

Individual Deoxynucleotides and Sets

Deoxynucleotide Sets

Deoxynucleotide sets contain separate vials of all four nucleotides (dATP, dCTP, dGTP, TTP) at either 100 mM or 10 mM concentrations.

Purity: $\geq 99\%$

DNase, RNase: none detected

Storage: $-20\text{ }^{\circ}\text{C}$

Shipped in dry ice

Ordering Information

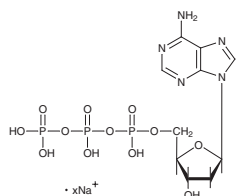
| Cat. No. | Product Description | Quantity |
|-----------------|---|----------|
| DNTP10 | 0.5 ml each of 10 mM dATP, dCTP, dGTP and TTP | 1 kit |
| DNTP100 | 0.25 ml each of 100 mM dATP, dCTP, dGTP and TTP | 1 kit |
| DNTP100A | 1.0 ml each of 100 mM dATP, dCTP, dGTP and TTP | 1 kit |

2'-Deoxyadenosine 5'-triphosphate sodium salt

(dATP)

Purity: $\geq 99\%$

DNase, RNase: none detected



Storage: $-20\text{ }^{\circ}\text{C}$

Shipped in dry ice

Ordering Information

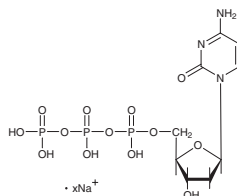
| Cat. No. | Product Description | Quantity |
|--------------|---------------------|-----------|
| D4788 | 100 mM (pH 7) | 0.1 mmole |

2'-Deoxycytidine 5'-triphosphate sodium salt

(dCTP)

Purity: $\geq 99\%$

DNase, RNase: none detected



Storage: $-20\text{ }^{\circ}\text{C}$

Shipped in dry ice

Ordering Information

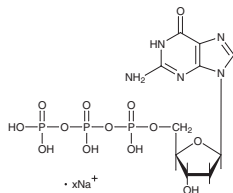
| Cat. No. | Product Description | Quantity |
|--------------|---------------------|-----------|
| D4913 | 100 mM (pH 7) | 0.1 mmole |

2'-Deoxyguanosine 5'-triphosphate sodium salt

(dGTP)

Purity: $\geq 99\%$

DNase, RNase: none detected



Storage: $-20\text{ }^{\circ}\text{C}$

Shipped in dry ice

Ordering Information

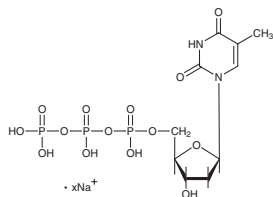
| Cat. No. | Product Description | Quantity |
|--------------|---------------------|-----------|
| D5038 | 100 mM (pH 7) | 0.1 mmole |

Thymidine 5'-triphosphate sodium salt

(TTP; dTTP)

Purity: $\geq 99\%$

DNase, RNase: none detected



Storage: $-20\text{ }^{\circ}\text{C}$

Shipped in dry ice

Ordering Information

| Cat. No. | Product Description | Quantity |
|--------------|---------------------|----------------------------------|
| T9656 | 100 mM (pH 7) | 25 μmole 0.1 mmole |
| T7791 | 10 mM | 0.5 ml |

Deoxynucleotide Mix, 10 mM

The Deoxynucleotide Mix is a convenient premixed dNTP solution containing 10 mM each of UltraPure dATP, dCTP, dGTP and TTP. One μl is sufficient for a standard 50 μl PCR reaction.

Suitable for routine and long PCR, manual and automated DNA sequencing, cDNA synthesis and labeling reactions.

Purity: $\geq 99\%$

DNase, RNase: none detected

Storage: $-20\text{ }^{\circ}\text{C}$

Shipped in dry ice

Ordering Information

| Cat. No. | Product Description | Quantity |
|--------------|----------------------------|--|
| D7295 | Deoxynucleotide Mix, 10 mM | 0.2 ml 20 \times 0.2 ml 0.5 ml |

Features and Benefits

- Equimolar amounts of each dNTP means less pipetting
- Minimize risk of contamination in PCR
- UltraPure dNTPs can help maximize consistency and yields in critical PCR reactions

PCR Buffers

10× PCR Buffer

Composition of the 10× buffer: 100 mM Tris-HCl, pH 8.3 at 25 °C; 500 mM KCl; 15 mM MgCl₂; 0.01% gelatin
Vial of 1.5 ml

Storage: -20 °C

Ordering Information

| Cat. No. | Product Description | Quantity |
|--------------|---------------------|------------------------------------|
| P2192 | 10× PCR Buffer | 1 vial 5 vials 5 ml 25 ml |

10× PCR Buffer without MgCl₂

10× PCR Buffer for use with Sigma's PCR enzymes.

Storage: -20 °C

Ordering Information

| Cat. No. | Product Description | Quantity |
|--------------|--|----------------|
| P2317 | 10× PCR Buffer without MgCl ₂ | 1.5 ml 5 ml |

PCR Buffer without MgCl₂

This PCR Buffer, diluted to 1×, provides the recommended pH and ionic strength for Sigma's DNA Polymerases. The MgCl₂ can be used to optimize the Mg²⁺ concentration for PCR with any template/primer set. Includes one vial (1.5 ml) each of 10× PCR Buffer II (without MgCl₂) and 25 mM MgCl₂ solution.

Storage: -20 °C

Ordering Information

| Cat. No. | Product Description | Quantity |
|--------------|--------------------------------------|----------|
| PCRII | PCR Buffer without MgCl ₂ | 1 kit |

Components: 10× PCR Buffer without MgCl₂
25 mM MgCl₂

Composition of the 10× PCR Buffer II: 100 mM Tris-HCl, pH 8.3 at 25 °C; 500 mM KCl; 0.01% gelatin

10× REDTaq PCR Reaction Buffer

10× REDTaq PCR Reaction Buffer for use with Sigma's REDTaq DNA Polymerase, Catalog Number D4309.

Storage: -20 °C

Ordering Information

| Cat. No. | Product Description | Quantity |
|--------------|--------------------------------|----------------|
| B5926 | 10× REDTaq PCR Reaction Buffer | 1.5 ml 5 ml |

AccuTaq LA 10× Buffer

10× Buffer for AccuTaq LA DNA Polymerase, Catalog Number D8045 and D4812.

Storage: -20 °C

Ordering Information

| Cat. No. | Product Description | Quantity |
|--------------|-----------------------|----------|
| B0174 | AccuTaq LA 10× Buffer | 1 vial |

PCR Optimizing Reagents

Betaine solution

5 M, PCR Reagent

The addition of betaine at a final concentration of 0.8-1.6 M improves the amplification of DNA by reducing the formation of secondary structure in GC-rich regions.

DNase, RNase: none detected

Vial of 1.5 ml

The purchase of this product does not include a license to practice the claims of U.S. Patent No. 5,545,539, DE4411588, or DE4411594. The practice of the claims of these patents may require a license from the patent owners.

Storage: 2-8 °C

References

1. Rees, W.A., et al., Betaine can eliminate the base pair composition dependence of DNA melting *Biochemistry* **32**, 137-144 (1993).
2. Henke, W., et al., Betaine improves the PCR amplification of GC-rich DNA sequences. *Nucl. Acids Res.* **25**, 3957-3958 (1997).

Ordering Information

| Cat. No. | Product Description | Quantity |
|--------------|-----------------------|-------------------|
| B0300 | Betaine solution, 5 M | 1 vial 5 vials |

Dimethyl sulfoxide

(Methyl sulfoxide; DMSO)

PCR Reagent

Dimethyl sulfoxide (1-10%) has been shown to accelerate strand renaturation and is believed to give the nucleic acid thermal stability against depurination. As a PCR cosolvent, DMSO may help improve yields, especially in long PCR.

mp: 18 °C

Density: 1.1 g/ml

Vial of 1 ml

Storage: Room Temperature

References

1. Cheng, S., et al., Effective amplification of long targets from cloned inserts and human genomic DNA. *Proc. Natl. Acad. Sci. USA* **91**, 5695-5699 (1994).
2. Winship, P.R., et al., An improved method for directly sequencing PCR amplified material using dimethyl sulphoxide. *Nucl. Acids Res.* **17**, 1266 (1989).

Ordering Information

| Cat. No. | Product Description | Quantity |
|--------------|---------------------|-------------------|
| D9170 | Dimethyl sulfoxide | 1 vial 5 vials |

Magnesium chloride solution

MgCl₂, 25 mM

PCR Reagent

Suitable for optimization of PCR.

DNase, RNase: none detected

Vial of 1.5 ml

Storage: 2-8 °C

Ordering Information

| Cat. No. | Product Description | Quantity |
|--------------|------------------------------------|---------------------------|
| M8787 | Magnesium chloride solution, 25 mM | 1 vial 5 vials 5 ml |

Single-strand Binding Protein

from Escherichia coli

(SSB)

Binds with high specificity to single-stranded DNA. Can be useful in enhancing the specificity of PCR and in enabling the sequencing of problematic DNA templates.

Solution in 20 mM Tris-HCl, pH 8.0, 0.5 M NaCl, 0.1 mM EDTA, 0.1 mM DTT, 50% glycerol.

>95% (SDS-PAGE)

DNase, RNase: none detected

Storage: -20 °C

Shipped in wet ice

Reference

1. Schwarz, K., et al., Improved yields of long PCR products using gene 32 protein. *Nucl. Acids Res.* **18**, 1079 (1990).

Ordering Information

| Cat. No. | Product Description | Quantity |
|--------------|-------------------------------|------------------|
| S3917 | Single-strand Binding Protein | 100 µg 500 µg |

Reagents

Glycerol

(1,2,3-Propanetriol; Glycerin)

PCR Reagent

The addition of glycerol is reported to improve the PCR process.

DNase, RNase: none detected

Vial of 1.5 ml

Storage: Room Temperature

Ribonuclease Inhibitor

from human placenta

Useful for *in vitro* inhibition of ribonucleases, including procedures like cDNA synthesis, RT-PCR and *in vitro* transcription and translation.

Solution in 50% glycerol, 20 mM HEPES-KOH, pH 7.6, 50 mM KCl and 8 mM DTT

Concentration: 30,000-50,000 units per ml

Unit definition: One unit will reduce the activity of 5 ng of ribonuclease A by 50% in a cytidine 2':3'-cyclic monophosphate system

Reference

1. Smith, D., et al., *Amplifications* **5**, 16 (1990).

Ordering Information

| Cat. No. | Product Description | Quantity |
|--------------|---------------------|-------------------|
| G8778 | Glycerol | 1 vial 5 vials |

Storage: -20 °C
Shipped in dry ice

References

- Blackburn, P., Ribonuclease inhibitor from human placenta: rapid purification and assay. *J. Biol. Chem.* **254**, 12484-12487 (1979).
- Blackburn, P. Ribonuclease inhibitor from human placenta: interaction with derivatives of ribonuclease A. *J. Biol. Chem.* **254**, 12488-12493 (1979).

Ordering Information

| Cat. No. | Product Description | Quantity |
|--------------|------------------------|---|
| R2520 | Ribonuclease Inhibitor | 2,500 units 10,000 units 20,000 units |

Storage: Room Temperature

Ordering Information

| Cat. No. | Product Description | Quantity |
|--------------|---------------------|-------------------|
| W1754 | Water | 1 vial 5 vials |

Water

PCR Reagent

Suitable for polymerase chain reaction (PCR)

Sterile-filtered

DNase, RNase: none detected

Vial of 1.5 ml

Uracil DNA Glycosylase

from *Escherichia coli*

(DNA Uracil Glycosylase; UDG; Uracil N-glycosylase)

Eliminates carryover contamination that can result in false-positives in PCR reactions. UDG catalyzes the removal of uracil residues from both single- and double-stranded DNA, but not RNA. This reaction leaves the DNA sugar-phosphodiester backbone intact. The resulting DNA is not suitable for use as a hybridization target or as a template for DNA polymerases.

Supplied at 1 unit/μl in 30 mM Tris-HCl, pH 7.5, 1 mM DTT, 0.05% (w/v) TWEEN® 20, 1 mM EDTA, 150 mM NaCl, 50% (v/v) glycerol.

Purchase of this product conveys the licensed right under U.S. Patent No. 5,035,996 and foreign equivalents to use this product only in internal research conducted by the purchaser. No rights under the aforementioned patents are conveyed which permit the resale, transfer, or use for purposes other than research. Rights under the aforementioned patents, for purposes other than internal research, may be obtained by contacting Life Technologies, Inc.

Unit definition: One unit catalyzes the release of 1 nmol of free uracil from ³H-poly(dU) in 1 hr at 37 °C

Concentration: 1 unit per μl

Storage: -20 °C
Shipped in dry ice

References

- Lindahl, T., et al., DNA N-glycosidases: properties of uracil-DNA glycosidase from *Escherichia coli*. *J. Biol. Chem.* **252**, 3286-3294 (1977).
- Longo, M., et al., Use of uracil DNA glycosylase to control carry-over contamination in polymerase chain reactions *Gene* **93**, 125-128 (1990).

Ordering Information

| Cat. No. | Product Description | Quantity |
|--------------|------------------------|-----------|
| U1257 | Uracil DNA Glycosylase | 100 units |

Accessories

GeNunc® Tubes for Amplification

Features and Benefits

- Optimized for liquid phase PCR
- GeNunc tubes and caps are made of virgin polypropylene which can withstand temperatures from -20 to +122 °C
- Available in 0.2 ml strips or as 0.2 ml and 0.5 ml individual tubes
- V-shaped tubes with uniformly thin walls
- Dome-shaped lids for good contact with heated lids of cyclers
- Compatible with most 0.2 ml and 0.5 ml thermal cycler formats
- Offers uniform heat transmission for maximum yield
- Certified RNase- and DNase-free

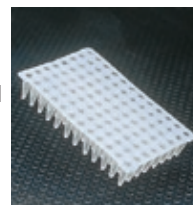


Ordering Information

| Cat. No. | Product Description | Quantity |
|--------------|---|-----------------------------------|
| T0322 | PCR Tube Strips, 0.2 ml with matching cap strip | 1 case (600 each) 120 each |
| T0447 | PCR Tubes, 0.2 ml with attached caps | 1 case (10,000 each) 1000 each |
| T0572 | PCR Tubes, 0.5 ml with attached caps | 1000 each |

PCR multiwell plates, 96-well

Virgin polypropylene, fully autoclavable, and certified DNase- and RNase-free. Wells have thin walls for rapid temperature equilibration and reduced cycle time.



A rigid top plate (included) minimizes plate distortion, assures a dependable fit with the thermal cycler, and allows for leak-proof seal with Micro mats or Cap Strips. Each well has a capacity of 200 µl.

Ordering Information

| Cat. No. | Product Description | Quantity |
|----------------|-------------------------------|----------|
| Z374903 | PCR multiwell plates, 96-well | 2 pkg |
| | Pkg of 25 plates | |

PCR multiwell plates, 384-well

Plates are skirted for compatibility with automation systems. Wells have raised rims to ensure contact with sealing film and reduce evaporation. Each well has a capacity of 40 µl and a working volume of 25 µl.



Ordering Information

| Cat. No. | Product Description | Quantity |
|----------------|--------------------------------|----------|
| Z374911 | PCR multiwell plates, 384-well | 1 pkg |
| | Pkg of 50 plates | |

Micro mats for PCR plates

Molded to fit standard 96-well plates, these mats have 96 dimples on each side to facilitate placement and return condensate to reaction mixture. When used with a screw- or clip-down thermal cycler lid, provides 100% sealing. Fully autoclavable, reversible and reusable up to 50 times.



Ordering Information

| Cat. No. | Product Description | Quantity |
|----------------|---------------------------|----------|
| Z374938 | Micro mats for PCR plates | 5 each |

Accessories

Sealing film for 96-well multiwell plates

Sheets are precut to fit standard multiwell plates; both film and adhesive are inert and compatible with microplate procedures. Adhesive forms a tight, waterproof seal, preventing cross-contamination and evaporation.



ThermalSeal is polypropylene-based, pressure-resistant and thermostable from -40 to +125 °C. Excellent for sensitive PCR applications, it is manufactured RNase- and DNase-free.

Ordering Information

| Cat. No. | Product Description | Quantity |
|----------------|-------------------------------|----------|
| Z369675 | ThermalSeal film, non-sterile | 100 each |
| Z369683 | ThermalSeal film, sterile | 100 each |

PCR microtubes, PurePak

Reaching into a bulk bag of tubes can cause contamination; PurePak packaging solves this problem by dividing tubes into ten separate PurePaks. PurePaks can be opened as needed to protect unused tubes from contamination. Thin walled tubes are precision-molded with premium, non-wettable polypropylene and receive multi-point, quality inspections to ensure unsurpassed performance. Certified RNase-, DNase- and pyrogen-free. Clear, non-sterile.

Ordering Information

| Cat. No. | Product Description | Quantity |
|--------------|---|-----------------|
| P3114 | Flat caps (thin wall) Size: 0.2 ml volume Case of 10 packs Pack of 1000 tubes | 1 pkg 1 case |
| P3239 | Dome caps (thin wall) Size: 0.2 ml volume Case of 10 packs Pack of 1000 tubes | 1 pkg 1 case |
| P3489 | 8 tube strips with strip caps (thin wall) Size: 0.2 ml volume Case of 10 packs Pack of 120 strips (of 8 tubes) | 1 pkg 1 case |
| P3364 | Flat caps (thin wall) Size: 0.5 ml volume Pack of 1000 tubes | 1 pkg |

PCR microtubes

All polypropylene, thin-walled for efficient thermal transfer and shorter cycle times; fits all leading thermal cyclers including Applied Biosystems, Biometra, MJ Research, Techne, Grant, and Stratagene (0.65 ml only). All are fully autoclavable and certified DNase- and RNase-free. All tolerate organic solvent reactions and temperatures from -4 to 121 °C.



Ordering Information

| Cat. No. | Product Description | Quantity |
|----------------|---|-----------------|
| Z374873 | Size: 0.2 ml Each tube has an individual flip cap Case of 4 pkg Pkg of 250 tubes | 1 pkg 1 case |
| Z374881 | Size: 0.65 ml Each tube has an individual flip cap Case of 4 pkg Pkg of 250 tubes | 1 pkg 1 case |
| Z374962 | Strip tubes: 0.2 ml Strips of eight tubes connected with double bridges to avoid accidental separation. Caps also are in strips of eight. Can be cut apart to use individually if desired. Pkg of 250 strips (2,000 tubes and caps) | 1 pkg |

Pierceable cap strips for PCR tubes

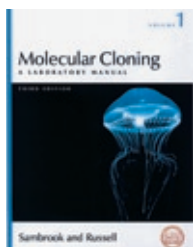
Caps in strips of eight; the center of each cap can be pierced with a hypodermic needle for quick sample removal without generating aerosols or other sources of cross-contamination. Caps can be used with 0.2 ml PCR strip tubes and 96-well plates.



Ordering Information

| Cat. No. | Product Description | Quantity |
|----------------|---|----------|
| Z374954 | Pierceable cap strips for PCR tubes Pkg of 120 strips (960 caps) | 1 pkg |

Books



Molecular Cloning: A Laboratory Manual, 3rd ed., Vols. 1, 2, 3

J.F. Sambrook and D.W. Russell, Cold Spring Harbor Laboratory Press, 2001, 2100 pp., soft cover

In this new edition, authors Joe Sambrook and David Russell have completely updated the book, revising every protocol and adding a mass of new material, to broaden its scope and maintain its unbeatable value for studies in genetics, molecular cell biology, developmental biology, microbiology, neuroscience and immunology. As in earlier editions, this is the only manual that explains how to achieve success in cloning and provides a wealth of information about why techniques work, how they were first developed and how they have evolved. It includes 240 laboratory protocols in DNA science in which over 35% were created especially for this edition, along with coverage of bioinformatics and DNA microarrays.

Ordering Information

| Cat. No. | Product Description | Quantity |
|--------------|--|----------|
| M8265 | Molecular Cloning: A Laboratory Manual, 3rd ed., Vols. 1, 2, 3 ISBN: 0-87969-5773 | 1 set |

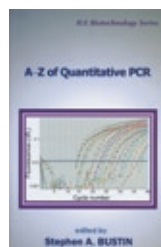
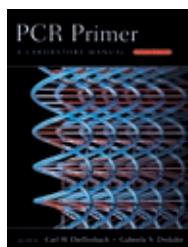
PCR Primer: A Laboratory Manual, 2nd ed.

C. Dieffenbach and G. Dveksler, Cold Spring Harbor Laboratory Press, 2003, 700 pp., soft cover

This second edition of a much praised and widely used manual has been entirely revised and updated. Each technique is presented with extensive background information, advice and troubleshooting. All current applications of PCR are covered in protocols that have the hallmark reliability of the previous edition.

Ordering Information

| Cat. No. | Product Description | Quantity |
|----------------|---|----------|
| Z701270 | PCR Primer: A Laboratory Manual, 2nd ed. ISBN: 0-87969-654-0 | 1 each |



A-Z of Quantitative PCR

S. Bustin, IUL Press, 2004, 830 pp., hard cover

This is not just a cookbook for real-time quantitative PCR (qPCR). Admittedly, there are lots of recipes from distinguished contributors and Bustin has attempted to collect, sift through and rationalize the vast amount of information that is available on this subject. And yes, this book was conceived as a comprehensive hands-on manual to allow both the novice researcher and the expert to set up and carry out qPCR assays from scratch. However, this book also sets out to explain as many features of qPCR as possible, provide alternative viewpoints and methods and, perhaps most importantly, aims to stimulate the researcher into generating, interpreting and publishing data that are reproducible, reliable and biologically meaningful.

Ordering Information

| Cat. No. | Product Description | Quantity |
|----------------|---|----------|
| Z702439 | A-Z of Quantitative PCR ISBN: 0-96368178-8 | 1 each |

Real-Time PCR: An Essential Guide

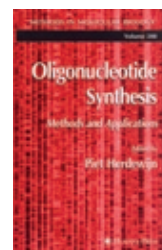
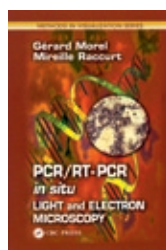
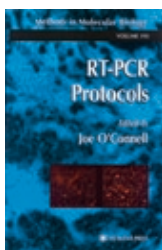
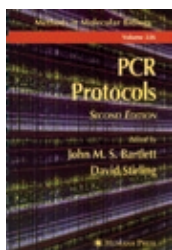
K. Edwards, et al., Horizon Bioscience, 2004, 352 pp., hard cover

Real-time PCR (RT-PCR) is a powerful and rapid technique for nucleic acid amplification. The accumulation of specific products in a reaction is monitored continuously during cycling. This is usually achieved by monitoring changes in fluorescence within the PCR tube. This manual presents a comprehensive guide to the most appropriate and up-to-date technologies and applications. Topics covered include: real-time PCR instruments and probe chemistries, set-up, controls and validation, quantitative real-time PCR, analysis of mRNA expression, mutation detection, NASBA, application in clinical microbiology and diagnosis of infection.

Ordering Information

| Cat. No. | Product Description | Quantity |
|----------------|---|----------|
| Z702447 | Real-Time PCR: An Essential Guide ISBN: 0-95452327-X | 1 each |

Books



PCR Protocols, 2nd ed.

J. Bartlett and D. Stirling, Humana Press, 2003, 556 pp., comb bound

This edition has updated and expanded the number of protocols to take advantage of the newest technologies. These methods include real-time PCR, SNP analysis, nested PCR, direct PCR and long range PCR. Among the highlights are chapters on genome profiling by SAGE, differential display and chip technologies, the amplification of whole genome DNA by random degenerate oligonucleotide PCR and the refinement of PCR methods for the analysis of fragmented DNA from fixed tissues. Each protocol is described in step-by-step detail and includes a background introduction outlining the principle behind the technique, equipment and reagent lists, tips on troubleshooting and avoiding pitfalls and a discussion of the interpretation and use of results.

Ordering Information

| Cat. No. | Product Description | Quantity |
|----------------|---|----------|
| Z701351 | PCR Protocols, 2nd ed. ISBN: 0-89603-973-0 | 1 each |

RT-PCR Protocols

J. O'Connell, Humana Press, 2002, 380 pp., hard cover

A panel of molecular biologists and clinical researchers describe their novel, useful and interesting RT-PCR applications. One will find reproducible protocols for highly sensitive detection and quantification of gene expression, the *in situ* localization of gene expression in tissue and the cloning of genes, as well as for analyzing T-cell clones and the differential expression of genes. For someone seeking to extend the usefulness of RT-PCR, there are user-friendly applications that complement the latest technological advances, including laser-capture microdissection (LCM), real-time and quantitative PCR, microarray technology, cDNA cloning and antibody engineering.

Ordering Information

| Cat. No. | Product Description | Quantity |
|--------------|---|----------|
| R5277 | RT-PCR Protocols ISBN: 0-89603-875-0 | 1 each |

PCR/RT-PCR *in situ* Light and Electron Microscopy

G. Morel and M. Raccurt, CRC Press, 2003, 432 pp., hard cover

Although the polymerase chain reaction has revolutionized genetic analysis by amplifying rare nucleic acid sequences, the *in situ* application is the only method that allows the localization of amplified signal within tissue structure. This book covers methods of *in situ* PCR and reverse transcription PCR (RT-PCR), two approaches in visualizing very low amounts of DNA and RNA in tissues and cell cultures at the light and electron microscopy levels. It provides theoretical consideration, as well as practical approaches to *in situ* PCR. Authors provide detailed protocols including the preparation of tissue samples, the rationale for the design of primers and revelation. They emphasize the need for appropriate controls to meet the requirements of *in situ* PCR and RT-PCR specificity.

Ordering Information

| Cat. No. | Product Description | Quantity |
|----------------|---|----------|
| Z702374 | PCR/RT-PCR <i>in situ</i> Light and Electron Microscopy ISBN: 0-84930041-X | 1 each |

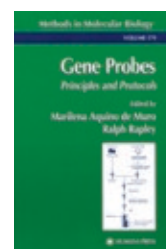
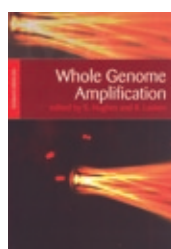
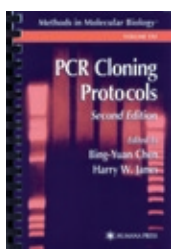
Oligonucleotide Synthesis: Methods and Applications

P. Herdewijn, Humana Press, 2004, 456 pp., hard cover

A collection of powerful techniques for oligonucleotide synthesis and for use of modified oligonucleotides in biotechnology. Among the protocol highlights are a novel two-step process that yields a high purity, less costly, DNA, the synthesis of phosphorothioates using new sulfur transfer agents, the synthesis of LNA, peptide conjugation methods to improve cellular delivery and cell-specific targeting, and triple helix formation. The applications include using molecular beacons to monitor the PCR amplification process, nuclease footprinting to study the sequence-selective binding of small molecules of DNA, nucleic acid libraries and the use of small interference RNA (siRNA) as an inhibitor of gene expression.

Ordering Information

| Cat. No. | Product Description | Quantity |
|----------------|---|----------|
| Z703605 | Oligonucleotide Synthesis: Methods and Applications ISBN: 1-58829233-9 | 1 each |



PCR Cloning Protocols, 2nd ed.

B.Y. Chan and H.W. Janes, Humana Press, 2002, 421 pp., comb bound

This edition update and expands Bruce White's best-selling "PCR Protocols" (1997) with the newest procedures for DNA cloning and mutagenesis. Here the researcher will find readily reproducible methods for all the major aspects of PCR use, including PCR optimization, computer programs for PCR primer design and analysis, and novel variations for cloning genes of special characteristics or origin, with emphasis on long PCR and GC-rich template amplification. Powerful applications of PCR in library construction and sublibrary generation and screening are presented.

Ordering Information

| Cat. No. | Product Description | Quantity |
|--------------|---|----------|
| P8117 | PCR Cloning Protocols, 2nd ed. ISBN: 0-89603-973-0 | 1 each |

PCR Technology: Current Innovations, 2nd ed.

T. Weissensteiner, et al., CRC Press, 2003, 416 pp., hard cover

This book is a fundamental reference for scientists new to PCR technology and a source of up-to-date applications for those familiar with the method. It provides theoretical considerations, discussions and a selection of state-of-the-art techniques for mutation studies, clinical diagnosis and the detection of food-borne pathogens. The book begins with discussions of the preparation of PCR experiments, followed by examples of analytical PCR divided into qualitative and quantitative applications. The final section explores preparative methods addressing DNA generation for further analysis and *in vitro* evolution. Featuring detailed protocols, this volume contains critical information for practitioners in a wide variety of fields, including forensics, molecular biology research, clinical DNA diagnostics, botany and paleontology.

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S. Hughes and R. Lasken, Scion Publishing, 2005, 300 pp., soft cover

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R. Rapley, et al., Humana Press, 2001, 288 pp., hard cover

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