

Custom Oligonucleotide Synthesis



Standard DNA
Synthesis and
Purification

Oligos for
High-Throughput

Modified Oligos

Specialty Oligos

Gene Synthesis

Oligo Design

sigma-aldrich.com

*Your Global Partner for Innovative
Custom Genomic and Proteomic Solutions*

SIGMA[®]
GENOSYS

About Sigma-Genosys

Sigma-Genosys is recognized as the world's leading supplier of custom synthetic DNA (oligonucleotides), synthetic peptides, and a supplier of research reagents for the global life science research community. Sigma-Genosys has been in operation since 1986 and maintains manufacturing facilities in eight countries — Australia, Canada, Germany, India, Israel, Japan, UK, and US.

We routinely synthesize the most technically challenging custom biomolecules. We foster customer satisfaction and loyalty by maintaining a close personal relationship with our customers and by offering technical competency for the applications of our products. Our staff of molecular biologists and peptide chemists routinely assists researchers with design and troubleshooting of their experiments.

Sigma-Genosys cultivates a passion for process improvements. We are committed to continually improving our production processes with a focus on quality and delivery. In keeping with our tradition of providing quality products to the scientific community, we are ISO 9001:2000 registered for quality systems at our Japan, UK and US facilities.

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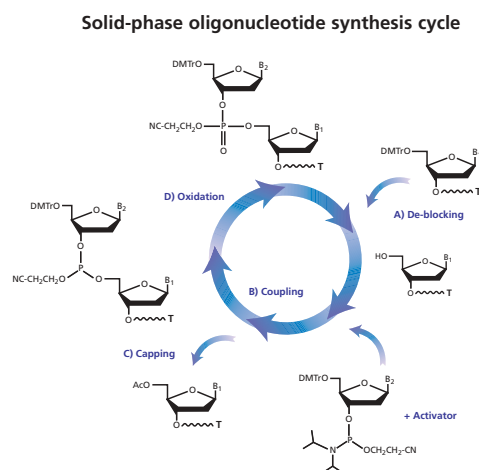
Standard DNA Synthesis and Purification

Sigma-Genosys is an ISO-9001:2000 certified company with a focus on high-quality products. We offer a complete line of custom oligonucleotides for your research.

Synthesis Capabilities

At the heart of our capabilities are our 2 exclusive synthesis platforms: the Abacus™ and the ARK™. Our platforms provide a worldwide synthesis capacity of over 500,000 oligos per month. Originally developed at the Baylor College of Medicine, the Abacus operates with a closed-loop reaction protocol to permit extremely high coupling efficiencies allowing synthesis of long-mer oligos up to 130 bases. The ARK platform is optimized to process oligos in 96-well plate formats. Protocols are finely tuned to synthesize short oligos quickly with high-quality results. We routinely achieve coupling efficiencies >99% as a result of our proprietary platforms.

Oligo synthesis is performed using basic phosphoramidite chemistry and a solid support (CPG or polystyrene). The figure below illustrates the process of basic DNA chemistry.



Features and Benefits

- Every oligo is bar-coded for efficient and accurate handling throughout the production process.
- 100% Quality Control by MALDI-TOF mass spectrometry using SEQUENOM MassARRAY™ and/or PAGE analysis to confirm oligo composition.
- Quality Assurance documentation including molecular weight, sequence, and yield is included with every order.
- MALDI-TOF traces are available upon request for your records.*
- Abacus platform routinely achieves >99% coupling efficiency which is optimal for high quality long-mers.
- An additional vial label is provided for your lab notebook.

- Shipping within 1–2 days for standard (non-modified) oligos.
- Online order tracking is available on our Web site.
- Technical support staff available to assist with primer design and help to troubleshoot difficult assays.

* Additional charges may apply and request for MALDI-TOF traces must be made at time of order placement.

Quality Control

Every oligo synthesized is strictly controlled for quality by using either MALDI-TOF mass spectrometry or polyacrylamide gel electrophoresis (PAGE) analysis. Mass spectrum analysis helps verify that a custom oligo contains the correct molecular weight. Since MALDI-TOF analysis of oligos is generally limited to oligos of 50 bases or less, other techniques are used in conjunction with mass spectrum analysis such as PAGE analysis and capillary electrophoresis (CE).

MALDI-TOF traces are available upon request for oligos 50 bases. Additional charges may apply.

Purification

All Sigma-Genosys oligos include desalting and deprotection at no additional charge. Desalting removes residual by-products from synthesis, cleavage, and deprotection procedures. However, due to the chemical synthesis process, truncated oligo remains present in the desalted product unless further purification is performed. Desalting is acceptable for many applications (such as PCR) that utilize short oligos. Additional purification is recommended for all oligos >35 bases, modified oligos, and oligos used for antisense studies.

Standard purification services include reverse-phase cartridge (RP1), reverse-phase HPLC (RP-HPLC), and PAGE. Unlike other manufacturers, we have the capabilities to RP-HPLC purify oligos up to 80-mer. For special needs, additional purification options include Ion Exchange-HPLC and gel filtration. Gel filtration is always included free of charge with phosphorothioated oligos to remove any cytotoxic by-products.

If you are unsure about the purification level you need for your research, contact our Technical Support staff for assistance.

Recommended Purification by Application

Purification Method	Common Applications	% Full Length Product
Desalting 35 bases	PCR, mobility shift, hybridization	Length Dependent
Reverse-Phase Cartridge (RP1) 50 bases	Sequencing, DNA fingerprinting, RT-PCR, <i>in situ</i> hybridization, arrays	80–90%
HPLC 50 bases	Mutagenesis, antisense studies, large scales, Real-time PCR	90–97%
PAGE 100 bases	Gene synthesis, primer extension	95–99%

Synthesis Scale and Yields

Purification Method	0.025 μ mole (3 O.D. Select)	0.05 μ mole	0.2 μ mole	1 μ mole	10 μ mole	15 μ mole
Desalting	3 O.D. 90 μ g	5 O.D. 150 μ g	12 O.D. 360 μ g	40 O.D. 1200 μ g	400 O.D. 12000 μ g	600 O.D. 18000 μ g
Reverse-Phase Cartridge (RP1)	N/A	1 O.D. 30 μ g	3 O.D. 90 μ g	12 O.D. 360 μ g	N/A	N/A
HPLC	N/A	1 O.D. 30 μ g	2.5 O.D. 75 μ g	13 O.D. 390 μ g	130 O.D. 3900 μ g	190 O.D. 5700 μ g
PAGE	N/A	0.5 O.D. 15 μ g	1 O.D. 30 μ g	5 O.D. 150 μ g	N/A	N/A

Yields are based on non-modified 20-mer. Shorter oligos will have proportionally fewer O.D. units.

Oligos for High-Throughput Applications

We specialize in providing oligos for use in high-throughput applications. We understand the requirements of high-volume, highly automated processes such as whole genome PCR, whole genome sequencing, and custom oligo libraries for array applications.

Our robotic processes allow for flexibility unmatched by other suppliers. Microwell or deep well plates, equimolar concentration, mixed forward and reverse primers in the same well are all standard options for our customers.

Features and Benefits

- Every plate is bar-coded for efficient and accurate handling throughout the production process.
- Each oligo is strictly controlled for quality by MALDI-TOF mass spectrometry using SEQUENOM MassARRAY™ and/or PAGE analysis to confirm oligo composition.
- Final concentration and volume is verified on every plate to ensure accuracy.
- Excel spreadsheet with well location, sequence, oligo name, lot number, MW, concentration and volume is provided on a compact disk included with your shipment.
- Ordering templates are available on our Web site for your convenience.

High-throughput oligos can be provided in 96 or 384 well plates. Options for oligos in solution include equimolar concentration, forward and reverse primer in the same well, dilution in buffer or water, and equal or variable volume. Options for lyophilized oligos in plates includes equal nmole amounts or μg amount.

Recommendations:

	Concentration	Final Volume	Minimum Order
96 Well Plate	50 μM	20 μl – 200 μl	48 oligos
384 Well Plate	20 μM	10 μl – 80 μl	192 oligos

Purification

For most applications, additional purification is not required. All oligos are provided desalted and deprotected at no additional charge. Please call our technical support department if your assay demands specialized purification or you are unsure of your purification requirements. We will be happy to recommend a purification process based on your application.

Additional Services

Options include, but are not limited to:

- Customer specified plates
- Customized buffers
- Concentration from 1 μM – 250 μM
- Duplicate plates
- Modified oligos in plates
- MALDI-TOF mass spectrometry traces with shipment



For prices and additional information, please contact your local representative.

Modified Oligos

Modified oligos are processed in a separate lab dedicated solely to specialty modified oligo synthesis. Our capabilities include everything from degenerate bases, single fluorescent dyes to dual-labeled probes. We aggressively pursue opportunities to license and discover new technologies.

Features and Benefits

- Fluorescently labeled oligos including dual-labeled probes are shipped in an amber tube to ensure dye integrity.
- Quality Control by MALDI-TOF mass spectrometry including using SEQUENOM MassARRAY™ and/or PAGE analysis to confirm oligo composition.
- Every oligo is bar-coded for efficient and accurate handling throughout the production process.

Capabilities

Sigma-Genosys can attach modifications to oligos at the 5'-end, 3'-end and even internal positions. We are a licensed supplier of modifications from Molecular Probes, Inc., Biosearch Technologies, and PHRI, City of New York.

Modification Options Include:

- 6-FAM, HEX (Hexachloro-Fluorescein), TET (Tetrachloro-Fluorescein)
- Alexa Fluor® dyes
- Amine
- Biotin
- Black Hole Quencher™ Dyes
- BODIPY®
- Chain terminators
- Chemical Phosphorylation
- Deoxyinosine
- DeoxyUridine
- Fluorescein
- Halogenated bases
- JOE
- Methylated bases
- Mixed sites
- Oregon Green® dyes
- Phosphorothioated backbone
- Rhodamine Green
- ROX
- Spacers
- Texas Red®-X

Synthesis Scale and Yields

Purification Method	0.05 μ mole	0.2 μ mole	1 μ mole
Desalting	2 O.D. 60 μ g	5 O.D. 150 μ g	16 O.D. 480 μ g
Reverse-Phase Cartridge (RP1)	0.4 O.D. 12 μ g	1 O.D. 30 μ g	5 O.D. 150 μ g
HPLC	0.4 O.D. 12 μ g	1 O.D. 30 μ g	5 O.D. 150 μ g
PAGE	0.2 O.D. 6 μ g	0.4 O.D. 12 μ g	2 O.D. 60 μ g

Guarantee is for 20 mers or longer. Shorter oligos may have fewer O.D. units. Note: 3' post synthesis modifications (such as Texas Red and ROX) may yield 50% less than the above stated values

Purification

Desalting or RP1 purification is acceptable for most phosphoramidite modifiers such as 6-FAM, HEX and TET. Additional purification is strongly recommended for modifiers that require NHS-ester chemistry through an amine linker (such as Texas Red-X, Alexa Fluor, and BODIPY dyes). Due to the nature of the chemistry, free dye and non-labeled product will remain in the post-conjugated product unless additional purification is performed.

Modifications by Application

Attachment Chemistry	Amino Modifiers, Thiol Modifiers
Labeling & Detection Applications	Phosphorylation, Fluorescein, 6-FAM, HEX, TET, TAMRA, Alexa Fluor®, Dyes, BODIPY® dyes, Biotin, Black Hole Quencher™ Dyes
Quantitative Detection	Dual-labeled probes, Molecular Beacons
Antisense Studies	Phosphorothioate bonds, 2'-O-Me RNA, modified bases



Alexa Fluor®, BODIPY®, Texas Red®-X, and Oregon Green® are all registered trademarks of Molecular Probes, Inc. Black Hole Quencher™ is a trademark of Biosearch Technologies.

Spectral Characteristics and Recommended Purification

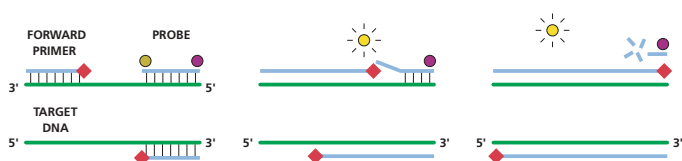
Description	Max Absorbance (nm)	Max Emission (nm)	Recommended Purification
Fluorescein	492	520	Desalt, RP1, HPLC
6-FAM	494	525	Desalt, RP1, HPLC
TET	521	536	Desalt, RP1, HPLC
HEX	535	556	Desalt, RP1, HPLC
TAMRA®	555	580	HPLC
Texas Red	595	615	HPLC
JOE	521	547	HPLC
Cy5™	643	667	RP1, HPLC
Cy3™	552	570	RP1, HPLC
BODIPY FL	505	513	HPLC
Oregon Green 488	493	520	HPLC

Dual-Labeled Probes

Dual-labeled probes are important components in many genetic assays, specifically real-time PCR. Dual-labeled probes and Molecular Beacons incorporate a 5'-reporter dye and a 3'-quencher within the probe design. Sigma-Genosys provides the traditional TAMRA quencher for dual-labeled probes, DABCYL quencher for Molecular Beacons, and now a new family of quenchers optimized for FRET — the Black Hole Quencher™ dyes.

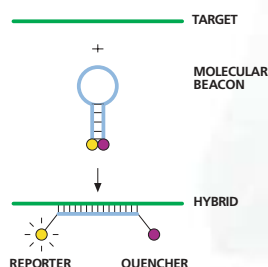
Dual-labeled Probes

Dual-labeled probes contain a 5'-end Reporter dye and 3'-end Quencher designed to remain quenched until cleaved by Taq DNA Polymerase. Cleavage of the dye will allow fluorescent emission that is measured by a sequence detection system.



Molecular Beacons

Sigma-Genosys is a licensed supplier of Molecular Beacons — probes designed in a stem-loop structure with a 5'-end Reporter dye and 3'-end Quencher. In its natural state, the dye does not fluoresce due to the close proximity of the quencher molecule. Upon contact with its complementary target, the probe linearizes separating the quencher and dye molecules resulting in fluorescent emission.



Sigma-Genosys is licensed to sell BHQ dye-labeled oligos for optimum quenching efficiency. Dual-labeled probes designed with the BHQ dye will exhibit a high signal-to-noise ratio in hybridization assays when compared to standard probes with the TAMRA quencher. Since BHQ dyes (also called “dark quenchers”) exhibit no native fluorescence, background problems seen with other quenchers are eliminated.

Each Black Hole Quencher dye is designed to work with specific fluorophores, and can be incorporated into standard dual-labeled probes and Molecular Beacons.

Quencher	Max Abs	Quenching Range	Fluorophores
BHQ-1	534 nm	480–580 nm	FAM, HEX, TET, JOE
BHQ-2	579 nm	550–650 nm	TAMRA, ROX, Cy3™

Features and Benefits

- Dual-labeled probes are shipped in an amber tube to ensure dye integrity.
- Quality Control by MALDI-TOF mass spectrometry and analysis to confirm oligo composition.
- Every oligo is bar-coded for efficient and accurate handling throughout the production process.
- Every dual-labeled probe includes reverse-phase HPLC purification to minimize any background fluorescence.

Synthesis Scale and Yields

Scale	O.D.	µg
0.025 µmole	0.5–1.0	15–30 µg
0.05 µmole	1.0–3.0	30–90 µg
0.2 µmole	3.0–5.0	90–150 µg
1.0 µmole	5.0–10.0	150–300 µg

Stated yields are based upon a 25-mer dual-labeled probe with a 5'-end 6-FAM and a 3'-end TAMRA. Yields will vary based upon oligo length and base composition.

Purification

In order to ensure that there is no background fluorescence, reverse-phase HPLC purification is standard with all dual-labeled probes. Additional purification such as Ion Exchange-HPLC and dual-HPLC purification is available for special needs.

Black Hole Quencher™, BHQ™, BHQ-1™, and BHQ-2™ are registered trademarks of Biosearch Technologies, Inc. Molecular Beacons are sold under license from PHRI, City of New York, Inc. and are for research purposes only. Cy3 and Cy5 are registered trademarks of Biological Detection Systems, now part of Amersham Pharmacia Biotech.

For prices and additional information, please contact your local representative.

Specialty Oligos

At Sigma-Genosys, we continuously strive to bring our customers high-quality oligos and new choices for added convenience. We now have 2 new products we are pleased to introduce.

- Ready-to-Use Primers — normalized to 50 μM and ready to use in your PCR reaction
- BigBand™ Primers — modified primers that provide increased yield and specificity to your PCR system

Ready-to-Use Primers

Ready-to-Use Primers provide the convenience of receiving your oligos in a normalized solution at a flat fee per oligo.

Features and Benefits

- Primers are normalized in TE to work easily into your PCR reaction.
- Price is a flat fee per oligo making pricing simple.
- Quality Control by MALDI-TOF mass spectrometry to confirm oligo composition.
- An additional tube label with quantitative data is included for your convenience.

Specifications

Ready-to-Use Primers are desalted and normalized to 50 μM in 150 μL of TE (10 mM Tris HCL, 0.1 mM EDTA, pH 8.0). Oligos must be 10–30 bases (A, C, G, T bases only) to qualify for fixed price product. Ready-to-Use Primers are shipped in a 2 mL tube at ambient temperature within 24–48 hours from order receipt.

BigBand™ Primers

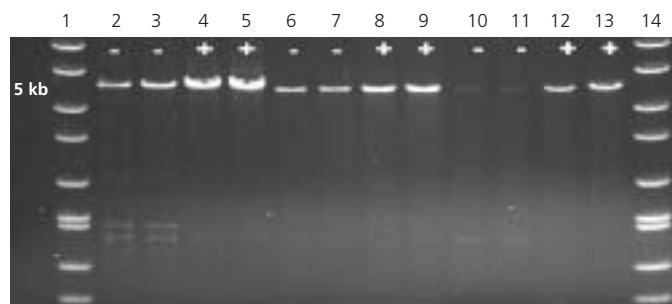
Improve your PCR yield with BigBand Primers. BigBand Primers have been proven to enhance yield when used with high-fidelity enzymes and Restorase DNA Polymerase from Sigma-Aldrich. BigBand Primers are only available from Sigma-Genosys. The primers are specially designed with a proprietary modification that will protect primers from degradation by proofreading or repair enzymes thereby improving PCR yield.

Features and Benefits

- Enhances yield in PCR systems using long and accurate enzymes
- Improve performance of Restorase DNA polymerase
- Eliminates the need for manual hot start when using Restorase DNA polymerase

Increase Yield with BigBand Primers

5kb undamaged human genomic DNA was amplified with high-fidelity DNA polymerases with and without BigBand primers. Samples were run in duplicate.



Lanes 1,14 5 kb ladder
 Lanes 2,3 Sigma Accutaq™ without BigBand primers
 Lanes 4,5 Sigma Accutaq with BigBand primers
 Lanes 6,7 Competitor S, enzyme P without BigBand primers
 Lanes 8,9 Competitor S, enzyme P with BigBand primers
 Lanes 10,11 Competitor R, enzyme E without BigBand primers
 Lanes 12,13 Competitor R, enzyme E with BigBand primers

Primer Specifications

- Oligo length: 15–30 bases
- Bases available: A, C, G, T only
- Desalted and Deprotected
- Proprietary modification
- Yield: 3–5 O.D. (90–150 μg)

Custom Gene Synthesis

Sigma-Genosys offers a valuable service to the molecular biology laboratory — custom designed and assembled genes. Order whole genes to your exact specifications, as easily as you can order probes and primers.

We can help you design your synthetic genes (coding sequences) for a variety of applications, including:

- **Expression** — Codon usage is engineered for optimal expression in bacterial, yeast, and plant systems, etc.
- **Genetic manipulation for protein structure and function studies** — Appropriate restriction sites can be included in the gene sequence, dividing the gene into modules or cassettes for protein domain swapping/insertion/deletion/ duplication. In addition, specific mutations may be introduced within a particular gene module.
- **Gene therapy** — Genes can be designed for therapeutic uses such as antisense RNA expression, ribozyme (catalytic RNA) expression and immunotoxin production
- **Chimeric/fusion protein production** — Coding region domains from several heterologous genes can be linked together
- **DNA hybridization** — Genes can be constructed from native sequences and modified for cloning into any vector system. Since these genes contain native sequences, they may be used in hybridization applications and native expression systems.

Ordering and Delivery Information

Prior to beginning your custom gene design and synthesis, a non-disclosure agreement can be executed between Sigma-Genosys and your organization to assure absolute confidentiality of your gene sequence.

The first step in ordering is to determine the sequence you require, keeping the following considerations in mind:

1. Optimized codon usage for your expression system
2. Avoidance of secondary structures
3. Insertion of useful restriction sites

Then, submit the sequence in typed form, entered 5' to 3'. We will confirm your order and review it with you before starting work.

Product Specifications

Plasmid Vector — We routinely clone into pUC18/pUC19 or Bluescript phagemids. We are prepared to subclone your gene into other vectors (e.g., expression vectors) either supplied by you or from a commercial source.

Delivery — Your gene will be delivered in lyophilized form as a cloned gene. Accompanying the gene will be a complete report describing important information about your gene, including sequencing information that validate the fidelity of the sequence. Genes up to 500 bp are typically completed within 30–60 days. Longer genes may take >60 days (the completion time being dependent upon the presence of the secondary structures/high G+C content).



Oligo Design Service

We routinely design probes for microbial genomes and some mammalian genomes. To ensure the strictest of confidentiality, non-disclosure agreements can be executed.

Our probe design includes up to 3 oligo probe sequences per gene. Pricing will vary based upon the complexity of the genome. Call your local representative for more information.



General Information

Ordering

We accept orders by mail, fax, Internet and e-mail. Please provide the following information when ordering:

Customer Name
Phone number
Purchase Order Number or Credit Card
Shipping Address
Billing Address
Sequence Name
Sequence
Synthesis Scale
Purification Option
Modifications
Any other special services

Ordering templates are available on our Web site. Plate orders will only be accepted in electronic form.

Shipping Schedule

Scale (μ mole)	Desalt	Cartridge (RP1)	HPLC	PAGE
0.025 (3 O.D. Select)	24 hours	N/A	N/A	N/A
0.05	1–2 days	1–2 days	3–4 days	3–4 days
0.2	1–2 days	1–2 days	3–4 days	3–4 days
1.0	1–2 days	1–2 days	3–4 days	3–4 days
Oligos longer than 50 bases	3–4 days	3–4 days	3–4 days	3–4 days
Greater than 1.0 μ mole	5–7 days			
Post-synthesis modified	5 days			
Dual-labeled probes	3–5 days			

Order Confirmation

We will send you an electronic price confirmation when provided with your e-mail address. Confirmation includes price, order number and estimated time for shipment.

Order Tracking

You can find order status by contacting customer service or online at sigma-genosys.com with our OligoTrack feature. OligoTrack provides real-time status of orders through a direct link to our production database.

Special Order Requirements

We can set up dedicated Internet ordering pages or standing orders for repeat requirements. Call for more information.

Support

Our sales and service team can assist you with any pricing and/or ordering questions. Our technical group can assist with a variety of issues from primer design to troubleshooting difficult experiments.

Satisfaction Guarantee

Our technical support team will help troubleshoot oligo-related issues. If you are dissatisfied with your oligo and report a sequence error within 30 days of order receipt, we will gladly remake your oligo free of charge or provide a credit for the purchase amount.

Contact Information

Mailing Address: Sigma-Genosys
1442 Lake Front Circle
The Woodlands, TX 77380-3600

Phone: 281-363-3693
or toll-free 800-234-5362

Fax: 281-363-2212
or toll-free 800-515-2155

Ordering e-mail: genosysoligos@sial.com

General Info e-mail: ginformation@sial.com

Tech Support e-mail: techsrv@sial.com

Internet: sigma-genosys.com

Use of Products

Sigma-Genosys' products are intended primarily for laboratory research purposes and, unless otherwise stated on product labels, on Sigma-Genosys' Web site or in other literature furnished to Purchaser by Sigma-Genosys, are not to be used for any other purposes, including but not limited to, *in vitro* diagnostic purposes, foods, drugs, medical devices or cosmetics for humans or animals. Purchaser acknowledges that the products have not been tested by Sigma-Genosys for safety and efficacy in food, drug, medical device, cosmetic, commercial or any other use, unless otherwise stated in Genosys' literature furnished to Purchaser. Purchaser realizes that, since Sigma-Genosys' products are, unless otherwise stated, intended primarily for research purposes, they may not be on the Toxic Substances Control Act (TSCA) inventory. Purchaser assumes responsibility to assure that the products purchased from Sigma-Genosys are approved for use under TSCA, if applicable. Purchaser has the responsibility to verify the hazards and to conduct any further research necessary to learn the hazards involved in using products purchased from Sigma-Genosys. Purchaser agrees to comply with instructions, if any, furnished by Sigma-Genosys relating to the use of the products and not misuse the products in any manner. No products purchased from Sigma-Genosys shall, unless otherwise stated, be considered to be foods, drugs, medical devices or cosmetics.

Pricing

See current price list located in the back of this catalog. Pricing is subject to change. See our Web site for current pricing. All written quotations are guaranteed valid for 90 days. When placing your order, please reference quote number.

Limited Warranty

Sigma-Genosys warrants to Purchaser for a period of thirty (30) days from the date of delivery, that the Products, when shipped to Purchaser by Sigma-Genosys shall conform in all material respects to the specifications of Sigma-Genosys, as provided on Sigma-Genosys' Web site or in other literature provided to Purchaser by Sigma-Genosys and shall contain the requested sequence; provided however, that (a) the Products must be stored under the prescribed conditions during such warranty period and (b) Products are subject to the appropriate limitations or restrictions provided in the specifications. EXCEPT FOR THE FOREGOING WARRANTY, SIGMA-GENOSYS DOES NOT WARRANT THE MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS OR THE PERFORMANCE OR NONINFRINGEMENT THEREOF, DOES NOT MAKE AND HEREBY EXPRESSLY DISCLAIMS ANY WARRANTY, EXPRESS OR IMPLIED, WITH RESPECT TO THE PRODUCTS, SPECIFICATIONS, SUPPORT, SERVICE OR ANYTHING ELSE RELATING TO THE PRODUCTS AND DOES NOT MAKE ANY WARRANTY TO PURCHASER, PURCHASER'S CUSTOMERS OR THEIR AGENTS CONCERNING THE PRODUCTS. In addition, Sigma-Genosys does not warrant that the use or sale of the products delivered hereunder will not infringe intellectual property rights covering the product itself or the use thereof in combination with other products or in the operation of any process.

Domestic Delivery Information

All products ordered by Purchaser pursuant to this Agreement shall be delivered F.O.B. Sigma-Genosys' shipping point. All packages are shipped priority overnight by FedEx. For shipping and handling fees, see the Shipping and Handling section of your order.

Payment

All orders must have an accompanying purchase order number or valid credit card before they will be synthesized.

Payment terms for purchases made in the U.S.: Net 30 days in U.S. dollars.

International customers: Contact your local Sigma office for pricing and payment information specific to your region.

Worldwide Distribution

Argentina

SIGMA-ALDRICH DE ARGENTINA, S.A.
Tel: 54 11 4556 1472
Fax: 54 11 4552 1698

Australia

Sigma-Aldrich Pty., limited
Free Tel: 1800 800 097
Free Fax: 1800 800 096
Tel: 612 9841 0555
Fax: 612 9841 0500

Austria

SIGMA-ALDRICH HANDELS GmbH
Tel: 43 1 605 81 10
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Belgium

SIGMA-ALDRICH NV/SA.
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Tel: 03 899 13 01
Fax: 03 899 13 11

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SIGMA-ALDRICH BRASIL LTDA.
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SIGMA-ALDRICH DENMARK A/S
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Fax: 43 56 59 05

Finland

SIGMA-ALDRICH FINLAND
Tel: 358-9-350-92 50
Fax: 358-9-350-92 555

France

SIGMA-ALDRICH CHIMIE S.à.r.l.
Tel appel gratuit: 0800 211 408
Fax appel gratuit: 0800 031 052

Germany

SIGMA-ALDRICH CHEMIE GmbH
Free Tel: 0800-51 55 000
Free Fax: 0800-649 00 00

Greece

SIGMA-ALDRICH (O.M.) LTD
Tel: 30 210 9948010
Fax: 30 210 9943831

Hungary

SIGMA-ALDRICH Kft
Tel: 06-1-235-9054
Fax: 06-1-269-6470
Ingyenes zöld telefon: 06-80-355-355
Ingyenes zöld fax: 06-80-344-344

India

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Mumbai: 91-22-2579 7588 / 2570 2364
New Delhi:
91-11-2616 5477 / 2619 5360
Fax
Bangalore: 91-80-5112-7473
Hyderabad: 91-40-5531 5466
Mumbai: 91-22-2579 7589
New Delhi: 91-11-2616 5611

Ireland

SIGMA-ALDRICH IRELAND LTD.
Free Tel: 1800 200 888
Free Fax: 1800 600 222

Israel

SIGMA-ALDRICH ISRAEL LTD.
Tel: 08-948-4100
Fax: 08-948-4200

Italy

SIGMA-ALDRICH S.r.l.
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