7 working days or sooner
Standard, modified, Bio-RP	Order by 5:00 PM PST (8:00 PM EST) any week day . oligos are shipped lyophilized within 48 hours*
Standard, modified, HPLC	Order by 5:00 PM PST (8:00 PM EST) any week day. oligos are shipped lyophilized within 3 working days or sooner
Standard, modified, PAGE	Order by 5:00 PM PST (8:00 PM EST) any week day. oligos are shipped lyophilized within 7 working days or sooner
High throughput, large scale	Please contact Customer Care for turnaround time.

## Extendamers, Synthesis and Purification

Product Description	DNA Extender, BIO-RP	DNA Extender, PAGE
Cat. No.	<b>S-2044</b>	<b>S-2045</b>
Length Range	130 - 200 bases	130 - 200 bases
Guaranteed Yield	3-4 nmole	0.25 - 0.3 nmole
Turnaround Time	5 - 6 days	7 - 8 days
Base Price	<b>\$ 0.95</b>	<b>\$ 0.95</b>
Purification Price US\$	<b>Free</b>	<b>\$ 75.00</b>

## Modifications

Product Description	5' Phosphate	5' Biotin	5' Amine	5' Fluorescein	5' TAMRA	Inosine
Price US\$	\$ 25.00	\$ 48.00	\$ 25.00	\$ 67.00	\$ 150.00	\$ 8.00

For additional modifications or pricing on modified oligos in plates, please email [export1@bioneer.com](mailto:export1@bioneer.com).

## Ordering Information

Cat. No.	Synthesis Scale	Base Limitation	Base Price	Bio-RP	PAGE	HPLC
<b>Tube format</b>						
S-1001	25 nmole	15-60 mer	\$ 0.29	Free	-	-
S-1010	50 nmole	10-75 mer	\$ 0.47	Free	\$ 40.00	\$ 40.00
S-1011	200 nmole	5-110 mer	\$ 0.92	Free	\$ 59.00	\$ 59.00
S-1012	1 umole	5-130 mer	\$ 1.75	Free	\$ 100.00	\$ 100.00
S-1013	10 umole	5-50 mer	\$ 14.00	Free	\$ 280.00	\$ 280.00
S-1014	15 umole	5-50 mer	\$ 22.00	Free	\$ 420.00	\$ 420.00
<b>Plate format</b>						
H-1001	25 nmole	15-60 mer	\$ 0.17	Free	-	-
H-1010	50 nmole	10-75 mer	\$ 0.21	Free	\$ 25.00	\$ 20.00
H-1011	200 nmole	5-110 mer	\$ 0.39	Free	\$ 30.00	\$ 25.00
H-1012	1 umole	5-130 mer	\$ 0.94	Free	\$ 50.00	\$ 50.00
H-1013	10 umole	5-50 mer	\$ 7.00	Free	-	-
H-1014	15 umole	5-50 mer	\$ 11.00	Free	-	-

Modification	Synthesis Scale			
	50 nmole (\$)	200 nmole (\$)	1 umole (\$)	10 umole (\$)
<b>5'-Modification</b>				
5' C6 Amine	10.00	25.00	40.00	190.00
5' Phosphate	10.00	25.00	40.00	180.00
5' Biotin	38.00	48.00	95.00	380.00
5' Thiol	70.00	90.00	130.00	690.00
5' C3 spacer	30.00	40.00	65.00	280.00
5' C6 spacer	30.00	40.00	65.00	280.00
5' C12 spacer	30.00	40.00	65.00	280.00
5' 18 atom spacer	47.00	55.00	80.00	320.00
5' dS spacer	47.00	55.00	80.00	320.00
5' FAM	56.00	67.00	142.00	565.00
5' TAMRA	140.00	150.00	250.00	975.00
5' HEX	55.00	66.00	138.00	600.00
5' TET	55.00	66.00	138.00	600.00
5' Texas Red	165.00	185.00	285.00	1,425.00
5' JOE	165.00	185.00	285.00	1,425.00
5' ROX	140.00	150.00	250.00	1,250.00
5' CY5	80.00	100.00	200.00	1,050.00
5' CY3	80.00	100.00	200.00	1,050.00
5' IR700	80.00	100.00	200.00	1,050.00
5' IR800	80.00	100.00	200.00	1,050.00
5'-C10 Carboxylic Acid	56.00	67.00	142.00	565.00
5'-C2 Aldehyde	145.00	155.00	240.00	750.00
5'-Cy5.5	80.00	100.00	200.00	1,050.00
5'-Cholesteryl	80.00	100.00	240.00	1,200.00
5'-DabcyI	145.00	175.00	240.00	1,200.00
5'-Zebularine	65.00	80.00	115.00	Less than 3 (set-up charge: \$ 150.00)
5'-Ara-dC	80.00	100.00	310.00	Less than 3 (set-up charge: \$ 200.00)
5'-F-dU	90.00	110.00	350.00	Less than 3 (set-up charge: \$ 250.00)
2',3'-ddA	65.00	80.00	115.00	Less than 3 (set-up charge: \$ 150.00)
2',3'-ddC	65.00	80.00	115.00	Less than 3 (set-up charge: \$ 150.00)
2',3'-ddG	110.00	135.00	330.00	Less than 3 (set-up charge: \$ 250.00)
2',3'-ddT	65.00	80.00	115.00	Less than 3 (set-up charge: \$ 150.00)
5'-Alexa Fluor 488	180.00	200.00	350.00	1,750.00
5'-Alexa Fluor 532	250.00	275.00	430.00	2,150.00
5'-Alexa Fluor 546	250.00	275.00	430.00	2,150.00
5'-Alexa Fluor 594	288.00	325.00	520.00	2,600.00
5'-Alexa Fluor 647	180.00	200.00	350.00	1,750.00
5'-Alexa Fluor 660	288.00	325.00	520.00	2,600.00
5'-Alexa Fluor 750	288.00	325.00	520.00	2,600.00
5'-N6-methyl-2'-deoxyadenosine	120.00	150.00	220.00	Less than 3 (set-up charge: \$ 150.00)
5'-PC(photo-cleavable) Amino Linker	120.00	150.00	220.00	Less than 3 (set-up charge: \$ 150.00)
5'-PC(photo-cleavable) Biotin Linker	120.00	150.00	220.00	Less than 3 (set-up charge: \$ 250.00)
5'-DNP(2,4-dinitrophenyl)-TEG	125.00	175.00	275.00	Less than 3 (set-up charge: \$ 150.00)
5'-Cy3.5	180.00	250.00	380.00	1,050.00
3'-dA	250.00	275.00	350.00	
3'-dC	250.00	275.00	350.00	
3'-dG	250.00	275.00	350.00	

3'-dT	250.00	275.00	350.00	
5-Nitroindole	125.00	175.00	250.00	450
2'-F-dA	65.00	80.00	115.00	Less than3 (set-up charge: \$ 150.00)
2'-F-dC	65.00	80.00	115.00	Less than3 (set-up charge: \$ 150.00)
2'-F-dG	65.00	80.00	115.00	Less than3 (set-up charge: \$ 150.00)
2'-F-dT	65.00	80.00	115.00	Less than3 (set-up charge: \$ 150.00)
Maleimide	50.00	65.00	95.00	350.00
2-Aminopurine	75.00	90.00	125.00	Less than3 (set-up charge: \$ 150.00)
2,6-Diaminopurine	75.00	90.00	125.00	Less than3 (set-up charge: \$ 150.00)
Dithiol	150.00	175.00	275.00	1,500.00
BHQ2	180.00	220.00	330.00	900.00
EDTA-C2-dT	120.00	150.00	275.00	Less than3 (set-up charge: \$ 250.00)
Thymidine Glycol	150.00	175.00	275.00	Less than3 (set-up charge: \$ 150.00)
5' Methylene Blue	150.00	175.00	275.00	Less than3 (set-up charge: \$ 250.00)
5' AMCA (amino-methyl-coumarin-acetate)	125.00	175.00	275.00	Less than3 (set-up charge: \$ 150.00)
5' Carboxy-dT	150.00	175.00	275.00	Less than3 (set-up charge: \$ 250.00)
5' Deoxypurine (2'-DeoxyNebularine)	75.00	90.00	125.00	Less than3 (set-up charge: \$ 150.00)
5' PEG-2000				
5'-BromoHexyl (Br)	150.00	175.00	275.00	1,500.00
5' Acridine	125.00	175.00	275.00	Less than3 (set-up charge: \$ 150.00)
5' Acrylamide (acrydite)	90.00	110.00	350.00	1,250.00
5'-Yakima Yellow	250.00	275.00	350.00	Less than3 (set-up charge: \$ 150.00)
5' C12-Amine	40.00	60.00	100.00	300.00

3'-dT-HEX	55.00	66.00	138.00	600.00
Zebularine	65.00	80.00	115.00	Less than3 (set-up charge: \$ 150.00)
Ara-dC	80.00	100.00	310.00	Less than3 (set-up charge: \$ 200.00)
5-F-dU	90.00	110.00	350.00	Less than3 (set-up charge: \$ 250.00)
2',3'-ddC	80.00	100.00	310.00	Less than3 (set-up charge: \$ 200.00)
Alexa Fluor 488	180.00	200.00	350.00	1,750.00
Alexa Fluor 532	250.00	275.00	430.00	2,150.00
Alexa Fluor 546	250.00	275.00	430.00	2,150.00
Alexa Fluor 594	288.00	325.00	520.00	2,600.00
Alexa Fluor 647	180.00	200.00	350.00	1,750.00
Alexa Fluor 660	288.00	325.00	520.00	2,600.00
Alexa Fluor 750	288.00	325.00	520.00	2,600.00
N6-methyl-2'-deoxyadenosine	120.00	150.00	220.00	Less than3 (set-up charge: \$ 150.00)
DNP(2,4-dinitrophenyl)-TEG	125.00	175.00	275.00	Less than3 (set-up charge: \$ 150.00)
Cy3.5	180.00	250.00	380.00	1,050.00
Cy5.5	180.00	250.00	380.00	1,050.00
Puromycine	80.00	100.00	200.00	1,050.00
Yakima Yellow	120.00	150.00	220.00	Inquire
3'-dA	250.00	275.00	350.00	
3'-dC	250.00	275.00	350.00	
3'-dG	250.00	275.00	350.00	
3'-dT	250.00	275.00	350.00	
5-Nitroindole	125.00	175.00	250.00	450.00
2'-F-dA	65.00	80.00	115.00	Less than3 (set-up charge: \$ 150.00)
2'-F-dC	65.00	80.00	115.00	Less than3 (set-up charge: \$ 150.00)
2'-F-dG	65.00	80.00	115.00	Less than3 (set-up charge: \$ 150.00)
2'-F-dT	65.00	80.00	115.00	Less than3 (set-up charge: \$ 150.00)
Maleimide	50.00	65.00	95.00	350.00
2-Aminopurine	75.00	90.00	125.00	Less than3 (set-up charge: \$ 150.00)
2,6-Diaminopurine	75.00	90.00	125.00	Less than3 (set-up charge: \$ 150.00)
Dithiol	150.00	175.00	275.00	1,500.00
EDTA-C2-dT	120.00	150.00	275.00	Less than3 (set-up charge: \$ 250.00)
Thymidine Glycol	150.00	175.00	275.00	Less than3 (set-up charge: \$ 150.00)
3' Methylene Blue	150.00	175.00	275.00	Less than3 (set-up charge: \$ 250.00)
3' AMCA (amino-methyl-coumarin-acetate)	125.00	175.00	275.00	Less than3 (set-up charge: \$ 175.00)
3' Deoxypurine (2'-DeoxyNebularine)	75.00	90.00	125.00	Less than3 (set-up charge: \$ 250.00)
3' PEG-2000				
3' Azide	150.00	175.00	275.00	1500.00
3' Acrylamide (acrydite)	90.00	110.00	350.00	1500.00
3'Treble Branching	220.00	250.00	350.00	1750.00
3'-Inverted dA	38.00	50.00	80.00	380.00
3'-Inverted dC	38.00	50.00	80.00	380.00
3'-Inverted dG	38.00	50.00	80.00	380.00

Modifications				
Modification	Synthesis Scale			
	50 nmole (\$)	200 nmole (\$)	1 umole (\$)	10 umole (\$)
<b>3'-Modification</b>				
3' C6 Amine	15.00	30.00	47.00	235.00
3' Phosphate	22.00	30.00	45.00	240.00
3' Biotin	54.00	60.00	100.00	520.00
3' C3 spacer	36.00	45.00	66.00	280.00
3' C6 spacer	36.00	45.00	66.00	280.00
3' C12 spacer	36.00	45.00	66.00	280.00
3' C18 atom spacer	45.00	55.00	80.00	325.00
3' dS spacer	47.00	55.00	80.00	320.00
3' FAM	50.00	60.00	110.00	670.00
3' TAMRA	77.00	96.00	137.00	750.00
3' Thiol	70.00	90.00	130.00	690.00
3' Texas Red	165.00	185.00	285.00	1,425.00
3' JOE	165.00	185.00	285.00	1,425.00
3' ROX	140.00	150.00	250.00	1,250.00
3' CY5	95.00	115.00	175.00	1,050.00
3' CY3	95.00	115.00	175.00	1,050.00
3' Dabcyl	80.00	100.00	200.00	1,050.00
3' BHQ1	80.00	100.00	200.00	1,050.00
3' BHQ2	80.00	100.00	200.00	1,050.00
3'-Cholesteryl	80.00	100.00	240.00	1,200.00
3'-Inverted dT	38.00	50.00	80.00	380.00

Modifications				
Modification	Synthesis Scale			
	50 nmole (\$)	200 nmole (\$)	1 umole (\$)	10 umole (\$)
<b>Internal-Modification</b>				
Internal Amine	108.00	135.00	210.00	840.00
Internal Biotin	145.00	155.00	240.00	1,200.00
Internal FAM	145.00	175.00	240.00	1,200.00
Internal C3 spacer	35.00	45.00	63.00	290.00
Internal C6 spacer	35.00	45.00	63.00	290.00
Internal C12 spacer	35.00	45.00	63.00	290.00
Internal 18 atom spacer	45.00	50.00	80.00	320.00
Internal dS spacer		50.00	80.00	320.00
Phosphorothioate (per insertion)		3.00	4.00	20.00
5-Methyl dC	47.00	55.00	80.00	320.00
Inosine	7.00	8.00	15.00	60.00
Deoxy Uridine	7.00	7.50	11.00	55.00
2'-O-Methyl	6.00	7.00	14.00	55.00
5-Bromo dU	70.00	90.00	130.00	600.00
8-Oxo-dA	145.00	175.00	240.00	1,200.00
8-Oxo-dG	145.00	175.00	240.00	1,200.00
Ferrocene-dT	145.00	155.00	240.00	1,200.00
5-hydroxymethyl-dC	145.00	175.00	240.00	1,200.00
5-Hydroxy-dU	145.00	175.00	240.00	1,200.00
5-hydroxymethyl-dU	145.00	175.00	240.00	1,200.00
5-F-du	90.00	110.00	350.00	1,750.00
Biotin-TEG	50.00	65.00	95.00	380.00
Zebularine	65.00	80.00	115.00	Less than3 (set-up charge: \$ 150.00)
Ara-dC	80.00	100.00	310.00	Less than3 (set-up charge: \$ 200.00)
5-F-dU	90.00	110.00	350.00	Less than3 (set-up charge: \$ 250.00)
N6-methyl-2'-deoxyadenosine	120.00	150.00	220.00	Less than3 (set-up charge: \$ 150.00)
PC(photo-cleavable)Linker	120.00	150.00	270.00	Less than3 (set-up charge: \$ 250.00)
DNP(2,4-dinitrophenyl)-TEG	125.00	175.00	275.00	Less than3 (set-up charge: \$ 150.00)
3'-dA	250.00	275.00	350.00	
3'-dC	250.00	275.00	350.00	
3'-dG	250.00	275.00	350.00	
3'-dT	250.00	275.00	350.00	
5-Nitroindole	125.00	175.00	250.00	450.00
2'-F-dA	65.00	80.00	115.00	Less than3 (set-up charge: \$ 150.00)
2'-F-dC	65.00	80.00	115.00	Less than3 (set-up charge: \$ 150.00)
2'-F-dG	65.00	80.00	115.00	Less than3 (set-up charge: \$ 150.00)
2'-F-dT	65.00	80.00	115.00	Less than3 (set-up charge: \$ 150.00)
2-Aminopurine	75.00	90.00	125.00	Less than3 (set-up charge: \$ 150.00)
2,6-Diaminopurine	75.00	90.00	125.00	Less than3 (set-up charge: \$ 150.00)
Dithiol	150.00	175.00	275.00	1,500.00
EDTA-C2-dT	120.00	150.00	275.00	Less than3 (set-up charge: \$ 250.00)
Thymidine Glycol	150.00	175.00	275.00	Less than3 (set-up charge: \$ 150.00)
Methylene Blue	150.00	175.00	275.00	Less than3 (set-up charge: \$250.00)
Carboxy-dT	150.00	175.00	275.00	Less than3 (set-up charge: \$ 250.00)
Tamra-dT	220.00	250.00	350.00	1,750.00
BHQ1-dT	250.00	275.00	350.00	1,750.00

BHQ2-dT	250.00	275.00	350.00	1,750.00
Dabcyl-dT	250.00	275.00	350.00	1,750.00
Deoxypurine (2'-DeoxyNebu larine)	75.00	90.00	125.00	Less than3 (set-up charge: \$ 250.00)
Azide	150.00	175.00	275.00	1,500.00
Treble Branching	220.00	250.00	350.00	1,750.00

Dual labeled Probes				
Modification	Synthesis Scale			
	50 nmole (\$)	200 nmole (\$)	1 umole (\$)	10 umole (\$)
5'-FAM_3'-TAMRA	165.00	233.00	365.00	1,825.00
5'-HEX_3'-TAMRA	165.00	233.00	365.00	1,825.00
5'-TET_3'-TAMRA	165.00	233.00	365.00	1,825.00
5'-JOE_3'-TAMRA	350.00	400.00	800.00	4,000.00
5'-FAM_3'-DABCYL	177.00	299.00	465.00	2,325.00
5'-HEX_3'-DABCYL	195.00	295.00	445.00	2,225.00
5'-TET_3'-DABCYL	195.00	295.00	445.00	2,225.00
5'-TAMRA_3'-DABCYL	275.00	375.00	555.00	2,775.00
5'-JOE_3'-DABSYL	300.00	350.00	555.00	2,200.00
5'-FAM_3'-BHQ1	175.00	250.00	375.00	1,875.00
5'-HEX_3'-BHQ1	220.00	315.00	470.00	2,350.00
5'-TET_3'-BHQ1	210.00	295.00	445.00	2,225.00
5'-JOE_3'-BHQ1	350.00	400.00	600.00	3,000.00
5'-TAMRA_3'-BHQ1	300.00	350.00	550.00	2,200.00
5'-ROX_3'-BHQ1	275.00	320.00	520.00	2,080.00
5'-Texas Red_3'-BHQ1	275.00	320.00	520.00	2,080.00
5'-Cy3_3'-BHQ1	400.00	450.00	650.00	2,600.00
5'-FAM_3'-BHQ2	175.00	250.00	375.00	1,875.00
5'-HEX_3'-BHQ2	220.00	315.00	470.00	2,350.00
5'-TET_3'-BHQ2	210.00	295.00	445.00	2,225.00
5'-JOE_3'-BHQ2	350.00	400.00	600.00	3,000.00
5'-TAMRA_3'-BHQ2	350.00	380.00	570.00	2,850.00
5'-ROX_3'-BHQ2	350.00	380.00	570.00	2,850.00
5'-Texas Red_3'-BHQ2	350.00	390.00	625.00	3,125.00
5'-Cy5_3'-BHQ2	275.00	320.00	480.00	2,400.00
5'-Cy3_3'-BHQ2	275.00	320.00	480.00	2,400.00
5'-FAM_BHQ1-dT_Amine-3'	375.00	450.00	650.00	2,650.00
5'-FAM_Tamra-dT_PO4-3'	375.00	450.00	650.00	2,650.00

For additional modifications or pricing on modified oligos in plates, please email [export1@bioneer.com](mailto:export1@bioneer.com).

How to order online:  
Visit our website at. <http://eng.bioneer.com>

Click on Products  
**Click on Custom Oligo Tube Order, Upload Tube File, Copy and Paste**  
Email the completed form to [export1@bioneer.com](mailto:export1@bioneer.com).