Eurogentec

Oligonucleotides

For Life Science Research

- Custom **oligonucleotides**
- **NGS** oligonucleotides
- **RNAi** oligonucleotides
- **Real-Time qPCR** probes
- **Highly complex** oligonucleotides
- **Catalogue** oligonucleotides
- **Synthesis** reagents


Eurogentec
Experience true partnership
Experience true partnership
Oligonucleotides
Eurogentec
Oligonucleotides
Genes
ANASPEC

A RELIABLE EXPERIENCE

Since 1985 Eurogentec has provided high-quality reagents and custom-synthesised oligonucleotides to scientists around the globe.

CUSTOM PRODUCTS

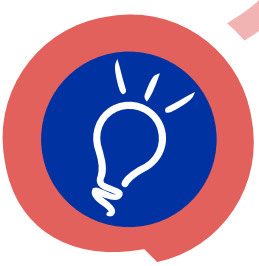
- All types of oligonucleotides, from 2 to 225 bases
- All chemistries: DNA, RNA, LNA®, 2'O-Me, 2'O-MOE, PNA,...
- More than 300 modifications
- All synthesis scales, from µg to grams
- Wide range of Real-Time qPCR Probes
- RNAi oligonucleotides
- Custom fill & finish

TRUSTED QUALITY

Optimised chemistry
- Stringent quality controls
- ISO 9001 certified quality system
- ISO 13485 certified for IVD oligonucleotides

Research, Track™ and GMP **grade** oligonucleotides

From lab scale to large synthesis **scale**



More than **300 modifications** with a wide range of dyes and quenchers

ISO 9001
ISO 13485 **certified quality systems**

Oli&GO™ oligonucleotide **e-commerce** platform

Life Science Oligonucleotides

Custom

- Custom oligos
- NGS
- RNAi
- qPCR probes
- Unique™ oligos

Catalogue

- Catalogue oligos
- Synthesis reagents

p5	*A large range for any applications*
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A LARGE RANGE FOR ANY APPLICATION

Whatever your application, even for those that are most demanding (NMR, X-ray crystallography, *in vivo* animal studies...), Eurogentec can provide the highest quality oligonucleotides to meet (and exceed) your expectations!

CUSTOM OLIGOS p.9

PCR | FISH | Pyrosequencing | Cloning | NMR | X-Ray crystallography | Mutagenesis | SNP Analysis

NGS OLIGOS p.10

Next-generation sequencing

RNAi OLIGOS p.11

Gene silencing | Antisense studies

qPCR PROBES p.13

Real-time qPCR | Patient management | Diagnostic assays

UNIQUE™ OLIGOS p.18

For highly complex oligos or if you don't find what you need, please contact us at unique@eurogentec.com

CATALOGUE OLIGOS p.19

Cloning | Sequencing | PNA FISH | qPCR Calibration

APTAMERS p.18

Selection and Production of custom optimised RNA and DNA

BACKBONES

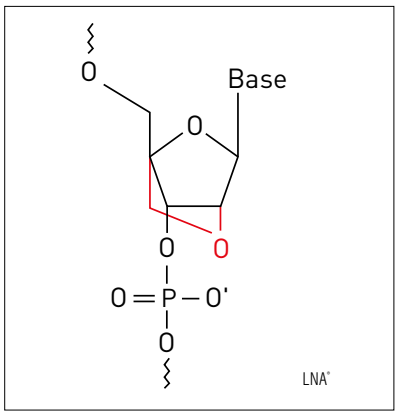
Bases: Eurogentec synthesises classic DNA and RNA based oligos but other backbones like LNA®, 2'O-Me, 2'O-MOE and PNA can be used to match your specifications.

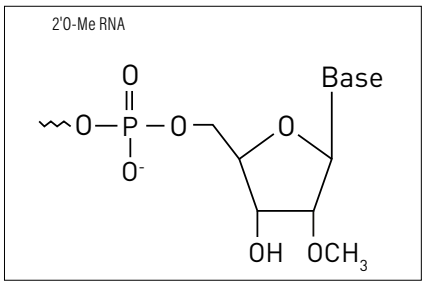
LNA® (Locked Nucleic Acid) is a bicyclic nucleic acid with a structure locked into a rigid C3'-endo position, which favours RNA A-type helix duplex geometry. This exceptional structure confers a very strong thermal stability towards complementary DNA and RNA template suitable for hybridisation assays requiring high specificity and/or reproducibility.

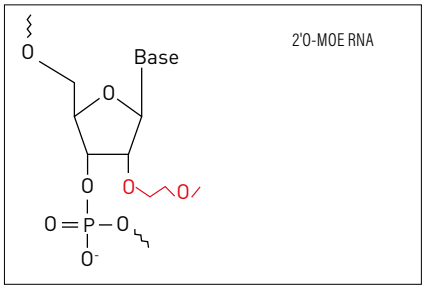
2'O-Me RNA are partially resistant to a variety of ribo- and deoxyribonucleases. They form more stable hybrids with complementary RNA strands than equivalent DNA/RNA sequences. They are ideal for antisense probes.

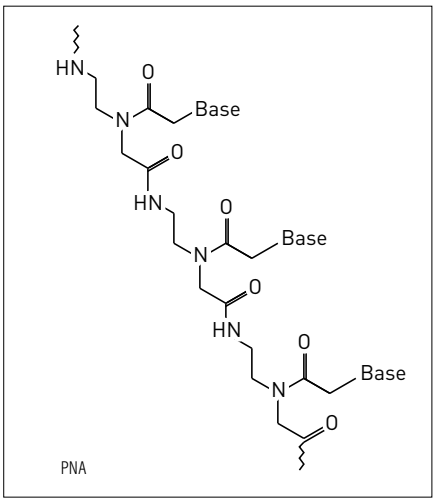
2'-O-(2-Methoxyethyl)- oligoribonucleotides or 2'-O-MOE have an analogue chemical structure to RNA excepted that a methoxy-ethyl residue is attached at the 2'-O-position. The chemical group at this position confers to the oligo backbone a highest nuclease resistance and a better binding affinity compared to the classical RNA molecule making it a useful tool for antisens applications.

PNA is an artificial DNA/RNA analogue with no charged backbone. The absence of charge repulsion between PNA and the DNA/RNA complementary strand confers a higher specificity and sensitivity. PNA are also known to be resistant to the enzyme degradation and stable over a wide range of pH, temperature and salt concentrations. These properties enable PNA to be particularly useful for FISH studies and miRNA inhibition.









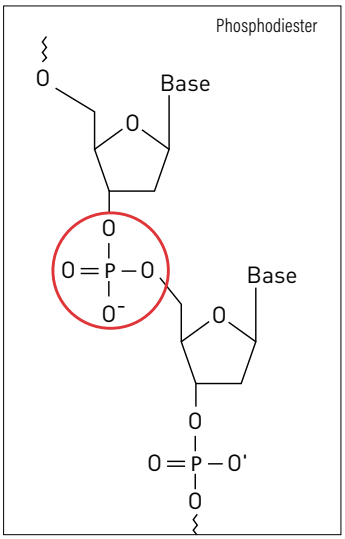
Linkages

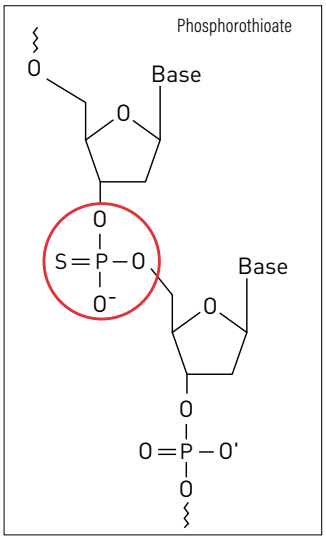
Phosphodiester (default) bonds connect the 3' carbon atom and the 5' carbon of the sugar.

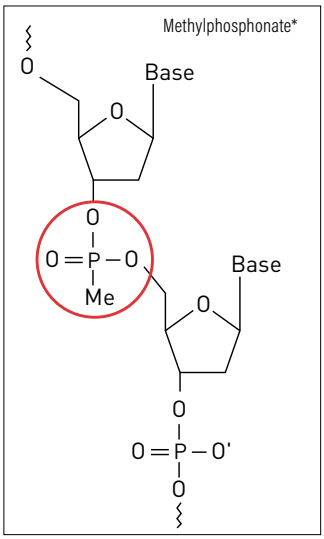
Phosphorothioate bonds possess an increased resistance against nucleases due to the substitution of a non-bridging oxygen by sulphur.

Methylphosphonate* bonds are non ionic nuclease resistant linkages. Methylphosphonate/RNA duplex are not recognised by RNaseH.

* Only available with DNA bases







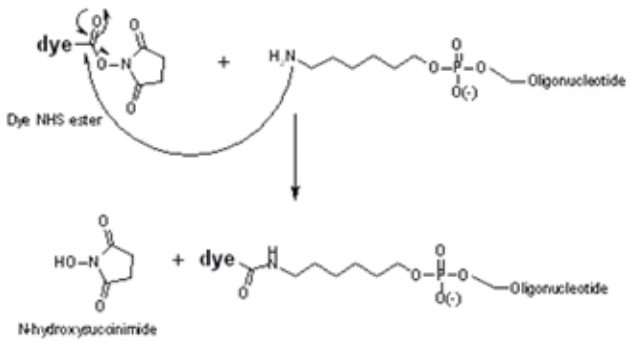
MODIFICATIONS

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

Direct incorporation

3' modifications
Since automated oligonucleotide synthesis is realised 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

Post-synthesis modifications may influence the yield of the reaction. A lower yield may result from poly-modifications and/or strong secondary structures. Two major post-synthesis reactions 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).

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

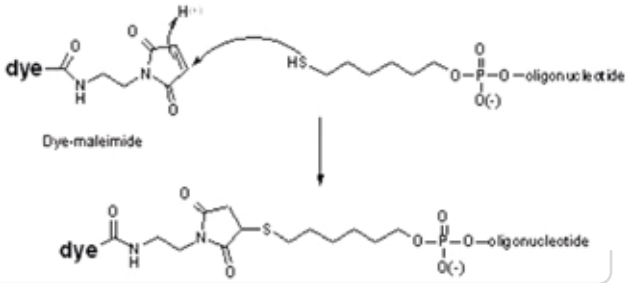


TABLE: MODIFICATIONS CLASSIFICATION

Fluorophores	Quenchers	Phosphates	Degenerate Bases	Non-natural bases	Modifiers	Conjugates	Biotins	Spacers
AP5	BHQ®	3' Phosphate	Wobbles	2' Fluoro RNA	Amine dR	Acridine	PC-Biotin	C3
AlexaFluor®	Dabcyl	5' Phosphate	Spikes	2-Amino dA	Amino Modifier	**AP conjugation**	Biotin-TEG	9/TEG
ATTO	Deep Dark Quencher			2-Aminopurine	Propargylamine dU	**BSA conjugation**		C12
BODIPY®	Eclipse® Dark Quencher			2'O-Me 5-Me-C	Thiol Modifier	Carboxy dT		18/HEG
Cascade Blue®	**QXL™**			2'O-Me Propyne C, U	Thiophosphate	Cholesteryl		
Cy®	**TAMRA**			5.6-dihydro dU	Triphosphate	**Digoxigenin**		
DragonFly™ Orange				5-Br dC , dU		DNP		
DY				5-Me dC, iso dC	Tm Modifiers	Glyceryl		
FAM				7-deaza dA, dG	LNA®	**HRP conjugation**		
Fluorescein				8-Br dA, dG	PNA	**Peptide conjugation**		
HEX				8-Oxo dA, dG	APdC	Psoralen		
HiLyte™ Fluor				AP dC	iso dG	**SBP conjugation**		
JOE				C5-propyne dC, dU				
Marina Blue®				dA, dC, ddC, dG, dT Blocked				
Oregon Green® 488				dInosine				
Pacific Blue™				dUracil				
Rhodamine				Inverted base				
ROX				iso dG				
TAMRA				N4-Et dC				
TET				Nitroindole				
Texas Red®				O6-Me dG				
Yakima Yellow®								

DID YOU KNOW?

Access™ Dyes from Eurogentec are a simple, customisable & cost effective solution for nucleic acid detection offering the highest performance combined to IP-friendly terms and conditions. To get more information about this service, please contact our specialists at:
access@eurogentec.com

KEEP IN MIND

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

>300 MODIFICATIONS AVAILABLE IN DIFFERENT SYNTHESIS SCALES.

>Note
- Post-synthesis modifications are highlighted in blue.
- Some modifications can be inserted after or during the synthesis and are in red.

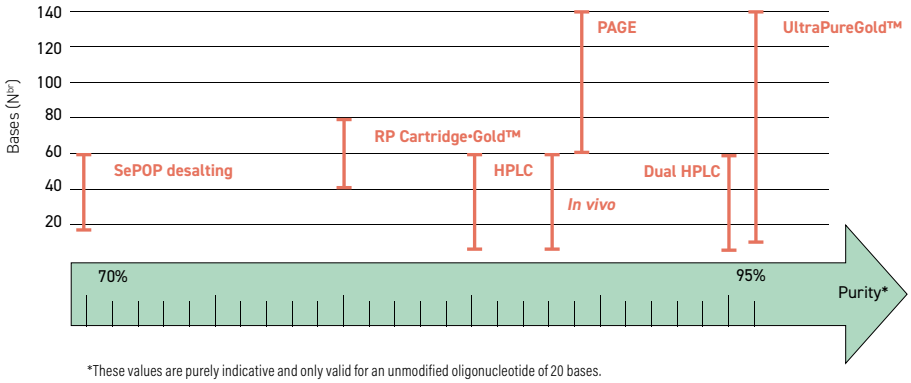
CHOOSE THE RECOMMENDED PURIFICATION

The aim of any purification method is to remove the by-products resulting from the removal of the protecting groups and other synthesis by-products. To know the best purification according to each modification, consult the price list available on www.eurogentec.com. If you are not sure which purification suits your application, then please specify "Recommended Single Purification" (additional fee) and we will choose the best purification for you.

PURIFICATION VS APPLICATIONS

APPLICATIONS	> Isothermal sequencing > Cycle sequencing > Routine PCR > Hybridisation > DNA MicroArray > SNP Analysis	> AFLP > OLA > Sensitive PCR (Diagnostic) > PCR Primers	> NGS > *in situ* Hybridisation > Real-Time qPCR > Capillary sequencing > miRNA, siRNA and antisense	*In vivo* studies	> Cloning and subcloning PCR > Gene synthesis > Gel-shift assay > First-strand cDNA synthesis	> Production of cloning linkers > Site-directed mutagenesis	> NMR > X-ray crystallography
MODIFICATIONS	**Classical modifications (modified bases, chemical linkers...)**	**Non radioactive labelling**	**Special modifications (G-clamp...)** **Labelling with fluorophores and quenchers**				
PURIFICATIONS	**SePOP desalting** increase the purity level of the deprotected and desalted oligos up to 65-70%. It uses differential precipitation to eliminate the largest part of contaminants (truncated material < 15 bases).	**RP Cartridge•Gold** consists of a reverse phase chromatography based on the difference in hydrophobicity between the full-length product and truncated sequences. It yields to 75-80% purity. It is the best compromise for most application and the absence of residues (which may occur with HPLC) makes them suitable for cell culture uses.	**HPLC** provides a degree of purity up to 85%. Reverse Phase (RP) is based on the hydrophobic interaction of the full length oligonucleotides with alkyl chains bonded on the matrix. Ion exchange (IEX) is based on the preference of the anion - exchange resins (positively charged) for the full-length oligonucleotides.	***In vivo*** oligonucleotides are the smart choice for antisense oligonucleotides or siRNA testing at a research level before entering into pre-clinical studies. The production process of *in vivo* oligonucleotides includes the following steps: HPLC purification, desalting, sterile filtration and lyophilization.	**Polyacrylamide gel (PAGE)** separates oligonucleotides variating from only 1 base and give a purity level of 85-90%. Gel band is excised under low intensity UV. Oligonucleotide is then eluted, precipitated, quantified and packaged.	**Dual HPLC** (double RP or RP+IEX) increases the purity level up to 95%.	**UltraPureGold™** relies on a proprietary synthesis and purification process combining a synthesis on polystyrene support, special amidite, optimised deprotection and a dual purification adapted on the length and the structure of the oligos. Moreover a double quality control is performed.

PURIFICATION VS OLIGO LENGTH

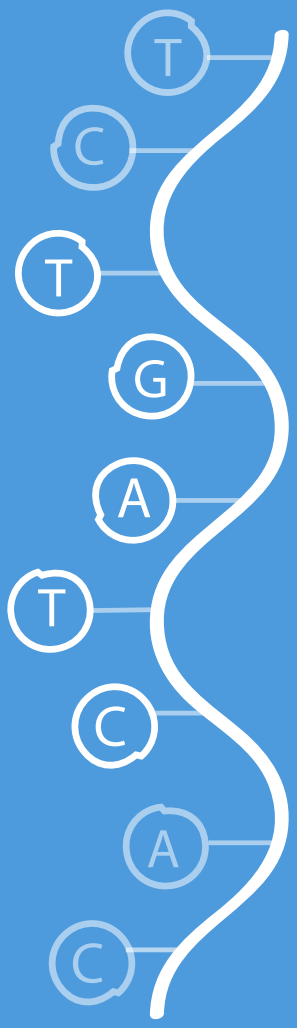


*These values are purely indicative and only valid for an unmodified oligonucleotide of 20 bases.
In addition, according to your oligonucleotides (sequences, modifications...), the purity level can be analysed by various methods (analytical HPLC, CGE...).

EUROGENTEC MANUFACTURES HIGHLY PURIFIED OLIGONUCLEOTIDES UP TO 95%.

SYNTHESIS SCALE VS GUARANTEED YIELD

Please refer to the minimum guaranteed yield table page 23 to select the right synthesis scale or contact us at: oligocentre@eurogentec.com



Custom oligos

Eurogentec proposes a large choice of chemistries, modifications, specifications and purifications. More than 300 modifications and several purity levels are available. ■

SPECIFICATIONS

Length: From 5 to 139 bases
Synthesis scale: 10 nmol • 40 nmol • 200 nmol • 1000 nmol • 2.5 µmol • 5 µmol • 10 µmol*
Backbone: DNA, RNA, LNA®, 2'O-Me RNA, 2'O-MOE RNA, PNA and all linkages
Modifications: More than 300 modifications! (see p. 7)
Purifications: SePOP desalting, RP-Cartridge•Gold™, HPLC, *in vivo*, 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_2O by default)
Packaging: 2 mL tube, 96-well or 384-well plates
Documentation: Technical data sheet
Shipping: At room temperature

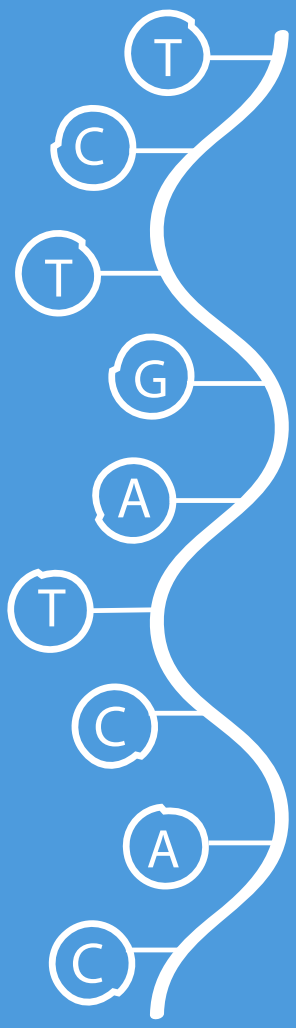
DID YOU KNOW?

The combination of our vast expertise in oligonucleotide to the well reputed know how of AnaSpec in complex peptide synthesis, allows us to offer you high quality **peptide-oligo conjugates**.

SPECIFIC NEED?

Need a high production process traceability? Discover our Track oligos on **www.eurogentec.com/track-oligos.html**

>Note
* Larger synthesis scales are available on request.



NGS oligos

Next-Generation Sequencing (NGS) is a high-throughput technology allowing the **massive sequencing** of nucleic acids following a DNA library preparation.

After DNA fragmentation, adapters (including indexes for multiplexing) are fused to the fragments. NGS adapters require both a **high level of purity** (no n-x side products) and the **absence of cross-contamination** (confusing index sequences).

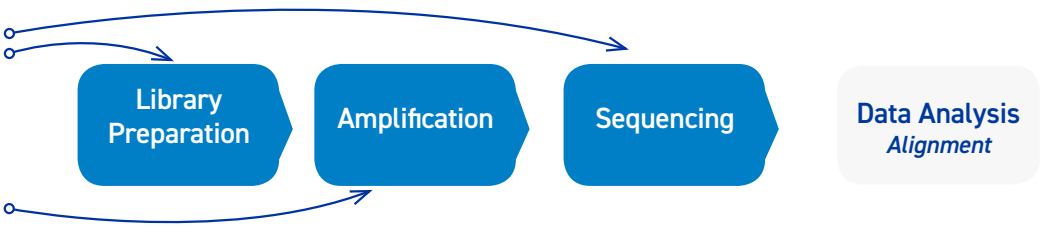
Thanks to our long history as an oligo provider Eurogentec has developed a dedicated manufacturing process for the production of high quality NGS oligos. ■

SPECIFICATIONS

Quality: Low cross-contamination (<0,1%)
Length: from 20 to 85 bases
Quantity: 10 nmol minimum delivered*
Purification: HPLC or cartridge
QC: 100% QC checked by Maldi-TOF MS
5' Modifications: 5' Phosphate / 5' Biotin-TEG
Bases Option: Phosphorothioate bond
Wobble Bases: Available at no additional cost
Format: dried in tubes
Free shipping

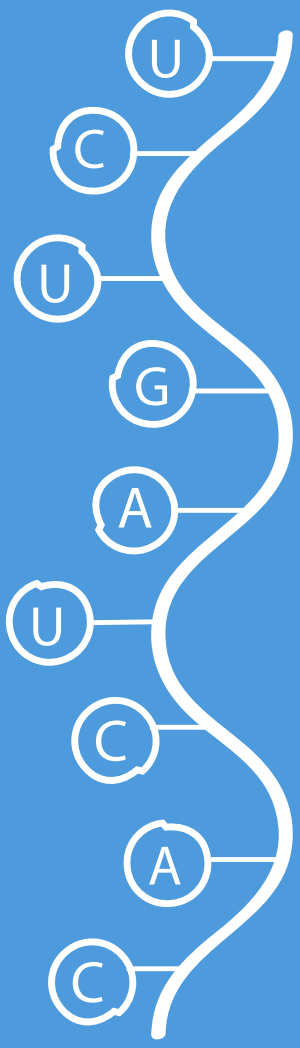
Eurogentec all along your NGS process

EUROGENTEC
NGS
Oligonucleotides



>Note
*Larger amounts are available on request

RNAi oligos



WHAT IS RNAi INTERFERENCE?

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 regulate gene expression. They can activate the degradation of the targeted mRNA or prevent its translation. ■

SPECIFICATIONS

Length: From 21 to 27 bases
Delivered quantity: 3 nmol • 7 nmol • 12 nmol • 22 nmol • 40 nmol • 60 nmol • 80 nmol • 200 nmol*
Backbone: RNA, LNA®, 2'O-Me RNA, 2'O-MOE RNA and all linkages
Modifications: 5':Phosphate, 6-FAM, Cy®3, Cy5®, TET, HEX,... 3': DABCYL, TEG-Cholesteryl, TAMRA...
Purifications: SePOP Desalting, IEX-RP/HPLC or *in vivo*
Quality Control: MALDI-TOF MS
Format: Dried
Packaging: 2 mL tube
Documentation: Technical data sheet
siRNA Design: Free and guaranteed
Shipping: At room temperature

DID YOU KNOW?

Eurogentec can synthesise highly modified and very stable **RNA oligos**.
Contact us at:
unique@eurogentec.com

Design assistance
info@eurogentec.com

>Note
- The antisense strand must either have a free 5'-OH (by default) or 5'-phosphate terminus.
- Certain modifications can sometimes be useful to increase stability or cellular uptake e.g. 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.

* 3, 12, 40, 80 nmol for HPLC purification. 7, 22, 60, 200 nmol for SePOP purification. Larger synthesis scales are available on request.

siRNA

Custom siRNA Duplexes

Eurogentec has co-developed an exclusive siRNA design platform. PhD-level scientists of our design team use this reliable interface to design custom siRNA for any target of your choice.
Eurogentec **guarantees up to 80% minimum silencing** of your gene of interest with at least one of the 3 duplexes designed and synthesised. ■

Control siRNA Duplexes

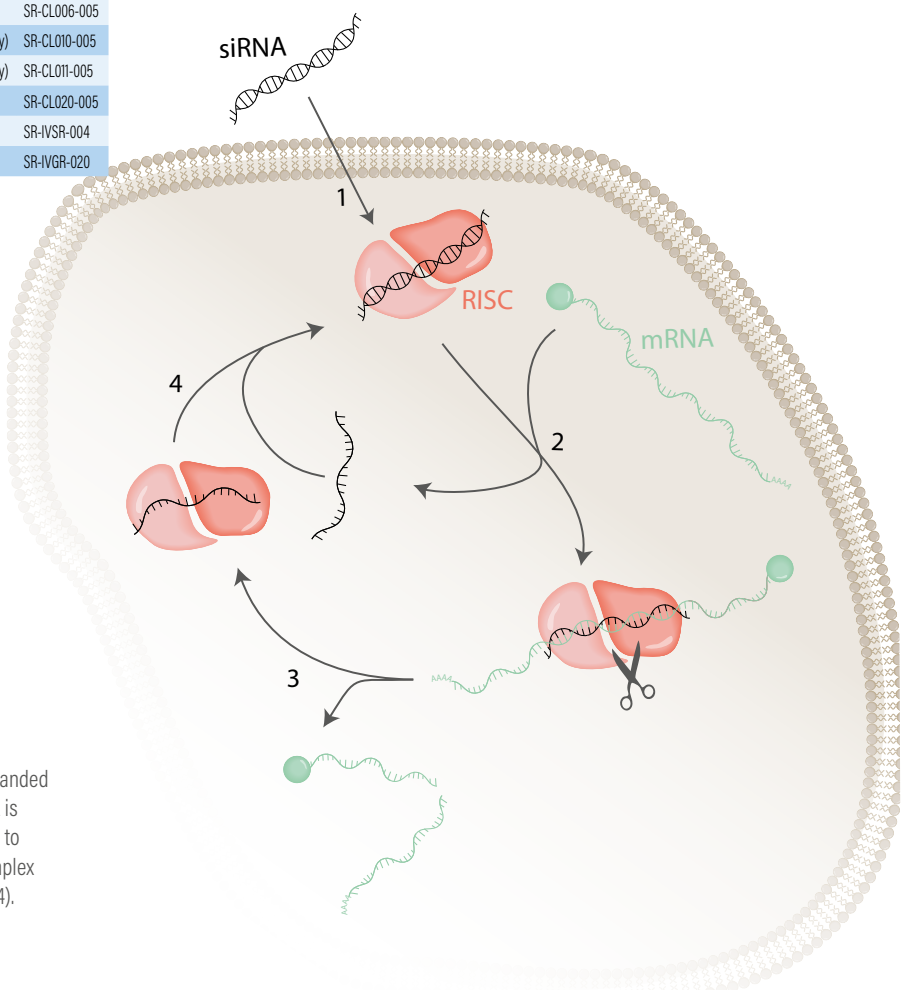
In order to monitor your siRNA experiment conditions, Eurogentec provides siRNA control duplexes and kits including negative and positive controls necessary to validate your experiment.

- **Negative controls** are siRNA molecules **presenting no homology with any known eukaryotic gene.** siRNA controls are already annealed and shipped lyophilised solution. The sequence is properly validated.
- **Positive controls** consist of siRNA **directed against a range of endogenous and reporter genes.** They are available in 5nmol final quantities. Each control contains 1 siRNA duplex. All siRNA control duplexes are PAGE purified and 100% MALDI-TOF Mass Spectrometry controlled. The sequences are validated and published. ■

Catalogue control siRNA

Name	Reference
Control siRNA duplex negative control	SR-CL000-005
Control siRNA duplex LaminB1 (human)	SR-CL001-005
Control siRNA duplex Vimentin (human)	SR-CL002-005
Control siRNA duplex NuMA (human)	SR-CL003-005
Control siRNA duplex Beta-actin (human)	SR-CL004-005
Control siRNA duplex Eg-5 (human)	SR-CL005-005
Control siRNA duplex Cdk-1 (human)	SR-CL006-005
Control siRNA duplex pGL2 luciferase (firefly)	SR-CL010-005
Control siRNA duplex pGL3 luciferase (firefly)	SR-CL011-005
Control siRNA duplex GFP (jellyfish)	SR-CL020-005
Control siRNA duplex *in vivo* 12 nmol	SR-IVSR-004
Control siRNA duplex *in vivo* 40 nmol	SR-IVGR-020

CUSTOM RNA OLIGO CAN BE ORDERED ONLINE VIA THE CUSTOM OLIGO CONFIGURATOR.



Principle of siRNA-mediated RNA interference.
The annealed siRNA enter the cell (1). Once inside, double stranded RNA is recognised by the RISC complex. Sense strand siRNA is displaced and the mRNA anneal to the antisense siRNA fixed to the RISC complex (2). mRNA is digested (3) and the RISC complex containing the siRNA is then recycled to begin a new cycle (4).

miRNA

miRNA (for microRNA) are natural small non-coding RNAs forming short hairpins. They are implied in gene expression and RNA silencing.

Clear-MiR™ miRNA Inhibitors

Clear-MiR™ miRNA inhibitors are chemically modified antisense RNA oligonucleotides optimised to specifically **target miRNA molecule in cells.** ■

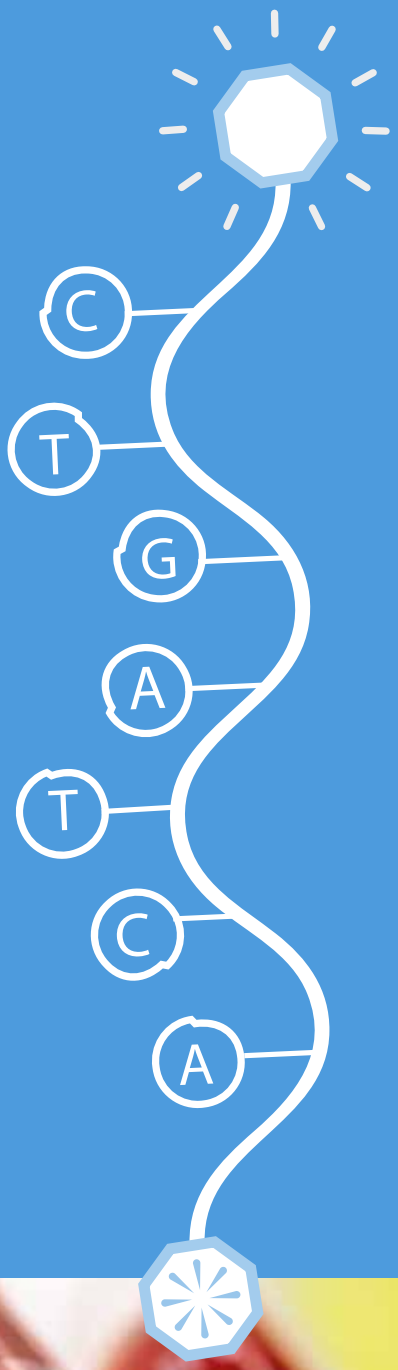
Add-MiR™ miRNA Mimics

Add-MiR™ oligonucleotides are custom double-stranded synthetic miRNA **mimicking the action of endogenous miRNAs.** ■

DID YOU KNOW

2'O-Me RNA base and phosphorothioate links bring to the RNA oligo a higher stability and a resistance against nuclease. ■

>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.



qPCR Probes

Eurogentec offers a wide range of fluorophores and quenchers in various combinations to fit any method and Real-Time thermocycler.

SPECIFICATIONS

Length: From 15 to 50 bases
Synthesis scale: 10 nmol • 40 nmol • 200 nmol • 1000 nmol • 2.5 µmol • 5 µmol • 10 µmol*
Backbone: DNA, LNA®, 2'O-Me RNA and phosphodiester linkage
Modifications: 5': 6-FAM, HEX, Cy®3, TET , Cy5®...
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

FOR COMMERCIAL USE

Access™ Dyes from Eurogentec are a class of high performance proprietary molecules with IP-friendly terms and conditions.

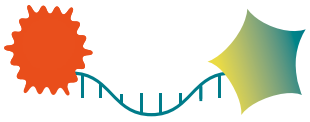
ALSO AVAILABLE

Eurogentec provides kits & reagents for **qPCR assays** (see Amplification brochure).

For **other modified oligonucleotides** please refer to the custom oligonucleotide chapter (p.9).

>Note
1. Double-Dye or Molecular Beacon Probe. Each primer must be 15-30 DNA bases, unmodified and RP-Cartridge purified. The synthesis scale of the primers must be similar to the probe one (10, 40, 200 or 1000 nmol). Offer Valid only for orders placed on the Eurogentec e-commerce platform EOS. General conditions of sale will be applied.

* Larger synthesis scales are available on request

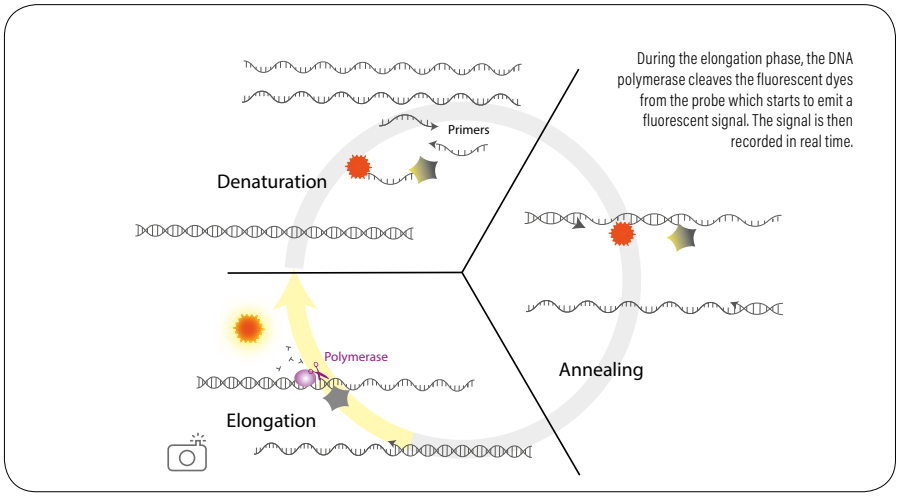


DOUBLE-DYE PROBES

EUROGENTEC OFFERS a large range of fluorescent dyes and quenchers including proprietary efficient molecules: HiLyte Fluor™ dyes and QXL™ quenchers.

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 probes, LNA® Double-Dye probes exhibit higher thermal stabilities, specificity and reproducibility. They show better mismatch discrimination which allows the use of shorter probes.
Furthermore, LNA® offers the possibility to adjust Tm values of primers and probes in multiplex assays. ■

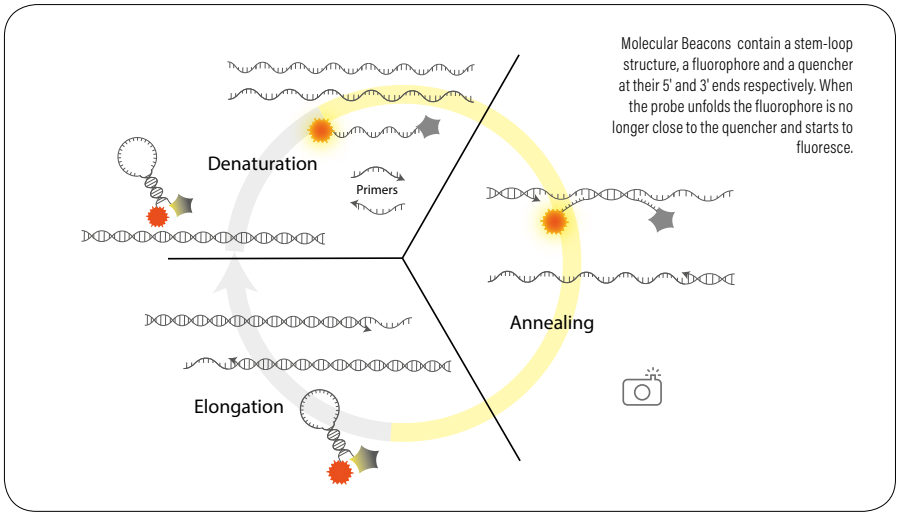


MOLECULAR BEACONS

EUROGENTEC IS a licensed supplier of Molecular Beacons and offers standard, wavelength-shifting and 2' O-Me RNA molecular beacon.

2' O-Methyl RNA Molecular Beacons

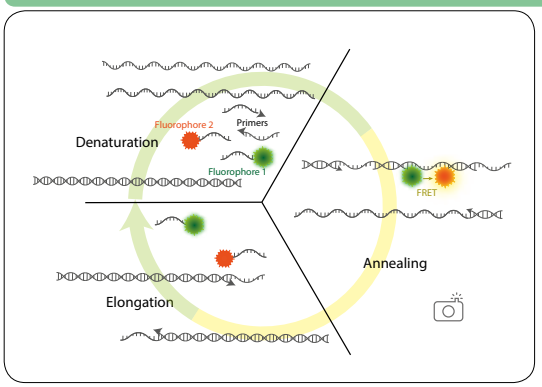
2' O-Methyl RNA probes perform better than DNA oligonucleotides. They are more nuclease resistant, have a higher affinity, specificity and hybridisation kinetics compared to DNA homologues.



ALSO AVAILABLE

Plexor™ primers. ■

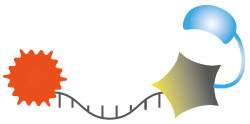
LC HYBRIDISATION PROBES



Two LC hybridisation probes labelled with a single fluorescent molecule specifically recognise two adjacent sequences in the target DNA.
When the probes are bound to the target sequence, the fluorescent signal is transferred from the donor to the acceptor, which starts to fluoresce. A 3' phosphate group is also added to prevent extension of the reporter probe by *Taq* DNA polymerase during the PCR cycles. ■

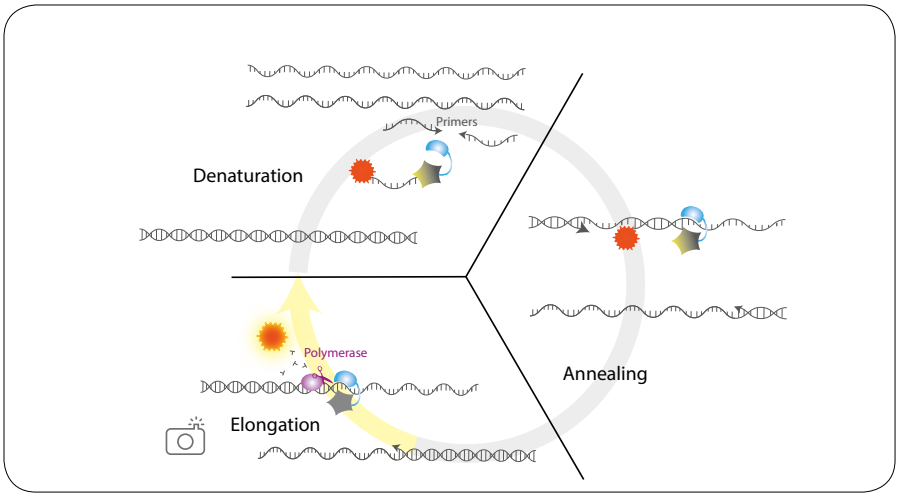
>Note
PNA FISH Probes are also available to detect chromosome aberrations in the centromer. Please see p.19 for more information.

MGB PROBES

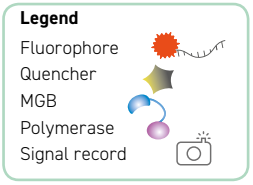


EUROGENTEC PROVIDES high quality MGB probes perfectly suited for patient management [1]. MGB increases the Tm of a probe because of its minor groove binding ability. MGB probes are more specific, more efficient and more sensitive than standard double-dye probes.

We provide a complete offer with more than 15 dyes covering all qPCR channels - FAM,
- TET,
- AP5,
- Yakima Yellow®,
- Texas Red®,
- Cy®5,
- ROX,
- DragonFly™ Orange,
- ATTO
- HEX
- JOE



Our MGB Probes are RP-HPLC purified and can be delivered in 6, 20 and 50 nmol, dried or in solution (TE or H_2O). For maximal convenience, a 10 nmol dried aliquoted format is also available for the 20 and 50 nmol quantities at no additional cost. The probes are quality controlled by MALDI-TOF MS + HLPC and are available in IVD grade upon request.



>Note
[1] Restriction of use in the following countries: FR, UK, DE, IT, JP, ES. In these countries MGB probes must only be used for patient management. Use is free of limitation in other countries. End users are covered under Eurogentec's conveyed license for patient management.

Eurogentec
Experience true partnership

DYES & QUENCHERS COMPATIBILITY TABLE

> Highly complex oligonucleotides

> Real-Time qPCR

Oligos

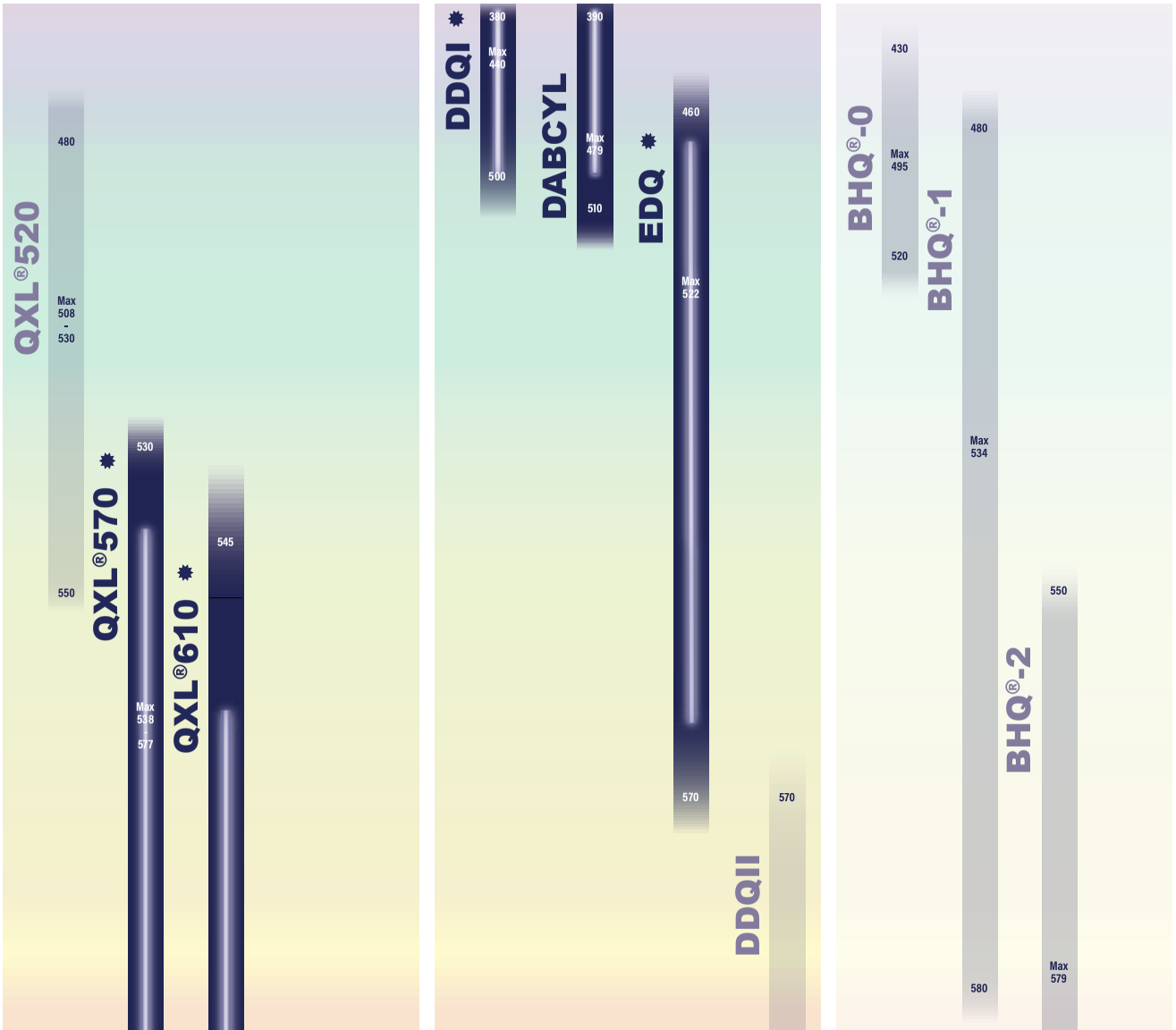
FLUORESCENT DYES

QUENCHERS

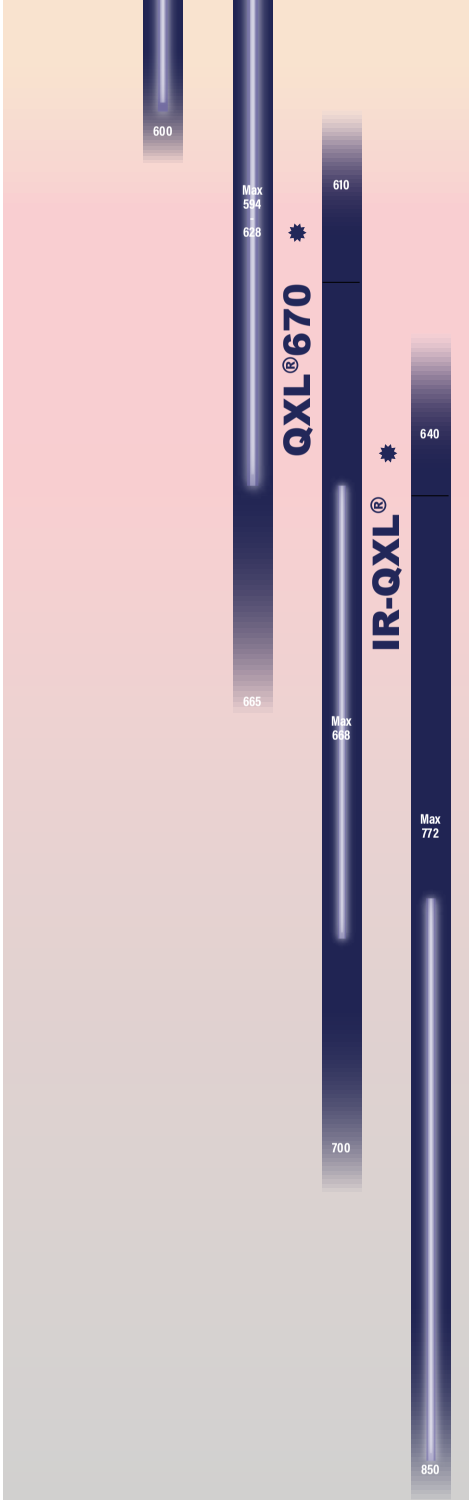
Research & Commercial use

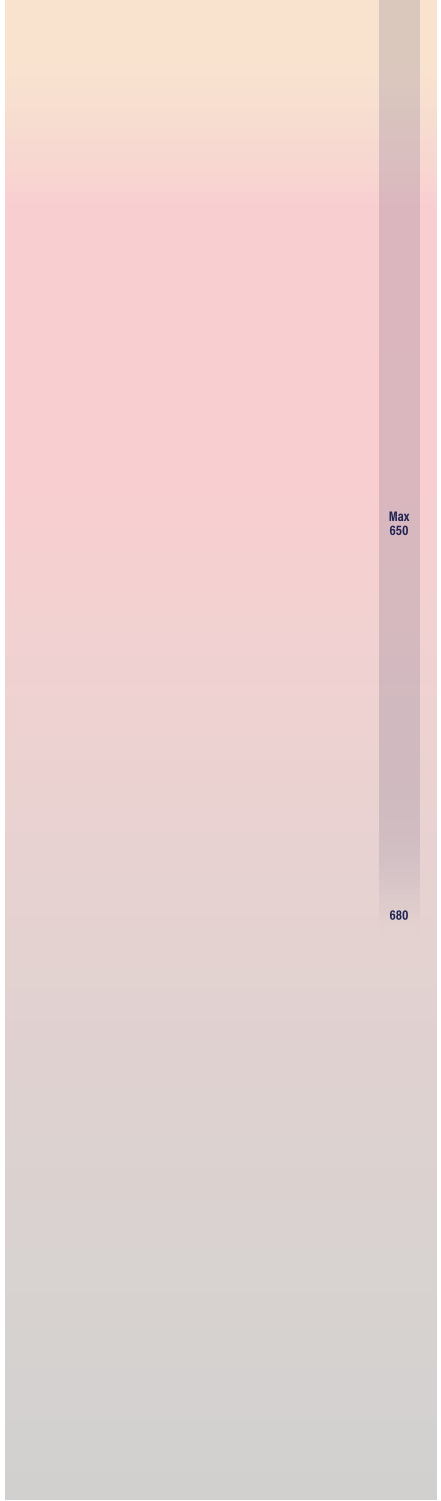
Research use only

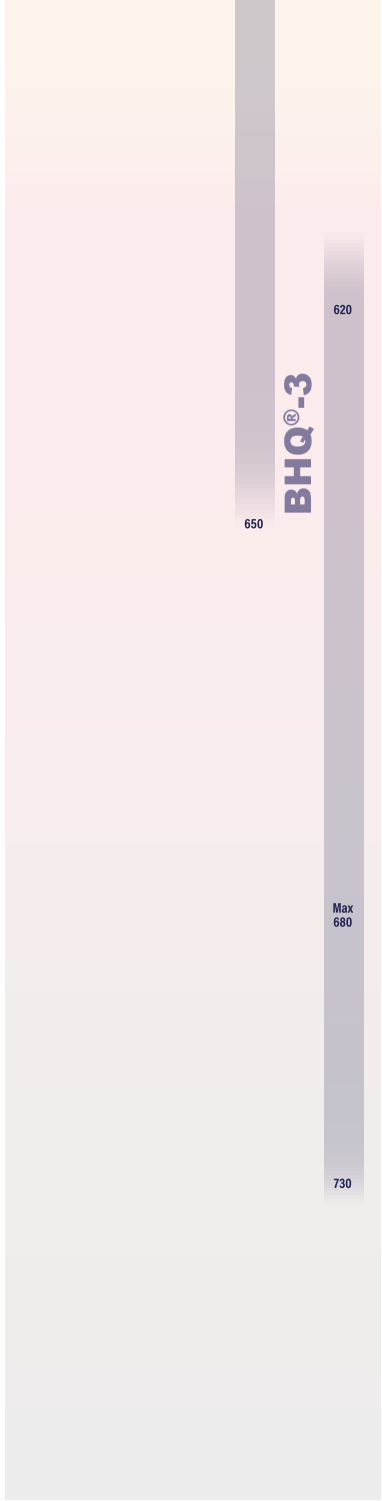
Emission color UV	Fluorescent Dyes	Max Abs in nm	Max Em in nm
	Cascade blue	396	410
	Alexa Fluor® 405	401	421
	AMCA-X	353	442
	Alexa Fluor® 350	346	442
	Pacific Blue™	416	451
	Marina blue®	362	459
	Epoch Blue	**381** ✸	**460**
	ATTO 390	**390** ✸	**476**
	ATTO 425	**439** ✸	**485**
	EDANS	336	490
500	BODIPY® 493/503	500	506
	ATTO 465	**453** ✸	**509**
	Cy®2	490	510
	BODIPY® FL	505	513
	Alexa Fluor® 488	495	519
	FAM	**495** ✸	**520**
	DY-495	493	521
	ATTO 488	500	520
	HiLyte™ Fluor 488	**497**	**525**
	Fluorescein	494	525
	Oregon Green® 488-X	495	525
	Oregon Green® 488	501	526
	Oregon Green® 514	489	526
	ATTO 495	**498**	**526**
	Oyster-500	500	527
	Rhodamine Green™	505	527
	Rhodamine Green™-X	503	528
	DY-505	505	530
	Alexa Fluor® 430	433	541
	TET	**521**	**536**
	ATTO 520	**517**	**538**
	Lucifer Yellow	428	532
	Alexa Fluor® 514	517	542
	CAL Fluor Gold 540	522	544
	Yakima Yellow®	**530** ✸	**549**
550	**AP5**	**527** ✸	**549**
	BODIPY® R6G	528	550
	ATTO 532	532	552
	Alexa Fluor® 532	532	553
	BODIPY® 530/550	534	554
	VIC	538	554
	JOE	529	555
	HEX	**535** ✸	**556**
	CAL Fluor™ Orange 560	538	559
	DY-485XL	485	560
	Alexa Fluor® 555	555	565
	HiLyte™ Fluor 555	550	566
	Quasar 570	548	566
	BODIPY® 558/568	558	569
	Cy®3	550	570
	Oyster-556	556	570
	BODIPY® 564/570	565	571
	DY-554	551	572
	DY-555	547	572
	DY-556	548	573
	Alexa Fluor® 546	556	573
	BODIPY® TMR	542	574
	NED	546	575
	Dragonfly orange™	554	576
	ATTO 550	554	576
	DY-560	559	578
	Rhodamine Red™-X	560	580
	TAMRA	**557** ✸	**583**
	Rhodamine Red™	570	590



DY-510XL	509	590
BODIPY® 576/589	576	590
ATTO 565	**564**	**590**
CAL Fluor® Red 590	569	591
BODIPY® 581/591	584	592
PET	558	595
CY®3.5	581	596
DY-590	580	599
ROX	**575** ✸	**602**
Alexa Fluor 568	578	603
CAL Fluor™ Red 610	590	610
AP593	**593** ✸	**613**
LC Red 610	590	610
Texas Red®	597	616
HiLyte™ Fluor 594	**593**	**616**
BODIPY® TR	589	617
Alexa Fluor® 594	590	617
ATTO 590	**593**	**622**
ATTO 594	603	626
Alexa Fluor® 610	612	628
DY-610	610	630
DY-480XL	500	630
ATTO 610	616	633
CAL Fluor® Red 635	618	637
BODIPY® 630/650	625	640
LC Red 640	625	640
DY-615	621	641
ATTO 620	620	642
Alexa Fluor® 633	632	647
PULSAR 650	460	650
ATTO 633	630	651
DY-630	636	657
DY-632	637	657
DY-633	637	657
DY-631	637	658
BODIPY® 650/665	646	660
DY-601XL	606	663
DY-520-XL	520	664
ATTO 647N	646	664
Alexa Fluor® 647	650	665
Oyster-645	645	666
Cy®5	650	670
Quasar™ 670	647	670
WellRed D4-PA	650	670
DY-635	647	671
DY-636	645	671
DY-647P1	653	672
DY-650	653	674
Oyster-656	656	674
HiLyte™ Fluor 647	**650** ✸	**675**
DY-651	656	678
ATTO 655	663	680
Alexa Fluor® 660	663	690
Cy®5.5	675	694
IRDye 700	680	697
ATTO 680	681	698
DY-675	674	699
DY-676	674	699
Alexa Fluor® 680	679	702
Quasar™ 705	690	705
WellRED D3-PA	685	706
DY-681	691	708
DY-680	690	709
LC Red 705	680	710
ATTO 700	700	716
Alexa Fluor® 700	702	723
DY-700	707	730
DY-701	706	731
ATTO 725	728	751
DY-730	732	758
DY-732	736	759
DY-731	736	760
ATTO 740	743	763
WellRED D2-PA	750	770
Alexa Fluor® 750	749	775
Cy®7	747	776
DY-750	747	776
HiLyte™ Fluor 750	**753** ✸	**778**
DY-751	751	779
DY-776	771	793
DY-781	783	800
DY-782	783	800
DY-780	770	810
IRDye 800	787	812







ORDER

Oligonucleotides can be ordered via the web oligo configurator or on request at **unique@eurogentec.com**
For more information, please contact us at **oligo@eurogentec.com**

HIGH PERFORMANCE

Access™ Dyes and Quenchers ✸ from Eurogentec are a class of high performance proprietary molecules with IP-friendly terms and conditions. ■

SEE ALSO

Compatibility cycler channel vs fluorescent dyes page 27.

USAGE

In bold blue: Dyes & Quenchers for commercial & research use
In black: Dyes & Quenchers for research use only (RUO)
In light grey: Not available at Eurogentec
Dark blue bands represent the indicative quenching range of recommended quenchers.
Gray bands represent the indicative quenching range of alternate quenchers.
Purple bars represent the optimal recommended quenching range.
✸ Access™ Dyes & Quenchers

All wavelength values are in nm.

Note: Spectral properties of a dye or a quencher may vary when coupled to another molecule

Life Science Oligonucleotides

Custom | Catalogue

Custom oligos | NGS | RNAi | qPCR probes | Unique™ oligos | Catalogue oligos | Synthesis reagents

BECAUSE YOUR EXPERIMENTS REQUIRE ALWAYS MORE CUSTOMISATION, UNIQUE OLIGONUCLEOTIDES BRING YOU THE PERFECT SOLUTION.

Unique™ oligos

HIGHLY COMPLEX OLIGOS

If you cannot find here the oligonucleotides that best suits your needs please think about unique oligos.

Eurogentec can synthesise highly complex oligonucleotides and can incorporate any of the modifications from recognised chemical suppliers (Glen research, TriLink BioTechnologies...).

Send us the specifications of your Unique™ oligonucleotides (sequence or length, chemistries, modifications, purifications, expected purity, synthesis scale or final amount, format, packaging...) or fill the form online (https://secure.eurogentec.com/unique-oligonucleotides-quote-request-form.html) and you will receive the corresponding information in terms of technical feasibility, pricing and turnaround times within 2 working days. ■

SPECIFICATIONS

Length: From 2 to 225 bases
Synthesis scale: Customised
Backbone: Usual or atypical chemistry
Modifications: Common or rare modifications
Purifications: SePOP desalting, RP-Cartridge•Gold™, HPLC, PAGE, Dual HPLC, UltraPureGold™
Quality Control: Adapted to your needs
Format: Adapted to your needs
Packaging: Adapted to your needs
Documentation: Technical data sheet custom documentation
Shipping: As defined by the customer

ALSO AVAILABLE

Custom Gene Synthesis

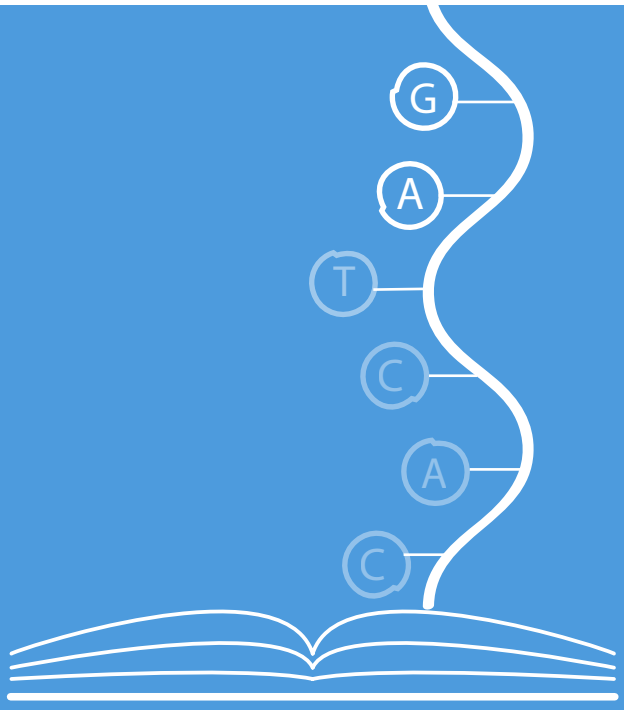
- From simple gene to highly complex sequence
- Up to 50 kbp
- Gene Optimisation
- 100% Guaranteed sequence
- Fast turnaround time

Contact: **gene@eurogentec.com**

More info in the SmartGene Brochure

CONTACT US

unique@eurogentec.com



Catalogue
oligos

Name	Sequence	Bases	Tm (°C)	Ref.
16S rRNA For	AGA GTT TGA TCC TGG CTC AG	20	55.2	UN-PR001-005
16S rRNA Rev	ACG GCT ACC TTG TTA CGA CTT	21	57.4	UN-PR005-005
3' RACE PCR	GGC CAC GCG TCG ACT AGT AC	20	60.6	UN-PR010-005
Anchored Oligo dT (20)	TTT TTT TTT TTT TTT TTT TV	20	39.2	UN-PR015-005
Anchored Oligo dT (22)	TTT TTT TTT TTT TTT TTT TTV N	22	42.8	UN-PR020-005
Bluescript KS	TCG AGG TCG ACG GTA TC	17	53.3	UN-PR025-005
Bluescript SK	CGC TCT AGA ACT AGT GGA TC	20	52.4	UN-PR030-005
cDNA Cloning Primer	GGC CAC GCG TCG ACT AGT ACT TTT TTT TTT TTT TTT TV	38	64.8	UN-PR035-005
EGFP-C	CAT GGT CCT GCT GGA GTT CGT G	22	61.2	UN-PR040-005
EGFP-N	CGT CGC CGT CCA GCT CGA CCA G	22	67.2	UN-PR045-005
G3PDH For	ACC ACA GTC CAT GCC ATC AC	20	58.6	UN-PR050-005
G3PDH Rev	TCC ACC ACC CTG TTG CTG TA	20	59.7	UN-PR055-005
M13 Forward (-20)	GTA AAA CGA CGG CCA GT	17	53.0	UN-PR060-005
M13 Forward (-41)	CGC CAG GGT TTT CCC AGT CAC GAC	24	65.5	UN-PR065-005
M13 Reverse (-27)	CAG GAA ACA GCT ATG AC	17	47.3	UN-PR070-005
M13 Reverse (-48)	AGC GGA TAA CAA TTT CAC ACA GG	23	57.2	UN-PR075-005
Neomycin For	CTT GGG TGG AGA GGC TAT TC	20	55.6	UN-PR080-005
Neomycin Rev	AGG TGA GAT GAC AGG AGA TC	20	54.0	UN-PR085-005
Oligo dT, 15mer	TTT TTT TTT TTT TTT	15	29.7	UN-PR090-005
Oligo dT, 16mer	TTT TTT TTT TTT TTT T	16	32.1	UN-PR095-005
Oligo dT, 18mer	TTT TTT TTT TTT TTT TTT	18	36.0	UN-PR100-005
Oligo dT, 20mer	TTT TTT TTT TTT TTT TTT TT	20	39.1	UN-PR105-005
PCMV Forward	CGC AAA TGG GCG GTA GGC GTG	21	64.8	UN-PR110-005
pET 3'	CTA GTT ATT GCT CAG CGG	18	50.6	UN-PR115-005
pET 5' (T7)	TAA TAC GAC TCA CTA TAG G	19	45.3	UN-PR120-005
pET Upstream	ATG CGT CCG GCG TAG A	16	56.7	UN-PR125-005
pGEX 3'	CCG GGA GCT GCA TGT GTC AGA GG	23	65.2	UN-PR130-005
pGEX 5'	GGG CTG GCA AGC CAC GTT TGG TG	23	67.0	UN-PR135-005
ROSA26 Promoter For	AAA GTC GCT CTG AGT TGT TAT	21	53.2	UN-PR140-005
ROSA26 Promoter Rev	GGA GCG GGA GAA ATG GAT ATG	21	56.3	UN-PR145-005
SP6 Promoter	TAC GAT TTA GGT GAC ACT ATA G	22	50.0	UN-PR150-005
SP6 Upstream	ATT TAG GTG ACA CTA TAG	18	42.8	UN-PR155-005
T3 Promoter	AAT TAA CCC TCA CTA AAG GG	20	50.4	UN-PR160-005
T7 Promoter	TAA TAC GAC TCA CTA TAG GG	20	48.3	UN-PR165-005
T7 Terminator	GCT AGT TAT TGC TCA GCG G	19	54.1	UN-PR170-005

UNIVERSAL PRIMERS

Universal primers are complementary to nucleotide sequences that occur very commonly in specific sets of DNA molecules and cloning vectors. Thus, they are able to **bind to a wide variety of DNA templates**. ■

SPECIFICATIONS

Quantity: 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

PNA FISH

In principle, fluorescence *in situ* hybridisation (FISH) should be able to provide information on the telomere length of individual chromosomes. The efficiency of conventional labelled oligos is not sufficient to be extended beyond qualitative studies of TTAGGG repetitions in chromosomes of various species. PNA chemical structure brings a **higher sequence specificity**, an improved **stability**, better **reproducibility**, and lower background noise. Due to the higher Tm of PNA/DNA duplexes, short (18-mer) telomere PNA (CCCTAA)3 are now widely used. ■

SPECIFICATIONS

Length: 18 bases
Quantity: 5 nmol
Backbone: PNA
Modifications: FAM • Cy3® • Cy5® • FITC • TMR

ORDERING INFORMATION

Name	Quantity	#Cat	Name	Quantity	#Cat
C-Rich Telomere Probes			**Centromere Probes**		
TelC-FAM	5 nmole	PN-TC001-005	Cent-Cy3	5 nmole	PN-CN050-005
TelC-Cy3	5 nmole	PN-TC050-005	Cent-FAM	5 nmole	PN-CN001-005
TelC-Cy5	5 nmole	PN-TC055-005	Cent-Cy5	5 nmole	PN-CN055-005
TelC-Alexa488	5 nmole	PN-TC060-005	Cent-Alexa488	5 nmole	PN-CN060-005
TelC-FITC	5 nmole	PN-TC011-005	Cent-FITC	5 nmole	PN-CN011-005
TelC-TAMRA	5 nmole	PN-TC030-005	Cent-TAMRA	5 nmole	PN-CN030-005
TelC-Alexa647	5 nmole	PN-TC020-005	Cent-Alexa647	5 nmole	PN-CN020-005
TelC-Biotin	5 nmole	PN-TC040-005	Cent-Biotin	5 nmole	PN-CN040-005
G-Rich Telomere Probes			**Centromere Protein B Probes**		
TelG-FAM	5 nmole	PN-TG001-005	CENPB-FAM	5 nmole	PN-CP030-005
TelG-Cy3	5 nmole	PN-TG050-005	CENPB-Cy3	5 nmole	PN-CP050-005
TelG-Cy5	5 nmole	PN-TG055-005	CENPB-Cy5	5 nmole	PN-CP055-005
TelG-Alexa488	5 nmole	PN-TG060-005	CENPB-Alexa488	5 nmole	PN-CP060-005
TelG-FITC	5 nmole	PN-TG011-005	CENPB-FITC	5 nmole	PN-CP011-005
TelG-TAMRA	5 nmole	PN-TG030-005	CENPB-TAMRA	5 nmole	PN-CP001-005
TelG-Alexa647	5 nmole	PN-TG020-005	CENPB-Alexa647	5 nmole	PN-CP020-005
TelG-Biotin	5 nmole	PN-TG040-005	CENPB-Biotin	5 nmole	PN-CP040-005

CALIBRATION OLIGOS

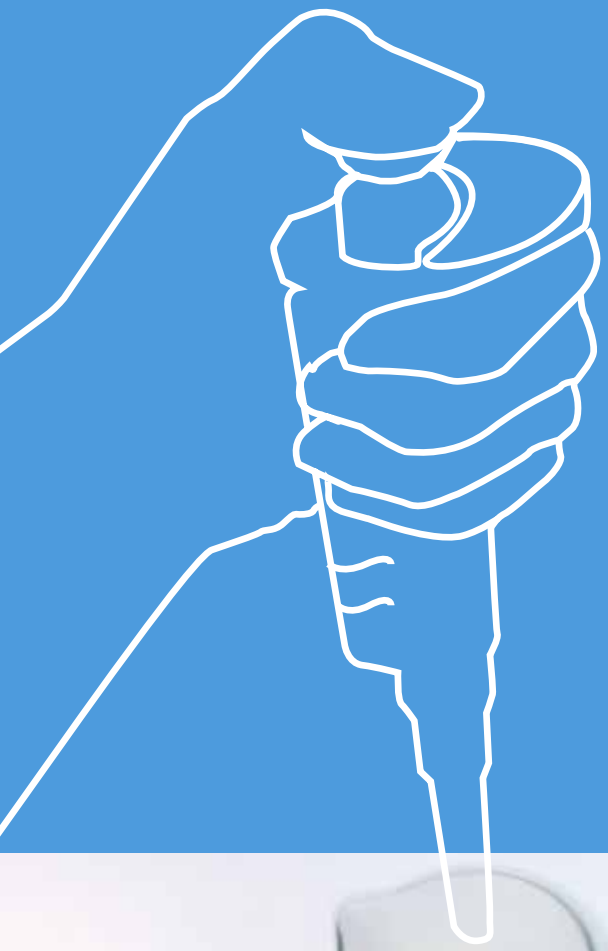
Dye-labelled calibration oligos are a set of 5' fluorescent dT10 oligonucleotides recommended to calibrate some real-time qPCR thermocyclers. Calibration is a preliminary step indicated to adjust fluorescent signal analysis. qPCR Dye Calibration Oligos' enables the thermocycler to recognise the spectra of each single dye and to control signal overlap that may occur in multiplexed assays particularly. ■

SPECIFICATIONS

Length: 10 bases
Quantity: 5 nmol
Backbone: DNA
Modifications: AP5, Yakima Yellow®, HEX, Dragonfly Orange™, TET, JOE, HiLyte™ Fluor 647, ROX
Purification: RP-HPLC
Quality control: MALDI-TOF MS
Format: Dried
Packaging: 2 mL tube
Documentation: Technical data sheet
Shipping: At room temperature

ORDERING INFORMATION

Name	Sequence	Modification 5'	Bases	Abs/Em (nm)	Reference
AP5-T10	TTTTTTTTTT	AP5	10	527/549	UN-CT001-005
YY-T10	TTTTTTTTTT	YY	10	530/549	UN-CT005-005
HEX-T10	TTTTTTTTTT	HEX	10	535/556	UN-CT010-005
DFO-T10	TTTTTTTTTT	DFO	10	554/576	UN-CT015-005
TET-T10	TTTTTTTTTT	TET	10	521/536	UN-CT020-005
JOE-T10	TTTTTTTTTT	JOE	10	529/555	UN-CT025-005
HL647-T10	TTTTTTTTTT	HL647	10	650/675	UN-CT030-005
ROX-T10	TTTTTTTTTT	ROX	10	575/602	UN-CT035-005



Glen Synthesis reagents

Eurogentec is an **authorised distributor for Glen research** products in most of European countries.
We distribute a large range of reagents for the DNA/RNA oligonucleotide synthesis including phosphoramidites, solid supports for oligonucleotide purifications, labelling dyes and modifications. ■

- CE Phosphoramidites, synthesis columns and solvents/reagents
- Other monomers
- Minor bases
- Modification and labelling
- RNA Synthesis
- And many more

>Note
View the comprehensive offer on:
https://www.eurogentec.com/product/research-other-reagents-for-oligonucleotide-synthesis.html

Additional Services

Additional QC

MALDI-TOF Mass Spectrometry: This method provides the most precise information about the length, deprotection-product and the presence of labels for modified oligonucleotides over a broad range of lengths (up to 60 bases).

RP-UHPLC: This is a very efficient technique giving quantitative information about the purity level of oligonucleotides from 15 to 40 bases long.

IEX-UHPLC: 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 assess very precisely the purity of oligonucleotides longer than 40 bases (on request).

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 (H_2O 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: Similar amounts of forward and reverse oligonucleotides can be mixed in a single tube. ■

Packaging

2 mL tube: By default, each oligonucleotide is provided in individual 2 mL tube. Higher volume can be delivered on request (15 mL, 50 mL)

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

384-well plates: Specially suitable for high throughput experiments requiring more than 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 (see page 24 for more details). ■

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... ■

Increase the quality of your oligo for demanding applications

Hospital and commercial kits

Track™ oligonucleotides

Track™ oligonucleotides offer a higher traceability (and other quality assets) in the production process than life science research oligonucleotides.

cGMP oligonucleotides

cGMP olligonucleotides ensure exceptional product quality by manufacturing in classified cleanrooms and use of an ISO 13485-certified and GMP compliant QMS.

Therapeutics fields

Pre-clinical oligonucleotides

Large scale pre-clinical oligonucleotides are manufactured in cleanrooms and delivered with appropriate documentation. Additional QC tests such as endotoxin level are offered. For more information download our IVD brochure.

www.eurogentec.com/invitrodiagnostics.html

OLIGO GRADE

Lab Services Hospital & Clinical Labs	Discovery	Routine Assays	Contamination Sensitive Assays

Diagnostic Companies	Discovery	Feasibility	Prototyping	Validation	Commercialisation

Oligonucleotide Grades	Research	Track	Pre-Diagnostic	Diagnostic
Process				
Dedicated Account Contact Person	Option	✔	✔	✔
Customised Fill & Finish	Option	Option	✔	✔
Quality Management				
ISO 9001 Certification	✔	✔	✔	✔
ISO 13485 Certification	–	–	✔	✔
Qualification/Validation [Equipment & Method]	–	Partial	✔	✔
Control				
Quantification	Single	Dual	Triple	Triple
Stringent QC Tests (validated)	–	✔	✔	✔
Traceability	Partial	Documented	Documented	Full documented
Batch Record [Archived for 5 years]	–	–	Partial	Full
Classified Cleanroom	–	–	✔	✔
Certificate of Analysis [CoA]	–	✔	✔	✔

>Note
Some of these services are available on request. Please contact us at unique@eurogentec.com

ANNEXES

SYNTHESIS SCALE VS GUARANTEED YIELD

GOOD TO KNOW

All allowed purifications are represented in this table. To select the recommended purification according to your applications and modifications, please refer to p.8.

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 reaction yield. Based on that, Eurogentec defined a minimum guaranteed yield in nmoles for all product categories (see table below).
The minimum guaranteed yields represent only a reference because the delivered quantities may vary.

Minimum Guaranteed Yield (nmol)

			Synthesis scale (nmol)																																					
			10			40					200						1000						2500				5000				10000				20000			
			Purification																																							
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), *in vivo*	PAGE (3)	Dual HPLC	UltraPureGold™	SePOP	RP-Cartridge-Gold™	HPLC (RP or iEX), *in vivo*	PAGE (3)	Dual HPLC	UltraPureGold™	SePOP	HPLC (RP or iEX)	Dual HPLC	PAGE (3)	SePOP	HPLC (RP or iEX)	Dual HPLC	PAGE (3)	SePOP	HPLC (RP or iEX)	Dual HPLC	PAGE (3)	SePOP	HPLC (RP or iEX)	Dual HPLC
Custom Oligonucleotides	Non-Modified (DNA only)	5-9	-	-	-	-	-	-	-	-	60	50	30	20	15	-	180	100	80	40	40	-	450	200	100	100	900	400	200	200	1800	800	400	400	-	-	-
		10-19	5	4	-	20	16	10	4	3	70	60	45	30	23	15	200	140	100	70	50	30	500	250	125	125	1000	500	250	250	2000	1000	500	500	4200	2100	1050
		20-39	5	4	-	20	16	10	4	2	60	50	30	20	15	10	190	120	90	40	45	20	475	225	115	115	1000	500	250	250	2000	1000	500	500	4200	2100	1050
		40-59	3	2	-	10	8	5	2	1	30	25	15	12	7	6	115	60	45	20	20	12	285	110	55	55	600	230	115	115	1200	460	230	230	2500	1000	500
		60-79	2	2	-	8	6	-	2	-	20	18	-	8	-	4	75	40	-	14	-	8	185	-	-	40	350	-	-	90	750	-	-	180	1500	-	-
		80-99	-	-	-	-	-	-	1	-	-	-	-	3	-	2	-	-	-	5	-	3	-	-	-	30	-	-	-	40	-	-	-	80	-	-	-
		100-139	-	-	-	-	-	-	-	-	-	-	-	2	-	1	-	-	-	3	-	2	-	-	-	10	-	-	-	20	-	-	-	40	-	-	-
	Modified (1) (including DNA, RNA, 2' O-Me RNA, LNA and phosphorothioate linkages)	5-9	-	-	-	-	-	3	-	-	-	-	12	-	6	-	-	-	25	-	12	-	-	60	30	30	-	125	60	60	-	250	125	125	-	-	-
		10-19	-	-	-	12	6	5	4	1	35	20	17	15	8	-	70	40	35	30	15	-	175	90	45	45	500	190	95	95	1000	380	190	190	2000	-	-
		20-59	-	-	-	8	5	4	3	1	20	15	12	10	6	-	45	35	25	20	12	-	100	65	30	30	300	135	65	65	600	275	130	130	1200	600	275
		60-139	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	-	-	30	-	-	-	60	-	-	-
Real-Time qPCR Probes	Double-Dye probes (2)	8-38	-	-	<2 (4)	-	-	4	-	-	-	-	12	-	-	-	-	-	25	-	-	-	-	65	-	-	-	135	-	-	-	275	-	-	-	600	-
	Molecular Beacons	32-50		-		-	-	1	-	-	-	-	4	-	-	-	-	-	12	-	-	-	-	30	-	-	-	65	-	-	-	130	-	-	-	275	-
	MGB Taqman Probes	8-30	Delivered quantity: 6, 20 or 50 nmol																																					
			Delivered Quantity (nmol)																				On Request																	
RNAi Oligonucleotides	siRNA Duplexes Non-Modified (5)	21-27	7	-	3	22	-	12	-	-	60	-	40	-	-	-	200	-	80	-	-	-																	
	siRNA Duplexes Modified (1)	21-27	7	-	3	22	-	12	-	-	60	-	40	-	-	-	200	-	80	-	-	-																	
NGS Oligonucleotides	RP-Cartridge purified RP-HPLC purified	20-85	Minimum delivered quantity: 10 nmol																																					
Universal Primers	-	15-38	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-		-	-	-		-	-	-
Unique Oligonucleotides	-	2-225	On request - please contact us at unique@eurogentec.com																																					

Post-synthesis modifications may yield 50% less than the above stated values.

Table: (1) Between 5 and 59 bases length single-modified Oligonucleotides. Eurogentec does not provide minimum guaranteed yield for modified oligonucleotides greater than 59 bases. Post-synthesis modifications are not compatible with SePOP and RP-Cartridge•Gold™ purification. 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.

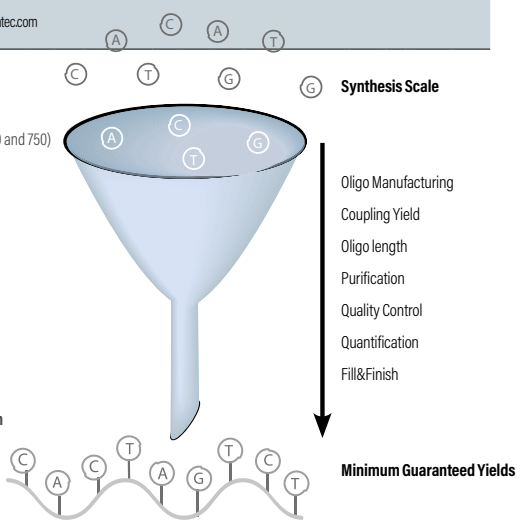
(3) Except for oligonucleotides with GC-rich regions.

(4) Only available for Double-Dye FAM-TAMRA 10 nmol and FAM-BHQ1 10 nmol.

(5) Non-modified siRNA's only include 3' dTdT overhang.

List of the post-synthesis modifications
> 5' Alexa Fluor® (350, 430, 488, 500, 514, 532, 546, 555, 568,
594, 610, 633, 647, 660, 680, 700 and 750)
> 5' ATTO (390, 425, 465, 488, 495, 520, 532, 550, 565, 590, 594,
610, 620, 633, 635, 647N, 655, 680, 700, 725 and 740)
> 5' BODIPY® (530/550, FL and TR)
> 3', 5' and dT Cascade Blue®
> 3' and dT Cy® (3, 3.5, 5 and 5.5)
> 3', 5', dR and dT Digoxigenin
> 5' Dragonfly Orange®
> 5' DY-(681, 781 and 782)
> dR 6-FAM
> dR and dT HEX
> 5' HiLyte™ Fluor (405, 488, 555, 594, 647, 680 and 750)
> 3', dR and dT JOE
> 5' Marina Blue®
> 5' Oregon Green® (488 and 488 X)
> 5' Pacific Blue™
> 3' QXL®
> 3', 5', dR and dT Rhodamine 6G
> 3', 5', dR and dT ROX
> 5' TAMRA
> dR and dT TET
> 3', 5', dR and dT Texas Red®

For more information, please contact our Oligo Centre at: **oligo@eurogentec.com** or visit our website: **www.eurogentec.com**



FOR PCR

DETERMINE THE RIGHT SYNTHESIS SCALE

Final Oligo Concentration	50 nM	150 nM	300 nM	600 nM	900 nM	
	Average number of Reactions (total volume 100µL)					Minimum quantity to order*
	100	30	15	8	6	0.5 nmol
	1000	300	165	80	55	5 nmol
	5000	1650	830	415	275	25 nmol
	10 000	3300	1660	830	555	50 nmol
	100 000	33 300	16 660	8330	5555	500 nmol

*Please select in the minimum guaranteed yield table the synthesis scale corresponding to the desired minimum quantity.

CHECK YOUR SHIPPING METHODS

The delivery time depends on the specifications of your oligonucleotides (see table below).

Eco-Logik Delivery

- By local Mail to reduce the global ecological impact. Receive your oligonucleotides in your mailbox. Available for Belgium, France and Monaco

Express Delivery

- All oligonucleotides
- By Express courrier to receive your oligonucleotides as fast as possible (24 to 48 hours) in your hands.
  - Same day shipping option
  - For orders received before 10.00 AM (Central European Time)
  - For custom oligonucleotides (max 24), 10/40 nmol scale, 5-30 DNA bases, unmodified, SePOP desalted or RP-Cartridge purified.

Delivery times (in working day)

Range	Product	Length	Purification					
			SePOP	RP-Cartridge-Gold™	HPLC (RP or IEX)	PAGE	Dual HPLC	UltraPureGold™
Custom Oligonucleotides	Non-Modified (DNA Only)	5-9	-	4-5	5	6	7	7
		10-39	2-3	4-5	5	6	7	7
		40-59	5	6	7	8	-	9
		60-79	-	6	-	8	-	9
		80-139	-	-	-	10	-	11
	Modified (including DNA, RNA, 2' O-Me RNA & LNA')	10-39	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	-	-	-
	MGB Taqman Probes	8-30	-	-	5-7	-	-	-
RNAi Oligonucleotides	siRNA Duplexes	21-27	5-7	-	9-10	10-11	-	-
NGS Oligonucleotides	-	20-85	-	4-6	5-7	-	-	-
Universal Primers	-	15-38	-	-	2-3	-	-	-
Unique Oligonucleotides	-	2-225	On Request					

For large order or Unique Oligonucleotides, please feel free to contact us at oligo@eurogentec.com to receive more details in terms of delivery schedules. 5'AP, BSA, HRP or SBP Conjugation : 3-5 WD Extra. Additional Purification or Services: 2 WD Extra ; Fax Ordering: 1 WD Extra

RECEIVE YOUR DOCUMENTATION

Each oligonucleotide is provided with a technical data sheet. Other documentations could be added depending on the oligonucleotide type. All the documents are sent as pdf files to your shipping email address.

		TDS	MS(1)	UHPLC	CGE(3)
Custom Oligonucleotides	Unmodified	✔			
	Modified	✔	✔ (4)		
	UltraPureGold™	✔	✔	✔	
Real-Time qPCR Probes		✔	✔	✔	
RNAi Oligonucleotides	siRNA Duplexes	✔	✔ (4)		
Universal Primers		✔	✔		
Unique Oligonucleotides		✔	✔	✔ (5)	✔ (5)
NGS oligos		✔	✔		
Calibration oligos		✔	✔		

TDS: Technical Data Sheet; MS: Mass Spectrometry; HPLC: High Performance Liquid Chromatography; Ultra Performance Liquid Chromatography; CGE: Capillary Gel Electrophoresis.
(1) Always provided up to 60 bases long Oligonucleotides.
(2) If applicable.
(3) Can be substituted by another analytical QC
(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.

HOW TO STORE YOUR OLIGO

Handling information

Products	Format	Storage	Stability**
Custom Oligonucleotides	Dried	RT	18 months
	TE Buffer (pH 8) or dH_2O	-20 °C	24 months
Real-Time qPCR Probes	Dried	RT	18 months
	TE Buffer (pH 8)* or dH_2O	-20 °C	24 months
RNAi Oligonucleotides	Dried	RT	18 months
	RNase-free Buffer (pH 7.5)	-20 °C	24 months
Catalogue Primers	Dried	RT	18 months
PNA FISH Probes / Custom PNA	Dried	RT	18 months

* Except for Cy® dye labelled oligonucleotides (pH7)

** Please protect from light and avoid freeze/thaw cycles.

Please note that depending on sequence and modifications, the stability of the oligos may vary substantially versus the values given above, which should therefore be considered as indicative.

RECONSTITUTE YOUR OLIGO

1. **Spin** the tube briefly to collect the pellet in the bottom of the tube.
2. **Add** an appropriate volume of recommended buffer.
3. **Allow** the tube to stand a few minutes.
4. **Vortex** the tube for 15 secondes and spin briefly.
5. **Refer to** the dedicated technical data sheet for more information.

QUANTIFY YOUR OLIGO

To quantify your oligonucleotides, make an aliquot of the resuspended oligonucleotides to a final volume of 1 mL of dH_2O and vortex for a few seconds. Measure the absorbance of this dilution at 260 nm (A_{260}). Use the formula below to calculate the concentration of oligonucleotides in your stock solution. This formula is valid for an absorption of $A_{260} \leqslant 1.2$.

Concentration in µg/mL = A_{260} × dilution factor x Weight per OD of stock solution (in µg / OD).

1 OD_{260} (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 OD_{260} 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.

MEASURE

1.0 OD_{260} of CCCCCCCCCC (10 bases) equals 39 µg
whereas 1.0 OD_{260} of AAAAAAAAAA (10 bases) equals only 20 µg.

We carefully measure the OD value for your custom oligonucleotide by measuring the absorption at 260 nm using UV spectrophotometer. This information is provided on the oligonucleotide technical data sheet as the number of OD_{260} units. The amount of oligonucleotide expressed in nanomoles and micrograms is derived from the OD measurement.

CALCULATE

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

$$\text{Nanomoles} = (\ OD_{260} / \varepsilon_{260}) \times 10^6$$

Example:

1 OD_{260} 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) × 10^6 = 5.47 nmoles

CONVERT

Convert the amount in nanomoles to micrograms:

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

Example:

1 OD_{260} 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

CALCULATE THE DATA

THE MOLAR EXTINCTION COEF.

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

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

THE MOLECULAR WEIGHT

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

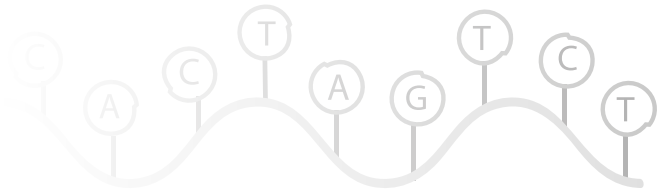
For DNA bases:
MW dA = 313.21; MW dC = 289.18; MW dG = 329.21; MW dT = 304.20; MW dU = 290.17; MW dI = 314.19

For RNA bases:
MW DNA counterpart + 16.
When determining the weight of Uracil (rU) start with dU and not dT

For LNA bases:
MW DNA counterpart + 16 (+42 for dC)

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



WRITE YOUR SEQUENCE IN YOUR ORDER

IUB CODE

ACGTA = DNA
(ACGUA) = RNA
[ACGUA] = 2' O-Me RNA
<ACGTA> = 2' O-MOE
{ACGTA} = LNA®
A*C*(G*U*)A = Phosphorothioate links

Mixed bases (also known as degenerate or wobble bases) follow the IUB codes:
D=A/G/T
M=A/C
H=A/C/T
I = Inosine = Universal base
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
Oligonucleotide synthesised with mixed bases gives a final product that is a heterogeneous population of distinct species. MW, Tm 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.

>Note
ε modification is not known for all modifications.

COMPATIBILITY CYCLER CHANNELS VS FLUORESCENT DYES

Thermocycler	Blue channel	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6	Channel 7
GeneAmp® SDS 5700		FAM	**AP5/YY/**JOE/VIC/TET*	**DFO*/TAMRA/**NED				
ABI Prism® SDS 7000		FAM	**AP5/YY/**JOE/VIC/TET*	**DFO*/TAMRA/**NED	**ROX**	–		
ABI Prism® SDS 7700		FAM	**AP5/YY/**JOE/VIC/TET*	**DFO*/TAMRA/**NED	**ROX**	–		
ABI Prism® SDS 7900 HT		FAM	**AP5 /YY/**JOE/VIC/TET*	**DFO*/TAMRA/**NED	**ROX**	–		
ABI Prism® SDS 7300		FAM	**AP5 /YY/**JOE/VIC/TET*	**DFO*/TAMRA/**NED	**ROX**	–		
ABI Prism® SDS 7500		FAM	**AP5 /YY*/HEX*/** JOE /VIC/TET*	**DFO*/TAMRA/Cy®3/**NED	**ROX/TR**	**Cy®5/HL647**	–	
Quantstudio™ 3, 5, 6, 7		FAM	**AP5 /YY*/HEX*/**JOE/VIC/TET*	**DFO*/TAMRA/Cy®3/**NED	**ROX/TR**	**Cy®5/HL647**	–	
Quantstudio™ 7		FAM	**AP5/YY*/HEX*/**JOE/VIC/TET*	**DFO*/TAMRA/Cy®3/**NED	**ROX/TR**	**Cy®5/HL647**	**Cy®5.5**/ATTO 700	
ViiA7		FAM	**AP5/YY*/ HEX/**JOE/VIC/TET	**DFO*/TAMRA/**NED	**ROX/TR***	LIZ/ATTO 633	ATTO 680/Alexa Fluor® 680	
StepOne®		FAM	**AP5/YY*/HEX*/**JOE/VIC/TET*	**ROX**	–	–		
StepOnePlus®		FAM	**AP5/YY*/HEX*/**JOE/VIC/TET*	**DFO*/TAMRA/Cy®3/**NED	**ROX**	–		
Cycler iQ®		FAM	**AP5/YY*/HEX/ Cy®3/**TET	**DFO*/TAMRA/Cy®3/**NED	**ROX/TR**	**Cy®5**		
My iQ®		FAM	–					
iQ5		FAM	**AP5/YY*/HEX/**JOE/TET	**DFO*/TAMRA/Cy®3/**NED	**ROX/TR**	**Cy®5**	–	
CFX 96™		FAM	**AP5/YY*/HEX/**JOE*/TET	**ROX / TR**	**Cy®5**	**Cy®5.5**		
MiniOpticon®		FAM	**AP5/YY*/HEX/**TET*	–	–	–		
DNA Engine Opticon® 1		FAM	–		–	–		
DNA Engine Opticon® 2		FAM	**AP5/YY/HEX/TAMRA/**VIC/TET	–	–	–		
Chromo 4™		FAM	**AP5/YY*/HEX/TAMRA/ Cy®3** JOE/VIC/TET	**ROX/TR**	**Cy®5**	–		
Mx3000P® (choice of 4 filtres)		FAM	TET	**YY*/HEX/**JOE/VIC	**Cy®3**	**DFO/TAMRA/**NED	**TR/ROX**	**Cy®5**
Mx3005P® (choice of 5 filtres)	Epoch Blue / Alexa Fluor® 350	FAM	TET	**YY*/HEX/**JOE/VIC	**Cy®3**	**DFO/TAMRA/**NED	**TR/ROX**	**Cy®5**
Mx4000® (choice of 4 filtres)		FAM	TET	**YY*/HEX/**JOE/VIC	**Cy®3**	**DFO/TAMRA/**NED	**TR/ROX**	**Cy®5**
AriaMx (choice of up to 6 filtres)	ATTO 425	FAM	**HEX**	**Cy®3**	**ROX**	**Cy®5**		
Mastercycler® ep realplex2		FAM	**AP5/YY/ HEX/**JOE/VIC/TET	–	–	–		
Mastercycler® ep realplex4		FAM	**AP5/YY/ HEX/TET/**JOE/VIC	**DFO*/TAMRA**	**ROX**	–		
LightCycler® 1.5		FAM	**AP5/YY/HEX/**JOE/VIC/TET	**Cy®5**	–			
LightCycler® 2		FAM	**AP5/HEX/YY*/**JOE*/VIC	**TR/**LC Red 610	ATTO 620/LC Red 640	**Cy®5/**LC Red 670	LC Red 705/ATTO 680	
LightCycler 480® I	ATTO 425	FAM	**AP5/YY/ HEX/**JOE/VIC	**ROX/TR/**LC Red 610	ATTO 620/LC Red 640	**Cy®5**		
LightCycler 480® II	ATTO 425	FAM	**AP5/YY/HEX/**JOE/VIC	**ROX / TR/**LC Red 610	ATTO 620/LC Red 640	**Cy®5 / Cy®5.5**		
LightCycler 96		FAM	**AP5/YY/HEX/**VIC	**TR/**LC Red 610	**Cy®5**			
Smartcycler® 1		FAM	**AP5/YY/Cy®3/**JOE/VIC/TET	**TR**	**Cy®5**			
Smartcycler® 2		FAM	**AP5/Cy®3/YY*/**JOE*/TET	**TR/ROX**	**Cy®5**			
Rotor-Gene™ 2000 / 3000		FAM	**AP5/YY*/**JOE/VIC/TET	**TAMRA/ROX/Cy®3.5/TR**	**Cy®5**			
Rotor-Gene™ 6000	Epoch Blue / Alexa Fluor® 350	FAM	**AP5/YY/HEX/**JOE/VIC/TET	**TAMRA/ROX/Cy®3.5/TR**	**Cy®5**	ATTO 680		
PikoReal		FAM	**AP5/HEX/YY**	**ROX/TR**	**Cy®5**			
Qtower		FAM	**AP5/YY/ HEX/**JOE/VIC	**DFO/TAMRA/**NED	**ROX /TR/Cy3.5®**	**Cy®5**	**Cy®5.5**	

* perform a dye calibration for optimal results
For complementary information, please refer to instrument manufacturer technical guide or contact us at scientific.support@eurogentec.com

YY = Yakima Yellow®
DFO = Dragonfly Orange™

TR = Texas Red®
In blue = Recommended by Eurogentec

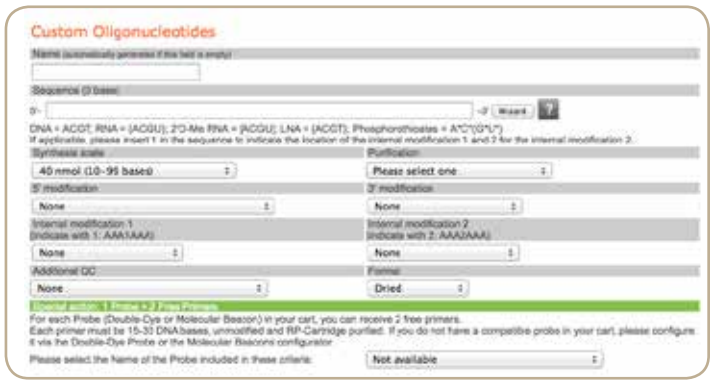
In grey = Not available at Eurogentec

HOW TO ORDER ON LINE

WWW.EUROGENTEC.COM

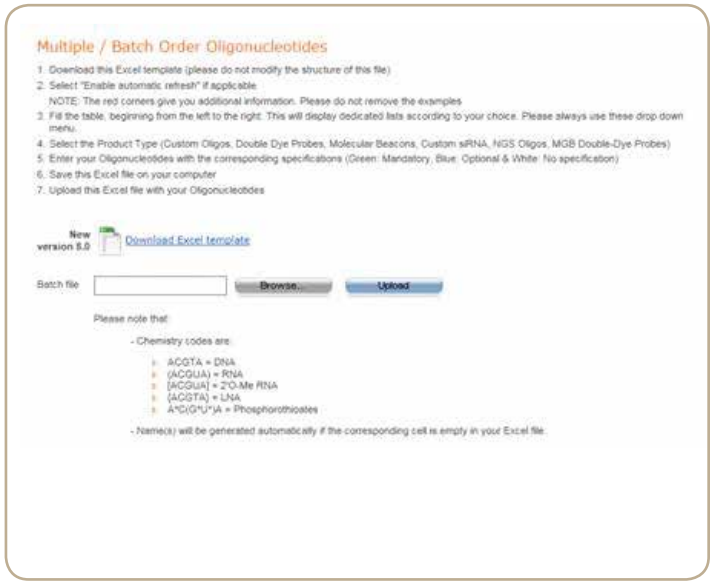
SINGLE ORDER

1. **Connect** to **www.eurogentec.com**
2. **Click** on the oligonucleotide tab of the order centre screen
3. **Select** the oligonucleotide type (Custom, Probes, RNAi...)
4. **Fill** the configurater with your oligonucleotide specifications
5. **Add** your oligonucleotide into your cart and finalise your order



MULTIPLE/ BATCH ORDERS

1. **Connect** to **www.eurogentec.com**
2. **Click** on the oligonucleotide tab of the order centre screen
3. **Select** the Multiple/Batch Order
4. **Download** the Excel File and fill it in
5. **Upload** the completed file on the Eurogentec website: **www.eurogentec.com**



HOW TO PAY

POSTPAID SYSTEM

One order / one invoice

You place an order of 1 or multiple oligonucleotides and you receive the invoice corresponding to this order.

PREPAID SYSTEM Oli&GO™

One invoice for multiple orders

You place a defined amount on your Oli&GO™ account.
You receive an invoice corresponding to this amount.
You can use this amount over time.

ECONOMIC — Exclusive Oli&GO™ prices.

EASY — Only one invoice for multiple oligo's orders spread over time.

CONVENIENT — Oligo orders scheduled and tracked on line.

SECURED — One administrator can give restricted access to multiple users.

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

With the realtime integrated counter, you keep an eye on your budget.

Scheduling your oligonucleotide orders allows reducing the number of parcels sent and decreases your shipping costs.

	Administrator Full of privileges to control the system	User Restricted access
Functionalities		
Use 1 or more Accounts	✔	✔
Buy Oligonucleotides	✔	✔
Receive an Order Confirmation	✔	✔
Receive the Related Documentation	✔	✔
Rename the Account	✔	✘
Add/Remove User(s)*	✔	✘
Define/Update Shipping Address	✔	✘
Reload the Account(s)	✔	✘
Schedule Orders (Day/Time)	✔	✘

*Multiple users can be defined per account

SHIPMENT GROUP

HOW TO REDUCE MY SHIPPING FEES

With the shipment group option, all the labs from the same institution can group their shipments to benefit from free (or reduced) shipping cost.

ECONOMIC

Free shipping of your oligos[1].

ECOLOGIC

Reduction of the number of parcels sent.

FAST

Shipping of the oligos as soon as they are ready[2].

RELATED PRODUCTS

Custom genes

dNTPs

dNTP Mix	1x 20 µmoles	NU-0010-10
dNTP Set	4 x 25 µmoles each	NU-0020-50

Takyon™ qPCR kits

Test your free sample, visit **www.eurogentec.com/qpcr-takyon.html**

DNA purification kits (100 preps)

SMARTPure PCR Kit	SK-PCPU-100
SMARTPure Gel Kit	SK-GEPU-100
SMARTPure Plasmid Kit	SK-PLPU-100

DNA extraction kit (100 preps)

SMARTExtract DNA kit	SK-DNEX-100

Agarose

Agarose - 500g	EP-0010-05
Agarose small fragment (125g)	EP-0020-10
AgaTabs - 300 tablets	EP-0030-15

MW markers

SmartLadder	(200 to 10000 bp)	MW-1700-10
SmartLadder SF	(100 to 1000 bp)	MW-1800-04

Electrophoresis devices

Mupid®-One	EU cable	MU-0041-
	UK cable	MU-0041+
SmartViewer for Mupid®		MU-0101
SmartIlluminator		MU-0201

>Note
[1]Minimum order amount required. [2]Depending on the order quantity, we can determine a delivery plan.
See our detailed shipping conditions on http://www.eurogentec.com/shipping-conditions.html

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Sept_ 2019

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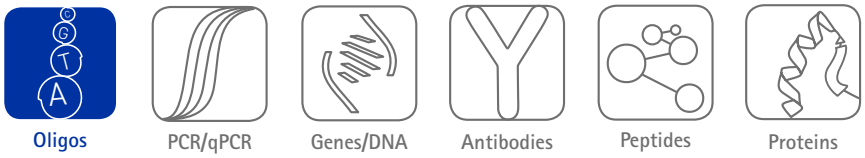

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