

Life Science

PNA
Personalized Packaging
Unique
Design
Medium/Large Scales
Real-Time qPCR
RNA
Antisense
Cloning
LNA[®]
Mutagenesis
Custom
FISH Probes
Universal
siRNA Duplexes
RNAi
Phosphorothioates
Rare Modifications
Primers
UltraPureGold[™]
NMR
Sequencing
Molecular Beacons
LC Hybridization Probes
Double-Dye Probes

Oligonucleotides

Providing you more...

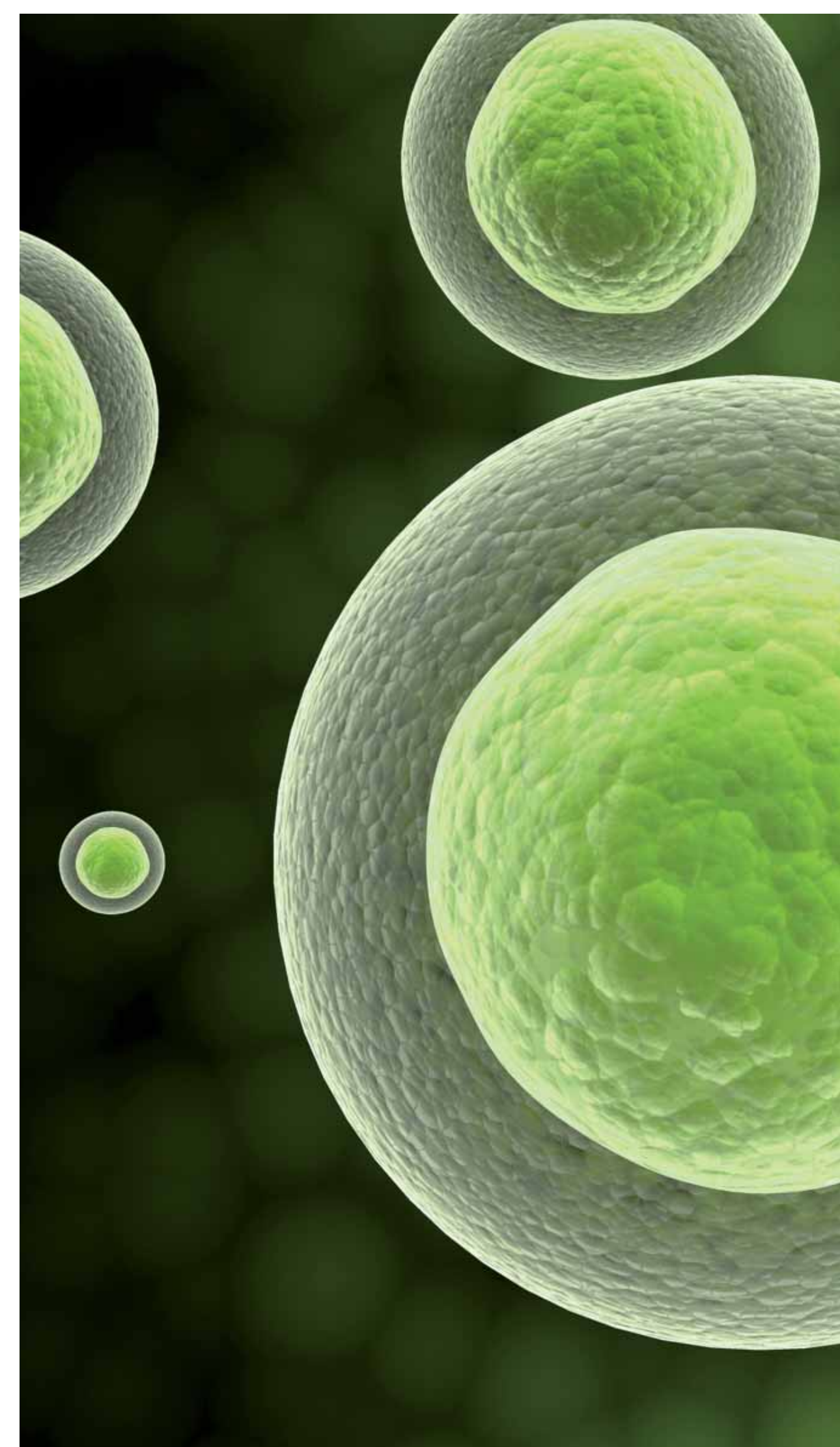


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Features & benefits

Custom Products

- ❖ All types of Oligonucleotides, from 2 to 225 bases
- ❖ All chemistries: DNA, RNA, LNA®, 2'O-Me, PNA
- ❖ More than 250 modifications
- ❖ All synthesis scales, from µg to grams
- ❖ Wide range of Real-Time qPCR Probes, RNAi Oligonucleotides

Trusted quality

- ❖ Optimized chemistry
- ❖ Stringent Quality Controls
- ❖ ISO 9001:2008 Certified Quality System
- ❖ ISO 13485:2003 Certified for IVD Oligonucleotides

True partnership

- ❖ Fast turnaround times
- ❖ Technical and scientific support, staffed by qualified and experienced scientists, in Molecular Biology and Chemistry
- ❖ 3 Manufacturing facilities (Belgium, USA and Japan)

Reduced environmental footprint

- ❖ Environmentally friendly building
- ❖ Optimized Oligonucleotides synthesis
- ❖ Paper free Oligonucleotide related documentation
- ❖ Dry ice free shipments in recycled paper packagings
- ❖ Smarter transportation with local carriers.



Depending on the field of applications (Research & Development, Clinical Molecular Diagnostic assay, Molecular Diagnostic commercial kit), Eurogentec provides different grades of Oligonucleotides with different QA/QC and traceability requirements appropriate to these applications.

Manufacturing sites located in Europe, North America and Asia offer customized global solutions providing redundancy and harmonization of experience, processes and facilities. This guarantees an uninterrupted supply of Oligonucleotides. ■

More than 20 years experience

EUROGENTEC IS A LEADING SUPPLIER of high-quality reagents and custom-synthesized Oligonucleotides to scientists around the globe with over 20 years experience.

Life Science Oligonucleotides

Our Life Science Oligonucleotide service offers a large variety of synthesis scales, more than 250 modifications including highly modified Oligonucleotides, sophisticated chimeras, siRNA coupled to various peptides, Oligonucleotides containing multiple G-stretches, aptamers...

An extensive range of purifications, small and large scale, formats and packagings are also offered. The Life Science Oligonucleotides are produced under ISO 9001 quality standard. ■



cGMP Oligonucleotides for Commercial kits

cGMP Oligonucleotides ensure exceptional product quality by manufacturing in classified cleanrooms and use of an ISO 13485-certified and GMP compliant QMS. This unique level of compliance ensures a high standard of quality, exceptional lot-to-lot reproducibility and fully documented traceability including comprehensive batch records upon final QC release of products.

Eurogentec is also registered with the FDA as a Class I manufacturer of custom ASR (Analyte Specific Reagent) Oligonucleotides, defined by the FDA as being intended for use in *in vitro* diagnostic (IVD) applications.



Life Science Oligonucleotides

WHATEVER your application, even the most demanding ones (NMR, X-ray crystallography, *in vivo* use...), Eurogentec can provide the highest quality Oligonucleotides to meet (and exceed) your expectations!

Custom Oligonucleotides

Length	From 2 to 140 bases
Synthesis scale	10 nmol • 40 nmol • 200 nmol • 1000nmol • 2.5 µmol • 5 µmol • 10µmol*
Backbone	DNA, RNA, LNA®, 2'O-Me RNA, PNA and all linkages
Modifications	More than 250 modifications!
Purifications	SePOP Desalting, RP-Cartridge•Gold™, HPLC, PAGE, Dual HPLC or UltraPureGold™
Quality Control	MALDI-TOF MS
Format	Dried (except for unmodified SePOP Desalted Oligonucleotides from 15 to 39 DNA bases: 100 µM H ₂ O)
Packaging	2 ml tube, 96-well or 384-well plates
Documentation	Technical Data Sheet
Shipping	At Room Temperature

- PCR Primers
- FISH Probes
- Pyrosequencing Primers
- Cloning Linkers
- Antisense Oligonucleotides
- Highly Modified Oligonucleotides

*Larger synthesis scales are available on request.

Real-Time qPCR Probes

Length	From 15 to 50 bases
Synthesis scale	10 nmol • 40 nmol • 200 nmol • 1000 nmol • 2.5 µmol • 5 µmol • 10µmol*
Backbone	DNA, LNA®, 2'O-Me RNA and Phosphodiester linkages
Modifications	5': 6-FAM, HEX, Cy®3, TET, Cy®5... 3': TAMRA, DABCYL, BHQ®, DDQ...
Purifications	RP-HPLC or Dual HPLC
Quality Control	MALDI-TOF MS and Analytical HPLC
Format	Dried
Packaging	2 ml tube
Documentation	Technical Data Sheet
Probe Design	Available on request
Shipping	At Room Temperature

- PCR Primers
- Double-Dye Probes
- LNA® Double-Dye Probes
- Molecular Beacons
- LC Hybridization Probes
- Plexor™ Primers
- NASBA®
- MLPA

RNAi Oligonucleotides

Length	From 21 to 27 bases
Synthesis scale	10 nmol • 40 nmol • 200 nmol • 1000 nmol*
Backbone	RNA, LNA®, 2'O-Me RNA and all linkages
Modifications	5':Phosphate, 6-FAM, Cy®3, Cy®5, TET, HEX,... 3':DABCYL, TEG-Cholesteryl, TAMRA...
Purifications	SePOP Desalting, RP-HPLC or PAGE
Quality Control	MALDI-TOF MS
Format	Dried
Packaging	2 ml tube
Documentation	Technical Data Sheet
siRNA Design	Free and guaranteed
Shipping	At Room Temperature

- Custom siRNA Duplexes
- Control siRNA Duplexes
- miRNA Inhibitors
- miRNA Mimics

Universal Primers

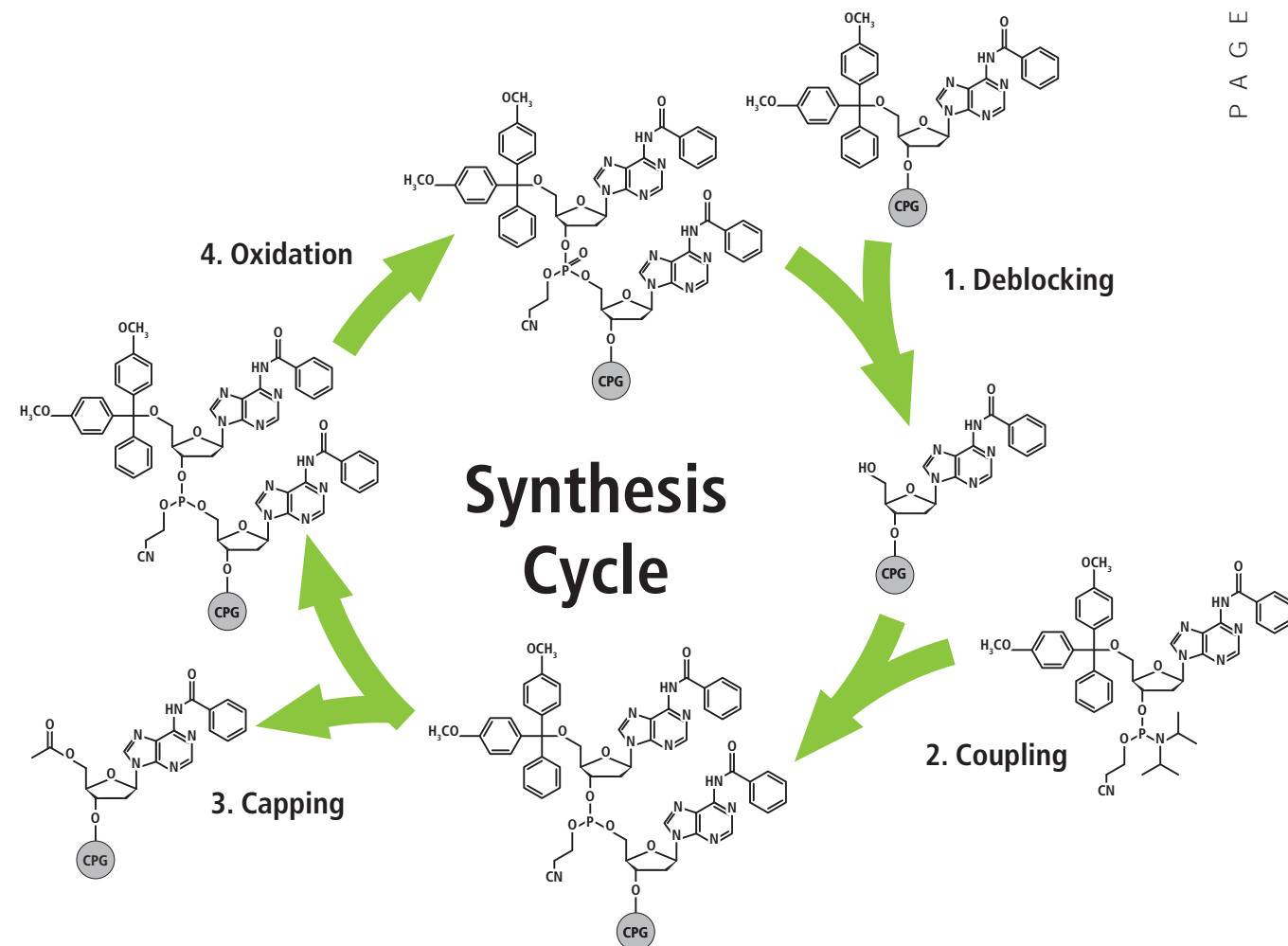
Length	From 15 to 38 bases
Final Yield	1 OD/5 nmol
Backbone	DNA
Modifications	None
Purifications	RP-HPLC
Quality Control	MALDI-TOF MS and CGE
Format	Dried
Packaging	2 ml tube
Documentation	Technical Data Sheet
Shipping	At Room Temperature

- SP6 Promoter
- T7 terminator
- M13
- Bluescript SK
- pET3'
- oligo dT 16 Bases

Unique Oligonucleotides

Length	From 2 to 225 bases
Synthesis scale	Customized
Backbone	Atypical Chemistry
Modifications	Rare modifications
Purifications	SePOP Desalting, RP-Cartridge•Gold™, HPLC, PAGE, Dual HPLC or UltraPureGold™
Quality Control	Adapted to your needs
Format	Personalized
Packaging	Customized
Documentation	Technical Data Sheet and Custom Documentation
Shipping	At Room Temperature

- Your Oligonucleotides



❖ During Oligonucleotide synthesis, each nucleotide is coupled sequentially (from 3' to 5') to the growing chain following a synthesis cycle based on standard β -cyanoethyl chemical reaction: deblocking, coupling, capping, oxidation and deblocking. At the end of the Oligonucleotide synthesis, the crude product is cleaved from the solid support (CPG or polystyrene beads). ■



Oligo Centre

00 800 666 00 123
European toll free number

oligo@eurogentec.com

www.eurogentec.com

Eurogentec
Experience true partnership

Oli&GO 1•2•3™



- ❖ 1 order & 1 invoice only
- ❖ From PCR Primers to highly modified Oligonucleotides (including Real-Time qPCR Probes and siRNA Duplexes)
- ❖ More than 250 Modifications available!
- ❖ Real-Time Account visualization
- ❖ Global administrative view
- ❖ Online Tracking



Custom Oligonucleotides

- ❖ PCR Primers
- ❖ FISH Probes
- ❖ Pyrosequencing Primers
- ❖ Cloning Linkers
- ❖ Antisense Oligonucleotides

Real-Time qPCR Probes

- ❖ Double-Dye Probes
- ❖ Molecular Beacons
- ❖ LC Hybridization Probes

RNAi Oligonucleotides

- ❖ Custom siRNA Duplexes
- ❖ Control siRNA
- ❖ miRNA Inhibitors
- ❖ miRNA Mimics

Universal Primers

- ❖ SP6 Promotor
- ❖ Bluescript SK
- ❖ pET3'
- ❖ Oligo dT 16 Bases
- ❖ M13 Forward
- ❖ T7 Terminator

TEN YEARS OLD, Oli&GO 1•2•3™ has become the keystone of the new Eurogentec Ordering System (EOS) integrating multiple dedicated advantages :

- Realtime online, Activation and Reloads
- Owner / Users definition
- Global administrative view displaying all your Oli&GO 1•2•3™ Accounts
- Multiple Carts management
- Available Control siRNA Duplexes & Universal Primers
- Multiple Shipping Addresses

Oli&GO 1•2•3™ is managed by one and only one Oli&GO counter in Base Units (BU, Eurogentec's currency) according to:

1 BU = 1 DNA Base 10 nmol SePOP Desalted

All your Oligonucleotides (even the most customized ones) can be ordered whenever you want, even if your needs are spread over several months.

The online tracking allows you to check the status of your Oligonucleotides orders at any time.

With just 1 order and 1 invoice, you activate your Oli&GO 1•2•3™ Account and have immediately access to a new user-friendly interface. ■

Oli&GO 1•2•3™ Activation

Description	Reference
444 BU	CD-OG001-0444
1234 BU	CD-OG001-1234
4444 BU	CD-OG001-4444
8888 BU	CD-OG001-8888
17776 BU	CD-OG001-X776

Become Oli&GO 1•2•3™ now!



How much are your Oligos in Base Units (BU)?

Example_1

Custom Oligonucleotide (20 bases 10 nmol)	20 x 1.00 =	20.00 BU
Purification RP-Cartridge • Gold™ (10 nmol)	1 x 22.00 =	22.00 BU
Total		42.00 BU

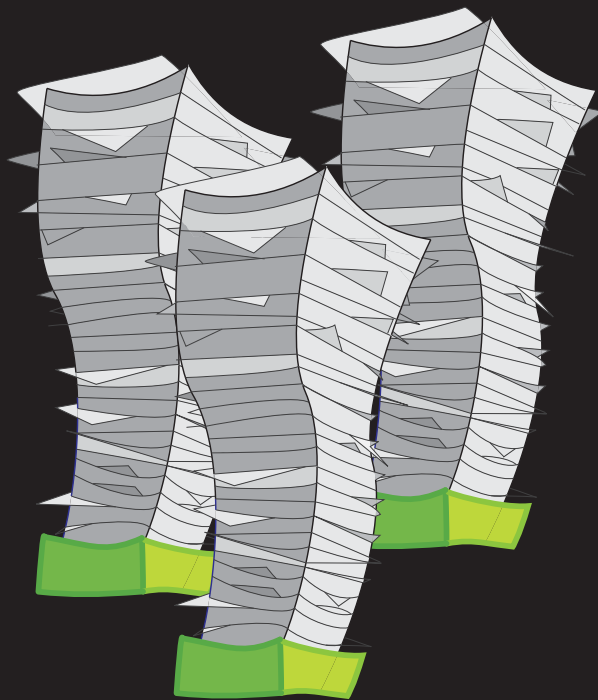
Example_2

Custom Oligonucleotide (30 bases 200 nmol)	30 x 2.20 =	66.00 BU
Modification 5' Digoxigenin (200 nmol)	1 x 490.40 =	490.40 BU
Purification RP-HPLC (200 nmol)	1 x 180.00 =	180.00 BU
Total		736.40 BU

Example_3

Real-Time qPCR Double Dye	1 x 620.00 =	620.00 BU
5' FAM + 3' TAMRA (40 nmol)		
RP-HPLC Purification included		
Total		620.00 BU

With Oli&GO 1•2•3™



Without



You will love
ordering your Oligonucleotides!



Custom Oligonucleotides



Length	From 2 to 140 bases
Synthesis scale	10 nmol • 40 nmol • 200 nmol • 1000nmol • 2.5 µmol • 5 µmol • 10 µmol*
Backbone	DNA, RNA, LNA®, 2'O-Me RNA, PNA and all linkages
Modifications	More than 250 modifications!
Purifications	SePOP Desalting, RP-Cartridge•Gold™, HPLC, PAGE, Dual HPLC, UltraPureGold™
Quality Control	MALDI-TOF MS
Format	Dried (except for unmodified SePOP Desalted Oligonucleotides from 15 to 39 DNA bases: 100 µM H ₂ O)
Packaging	2 ml tube, 96-well or 384-well plates
Documentation	Technical Data Sheet
Shipping	At Room Temperature

* Larger synthesis scales are available on request.

SINCE 1987, Eurogentec's mission has been to answer your needs in Oligonucleotides whatever your application. By creating OliGold® Oligonucleotides, Eurogentec wished to go beyond by advising you on the best purification to associate to your Oligonucleotides.

Moving forward, Eurogentec adopted a new Oligonucleotide structure based on 4 elementary modules to customize your Oligonucleotides with all your desired specifications.

- ➔ **Backbones:** Five distinct types of bases (DNA, RNA, LNA®, 2'O-Me and PNA) and 3 different linkages (Phosphodiester, Methylphosphonate and Phosphorothioate) are available.
- ➔ **Modifications:** More than 250 modifications are listed, from the most common to the most unusual e.g.: N4-ethyl analogue , 2-Aminopurine, AP-dC,...
- ➔ **Purifications:** Depending to your application, a large variety of oligonucleotide purification methods are proposed.
- ➔ **Additional services:** Oligonucleotide format (dried, in solution, mixed and annealed) and packaging (96 or 384 well plates and aliquoting option) may be customised to perfection. Additional Quality Control (MALDI-TOF, HPLC, CGE...) giving qualitative and/or quantitative information on the oligonucleotide purification can be realized on request. ■

Backbones

According to your application, 5 types of bases are available, as a backbone (DNA, RNA, LNA®, 2' O-Me and PNA) including 3 different linkages (Phosphodiester, Methylphosphonate and Phosphorothiate).

Bases

DNA Oligonucleotides are used in many applications such as PCR and DNA array...

RNA Oligonucleotides are particularly suitable to study the involving of RNA in cells regulation.

LNA® Oligonucleotides possess high thermal stability and are recommended for hybridization assays requiring high specificity.

2'O-Me RNA Oligonucleotides are very stable and nuclease resistant, thus recommended for antisense studies.

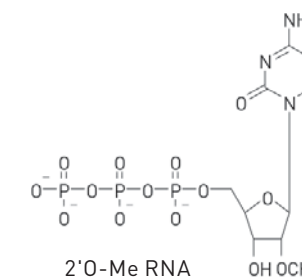
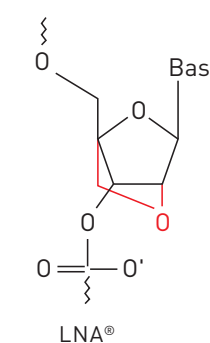
PNA is artificial DNA/RNA analogue with no charged backbone. PNA is particularly useful for FISH studies, miRNA inhibition...

Linkages

Phosphodiester (default) bonds connect the 3' carbon atom and the 5' carbon of the sugar.

Phosphorothioate bonds possess an increased resistance against nuclease due to the substitution of a non-bridging oxygen by sulphur.

Methylphosphonate* bonds are non ionic nuclease resistant linkages. ■



* Only available with DNA bases

Modification(s)

Whatever your application, even the most specific ones (SNP, FISH, RNAi...), Eurogentec can provide the most exotic modifications according to your application needs !

More than 250 Modifications!

Fluorophores FAM, Fluorescein, HEX, TET, JOE, ROX, Yakima Yellow®, Dragonfly Orange™, Cy®3, Cy®5, Alexa Fluor®, ...	Quenchers TAMRA, DABCYL, Eclipse® Dark Quencher, Deep Dark Quenchers, BHQ®	Phosphates 5' Phosphate 3' Phosphate
Degenerate Bases Wobbles & Spikes	Non-Natural Bases Inosine, Universal bases, IsodC-IsodG, C5-propyne and methyl analogues, ...	Modifiers Amino Modifiers C3, C6, C12, Thiols Modifiers
Conjugates Digoxigenin, Dinitrophenol, Cholesteryl, Psoralen, Carboxy, ...	Biotins 5' Biotin TEG, Internal Biotin, 3' Biotin, dR Biotin	Spacers Spacers C3, C9, C12, ...

IUB base codes

R = A/G	Y = C/T	M = A/C	K = G/T
S = C/G	W = A/T	B = C/G/T	D = A/G/T
H = A/C/T	V = A/C/G	N = A/C/G/T	

LNA E = A-LNA® L = C-LNA® P = G - LNA® Z = T - LNA®

Overview

Oligonucleotides can be modified by direct incorporation during the synthesis or post-synthesis labelling.

Direct incorporation

3' modifications

Since automated oligonucleotide synthesis is realized from 3' to 5', these modifications are only possible if the corresponding solid support (CPG column) is available and if the modification is compatible with the chemistries used during the synthesis. Typical examples are 3'-phosphate, 3' Biotin, 3' FAM, 3' DDQ I, 3' BHQ-1® ...

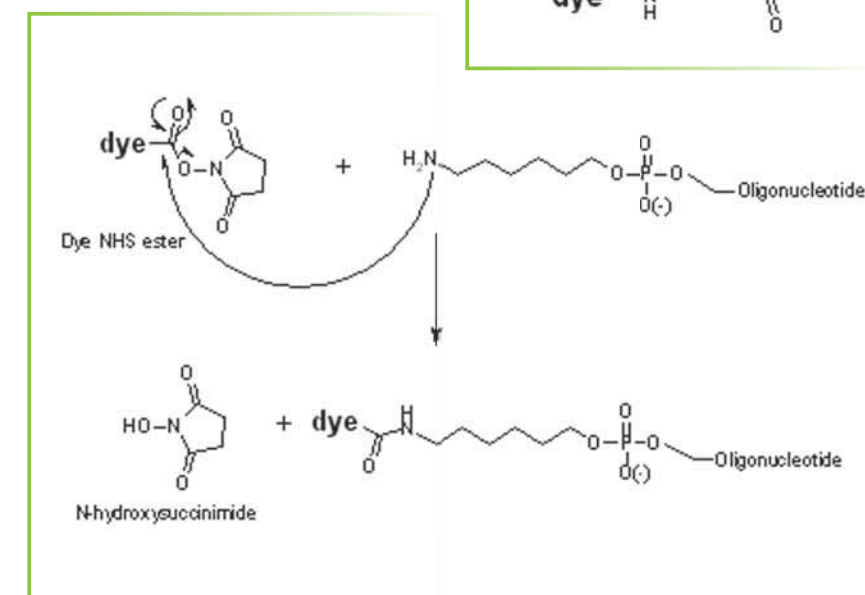
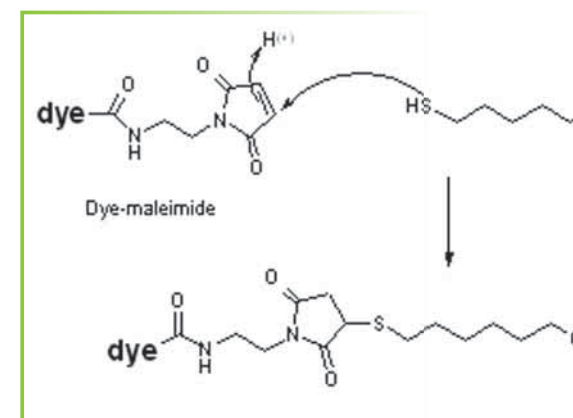
5' and internal modifications

Many modifications can be directly introduced at the 5' end or at internal positions of the Oligonucleotides using the phosphoramidites. However, these modifications need to support the somewhat harsh cleavage-deprotection conditions including a strong basic pH. Typical examples are 5' Biotin, 5' Phosphate, 5' Cholesterol, 5' FAM, 8-Oxo-dA, Biotin-dT, DABCYL-dT...

Post-synthesis incorporation

The two major post-synthesis reactions illustrated below are used to introduce sensitive dyes or compounds that do not exist as phosphoramidites. In the first case, the label is conjugated to an amino-modified oligonucleotide (3', 5' or on a dT) using its amino-reactive version (N-hydroxysuccinimide (NHS) ester in most cases).

A second possibility (originally also used for synthesis of molecular beacons) is the addition of a maleimide-modified label to a thiol-modified oligonucleotide. ■





Purification(s)

The initial aim of any purification method is to remove the by-products resulting from the removal of the protecting groups and other synthesis by-products. As with the purification of other biomolecules, the removal of small inorganic impurities is referred to as "desalting".

In general, the purity level required for a specific application depends on the potential downstream problems, which may occur as a result of the presence of those truncated sequences. This purification step ensures that even the simplest primer will be suitable for most molecular biology applications, such as PCR, RT-PCR, Real-Time qPCR, sequencing and hybridization studies. ■

*These values are purely indicative and only valid for an unmodified Oligonucleotide of 20 bases. In addition, according to your Oligonucleotides (sequences, modifications...), the purity level can be analysed by various methods (analytical HPLC, CGE...).

Length					
8-15	16-39	40-59	60-79	80-99	100-140
UltraPureGold™					
Dual HPLC (RP+RP or RP+IEX)			PAGE		
HPLC (RP or IEX)					
RP Cartridge • Gold™					
SePOP desalting					



Applications

NMR, X-ray crystallography

Production of cloning linkers
Site-directed mutagenesis

Cloning and subcloning PCR
Gene synthesis
Gel-shift assay

Special modifications (G-clamp...)
miRNA, siRNA and antisense
First-strand cDNA synthesis

in situ Hybridization
Real-Time qPCR
Capillary sequencing
Non-radioactive labelling

AFLP
OLA
Sensitive PCR (Diagnostic)
Classical modifications
(modified bases, chemical linkers...)

Isothermal sequencing
Cycle sequencing
Routine PCR
Hybridization
DNA MicroArray
SNP Analysis

Additional service(s)

Additional QC

MALDI-TOF Mass Spectrometry:

This method provides the most precise information about the length, deprotection-product and verification of the presence of labels for modified Oligonucleotides over a broad range of lengths (up to 60 bases).

RP-HPLC: This is a very efficient technique providing you quantitative information about the purity level of Oligonucleotides from 15 to 40 bases long.

IEX-HPLC: This technique is particularly adapted to quantify the purity level of Oligonucleotides from 15 to 40 bases long.

Capillary Gel Electrophoresis (CGE):

This method is adapted to very precisely assess the purity of Oligonucleotides longer than 40 bases.

Fluorescence analysis: This non-destructive physical technique provides qualitative information about your fluorescent Oligonucleotides. ■

Format

Dried: All the synthesised Oligonucleotides are dried by default (except SePOP unmodified Oligonucleotides from 15 to 39 bases).

In solution: You may select the nature of the reconstitution buffer (H₂O or TE), the volume of the reconstitution buffer (from 50 to 1000 µl) or/and the final Oligonucleotides concentration (from 5 to 250 µM).

Annealed: siRNA or cloning linkers are annealed by default.

Mixed: Forward and reverse Oligonucleotides can be combined at the same concentration in mixture. ■

Packaging

2 ml tube: By default, each oligonucleotide is provided in individual 2 ml tube.

96-well plates: Cluster tubes, well plate and deep well plate.

384-well plates: This packaging format is specially suitable for high throughput experiments requiring up to 96 Oligonucleotides.

Aliquoting: All the Oligonucleotides in solution can be split in small aliquots of desired volume (from 50 to 1000 µl). ■

Shipping

Your Oligonucleotides can be express shipped in 24 hours upon request for orders up to 24 unmodified SePOP Desalted (100 µM H₂O) and RP-Cartridge • Gold™ (Dried) Custom Oligonucleotides (15-30 bases / 10-40 nmol scale). ■

Design

We continuously update our software and design rules to reflect the latest scientific developments as well as integrate customer requirements. This service includes primers, Double-Dye Oligonucleotides, Molecular Beacons, siRNA design, miRNA inhibitors... ■



Real-Time qPCR probes



Length	From 15 to 50 bases
Synthesis scale	10 nmol • 40 nmol • 200 nmol • 1000 nmol • 2.5 µmol • 5 µmol • 10µmol*
Backbone	DNA, LNA®, 2'-O-Me RNA and Phosphodiester linkage
Modifications	5': 6-FAM, HEX, Cy®3, TET, Cy®5... 3': TAMRA, DABCYL, BHQ™, DDQ...
Purifications	RP-HPLC or Dual HPLC
Quality Control	MALDI-TOF MS and Analytical HPLC
Format	Dried
Packaging	2 ml tube
Documentation	Technical Data Sheet
Probe Design	Available on request
Shipping	At Room Temperature

* Larger synthesis scales are available on request.

EUROGENTEC OFFERS a wide range of fluorophores and quenchers in various combinations to fit any methods and Real-Time thermocyclers. If any help is needed concerning the combination of dyes that should be used on a specific thermocycler, please do not hesitate to contact our scientific support that will be happy to help you. ■

Double-Dye Probes

Double-Dye probes

Double-Dye Probes have a fluorescent reporter dye and a quencher at their 5' and 3' ends, respectively. During the amplification process, the 5'→3' exonuclease activity of the *Taq* DNA polymerase cleaves the fluorophore from the probe.

Since the fluorophore is no longer subjected to FRET quenching, it starts to fluoresce. This fluorescence can be measured, and the level is directly proportional to the amount of target DNA accumulating during the PCR reaction.

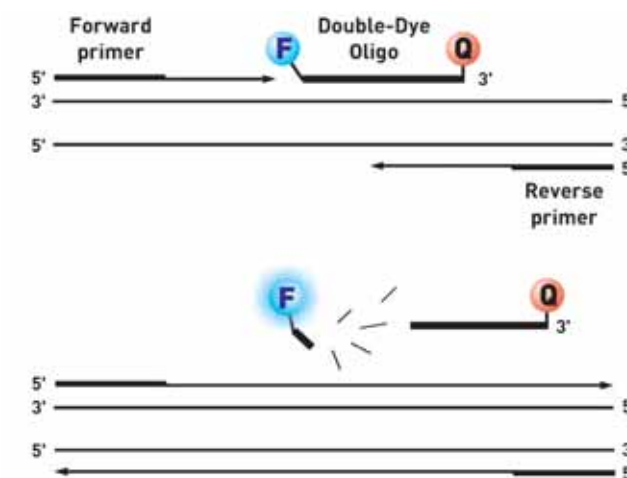
LNA® Double-Dye probes

LNA® bases have a modification to the ribose backbone that locks the base in the C3'-endo position, which favors RNA A-type helix duplex geometry. Compared to DNA Double-Dye probe, LNA® Double-Dye probes have

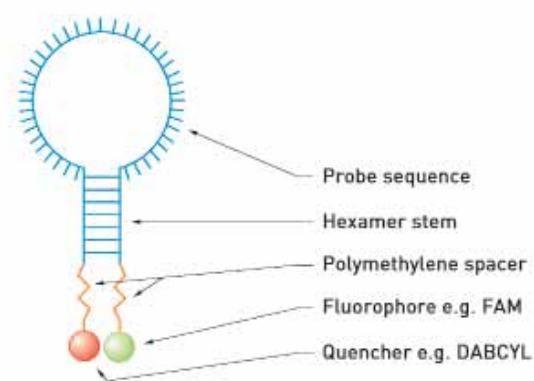
several advantages:

- They exhibit unprecedented thermal stabilities towards complementary DNA and RNA.
- LNA® bases show better mismatch discrimination.
- The high-binding affinity of LNA® Oligonucleotides allows the use of shorter probes.
- They offer high specificity and/or reproducibility.
- Furthermore, LNA® offers the possibility to adjust T_m values of primers and probes in multiplex assays. ■

Increase the stability of your Duplex



Molecular Beacons



Enhance your detection

Molecular Beacons are probes which contain a stem-loop structure, a fluorophore and a quencher at their 5' and 3' ends, respectively. In the presence of a complementary sequence, the probe unfolds and hybridizes

to the target, the fluorophore is displaced from the quencher, which can no longer absorb the photons emitted by the fluorophore, and the probe starts to fluoresce. The amount of signal is proportional to the amount of target sequence, and is measured in Real-Time to allow quantification of the amount of target sequence. Eurogentec is a licensed supplier of Molecular Beacons, and offers a large number of fluorescent reporters and quenchers.

Wavelength-Shifting Molecular Beacons

Wavelength-Shifting Molecular Beacons are brighter than standard Molecular Beacons because of an enhancement in the intensity of the fluorescence of the emitter fluorophore.

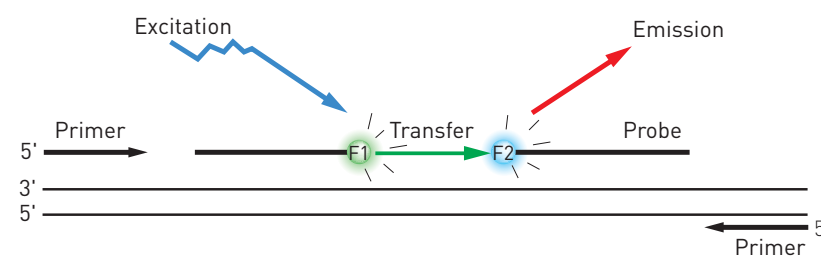
2' O-Methyl RNA Molecular Beacons

2' O-Methyl RNA probes are considered to perform better than DNA Oligonucleotides because they are not only nuclease resistant, but also possess a higher affinity, increased specificity, faster hybridization kinetics, and a superior ability to bind to structured targets compared to DNA Oligonucleotides. ■

LC Hybridization probes

FRET probes to quantify target sequences

LC hybridization probes, also called FRET probes, are labelled with a single fluorescent reporter. Two LC hybridization probes specific for two adjacent sequences in the target DNA are used for quantitative Real-Time PCR. One probe is labelled with a donor fluorophore and the other labelled with an acceptor (or reporter) fluorophore. When the probes are bound to the target sequence, the fluorescent signal is transferred from the donor to the acceptor, which fluoresces. When probes are not annealed on the target sequence, donor and acceptor dyes are not in close proximity and no emission was detected. The amount of signal is proportional to the amount of target sequence, and is measured in real time to allow quantification of the amount of target sequence. A 3' phosphate group is also added to prevent extension of the reporter probe by *Taq* DNA polymerase during the PCR cycles. ■



*Please note that due to the use of various scales some discrepancies might be observed between the right and left parts of this figure. Only available in FRET quenching. QR: indicative quenching range.

Fluorescent dyes

Fluorescent Dyes	Max Abs (nm)	Max Em (nm)	Emission color
Cascade blue	396	410	UV
Alexa Fluor 405*	401	421	
AMCA-X	353	442	
Alexa Fluor 350*	346	442	
Pacific Blue*	416	451	
Marina blue*	362	459	
ATTO 390	390	479	
ATTO 425	436	484	
EDANS	336	490	
Cy2	336	499	
ATTO 465	453	508	
BODIPY® 493/503	500	509	
BODIPY® FL-X/BODIPY® FL	504	510	
DY-475XL	493	514	
Alexa Fluor® 488	492	519	
FAR1	499	519	
Oregon Green® 500	495	521	
Hilite Fluor™ 488	499	523	
Oregon Green® 488	501	522	
ATTO 488	492	525	
Fluorescein	495	525	
Oregon Green® 488-X	506	526	
Oregon Green® 514	495	527	
ATTO 495	500	527	
Oyster-500	503	528	
DY-495-05	503	528	
DY-495-X5	503	528	
Rhodamine Green™-X	505	530	
DY-505-05	505	530	
DY-505-X5	428	532	
Lucifer Yellow	505	535	
Rhodamine Green™	521	536	
TET	433	541	
Alexa Fluor® 430	438	548	
BODIPY® 507/545	522	544	
CAL Fluor Gold 540	525	545	
ATTO 520	520	548	
JOE	530	549	
Nakima Yellow®	530	550	
BODIPY® R6G	534	551	
BODIPY® 530/550	532	553	
ATTO 532	538	554	
VIC	532	554	
Alexa Fluor® 532	505	556	
DY-500XL	535	556	
HEX	538	559	
CAL Fluor™ Orange 560	485	568	
DY-568XL	546	563	
Cy3	555	565	
Alexa Fluor® 555	548	568	
Hilite Fluor™ 555	553	568	
Oyster 570	549	569	
DY-554	549	569	
BODIPY® 558/568	554	570	
BODIPY® 564/570	544	569	
BODIPY® R-X	556	570	
Oyster-568	547	572	
DY-555	548	573	
DY-556	556	573	
Alexa Fluor® 546	557	574	
DY-547	546	575	
Dragonfly orange™	554	576	
ATTO 550	559	578	
DY-560	559	580	
RoseBottle™-X	556	588	
TAMRA	509	590	
DY-510XL	581	591	
BODIPY® 581/591	569	591	
CAL Fluor® Bld 590	563	592	
ATTO 565	558	595	
PEI	567	599	
FAR-Fuschia	580	599	
DY-590	575	602	
ROX	578	603	
Alexa Fluor 568	578	603	
SuperRed™-X	588	604	
Cy3.5	596	617	
Hilite Fluor™ 594	596	617	
CAL Fluor® Bld 610	596	617	
BODIPY® Tr-X	588	616	
Alexa Fluor® 594	590	617	
ATTO 590	594	624	
ATTO 594	601	627	
Alexa Fluor® 610	612	628	
DY-610	609	629	
DY-600XL	600	630	
ATTO 610	615	634	
DY-600XL	603	634	
CAL Fluor® Bld 635	618	637	
BODIPY® 630/650	625	640	
LC Bld 640	625	640	
DY-619	621	643	
ATTO 620	619	643	
Alexa Fluor® 633	632	650	
PULSAR 650	460	650	
LIZ	636	657	
DY-630	636	657	
DY-632	637	657	
DY-633	637	657	
ATTO 633	629	657	
DY-631	637	658	
ATTO 635	635	659	
ATTO 637	638	659	
Cy5	646	662	
DY-620-XL	620	664	
Alexa Fluor® 647	645	665	
BODIPY® 650/665	650	665	
Oyster-645	645	666	
Hilite Fluor™ 647	647	667	
Oyster® 670	652	669	
ATTO 647	645	669	
ATTO 647N	644	669	
WellRed D4-PA	650	670	
DY-635	647	671	
DY-636	645	671	
DY-647	653	672	
DY-650	653	674	
Oyster-656	656	674	
FAR-Blue	660	678	
DY-651	653	678	
ATTO 655	663	684	
Alexa Fluor® 660	663	690	
Hilite Fluor™ 680	673	696	
DY-673	678	699	
DY-675	674	699	
DY-676	674	699	
ATTO 680	680	700	
Alexa Fluor® 680	679	702	
LC Bld 705	685	705	
WellRed D2-PA	685	705	
Cy5.5	683	707	
DY-681	691	708	
DY-680	690	709	
IRD 700	685	710	
DY-690	691	714	
ATTO 700	700	719	
Alexa Fluor® 700	702	723	
DY-700	707	730	
DY-701	706	731	
ATTO 725	725	752	
DY-730	732	758	
DY-732	736	759	
DY-731	736	760	
ATTO 740	740	764	
Cy7	747	767	
Hilite Fluor™ 750	750	770	
WellRed D2-PA	754	778	
Alexa Fluor® 750	749	775	
DY-750	747	776	
DY-751	751	779	
FAR-Green Two	772	788	
DY-781	783	800	
DY-782	782	800	
DY-776	771	801	
DY-780	770	810	
IRD 800	795	819	
IRS-Green One	800	820	

Deep Dark Quencher I
λabs(max): 440 nm
QR: 380-500 nm

BHQ-1®
λabs(max): 534 nm
QR: 480-580 nm

BHQ-2®
λabs(max): 579 nm
QR: 550-650 nm

BHQ-3®
λabs(max): 680 nm
QR: 620-730 nm

Deep Dark Quencher II
λabs(max): 595-650 nm
QR: 570-680 nm

DABCYL
λabs(max): 479 nm
QR: 390-510 nm

Eclipse® Dark Quencher
λabs(max): 522 nm
QR: 460-570 nm

Plexor™ Primers

Adapted
for Real-
Time qPCR
Multiplex
Assays

The Plexor™ primer technology is a technique for Real-Time qPCR adapted to multiplex assays. This technology

takes advantage of the highly specific interaction between two modified nucleotides. These two novel bases, called isoguanine (iso-dG) and 5 -methylisocytosine (iso-dC), form a unique base pair when incorporated in double-stranded DNA and pair only with each other. In Plexor™ reactions, one PCR primer is synthesized with an iso-dC residue and a fluorescent label at the 5'-end. The second PCR primer is a standard unlabelled oligonucleotide. ■

NASBA®

The NASBA® method is a versatile technique particularly adapted for applications requiring specific amplification of nucleic acid sequences of viral genomes, genomes of other infectious or pathogenic agents or certain cellular mRNA. NASBA® (Nucleic Acid Sequence Based Amplification) is an isothermal nucleic acid amplification technology allowing the amplification of RNA or DNA targets through a transcription process, after insertion of a T7 promotor. NASBA® technology is based on the concerted action of three enzymes:

- AMV Reverse Transcriptase: for cDNA synthesis
- RNase H: for degradation of the RNA in the heteroduplex RNA-DNA
- T7 RNA polymerase: for synthesis of RNA from the T7 promoter. ■

Adapted
for specific
amplifications

MLPA®

Multiple
pathogens
identified in a
single assay

PathoFinder develops a new generation of molecular diagnostics aimed at quick detection and identification of human pathogens causing an infectious disease. PathoFinder utilizes multiparameter analysis technology, enabling fast and easy analysis of highly complex targets. With

PathoFinder products, multiple pathogens can be readily identified in a single, easy to perform assay. PathoFinder products save time, allow for automation and are very cost-effective, and thus address the three major aspects of introducing molecular diagnostics in the daily clinical routine. PathoFinder products are either based on a proprietary MultiFinder™ technology or on Real-Time PCR. PathoFinder has developed and validated the MultiFinder™ technology. This technology enables detection and differentiation of up to 20 viral and bacterial targets in a single molecular diagnostic assay. ■

RNAi Oligonucleotides



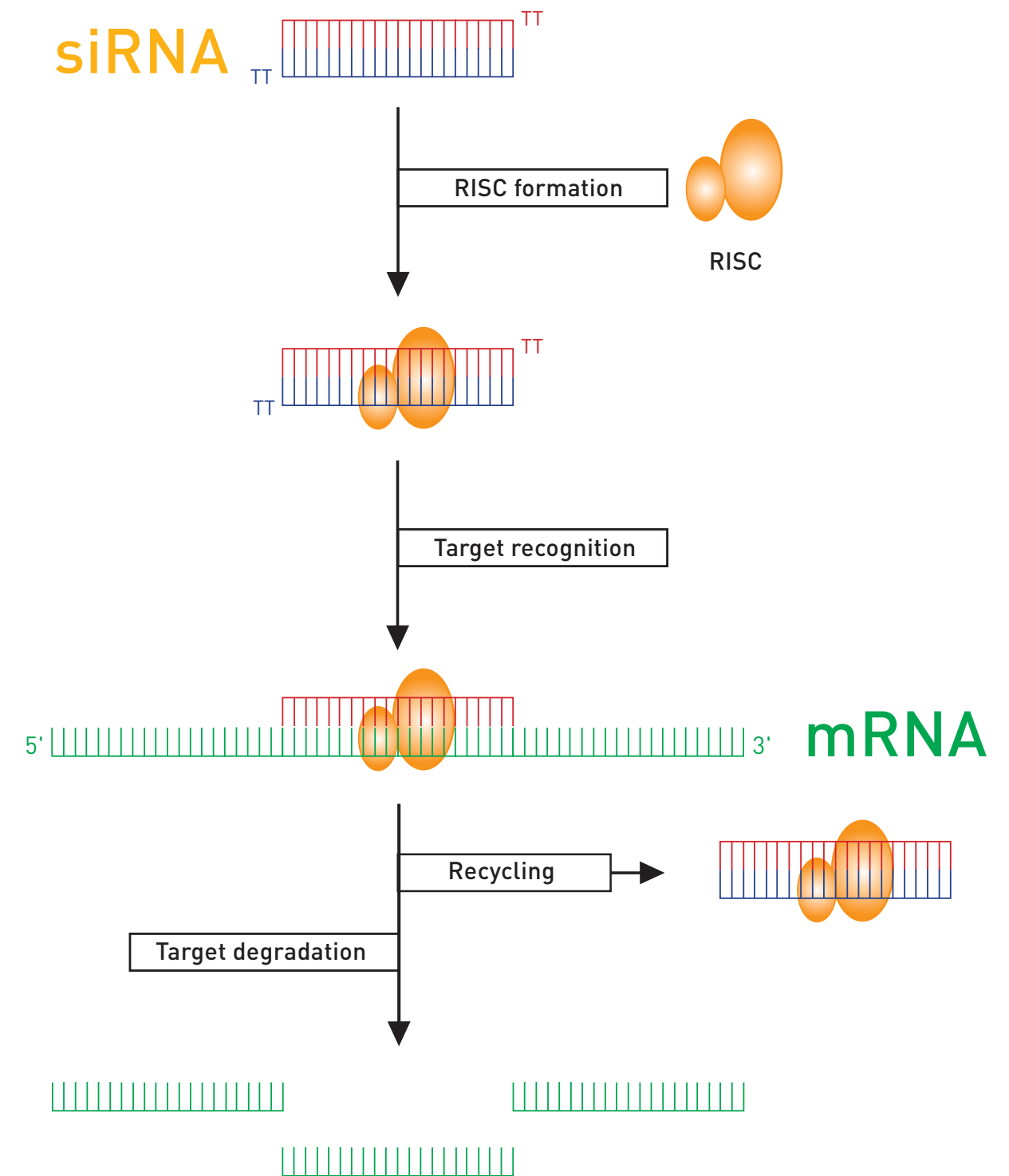
Length	From 21 to 27 bases
Synthesis scale	10 nmol • 40 nmol • 200 nmol • 1000 nmol*
Backbone	RNA, LNA®, 2'-O-Me RNA and all linkages
Modifications	5':Phosphate, 6-FAM, Cy®3, Cy®5, TET, HEX,... 3':DABCYL, TEG-Cholesteryl, TAMRA...
Purifications	SePOP Desalting, RP-HPLC or PAGE
Quality Control	MALDI-TOF MS
Format	Dried
Packaging	2 ml tube
Documentation	Technical Data Sheet
siRNA Design	Free and guaranteed
Shipping	At Room Temperature

* Larger synthesis scales are available on request.



RNA INTERFERENCE

is a mechanism of gene silencing at the mRNA level. This phenomenon is triggered by small interfering (si)RNAs and micro (mi)RNAs. siRNAs and miRNAs are capable of inhibiting gene expression by either directing the degradation of homologous mRNA targets or inducing the repression of translation of mRNA targets which have incomplete complementarity. ■



Principle of siRNA-mediated RNA interference

siRNA

Custom siRNA Duplexes

By **compiling** the most documented strategies for the design of effective siRNA sequences, Eurogentec has co-developed an exclusive siRNA design platform. PhD-level scientists of our design team use this reliable interface to

The easiest and most efficient way to achieve RNAi

design custom siRNA for any target of your choice. ■

Control siRNA Duplexes

In order to monitor your siRNA experiment conditions, Eurogentec provides siRNA control duplexes and kits including negative and positive controls necessary to valid your experiment.

■ **Negative control** is constituted of siRNA presenting no homology with any known eukaryotic gene. siRNA control is already annealed and shipped in solution. The proposed sequence is properly validated.

■ **Positive controls** consist of siRNA directed against a range of endogenous and reporter genes are available in 5, 10 and 20 nmol final quantities. Each control contains 1 siRNA duplex. All siRNA control duplexes are PAGE purified and 100 % MALDI-TOF Mass Spectrometry controlled. The sequences proposed are validated and published. ■

miRNA

Clear-MiR™ miRNA Inhibitors

The best way to target specific messenger RNA

Clear-MiR™ miRNA inhibitors are chemically modified antisense RNA Oligonucleotides optimized to specifically target miRNA molecules in cells. ■

Add-MiR™ miRNA Mimics

Add-MiR™ Oligonucleotides are Custom double-stranded synthetic miRNA mimicking the action of endogenous miRNAs. ■

>Note

- The antisense strand must either have a free 5'-OH (by default) or 5'-phosphate terminus.
- Certain modifications can sometimes be useful *e.g.* to increase stability or cellular uptake. Modifying siRNA with cholesterol is used to facilitate tissue / cellular uptake.
- Various fluorescent dyes can be coupled to the 5'-end of the sense strand oligonucleotide to track transfection efficiency of the corresponding duplex.

>Note

Clear- MiR™ miRNA Inhibitors and Add-MiR™ miRNA Mimics are available with different labels and can be linked to cholesterol to increase cellular uptake. On request, peptides can also be covalently linked.

Universal Primers



Length	From 15 to 38 bases
Final Yield	1 OD/5 nmol
Backbone	DNA
Modifications	None
Purifications	RP-HPLC
Quality Control	MALDI-TOF MS + CGE
Format	Dried
Packaging	2 ml tube
Documentation	Technical Data Sheet
Shipping	At Room Temperature



DURING SEQUENCING, primers are annealed to the denatured DNA template to provide an initiation site for the elongation of the new DNA molecule. Primers can either be specific to a particular DNA nucleotide sequence or they can be “Universal.”

Nucleic acid sequence analysis is an extensively applied method in Genomics studies. Universal primers are complementary to nucleotide sequences that are very common in a particular set of DNA molecules and cloning vectors. Thus, they are able to bind to a wide variety of DNA templates.

All Universal Oligonucleotides (see table just beside) are provided RP-HPLC purified, MALDI-TOF MS and CGE controlled. They are sent dried in 2 ml tube with a typical final yield of 1 OD / 5 nmol next day after order receipt (subject to in-stock availability). ■

Universal primers			
Name	Sequence	Bases	Tm (°C)
16S rRNA For	AGA GTT TGA TCC TGG CTC AG	20	55.2
16S rRNA Rev	ACG GCT ACC TTG TTA CGA CTT	21	57.4
3' RACE PCR	GGC CAC GCG TCG ACT AGT AC	20	60.6
Anchored Oligo dT (20)	TTT TTT TTT TTT TTT TV	20	39.2
Anchored Oligo dT (22)	TTT TTT TTT TTT TTT TTV N	22	42.8
Bluescript KS	TCG AGG TCG ACG GTA TC	17	53.3
Bluescript SK	CGC TCT AGA ACT AGT GGA TC	20	52.4
cDNA Cloning Primer	GGC CAC GCG TCG ACT AGT ACT TTT TTT TTT TTT TV	38	64.8
EGFP-C	CAT GGT CCT GCT GGA GTT CGT G	22	61.2
EGFP-N	CGT CGC CGT CCA GCT CGA CCA G	22	67.2
G3PDH For	ACC ACA GTC CAT GCC ATC AC	20	58.6
G3PDH Rev	TCC ACC ACC CTG TTG CTG TA	20	59.7
M13 Forward (-20)	GTA AAA CGA CGG CCA GT	17	53.0
M13 Forward (-41)	CGC CAG GGT TTT CCC AGT CAC GAC	24	65.5
M13 Reverse (-27)	CAG GAA ACA GCT ATG AC	17	47.3
M13 Reverse (-48)	AGC GGA TAA CAA TTT CAC ACA GG	23	57.2
Neomycin For	CTT GGG TGG AGA GGC TAT TC	20	55.6
Neomycin Rev	AGG TGA GAT GAC AGG AGA TC	20	54.0
Oligo dT, 15mer	TTT TTT TTT TTT TTT	15	29.7
Oligo dT, 16mer	TTT TTT TTT TTT TTT T	16	32.1
Oligo dT, 18mer	TTT TTT TTT TTT TTT TTT	18	36.0
Oligo dT, 20mer	TTT TTT TTT TTT TTT TTT TT	20	39.1
PCMV Forward	CGC AAA TGG GCG GTA GGC GTG	21	64.8
pET 3'	CTA GTT ATT GCT CAG CGG	18	50.6
pET 5' (T7)	TAA TAC GAC TCA CTA TAG G	19	45.3
pET Upstream	ATG CGT CCG GCG TAG A	16	56.7
pGEX 3'	CCG GGA GCT GCA TGT GTC AGA GG	23	65.2
pGEX 5'	GGG CTG GCA AGC CAC GTT TGG TG	23	67.0
ROSA26 Promoter For	AAA GTC GCT CTG AGT TGT TAT	21	53.2
ROSA26 Promoter Rev	GGA GCG GGA GAA ATG GAT ATG	21	56.3
SP6 Promoter	TAC GAT TTA GGT GAC ACT ATA G	22	50.0
SP6 Upstream	ATT TAG GTG ACA CTA TAG	18	42.8
T3 Promoter	AAT TAA CCC TCA CTA AAG GG	20	50.4
T7 Promoter	TAA TAC GAC TCA CTA TAG GG	20	48.3
T7 Terminator	GCT AGT TAT TGC TCA GCG G	19	54.1

Unique Oligonucleotides

WITH OVER 20 YEARS EXPERIENCE in Oligonucleotides, Eurogentec has synthesized sophisticated chimeras, siRNA coupled to various peptides, highly complex sequences, very short labelled Oligonucleotides, G-stretches, aptamers... in guaranteed quantities from nanograms to milligrams.

Because your experiments require always more customisation, Unique Oligonucleotides bring you the perfect solution with atypical chemistries, rare modifications, custom synthesis scale or final guaranteed amount, personalized labels and packagings... ■

The Unique solution you deserve!

Specifications	
Length	From 2 to 225 bases
Synthesis scale	Customized
Backbone	Atypical Chemistry
Modifications	Rare modifications
Purifications	SePOP Desalting, RP-Cartridge•Gold™, HPLC, PAGE, Dual HPLC, UltraPureGold™
Quality Control	Adapted to your needs
Format	Personalized
Packaging	Customized
Documentation	Technical Data Sheet Custom documentation
Shipping	At Room Temperature

Please, contact us on unique@eurogentec.com with the specifications of your Unique Oligonucleotides (sequence or length, chemistries, modifications, purifications, expected purity, synthesis scale or final amount, format, packaging...). You will receive the corresponding information in terms of technical feasibility, pricing and turnaround times within 48 hours. ■



Minimum Guaranteed Yields

THERE IS OFTEN SOME CONFUSION

surrounding the issues of synthesis scale and minimum guaranteed yield in Oligonucleotide manufacturing:

- ➡ The synthesis scale refers to the amount of raw material used to start the synthesis of Oligonucleotides.
- ➡ The yield corresponds to the amount of final product recovered at the end of the synthesis and purification processes.

The length, the sequence, the type/number of modifications and the purification, strongly influence the amount of synthesised material, and the proportion of full-length Oligonucleotides. Based on that, Eurogentec defined a minimum guaranteed yield in OD and nmoles for all product categories (see tables beside). The applied minimum guaranteed yield is the minimum guaranteed yield in OD (Table 1) or minimum guaranteed yield in nmoles (Table 2), whichever is lower.

In many cases the minimum guaranteed yields represent only a reference because the delivered quantities are significantly higher. ■

Minimum guaranteed yields in OD																														
Synthesis scale			10			40			200			1000			2500		5000		10000											
Purification			RP-Cartridge-Gold™ HPLC (RP or IEX)			RP-Cartridge-Gold™ HPLC (RP or IEX) PAGE ⁽³⁾ Dual HPLC			RP-Cartridge-Gold™ HPLC (RP or IEX) PAGE ⁽³⁾ Dual HPLC UltraPureGold™			RP-Cartridge-Gold™ HPLC (RP or IEX) PAGE ⁽³⁾ Dual HPLC UltraPureGold™			RP-Cartridge-Gold™ HPLC (RP or IEX) Dual HPLC		RP-Cartridge-Gold™ HPLC (RP or IEX) Dual HPLC		RP-Cartridge-Gold™ HPLC (RP or IEX) Dual HPLC											
Range	Product	Length	SePOP	RP-Cartridge-Gold™ HPLC (RP or IEX)	SePOP	RP-Cartridge-Gold™ HPLC (RP or IEX) PAGE ⁽³⁾ Dual HPLC	SePOP	RP-Cartridge-Gold™ HPLC (RP or IEX) PAGE ⁽³⁾ Dual HPLC UltraPureGold™	SePOP	RP-Cartridge-Gold™ HPLC (RP or IEX) PAGE ⁽³⁾ Dual HPLC UltraPureGold™	SePOP	RP-Cartridge-Gold™ HPLC (RP or IEX) PAGE ⁽³⁾ Dual HPLC UltraPureGold™	SePOP	RP-Cartridge-Gold™ HPLC (RP or IEX) Dual HPLC	SePOP	RP-Cartridge-Gold™ HPLC (RP or IEX) Dual HPLC	SePOP	RP-Cartridge-Gold™ HPLC (RP or IEX) Dual HPLC												
Custom Oligonucleotides	Non-Modified (DNA only)	5-14	-	-	1	1	-	-	<1	5	4	3	2	1	1	15	8	7	5	2	2	38	17	5	75	35	10	150	70	20
		15-39	1	1	4	3	2	1	<1	12	11	7	5	1	1	50	25	20	10	2	2	125	50	5	250	100	10	500	200	20
		40-59	1	1	4	3	2	1	<1	12	11	7	5	1	1	50	25	20	8	2	2	125	50	5	250	100	10	500	200	20
		60-79	-	-	-	3	-	1	-	-	11	-	5	-	1	-	25	-	8	-	2	-	-	-	-	-	-	-	-	-
		80-99	-	-	-	-	-	1	-	-	-	-	3	-	1	-	-	-	6	-	2	-	-	-	-	-	-	-	-	-
		100-139	-	-	-	-	-	1	-	-	-	-	2	-	1	-	-	-	3	-	2	-	-	-	-	-	-	-	-	-
	Modified ⁽¹⁾ (including DNA, RNA, 2' O-Me RNA & LNA®)	5-14	-	-	1	1	<1	<1	<1	4	3	2	1	1	-	8	5	4	3	2	-	-	10	5	-	20	10	-	40	20
		15-39	-	-	2	1	1	1	<1	4	4	3	3	1	-	12	12	9	8	2	-	-	23	5	-	45	10	-	90	20
		40-59	-	-	2	1	1	1	<1	4	4	3	3	1	-	12	12	9	8	2	-	-	23	5	-	45	10	-	90	20
	Real-Time qPCR Probes	Double-Dye probes ⁽²⁾	8-38	-	-	<1 ⁽⁴⁾	-	-	1	-	-	-	3	-	-	-	-	9	-	-	-	-	23	-	-	45	-	-	90	-
Molecular Beacons		32-50	-	-	-	-	-	-	-	-	-	1	-	-	-	-	5	-	-	-	-	12	-	-	25	-	-	50	-	
RNAi Oligonucleotides	siRNA Duplexes Non-Modified	21-27	2	-	1	7	-	4	2	-	17	-	11	6	-	70	-	30	10	-	-	70	-	-	130	-	-	300	-	
	siRNA Duplexes Modified ⁽¹⁾	21-27	-	-	-	2	1	1	1	<1	4	4	3	3	1	12	12	9	8	2	-	23	5	-	45	10	-	90	20	
Universal Primers	-	15-38	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Unique Oligonucleotides	-	2-225	On Request																											

Minimum guaranteed yields in nmol																															
Synthesis scale			10			40			200			1000			2500		5000		10000												
Purification			RP-Cartridge-Gold™ HPLC (RP or IEX)			RP-Cartridge-Gold™ HPLC (RP or IEX) PAGE ⁽³⁾ Dual HPLC			RP-Cartridge-Gold™ HPLC (RP or IEX) PAGE ⁽³⁾ Dual HPLC UltraPureGold™			RP-Cartridge-Gold™ HPLC (RP or IEX) PAGE ⁽³⁾ Dual HPLC UltraPureGold™			RP-Cartridge-Gold™ HPLC (RP or IEX) Dual HPLC		RP-Cartridge-Gold™ HPLC (RP or IEX) Dual HPLC		RP-Cartridge-Gold™ HPLC (RP or IEX) Dual HPLC												
Range	Product	Length	SePOP	RP-Cartridge-Gold™ HPLC (RP or IEX)	SePOP	RP-Cartridge-Gold™ HPLC (RP or IEX) PAGE ⁽³⁾ Dual HPLC	SePOP	RP-Cartridge-Gold™ HPLC (RP or IEX) PAGE ⁽³⁾ Dual HPLC UltraPureGold™	SePOP	RP-Cartridge-Gold™ HPLC (RP or IEX) PAGE ⁽³⁾ Dual HPLC UltraPureGold™	SePOP	RP-Cartridge-Gold™ HPLC (RP or IEX) PAGE ⁽³⁾ Dual HPLC UltraPureGold™	SePOP	RP-Cartridge-Gold™ HPLC (RP or IEX) Dual HPLC	SePOP	RP-Cartridge-Gold™ HPLC (RP or IEX) Dual HPLC	SePOP	RP-Cartridge-Gold™ HPLC (RP or IEX) Dual HPLC													
Custom Oligonucleotides	Non-Modified (DNA only)	5-14	-	-	-	-	-	-	3	70	60	45	30	23	15	200	140	100	70	50	30	500	250	125	1000	500	250	2000	1000	500	
		15-39	5	4	-	20	16	10	4	2	60	50	30	20	15	-	180	100	80	40	40	-	450	200	100	900	400	200	1800	800	400
		40-59	3	2	-	10	8	5	2	1	30	25	15	12	7	-	115	60	45	20	20	-	285	110	55	575	220	110	1150	450	220
		60-79	-	-	-	-	6	-	2	-	-	18	-	8	-	-	-	40	-	14	-	-	-	-	-	-	-	-	-	-	
		80-99	-	-	-	-	-	-	1	-	-	-	-	3	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	
		100-139	-	-	-	-	-	-	1	-	-	-	-	2	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	
	Modified ⁽¹⁾ (including DNA, RNA, 2' O-Me RNA & LNA®)	5-14	-	-	-	12	6	5	4	1	35	20	17	15	8	-	70	40	35	30	15	-	-	90	45	-	175	85	-	350	175
		15-39	-	-	-	8	5	4	3	1	20	15	12	10	6	-	45	35	25	20	12	-	-	60	30	-	125	60	-	250	125
		40-59	-	-	-	8	5	4	3	1	20	15	12	10	6	-	45	35	25	20	12	-	-	60	30	-	125	60	-	250	125
	Real-Time qPCR Probes	Double-Dye probes ⁽²⁾	8-38	-	-	<2 ⁽⁴⁾	-	-	4	-	-	-	12	-	-	-	-	-	25	-	-	-	60	-	-	125	-	-	250	-	
Molecular Beacons		32-50	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	10	-	-	-	25	-	-	50	-	-	100	-		
RNAi Oligonucleotides	siRNA Duplexes Non-Modified	21-27	5	-	1	15	-	8	3	-	40	-	25	13	-	160	-	70	25	-	-	160	-	-	360	-	-	700	-		
	siRNA Duplexes Modified ⁽¹⁾	21-27	-	-	-	8	5	4	3	1	20	15	12	10	6	45	35	25	20	12	-	60	30	-	125	60	-	250	125		
Universal Primers	-	15-38	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Unique Oligonucleotides	-	2-225	On Request																												

Tables 1 and 2: (1) Between 2 and 59 bases length single-modified Oligonucleotides. Eurogentec does not offer minimum guaranteed yield for modified Oligonucleotides greater than 60 bases. Post-synthesis modifications (not compatible with SePOP and RP-Cartridge•Gold™ purification) may yield 50% less than the above stated values. A lower yield may result from poly-modifications and/or strong secondary structures; (2) Double-Dye probes only result from the combination of a 5' fluorescent dye and a 3' quencher. Post-synthesis modifications may yield 50% less than the above stated values. (3) Except for Oligonucleotides with GC-rich regions; (4) Only available for Double-Dye FAM-TAMRA 10nmol and FAM-BHQ1® 10nmol; For more information, please contact our Oligo Centre at oligo@eurogentec.com or visit our website www.eurogentec.com.

Shipping

EUROGENTEC ALLOWS YOU TO select the shipping method that best suits your needs.

You can choose between Eco-Logik Delivery and Express Delivery (with a possible Same day shipping Option).

Delivery time will vary depending on the specifications of your Oligonucleotides (see table beside)

Shipping methods

Eco-Logik Delivery

- Up to 14 Oligonucleotides shipped in Belgium, Germany, Luxemburg, The Netherlands, Metropolitan France and Monaco.
- By local Mail to reduce the global ecological footprint and receive (48 to 72 hours) your Oligonucleotides in your mailbox.

Express Delivery

- All Oligonucleotides
- By Express courier to receive your Oligonucleotides as fast as possible (24 to 48 hours) in your hands.
- Same day shipping option Orders received before 10.00 AM (Central European Time) Custom Oligonucleotides (max 24), 10/40 nmol scale, 1-30 DNA bases, unmodified, SePOP desalted or RP-Cartridge purified.

Delivery times (in working day)

Between 1 and 14 Oligonucleotides

Range	Product	Length	Purifications							
			SePOP	RP-Cartridge-Gold™	HPLC (RP or IEX)	PAGE	Dual HPLC	UltraPureGold™		
Custom Oligonucleotides	Non-Modified (DNA Only)	5-14	2-3	4-5	5	6	7	7		
		15-39	2-3	4-5	5	6	7	7		
		40-59	5	6	7	8	9	9		
		60-79	5	6	7	8	9	9		
		80-139	7	8	9	10	11	11		
	Modified (including DNA, RNA, 2' O-Me RNA & LNA®)	5-14	5	7	7	8	9	9		
		15-39	5	7	7	8	9	9		
		40-59	7-8	9-10	9-10	10-11	11-12	11-12		
		Real-Time qPCR Probes	Double-Dye Probes	8-38	-	-	7	-	-	-
		Molecular Beacons	32-50	-	-	12-15	-	-	-	
RNAi Oligonucleotides	siRNADuplexes	21-27	5-7	-	9-10	10-11	-	-		
Universal Primers	-	15-38	-	-	2-3	-	-	-		
Unique Oligonucleotides	-	2-225	On Request							

For more Oligonucleotides or Unique Oligonucleotides, please feel free to contact us at oligo@eurogentec.com to receive more details in terms of delivery schedules. Additional Purification or Services: 2 WD Extra ; Fax Ordering: 1 WD Extra

>Note

The online tracking allows you to check the statements of your oligonucleotide orders at any time.

Documentation

DEPENDING ON THE TYPE of Oligonucleotides, related documentation (Technical Datasheet(s) and possible Quality Control(s) will be sent as PDF files to your shipping email address. ■

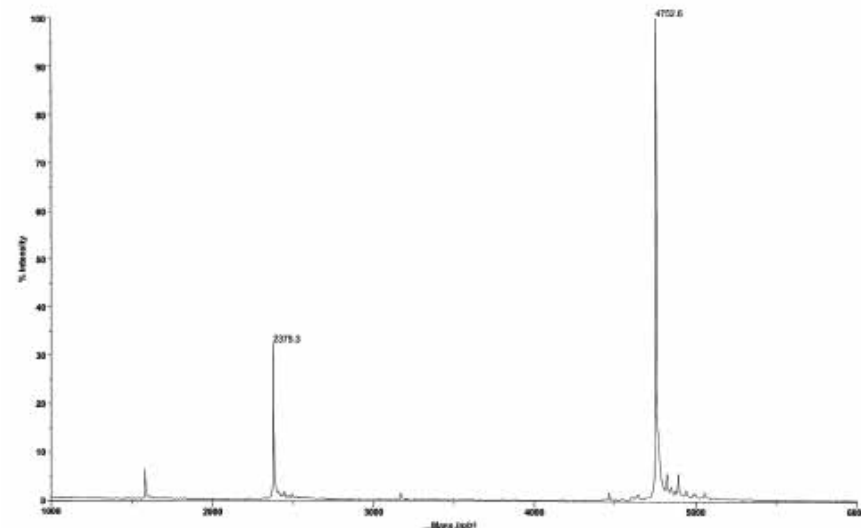
Documentation		TDS	MS ⁽¹⁾	HPLC ⁽²⁾	CGE ⁽³⁾
Custom Oligonucleotides	Unmodified	✓			
	Modified	✓	✓ ⁽⁴⁾		
	UltraPureGold™	✓	✓		✓
Real-Time qPCR Probes		✓	✓	✓	
RNAi Oligonucleotides	siRNA Duplexes	✓	✓ ⁽⁴⁾		
Universal Primers		✓	✓		✓
Unique Oligonucleotides		✓	✓	✓ ⁽⁵⁾	✓ ⁽⁵⁾

TDS: Technical Data Sheet; MS: Mass Spectrometry; HPLC: High Performance Liquid Chromatography; CGE: Capillary Gel Electrophoresis.

(1) Always provided up to 60 bases long Oligonucleotides. (2) If applicable. (3) IEX-HPLC for short Oligonucleotides.

(4) Except for SePOP desalted Oligonucleotides. (5) Optional.

For technical reasons this general rule may be adapted to provide you with the most suitable and useful documentation.



Routine MALDI-TOF Mass Spectrometry (MS analysis of a standard 15 RNA bases sequence. The 15 RNA bases was not purified prior to analysis.

Sample tube label

A —

B —

C —

D —

E —

2500006 6 oct. 10
Cust : Kerdraon B.
Name : Function control

GTA-CK1-A2T-TMT-AN3-CT4-56A-
WCS-GHT-Y7A-TAC-8CG-ATA-9CG-
TCU-UTT-GC

MW : 16724.49 g/mol
Qty : 421 µg = 25.2 nmol
Tm : 59.52 °C Bases : 50

CUSTOM OLIGO

EUROGENTEC

A Name of your oligonucleotide

B Sequence

C Molecular weight

D Quantities (µg, nmole, OD)

E Modifications

Sample tube Technical Data Sheet (TDS)

Experience true partnership

OLIGONUCLEOTIDE
Technical Data Sheet (TDS)

YOUR ORDER NUMBER		NRU / SON		DATE	
1111111110				28-Oct-10	
CUSTOMER		ADDRESS / INSTITUTION			
Kerdraon B.		BELGIUM 4000 Liège			
OLIGO NAME		BATCH	SCALE	CHEMISTRY	BASES
Function control		2500006	200 nmol	DNA	50
SEQUENCE (5' → 3')		* Phosphorothioate linkage			
1	GTA-CK1-A2T-TMT-AN3-CT4-56A-WCS-GHT-Y7A-TAC-8CG-ATA-9CG-TCU-UTT-GC				
BACKBONE (BASES + LINKAGES)					
A	8	GC (%)'	26.0	Quantity (OD@260nm)	12.56
C	8	MW (g.mol ⁻¹)'	16724.5	(nmol)	25.2
G	5	Ext. coeff. (l.mol ⁻¹ .cm ⁻¹)'	498800	(µg)	421
U / T	2 / 11	Tm (°C)'	59.5		
Others	9				
Wobbles	7				
MODIFICATION(S)					
Mod 3'	BHQ-1™	554.49	Mod 4	LNA T @	332.2 1
Mod 5'	Atto	565 672.74	Mod 5	2' OMe C	319.21 1
			Mod 6	2' OMe G	359.2 1
Mod 1	LNA A @	341.21 1	Mod 7	2' OMe U	320.2 1
Mod 2	LNA C @	331.22 1	Mod 8	5-Me dC	303.21 1
Mod 3	LNA G @	357.21 1	Mod 9	Carboxy dT	360.22 1
PURIFICATION(S)					
HPLC-RP HPLC-IEX					
ADDITIONAL SERVICE(S)					
FORMAT		Dried	ALIQUOTING		
			Number of Aliquots		3
QUALITY CONTROL(S)					
MS HPLC-RP CGE					
Passed					
DELIVERY CONDITION					
Room Temperature					
RECONSTITUTION					
To Make up to 100 µM concentration add 252 µl of recommended buffer.					
To Make up to 20 µM concentration add 1.26 ml of recommended buffer.					
To Make up to 5 µM concentration add 5.04 ml of recommended buffer.					
STORAGE					
4 °C as dried, -20 °C as solution					
COMMENTS					
General: Tm % GC calculated with 50 mM NaCl and 0 % formamide (PCR conditions)					
Specific:					
HELP		EUROPE		NORTH AMERICA	
If you have any questions feel free to call our Oligo Centre depending on your location:		If you have questions, please contact our		Technical Support Department at +1 (858)793-2661 or +1 (858) 793-6436 or send an email to	
[Belgium, France, Germany, Luxembourg, The Netherlands, United Kingdom, Switzerland, Austria] 00 800 666 00 123 (European toll free number), or send an email to oligo@eurogentec.com		info.usa@eurogentec.com		info.usa@eurogentec.com	
Eurogentec S.A. Liège science park - Rue Bois Saint-Jean 5 - 4102 SERRAING BELGIUM Tel : +32(0)4 372 74 00 - Fax : +32(0)4 264 07 88 E-mail : info@eurogentec.com RPM Liège T.V.A.-BE) 0427 348 348 / BAN : BE02 2400 7776 8540 BIC : GEBABEBB Fortis Bank 240-0777685-40 www.eurogentec.com		Eurogentec North America, Inc., 11111 Finkbine Avenue, San Diego, CA 92121-1222 USA Tel : +1 (858) 793-2661 Fax : +1 (858) 793-2666 E-mail : info.usa@eurogentec.com www.eurogentec.com			

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Time, Paper, Mistakes...?

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- E-mail as Login

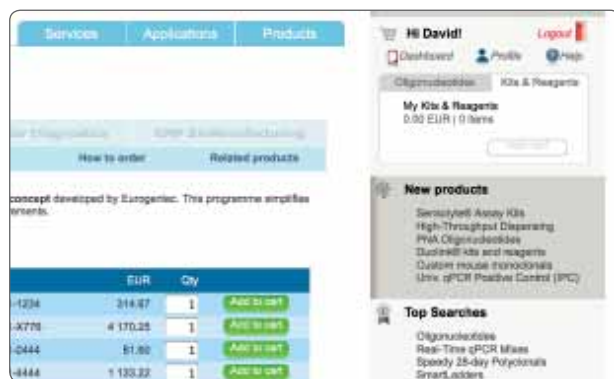
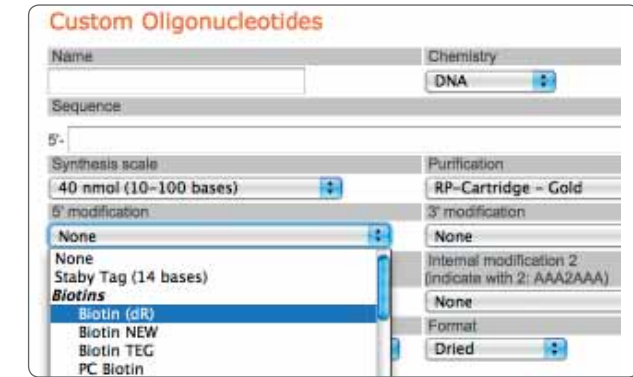
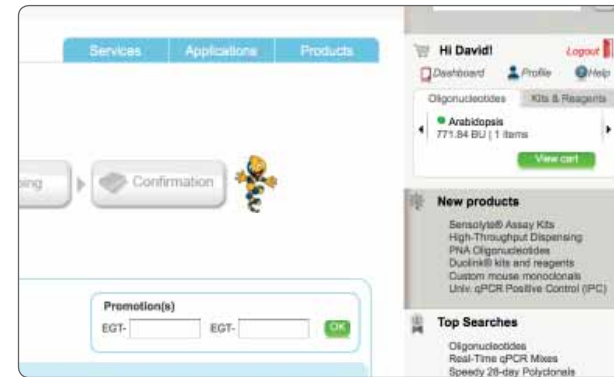
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- Pricing automatically applied

Your pricing conditions will be automatically calculated, displayed and applied using your e-mail address as a key reference. In addition, promotions will be directly available online all over the year.

- Oli&GO 1.2.3™ Accounts Management

You will be able to manage all your Oli&GO 1.2.3™ Accounts, defining Owner or Users. This amazing feature will give you an administrative overview to follow your Oli&GO 1.2.3™ Accounts and their corresponding Balance in Base Units (BU). You will also have access to online Activations and Reloads and directly use your BU.



How to convert your Account?

Please note that an e-mail will be sent to this Account e-mail address to validate the conversion.

- 1 Use your current **8XXXXX** or **9XXXXX** Account with the corresponding Password to login
- 2 Click on the button **"YES"** in the EOS Conversion screen
- 3 Update your Password and click on **E-mail Activation**
- 4 EOS will then guide you to finalize the conversion process of your Account

How to order?

From now on, you can order all your Oligonucleotides and Kits & Reagents via the Eurogentec Ordering System (EOS). You can also continue to order all Products & Services via e-mail or fax as before.

Oligonucleotides

Custom Oligonucleotides
Real-Time qPCR Probes
RNAi Oligonucleotides
Universal Primers



Kits & Reagents

Oli&GO 1.2.3™ Activations & Reloads
Cloning & Expression Kits
Transformation Products
Transfection Reagents
DNA Polymerases
PCR Mixes
Molecular Weight DNA Ladders
Electrophoresis System
Real-Time qPCR Kits
Real-Time qPCR Plastics
Catalogue Peptides
Catalogue Antibodies

Custom & Unique Services

Custom Genes
Custom Peptides
Custom Monoclonal Antibodies
Custom Polyclonal Antibodies
Custom Protein Expression



Unique Oligonucleotides
Unique Peptides
Unique Polyclonals



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United Kingdom

✉ order.uk@eurogentec.com



Continental Europe

☎ +32 4 264 07 88

United Kingdom

☎ +44 1794 522 417

Tips and tricks

Storage and stability

		Storage	Stability
Custom Oligonucleotides	Dried	-20 °C	Several years
	TE buffer (pH 8) or dH ₂ O	4 °C	2 weeks
		-20 °C	> 6 months
Real-Time qPCR Probes	Dried	-20 °C	> 6 months
	TE buffer (pH 8) or dH ₂ O	-20 °C	< 6 months
RNAi Oligonucleotides	Dried	-20 °C / -70 °C	> 6 months
	RNase-free buffer	-70 °C	< 6 months
Universal Primers	Dried	-20 °C	< 6 months

* Except for Cy[®] dye labelled Oligonucleotides (pH7)

Reconstitution

- ▣ Spin the tube briefly to collect the pellet in the bottom of the tube.
- ▣ Add an appropriate volume of recommended buffer.
- ▣ Allow the tube to stand a few minutes.
- ▣ Vortex the tube for 15 seconds.



Oligonucleotide quantification

1 OD₂₆₀ (Optical Density) unit is defined as the amount of oligonucleotide which, when dissolved in a volume of 1.0 ml, results in an absorbance of 1.0 when measured at 260 nm in a 1 cm path-length quartz cuvette. 1 OD₂₆₀ unit corresponds to approximately 33 µg of single strand DNA. These relationships, however, can be inaccurate for short fragments of DNA, such as Oligonucleotides. Base composition and even linear sequence will affect optical absorbance. Hence the precise value of the OD to mass relationship is unique for each oligonucleotide.

Example:

1.0 OD₂₆₀ of CCCCCCCCCC (10 bases) equals 39 µg
whereas 1.0 OD₂₆₀ of AAAAAAAAAA (10 bases) equals only 20 µg.

We carefully measure the OD value for your Custom Oligonucleotide by measuring the absorption at 260nm using UV spectrophotometer. This information is provided on the oligonucleotide Technical Data Sheet as the number of OD₂₆₀ units. The amount of oligonucleotide expressed in nanomoles and micrograms is derived from the OD measurement.

Calculate the number of nanomoles present given an OD reading and extinction coefficient:

$$\text{Nanomoles} = (\text{OD}_{260} / \epsilon_{260}) \times 10^6$$

Example: 1 OD₂₆₀ unit of primer M13 Forward,
5'-GTA AAA CGA CGG CCA GTG-3'
Molar extinction coefficient (ϵ_{260}) = 182.800 L / (mole x cm)
Nanomoles = (1.0 / 182.800) × 10⁶ = 5.47 nmoles

Convert the amount in nanomoles to micrograms:

$$\text{Micrograms} = \text{Molecular Weight} \times \text{Nanomoles} \times 10^{-3}$$

Example: 1 OD₂₆₀ unit of primer M13 Forward,
5'-GTA AAA CGA CGG CCA GTG-3'
Molecular Weight = 5558.7
Micrograms = 5558.7 × 5.47 × 10⁻³ = 30.4 µg

εθυατιον

> **To quantify your Oligonucleotides**, make an aliquot of the resuspended Oligonucleotides to a final volume of 1 ml of dH₂O and vortex for a few seconds. Measure the absorbance of this dilution at 260nm (A₂₆₀). Use the formula below to calculate the concentration of Oligonucleotides in your stock solution.

This formula is valid for an absorption of A₂₆₀ ≤ 1.2.

Concentration in µg/ml =

$A_{260} \times \text{dilution factor} \times \text{Weight}$
per OD of stock solution (in µg / OD)

Calculation of the molar extinction coefficient

$$\epsilon_{260} = 2 \times \left(\sum_{1}^{n-1} \epsilon_{\text{Nearest Neighbour}} \right) - \sum_{2}^{n-1} \epsilon_{\text{Individual}} + \sum_{1}^n \epsilon_{\text{Modification}}$$

where $\sum_{\text{Nearest Neighbour}}$ is the nearest neighbour constant for a pair of bases, $\sum_{\text{Individual}}$ is the constant for an individual base, and n is the length of the oligonucleotide.

Calculation of the molecular weight :

$$\text{Anhydrous MW (g/mol)} = \sum_{\text{Individual Base}} \text{MW} + \sum_{\text{Individual Mods}} \text{MW} - 63.98 + 2.016$$

For DNA bases:

MW dA = 313.21; MW dC = 289.18; MW dG = 329.21; MW dT = 304.20; MW dU = 290.17; MW dI = 314.19

For RNA bases: MW DNA counterpart + 16.

When determining the weight of Uracil (rU) start with dU and not dT

For LNA bases:

MW dA = 313.21; MW dC = 289.18; MW dG = 329.21; MW dT = 304.20; MW dU = 290.17; MW dI = 314.19

For 2' O-Methyl bases:

MW DNA counterpart + 30.03.
When determining the weight of mU start with dU and not dT

For phosphorothioated bases: MW DNA counterpart + 16.06

> Note

$\sum_{\text{Modification}}$ is not known for all modifications.

Mixed bases

Mixed bases (also known as degenerate or wobble bases) follow the IUB codes:

D=A/G/T

M=A/C

H=A/C/T

W=A/T

R=A/G

Y=C/T

V=A/C/G

S=C/G

K=G/T

N=A/G/C/T

B=C/G/T

Oligonucleotides made using mixed bases result in a final product that is a heterogeneous population of distinct species. MW, T_m and extinction coefficient may be strongly affected by mixed base addition. Rather than reporting the various values for each component, a single value is given.

LNA[®] bases

LNA[®] bases follow the codes:

E=A-LNA[®]

L=C-LNA[®]

P=G-LNA[®]

Z=T-LNA[®]

Oligonucleotide scale determination (PCR and Real Time qPCR)

Number of PCR reactions	Quantity of DNA (µg)	OD ₂₆₀	Synthesis scale (nmol)
50-500	33	1	10
200-2000	132	4	40
600-6000	396	12	200
1000-10000	660	20	1000

Table 1. Oligonucleotide scale determination for different number of PCR reactions (Final volume: 100 µl, Final concentration of Oligonucleotides: 0.5 µM, Oligonucleotide length: 20 bases).

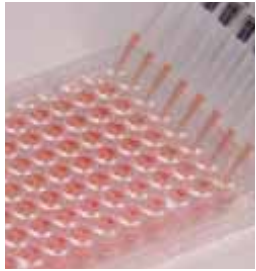
Number of PCR reactions	Quantity of DNA (µg)	OD ₂₆₀	Synthesis scale (nmol)
300-600	15	0.5	10
600-1200	30	1	40
2000-4000	90	3	200
4000-8000	200	6	1000

Table 2. Oligonucleotide scale determination for different number of Real-Time qPCR reactions (Final volume: 50 or 25 µl, Final concentration of Oligonucleotides: 100 nM, Oligonucleotide length: 20 bases).

Genetic code

5'OH	U	C	A	G	3'OH					
U	UUU	Phe	UCU	Ser	UAU	Tyr	UGU	Cys	U	
	UUC		UCC		UAC		UGC		C	
	UUA	Leu	UCA	UAA	Stop	UGA	Stop	A		
	UUG		UCG	UAG	Stop	UGG	Trp	G		
C	CUU	Leu	CCU	Pro	CAU	His	CGU	Arg	U	
	CUC		CCC		CAC		CGC			C
	CUA		CCA		CAA	Gln	CGA			A
	CUG		CCG		CAG		CGG			G
A	AUU	Ile	ACU	Thr	AAU	Asn	AGU	Ser	U	
	AUC		ACC		AAC		AGC			C
	AUA		ACA		AAA	Lys	AGA	Arg	A	
	AUG		ACG		AAG		AGG			G
G	GUU	Val	GCU	Ala	GAU	Asp	GGU	Gly	U	
	GUC		GCC		GAC		GGC			C
	GUA		GCA		GAA	Glu	GGA			A
	GUG*		GCG		GAG		GGG			G

Table 3. The Genetic Code and its 64 combinations. The 3 stop codons are called Ochre = UAA, Amber = UAG and Opal = UGG. * GUG codes for Met if in the initiator position.



Related products and services

❖ Genomics

- Real-Time qPCR Mixes
- Taq* Polymerases
- DNA Ladders
- Transfection Reagents
- Assay Dispensing Services
- Fluorescent Dyes
- Custom Genes

❖ Proteomics

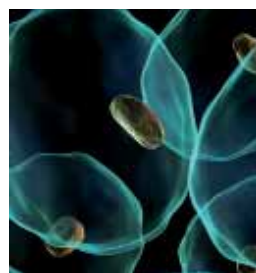
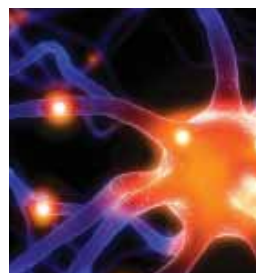
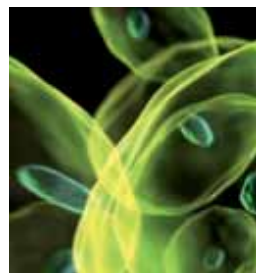
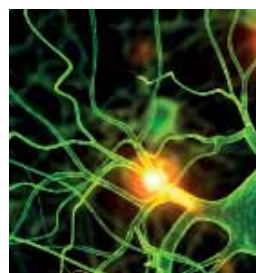
- Cloning & Expression kits
- Expression Services
- DNA Immunization

❖ *In vitro* Diagnostics

- IVD Oligonucleotides
- IVD *Taq* polymerases

And much more

Custom and catalog peptides | Custom and catalog antibodies |



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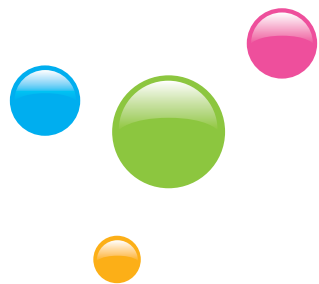
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