

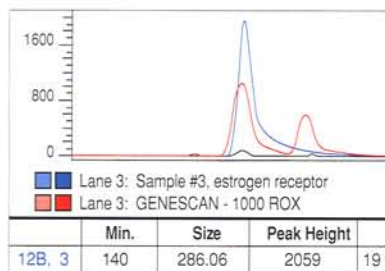
Internal Controls. Unrivalled Precision.

VARIABLE TRANSCRIPT

Gene expression. Mutation detection and screening. Genetic disease assay development. Researchers in these and other areas need efficient fragment quantitation techniques that ensure reliable data. The ideal solution combines PCR amplification and Applied Biosystems' four-color fluorescent dye technology. Our Model 373 DNA Analysis System and GENESCAN™ 672 software give you fast, precise results in an easy-to-use, automated system.

Precise Quantitation

Only with our four-dye, one-lane technology can you run experimental controls in the same lanes with samples to determine fragment size and amount. You can use one dye to label a size standard for precise sizing, and another to label a PCR control for precise quantitation.



As one researcher says, "Applied Biosystems' four fluorescent labels allow us to measure both an estrogen receptor (ER) variant and wild-type ER at the same time, and we can independently label an in-lane standard, such as a housekeeping gene, to verify that the amount of sample in each lane is the same."*

Innovative dye incorporation methods and turnkey reagent kits make this labeling simple and efficient while giving you many options. You can even order many popular PCR primers already labeled.

High Throughput

Our technology also lets you combine samples for fewer runs and higher throughput. And the runs are flexible. The Model 373 supports three gel lengths, so that you can choose the appropriate speed and resolution. For instance, mRNA transcripts can be analyzed in as little as one hour.

The resulting data is not only precise, but also easily interpreted and managed. Our Macintosh-based GENESCAN software automatically collects, reports and analyzes data from the Model 373. GENESCAN's digitized information also streamlines subsequent data handling.

With this proven system, you can automate quantitation and sizing, as well as sequencing. At Applied Biosystems, we're committed to providing fundamental technologies to support a full spectrum of applications for genetic analysis—now and in the future.

To receive literature on the Model 373, GENESCAN, and PCR fragment quantitation, phone Applied Biosystems at: U.S. (800) 345-5224, Canada (800) 668-6913.

*Dr. Suzanne Fuqua, University of Texas Health Science Center at San Antonio

Applied Biosystems

A Division of Perkin-Elmer Corporation



BIO RESEARCH

CENTER OF MOLECULAR BIOLOGY

WE SELL

Taq DNA Polymerase \$0.28 Per Unit

500 units / \$140 + Transportation

We provide what you need at a very competitive price
with an **UNCONDITIONAL GUARANTEE**

Cat. Number: 26.10.44
Contents: 500 u Taq Pol
10X Reaction Buffer
50mM Stock Solution

Freezer Packaged
Shipment Direct to Canada
and the U.S. in 5 Days

Taq DNA is a high performance thermostable DNA Polymerase cloned from bacterium. In order to increase the thermostability of Taq, aminoacid substitutions have been introduced in several sites at the NH₂ end of the enzyme polypeptide chain. Taq DNA can be used for DNA sequencing, as well as other commonly used process in molecular biology.

CONCENTRATION 5U / μ l - Activity: Taq Polymerase
remains active after 65 standard cycles.
Storage Temperature: -18° centigrade

To Order: Fax: 011-39-376-649105
Tel: 011-39-376-649107

BIO RESEARCH - ROMANORE-MANTOVA-ITALY

PCR is covered by patents issued to Cetus Corporation and owned by Hoffman La-Roche, Inc. You may wish to contact Hoffman La-Roche for information on obtaining an appropriate license.

Reader Service No. 377

COLD SPRING HARBOR LABORATORY CONFERENCE ON

GENE THERAPY

September 21-25, 1994

Organized by:

Theodore Friedmann, *University of California, San Diego*

Y.W. Kan, *University of California, San Francisco*

Richard Mulligan, *Whitehead Institute &
Massachusetts Institute of Technology*

Topics

- Mechanisms of Gene Delivery
- ex vivo-Transplantation Models
- Cancer
- HIV and other
Experimental Systems
- Human Studies

Abstracts must arrive at the meetings office by July 13, 1994. Selection of material for oral and poster presentation will be made by the organizers. Requests for registration materials should be forwarded to:

Meetings Coordinator

Cold Spring Harbor Laboratory

1 Bungtown Road

Cold Spring Harbor, NY 11724-2213

516-367-8346 ● FAX: 516-367-8845

e-mail meetings@cshl.org



Reader Service No. 378

Business Information

Editorial Office: Cold Spring Harbor Laboratory Press, 1 Bungtown Road, Cold Spring Harbor, New York 11724-2203. Phone: 516-367-8492; FAX 516-367-8532.

PCR Methods and Applications (ISSN 1054-9803) is published bimonthly for \$255 (U.S. institutional; \$270 R.O.W.), \$82.50 (individual making personal payment; \$97.50 R.O.W. surface, \$30 additional for airmail) by Cold Spring Harbor Laboratory Press, 1 Bungtown Road, Cold Spring Harbor, New York 11724. Second class postage pending is paid at Cold Spring Harbor and additional mailing offices. POSTMASTER: Send address changes to Cold Spring Harbor Laboratory, 10 Skyline Drive, Plainview, New York 11803-9729.

Subscriptions: Barbara Terry, Subscription Manager. Personal: U.S. \$82.50; R.O.W. \$97.50 surface mail, \$30 additional airlift delivery. Institutional: U.S. \$255; R.O.W. \$270. Orders may be sent to Cold Spring Harbor Laboratory Press, Fulfillment Department, 10 Skyline Drive, Plainview, New York 11803-9729. Telephone: Continental U.S. and Canada 1-800-843-4388; all other locations 516-349-1930. FAX 516-349-1946. Personal subscriptions must be prepaid by personal check, credit card, or money order. Claims for missing issues must be received within 4 months of issue date.

Advertising: Nancy Kuhle, Advertising Manager, Cold Spring Harbor Laboratory Press, 1 Bungtown Road, Cold Spring Harbor, New York, 11724-2203. Phone: 516-367-8351; FAX 516-367-8532.

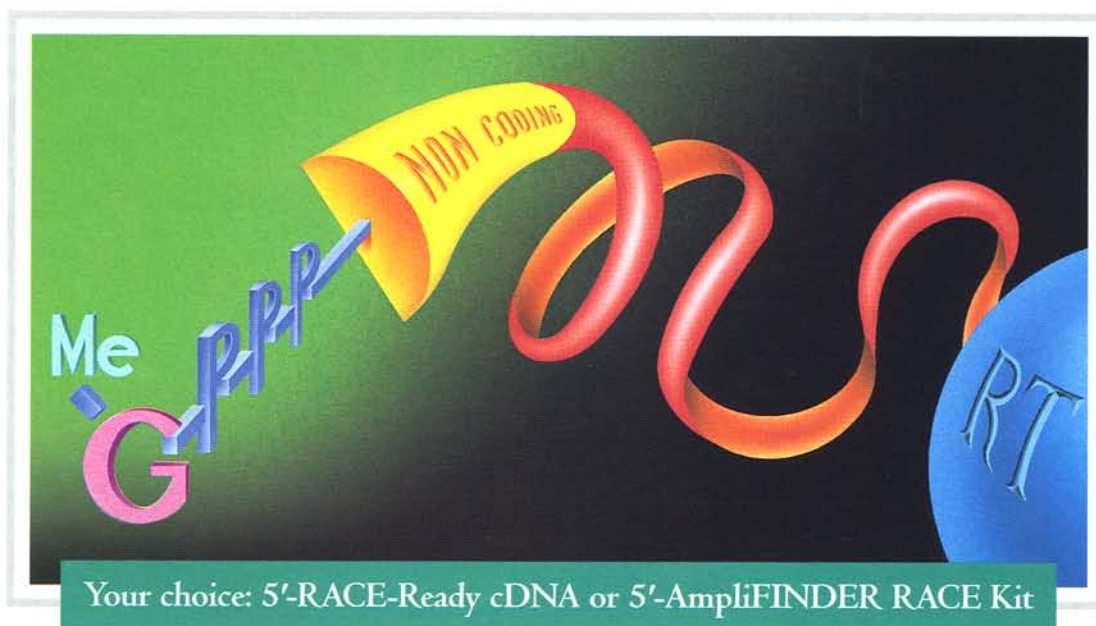
Copyright information: Authorization to photocopy items for internal or personal use, or the internal or personal use of specific clients, is granted

by Cold Spring Harbor Laboratory Press for libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided that the base fee of \$5.00 per copy is paid directly to CCC, 21 Congress Street, Salem, Massachusetts 01970 (1054-9803/94 + \$5.00). This consent does not extend to other kinds of copying, such as copying for general distribution for advertising or promotional purposes, for creating new collective works, or for resale.

The methods, products, instructions of ideas contained in or suggested by this journal should be used only by experienced scientific researchers and only in accordance with prudent laboratory safety precautions. Their use by inexperienced or improperly trained individuals could result in serious injury. The publisher does not endorse the claims made by the advertisers in this journal.

Copyright © 1994 by Cold Spring Harbor Laboratory Press

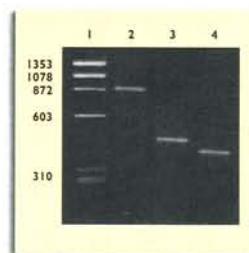
TIE UP ALL YOUR LOOSE ENDS.



PCR amplification of the 5' ends of gene transcripts using Human Kidney 5'-RACE-Ready cDNA. Lane 2: tumor necrosis factor. Lane 3: tissue-type plasminogen activator. Lane 4: interleukin-1 α .

Obtaining the 5'-end of your cDNA can fray your wits. Put an end to it. Introducing 5'-RACE-Ready™ cDNA, a convenient, high-quality template for amplifying unknown sequences at the 5'-end of gene transcripts. These single-stranded cDNAs from specific tissues have a unique PCR

anchor already ligated to the 3'-end. We start with high-purity poly A⁺ RNA, use random hexamer priming to generate a representative mixture of cDNAs, then ligate a specially-designed anchor oligonucleotide. When your RACE-Ready cDNA arrives, you go straight to PCR—using the provided 5' anchor primer and your nested, gene-specific 3' primers—and obtain the 5'-end easily. Alternatively, you can use any RNA source of your choice, and get the 5'-end with the convenient 5'-AmpliFINDER™ RACE Kit. Either way, your 5'-ends are covered. Call 1-800-662-CLON or contact your local distributor for more information and a list of 5'-RACE-Ready cDNAs.



PCR amplification of the 5' ends of gene transcripts using the 5'-AmpliFINDER RACE Kit. Lanes 2 & 3: human transferrin receptor. Lane 4: tissue-type plasminogen activator.

DON'T EXPERIMENT WITH ANYTHING ELSE. **CLONTECH**

4030 Fabian Way, Palo Alto, California 94303 USA • Fax: 800/424-1350 415-424-1064 • Phone: 800/662-2566 415/424-8222

©1994 CLONTECH Laboratories, Inc. 5'-RACE-Ready and 5'-AmpliFINDER are trademarks of CLONTECH Laboratories, Inc.

The PCR process is covered by patents owned by Hoffmann-La Roche Inc.

STRATAGENE BRINGS BACK

THE BIG BANDS

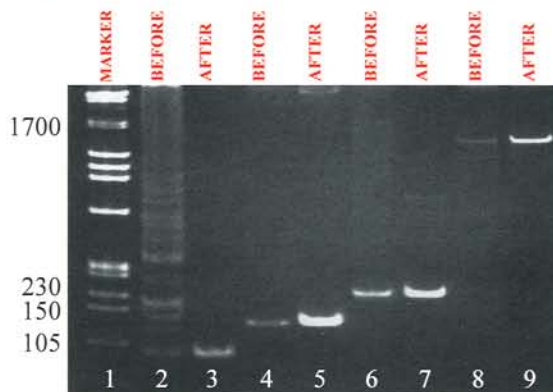
Stratagene Introduces the Opti-Prime™ PCR⁺ Optimization Kit

PCR primers and DNA templates vary in purity, GC content and amount of secondary structure. In addition, DNA may have chemical modifications, nucleic acid analogs or other characteristics that can inhibit amplification efficiency. To improve the yield and specificity of the desired PCR products, the buffer components of a specific amplification reaction can be modified. But the process is tedious and time-consuming.

Stratagene's Opti-Prime™ PCR optimization kit does it for you. This unique matrix of carefully designed buffers and PCR additives can greatly enhance the quality of PCR amplification reactions. Our Perfect Match® PCR Enhancer is included as one of the six PCR additives known to improve the specificity and overall vigor of PCR.

Order now and let Stratagene's Opti-Prime Kit add music to your amplifications.

PCR OPTIMIZATION



Four primer/template sets were PCR-amplified using either standard *Taq* polymerase buffer (10mM Tris, 50mM KCl and 1.5mM MgCl₂) or individually optimized Opti-Prime™ buffer systems. Lane 1: 1 µg of lambda Hind III/phi x 174 Hae III marker. Lanes 2&3: 105- bp PCR product of a human Gaucher's disease gene. Lanes 4&5: 150-bp PCR product of Bluescript® vector MCS. Lanes 6&7: 230-bp PCR product of an Epstein Barr viral nuclear antigen gene. Lanes 8&9: 1700-bp PCR product of a *lacI* target gene from a transgenic mouse. Lanes 2,4,6 and 8 are of primer/template sets amplified using standard *Taq* polymerase buffer. Lanes 3,5,7 and 9 are of primer/template sets amplified using individually optimized Opti-Prime kit buffers.

*The PCR process is covered by patents owned by Hoffmann-La Roche Inc. Use of the PCR process requires a license.

CATALOG # 200422



STRATAGENE®

USA:
Corporate Headquarters
Easy Ordering: (800)424-5444
Telefax: (619)535-0034

Germany:
Stratagene GmbH
Telephone: (06221) 400634
Telefax: (06221) 400639

United Kingdom:
Stratagene Ltd.
Telephone: (0223) 420955
Telefax: (0223) 420234

France:
Stratagene France
Telephone: (0590) 7236
Telefax: (1) 44281900

Switzerland:
Stratagene GmbH
Telephone: (01) 3641106
Telefax: (01) 3657707

3

THREE FOLD
REDUCTION IN
AMIDITE USAGE —
MORE ECONOMICAL
OLIGOS

BREAKTHROUGH IN PROCESS SCALE SYNTHESIS

OligoPilot™

OligoPilot™ Large Scale Oligo Synthesizer is designed for synthesis from 10 μ mol to 400 μ mol (up to 800 μ mol capacity with high load support).

3

THREE FOLD
REDUCTION IN
SOLVENT USAGE —
REDUCED SOLVENT
DISPOSAL COST

OligoPilot™ utilizes an innovative pump driven flow-through column design and a new polymer support matrix, Primer Support. The flow-through design gives you the following benefits:

- Significant reductions in amidite usage, 1.5 molar equivalents
- Fast detritylation, 2 min. at 200 μ mol scale
- Short cycle times, 7 hours at 200 μ mol for a 20-mer
- Reduced waste volume, 415 ml at 200 μ mol scale
- Average yield per cycle of over 99%
- 12 amidite ports for DNA, RNA or modified amidites

The pump driven flow-through design ensures the active phosphoramidite concentrations remain high even at small molar excesses. This design also makes the most efficient use of other reagents and allows for rapid reagent change at up to 75 ml per minute.

Primer Support contributes to the overall performance due to its hydrophobic nature. Its hydrophobicity ensures that any water introduced with the oxidation step does not remain in the system, reducing coupling efficiency in later steps. The lack of labile sites also minimizes spontaneous chain elongation off the support which is sited for silica based supports.

OligoPilot is fully programmable via an external computer. In addition, the computer tracks reagent usage and identifies the batch numbers for each reagent used for each oligo synthesis.

The on-line trityl monitor provides continuous display of coupling efficiency of each step. In the event of a poor coupling, the monitor can stop the synthesis before additional reagents are wasted.

Lab scale synthesis users can enjoy similar benefits of Primer Support and the pump driven flow-through design with the Gene Assembler® DNA/RNA Synthesizer.

5'-ATC GAA TGA GTT CCA GTT-3'

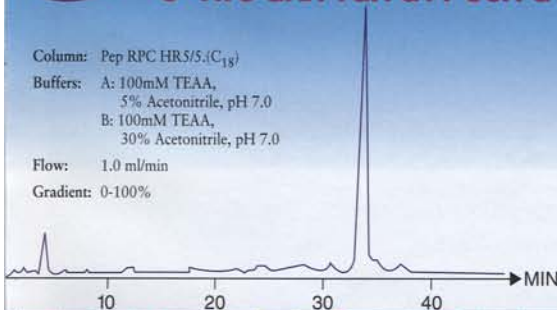
Column: Pep RPC HRS/5.(C₁₈)

Buffers: A: 100mM TEAA,
5% Acetonitrile, pH 7.0

B: 100mM TEAA,
30% Acetonitrile, pH 7.0

Flow: 1.0 ml/min

Gradient: 0-100%



Pharmacia Biotech Inc
800 Centennial Avenue
Piscataway, NJ 08854

Telephone:
U.S. 1-800-526-3593
Canada 1-800-463-5800

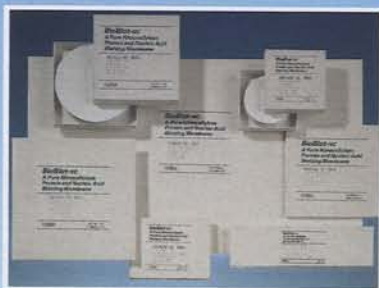
Visit us at Cell Biology,
Booth #401.

 **Pharmacia
Biotech**



Problem

Amplification techniques in molecular biology require adapted protocols, products and working environments. Problem? Costar can offer a range of products that fit the description 'Adapted to Molecular Biology'. Costar products can be delivered to you promptly by one of our Costar offices or distributing companies around the world. Opportunity!



Opportunity!

The Costar products adapted to your special requirements:

- **MULTIWELL THERMOWELL™ POLYCARBONATE PLATES FOR MULTIPLE DNA/RNA AMPLIFICATION.** Thermostable, 135°C, multiwell plates (25, 96, 192-well formats) to accommodate all major thermal cycler models on the market.
- **BLOTTING MEMBRANES.** A range of different blotting materials in different formats. Nitro-cellulose, nylon, charged nylon and PVDF.
- **SPECIALTY PIPETTE TIPS (ALL RACKED TIPS RNase AND DNase FREE).** Micro-end and flat-end pipette tips for precision manipulation and sample loading of electrophoresis gels, siliconized pipette tips for lower protein binding and better sample recovery.
- **SPECIALTY MICROCENTRIFUGE TUBES (ALL TUBES RNase AND DNase FREE)** Siliconized microcentrifuge tubes for lower protein binding and better sample recovery, microcentrifuge tubes with narrowed tube end for sample concentration.
- **SPIN-X™ MICROCENTRIFUGE FILTER SYSTEM.** Special microcentrifuge tube filter inserts for quick and efficient DNA separation/purification. SPIN-X™ UF ultrafiltration concentrators.
- **POSITIVE DISPLACEMENT PIPETTORS.** A range of micro-volume pipettors for precision and reproducibility needed on the molecular research level.
- **MICROCENTRIFUGES.** Space-saving 'personal' table-top micro-centrifuges for RNA/DNA work.



 **costar**®

COSTAR EUROPE Ltd, P.O. Box 94, 1170 AB Badhoevedorp, The Netherlands,
Telephone 020 - 659 60 51, Telex 18646, Telefax 020-659 76 75

SUSIDIARIES: France: Dominique Dutscher, Tel. (0)88619243 Italy: Costar Italia s.r.l., Tel. (0)39 - 6042148
U.K.: Costar UK Ltd., Tel. (0)494 - 471207 Germany: Costar GmbH, Tel. (0)6135 - 1535

Reader Service No. 382

Product news. . . .

Ultra-low-cost instant electronic photography

Thousands of dollars can be saved every year without sacrifice of high quality in gel photographs. The MiniVisionary Gel Documentation System is compatible with most existing Fotodyne and Polaroid hoods and costs <10 cents per photograph to operate. Photographs are digitally produced by use of state-of-the-art CCD technology and output to a video printer for outstanding quality. Low light EtBr-stained gels are easily imaged by use of the camera's integration capability. MiniVisionary is ideal for research and education applications where photographic quality is required and tight budgets are a reality.

Contact: Fotodyne Inc., 950 Walnut Ridge Drive, Hartland, Wisconsin 53029. Reader Service No. 369.

Isothermal electrophoresis system

The new Polar Bear system from Owl Scientific, Inc. allows researchers to run sequencing, SSCP, mobility shift assays, and other applications with precise temperature control. This 20×45 cm system is affordable and can be used with constant temperature water or coolant systems over a wide temperature range for

high resolution detection of genetic mutations, polymorphisms, DNA-binding proteins, dinucleotide repeats, and point mutations of PCR products. High-resolution, smile-free, reproducible results can be achieved without adjustment of voltage or extension of run time. Control is ensured by the system's unique temperature exchange system, which incorporates an alumina ceramic interface for optimal heat transfer. Maximum contact between the temperature control chamber and the gel plate ensures temperature uniformity across the gel. The Polar Bear eliminates the necessity to run gels for days, to use specialized gel matrices or toxic chemicals, fans, dry ice, or a cold room. The system features a safety interlocking lid and is easy to use, set-up, and clean. The system is supplied complete with gel plates, spacers, a 39-tooth shark-tooth comb, tubing, and stopcocks. Owl also offers a wide range of additional accessories including well and microtiter combs, wedge spacers, gel fixing tanks, and a full line of programmable Peltier effect thermal cyclers for precise sample amplification.

Contact: Owl Scientific, Inc., 10 Commerce Way, Woburn, Massachusetts 01801; (617)935-9499; FAX (617)935-8499. Reader Service No. 370.

Quantitative PCR booklet

CLONTECH Laboratories, Inc. had published a new booklet entitled *Quantitative PCR: Methods & Applications*. The booklet will be free on request. The new Quantitative PCR booklet provides an overview of quantitative PCR theory and applications and a comprehensive review of a variety of methods currently used to quantitate relative or absolute levels of specific mRNAs in tissue or cell samples. The booklet also gives details on the use of CLONTECH's PCR MIMICS—nonhomologous internal standards that have proven useful in obtaining quantitative data on mRNA or cDNA by use of competitive PCR. Experimental quantitative PCR data and an extensive reference list are included. The new booklet is the third in CLONTECH's series of Methods & Applications monographs that focus on specific topics in molecular biology. The other booklets focus on RT-PCR and Nucleic acid purification.

Contact: CLONTECH Laboratories,



Product news features newly available equipment, laboratory equipment, and software that may be of interest to the readers of this journal. Endorsement by *PCR Methods and Applications* or Cold Spring Harbor Laboratory is not implied. Readers may obtain further information regarding these products by entering the appropriate numbers on the postage-free Reader Service Card included in this issue.

4030 Fabian Way, Palo Alto, California 94303; (800)662-CLON; (415)424-8222. Reader Service No. 371.

Blood cell agglutination reagent

Red-Out is a new blood cell agglutination reagent that removes human red cells from centrifugally separated lymphocytes. The technique is easy and quantitative. Human blood is incubated at room temperature for 5 min with Red-Out, then centrifuged in Robbins Scientific IsoPrep isolation medium or other Ficoll-Isopaque type medium. Red cell aggregates that form settle easily to the bottom of the tube. The high specificity of Red-Out is based on a murine mAb that binds to a universally present antigen on erythrocyte membranes. Red-Out is effective in the removal of red cells, including immature nucleated erythrocytes, which interfere in a number of applications including HLA tissue typing tests and microscopic and fluorescence-activated cell sorting. Two sizes of Red-Out are available: 250 tests or 1000 tests per bottle.

Contact: Robbins Scientific, 814 San Aleso Avenue, Sunnyvale, California 94086. Reader Service No. 372.

New Opti-Prime PCR optimization kit

Stratagene has replaced random, time-consuming procedures for PCR optimization with the Opti-Prime PCR optimization kit, a newly designed testing matrix of 12 buffers and six adjuncts for enhancing PCR. This structured framework simplifies determination of the best buffer/adjunct combination for a specific PCR template and primer set. Each of the 12 PCR buffers has a pH of 8.3, 8.8, or 9.2, $MgCl_2$ concentration of 1.5 or 3.5 mM, and KCl concentration of 25 or 75 mM. Included as the six PCR-improving adjuncts or cosolvents are DMSO, formamide, bovine serum albumin, glycerol, ammonium sulfate, and Stratagene's Perfect Match DNA polymerase enhancer. The Opti-Prime kit's two-step protocol is used to first determine the optimum buffers, based on pH and $MgCl_2$ and KCl concentrations, then to combine these selected buffers with specific adjuncts to increase yield and/or decrease nonspecific amplification products. Sufficient reagents and buffers are

included in the kit to perform a total of 1200 individual amplification reactions, allowing 50 or 100 optimizations, depending on the need to perform the second adjunct-testing step.

Contact: Stratagene, 11011 North Torrey Pines Road, La Jolla, California 92037; 1-(800)424-5444; (619)535-5400. Reader Service No. 373.

New AmpliTaq DNA polymerase

Perkin-Elmer has introduced AmpliTaq DNA Polymerase, LD (low DNA)—the purest enzyme for PCR amplifications, which is especially useful for amplification of bacterial targets and for low copy number amplification. Low copy number applications include infectious disease research of viruses and PCR amplification of rare genes. AmpliTaq DNA Polymerase, LD is the same enzyme as AmpliTaq DNA Polymerase, however, it is purified through a proprietary separation process to ensure that contaminating bacterial DNA sequences are substantially reduced. This purification process ensures that nonspecific, false positive PCR products are effectively minimized when amplifying bacterial targets. It is quality control tested to verify that less than 10 copies of bacterial 16S ribosomal RNA gene sequences (less than one bacterial genome) are present in a standard 2.5-unit aliquot.

Contact: The Perkin-Elmer Corporation, 761 Main Avenue, Norwalk, Connecticut 06859-0310; (203)761-2574. Reader Service No. 374.

LEADING THE WAY IN BIOMEDICAL RESEARCH!

The First Comprehensive Collection on PCR!

THE POLYMERASE CHAIN REACTION

Kary B. Mullis, La Jolla, CA; François Ferré, Immune Response Corp., CA
& Richard A. Gibbs, Baylor College of Medicine, TX (Eds.)

Edited by the Nobel Prize winning inventor of PCR and two prominent experts in PCR techniques, **The Polymerase Chain Reaction** has the most up to date methodological protocols from the world's leading laboratories. Included are exciting new techniques and enhanced methods, previously unavailable in book form, which show the novice and experienced PCR user exactly how they can optimize their results. The applications chapters are quite unique, with the foremost researchers providing not only protocols, but explaining why PCR has revolutionized their particular field. Future enhancements of PCR as well as new potential uses are discussed. Readers will learn how PCR has changed the face of diagnostic testing, cancer research, genetics, forensics, plant biology, DNA sequencing, gene therapy, and much more!

CONTENTS: Foreword • Introduction • Part One: Methodology • Manipulation of DNA • Cloning PCR Products • Multiplex PCRs • Preparation of Nucleic Acids • Amplification of Viral DNA and Viral Host Cell mRNAs In Situ • Quantitation: An Overview • Quantification of DNAs by the Polymerase Chain using an Internal Control • RT-PCR and mRNA Quantitation • Analysis of T-Cell Repertoires by PCR • Ultra-Sensitive Non-Radioactive Detection of PCR Products: An Overview • Fluorescent Detection Methods for PCR Analysis • Enzyme-labeled Oligonucleotides • Application of the Hybridization Protection Assay to PCR • Instrumentation: An Overview • Rapid Cycle DNA Amplification • Automating PCR • Sequencing: An Overview • RAWTS/GAWTS • Biotin-capture Walking Method • Analysis of Human T-Cell Repertoires by PCR • Part Two: Applications • In Vitro Evolution of Functional Nucleic Acids: High-affinity RNA Ligands of the HIV-1 rev Protein • The Application of PCR to Forensic Science • Recreating the Past by PCR • Non-biological Applications • RT-PCR and Gene Expression • Fingerprinting Using Arbitrarily Primed PCR: Application to Genetic Mapping, Population Biology, Epidemiology, and Detection of Differentially Expressed RNAs • Genetics, Plants, and the Polymerase Chain Reaction • PCR Assessment of the Efficacy of Therapy in Philadelphia Chromosome Positive Leukemias • TCR gamma/delta • Assessment of the Effect of Therapy in Infectious Disease • Gene Therapy • PCR and Cancer Diagnostics • Clinical Applications of Polymerase Chain Reaction • Infectious Diseases • Part Three: PCR and the World of Business • PCR in the Market Place • PCR and Scientific Invention: The Trial of Cetus vs. DuPont

1994 458 PP.
HARDCOVER \$79.00 ISBN 0-8176-3607-2
SOFTCOVER \$45.00 ISBN 0-8176-3750-8

1st in an Important New Series!

GENE EXPRESSION GENERAL AND CELL-TYPE-SPECIFIC

M. Karin, University of California (Ed.)

All research in cellular biochemistry depends on an understanding of Gene Expression! This exciting collection of review articles provides a comprehensive introduction to this important area of molecular biology—written by the world's top molecular and cellular biologists. Each chapter begins with the basic concepts and progresses to a state-of-the-art review of current literature, making the book invaluable for students entering the field. Seasoned researchers will value the keen insights into related areas, such as immunology, neuroscience, and endocrinology. This book is the first in a series covering all aspects of gene expression and regulation, and related areas of molecular biology. It is essential reading for all molecular biologists, cell biologists, biochemists, and biotechnologists.

1993 303 PP. HARDCOVER \$89.00 ISBN 0-8176-3605-6
PROGRESS IN GENE EXPRESSION

Forthcoming in 1994!

PROGRESS IN GENE EXPRESSION

Series Editor: M. Karin

- Inducible Transcription - I & II,
Patrick Baeuerle (Ed.)

The Latest Comprehensive Techniques!

GENE THERAPEUTICS METHODS AND APPLICATIONS OF DIRECT GENE TRANSFER

J.A. Wolff, University of Wisconsin Medical School

Announcing the first book on new methods of direct in vivo gene therapy, edited by one of the premier researchers in the field. Although the book includes a review of all areas of gene therapy, of particular interest is its focus on direct in vivo gene therapy which is a new approach to this subject. Includes important new methodologies for gene delivery to the central nervous system, the heart, tumor sites; as well new systems for delivery such as naked DNA, receptor-mediated delivery, Adenovirus delivery, particle bombardment and liposomes. Essential for all pharmaceutical and biotechnology researchers as well as clinicians interested in these exciting new technologies.

1994 417 PP. HARDCOVER \$74.50 ISBN 0-8176-3650-1

DNA FINGERPRINTING STATE OF THE SCIENCE

S.D.J. Pena, Instituto de Cinecias Biológicas, Brazil;
R. Chakraborty, University of Texas; J.T. Epplen,
Ruhr-Universität, Germany & A.J. Jeffreys,
University of Leicester, UK (Eds.)

This book will equip forensic scientists, biologists, ecologists, geneticists, biochemists and molecular biologists with up-to-date, authoritative information on, and research perspectives in the field of, polymorphic DNA tandem repeat polymorphisms (DNA fingerprinting).

The authors are the foremost experts in the DNA fingerprinting field. By virtue of its scope and depth, this book answers a long-standing need for an authoritative text in DNA fingerprinting.

1993 480 PP.
HARDCOVER \$140.00 ISBN 0-8176-2781-2
SOFTCOVER \$93.00 ISBN 0-8176-2906-8
EXPERIENTIA SUPPLEMENTUM - EXS 67

Birkhäuser
Boston • Basel • Berlin



THREE EASY WAYS TO ORDER!

Call: Toll-Free 1-800-777-4643. In NJ please call (201) 348-4033.
Your reference number is Y747.

Write: Birkhäuser, Dept. Y747, 44 Hartz Way, Secaucus, NJ 07096-2491

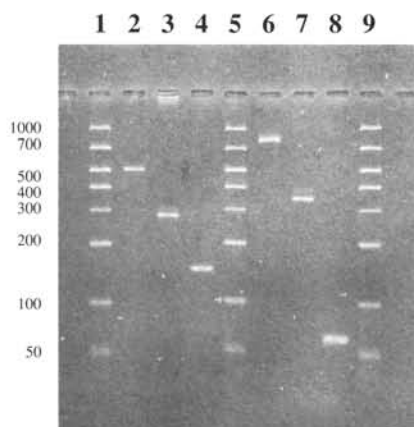
Visit: Your Local Technical Bookstore, or urge your librarian to order for your department.

Payment can be made by check, money order or credit card. Please enclose \$2.50 for shipping & handling for the first book (\$1.00 for each additional book) and add appropriate sales tax if you reside in CA, IL, MA, NJ, NY, PA, TX, VA or VT. Canadian residents please add 7% GST. Prices are valid in North America only, are payable in U.S. currency or its equivalent, and are subject to change without notice. For price and ordering information outside North America contact: Birkhäuser Verlag AG, Klosterberg 23, P.O. Box 133, CH-4010 Basel, Switzerland. FAX 61 271 76 66.

GelMarker™

GelMarker™ is a molecular weight standard specifically designed to accurately quantitate yields and determine the size of PCR[†] products separated by gel electrophoresis.

- Ideal range of coverage for PCR products - 50 through 1000 bp
- Easy estimation of yield - each band contains 50 ng of DNA
- Ethidium bromide stains each band with equal intensity
- Ready to load - no preheating required
- Biotin and Digoxigenin labeled GelMarker™ also available
- Band sizes are exactly 50, 100, 200, 300, 400, 500, 700, and 1000 bp
- Seven bands spaced to easily plot in one log cycle from 100 to 1000 bp for more accurate size determination



Lane 1 5 µl of GelMarker™

Lane 2 500 bp

Lane 3 296 bp

Lane 4 138 bp

Lane 5 5 µl of GelMarker™

Lane 6 792 bp

Lane 7 365 bp

Lane 8 67 bp

Lane 9 5 µl of GelMarker™

4% agarose; NuSieveGTG™ : agarose 3:1

™GelMarker is a trademark of Research Genetics

™NuSieve is a trademark of FMC Corp.

†PCR is covered by U.S. patents issued to the Cetus Corp.

The use of digoxigenin in the labeling of oligonucleotides is licensed to Research Genetics from Boehringer Mannheim

GelMarker™ Ordering Information

50 assays (250 µl).....Catalog No. 701006.050.....\$77.00

100 assays (500 µl).....Catalog No. 701006.100.....\$137.00

Research Genetics

2130 Memorial Parkway SW • Huntsville, AL 35801

U.S. or Canada 1-800-533-4363 • UK 0-800-89-1393 • FAX 1-205-536-9016



Most Cited Journal in Its Field; Now Semimonthly

Genes & Development reports major advances of general interest and biological significance in molecular biology, molecular genetics, and related areas. The journal appears semimonthly and includes research papers and review articles.

Volume 8, 1994, containing 24 semimonthly issues

Individual Price (U.S.) \$115.00

Individual Price (R.O.W. airlift delivery) \$205.00

Student Price (U.S.) \$85.00*

Student Price (R.O.W. airlift delivery) \$165.00*

Institutional Price (U.S.) \$450

Institutional Price (R.O.W. airlift delivery) \$540

*Those who qualify must provide student I.D.

ISSN 0890-9369

**New
Journal
in 1994!**

Learning & Memory will publish experimental studies in humans and animals on cognition, behavior, development, neuropsychology, neurophysiology, biochemistry, cell biology and genetics. This new journal will contain peer-reviewed research papers, commissioned reviews and commentaries, theories and models, and short communications and letters.

Volume 1, 1994, containing 6 bimonthly issues

Individual Price (U.S.) \$85

Individual Price (R.O.W. surface delivery) \$100

Individual Price (R.O.W. airlift delivery) \$130

Institutional Price (U.S.) \$190

Institutional Price (R.O.W. surface delivery) \$205

Institutional Price (R.O.W. airlift delivery) \$235



Now Bimonthly

PCR Methods and Applications is devoted exclusively to amplification methods and their use. Its aim is to provide investigators in every discipline with a central source of reliable, independent, and up-to-date information about the principles and practice of amplification methods as well as their application.

Volume 3, 1993/94, containing 6 bimonthly issues (beginning August 1993)

Individual Price (U.S.) \$82.50

Individual Price (R.O.W. surface delivery) \$97.50

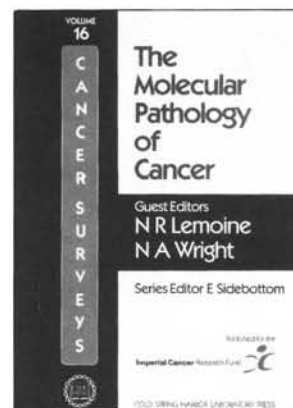
Individual Price (R.O.W. airlift delivery) \$127.50

Institutional Price (U.S.) \$255

Institutional Price (R.O.W. surface delivery) \$270

Institutional Price (R.O.W. airlift delivery) \$300

ISSN 1054-9803



A Co-publication

Cancer Surveys: Advances and Prospects in Clinical, Epidemiological and Laboratory Oncology is published for the Imperial Cancer Research Fund by Cold Spring Harbor Laboratory Press. It provides a comprehensive survey of the present state of, and future developments in, well-defined areas in oncology. Each issue deals with a specific topic and has guest editors with an expert knowledge of the subject.

Topics to be covered in 1994 are:

Volume 19/20: Trends in Cancer Incidence and Mortality (double issue)
Volume 21: Palliative Medicine

These issues can be ordered directly from Cold Spring Harbor Laboratory Press by subscription (\$216, plus \$25 airmail delivery) or individually (\$72, plus \$4.50 surface delivery or \$12 airmail delivery).

ISSN 1050-849X



Subscribe Today!

Cold Spring Harbor Laboratory Press, 10 Skyline Drive, Plainview, N.Y. 11803-2500

Phone: 1-800-843-4388 or 516-349-1930 • FAX: 516-349-1946



ORDER FORM

For Fastest Service—
Call:

1-800-843-4388

—Continental U.S.
and Canada

516-349-1930

—All other locations

FAX:

516-349-1946



**COLD SPRING HARBOR
LABORATORY PRESS**

Plainview, NY 11803



VOLUME 3, 1993/94, BIMONTHLY
(Six issues beginning August, 1993)

- ☐ Individual price (U.S.) - \$82.50
- ☐ Individual price (R.O.W. Surface Delivery) - \$97.50
- ☐ Individual price (R.O.W. Airlift Delivery) - \$127.50
- ☐ Institutional price (U.S.) - \$255
- ☐ Institutional price (R.O.W. Surface Delivery) - \$270
- ☐ Institutional price (R.O.W. Airlift Delivery) - \$300
- ☐ Please send me a sample issue.

Personal orders must be prepaid by personal check, credit card or money order.

☐ Check or money order enclosed (U.S. Bank Checks Only)

Charge to: ☐ MASTERCARD ☐ VISA ☐ AMERICAN EXPRESS

ACCOUNT NO. _____ EXP. _____

SIGNATURE _____ TEL. _____

NAME _____

ADDRESS _____

CITY/STATE/ZIP _____

COUNTRY _____

ISSN 1054-9803

All prices subject to change without notice.

Orders for India: Panima Educational Book Agency, C-8, Safdarjung Development Area, Shopping Centre, Hauz Khas, New Delhi-110016 India. **Orders for Japan:** Maruzen Company LTD., 3-10, Nihonbashi 2-Chome, Chou-ku, Tokyo, 103 Japan. **Orders for Hong Kong, Korea, Malaysia, Singapore, Taiwan, and Thailand:** Info Access & Distribution Pte. Ltd., 14 Conway Grove, Singapore 1955.

PCR METHODS AND APPLICATIONS



VOLUME 3, 1993/94, BIMONTHLY
(Six issues beginning August, 1993)

- ☐ Individual price (U.S.) - \$82.50
- ☐ Individual price (R.O.W. Surface Delivery) - \$97.50
- ☐ Individual price (R.O.W. Airlift Delivery) - \$127.50
- ☐ Institutional price (U.S.) - \$255
- ☐ Institutional price (R.O.W. Surface Delivery) - \$270
- ☐ Institutional price (R.O.W. Airlift Delivery) - \$300
- ☐ Please send me a sample issue.

Personal orders must be prepaid by personal check, credit card or money order.

☐ Check or money order enclosed (U.S. Bank Checks Only)

Charge to: ☐ MASTERCARD ☐ VISA ☐ AMERICAN EXPRESS

ACCOUNT NO. _____ EXP. _____

SIGNATURE _____ TEL. _____

NAME _____

ADDRESS _____

CITY/STATE/ZIP _____

COUNTRY _____

ISSN 1054-9803

All prices subject to change without notice.

Orders for India: Panima Educational Book Agency, C-8, Safdarjung Development Area, Shopping Centre, Hauz Khas, New Delhi-110016 India. **Orders for Japan:** Maruzen Company LTD., 3-10, Nihonbashi 2-Chome, Chou-ku, Tokyo, 103 Japan. **Orders for Hong Kong, Korea, Malaysia, Singapore, Taiwan, and Thailand:** Info Access & Distribution Pte. Ltd., 14 Conway Grove, Singapore 1955.

PCR METHODS AND APPLICATIONS



VOLUME 3, 1993/94, BIMONTHLY
(Six issues beginning August, 1993)

Please pass this order form to your librarian
so that your colleagues can see **PCR METHODS
AND APPLICATIONS** in your library.

- ☐ Institutional price (U.S.) - \$255
- ☐ Institutional price (R.O.W. Surface Delivery) - \$270
- ☐ Institutional price (R.O.W. Airlift Delivery) - \$300
- ☐ Please send me a sample issue.

PURCHASE ORDER NO. _____

NAME _____

ORGANIZATION _____

ADDRESS _____

CITY/STATE/ZIP _____

COUNTRY _____

TEL: Continental U.S. and Canada: 1-800-843-4388

ISSN 1054-9803

All other locations: 516-349-1930 FAX: 516-349-1946

All prices subject to change without notice.

Orders for India: Panima Educational Book Agency, C-8, Safdarjung Development Area, Shopping Centre, Hauz Khas, New Delhi-110016 India. **Orders for Japan:** Maruzen Company LTD., 3-10, Nihonbashi 2-Chome, Chou-ku, Tokyo, 103 Japan. **Orders for Hong Kong, Korea, Malaysia, Singapore, Taiwan, and Thailand:** Info Access & Distribution Pte. Ltd., 14 Conway Grove, Singapore 1955.

PCR METHODS AND APPLICATIONS

Please check title(s) that most
closely describe(s) your position:

- ☐ (1) Professor
- ☐ (2) Graduate student
- ☐ (3) Postdoctoral scientist
- ☐ (4) Lab director
- ☐ (5) Lab technician
- ☐ (6) Medical student
- ☐ (7) Undergraduate student
- ☐ (8) Librarian
- ☐ (9) Publisher

Please check your employment
category:

- ☐ (1) University/college
- ☐ (2) Research institute/foundation
- ☐ (3) Hospital
- ☐ (4) Medical school
- ☐ (5) Industry
- ☐ (6) Government
- ☐ (7) Library/information center

Please check your primary
field of interest:

- ☐ (1) Biochemistry
- ☐ (2) Cell biology
- ☐ (3) Developmental biology
- ☐ (4) Epidemiology
- ☐ (5) Genetics
- ☐ (6) Immunology
- ☐ (7) Microbiology
- ☐ (8) Molecular biology
- ☐ (9) Neurobiology
- ☐ (10) Plant biology
- ☐ (11) Pharmacology
- ☐ (12) Virology
- ☐ (13) Oncology
- ☐ (14) Other _____

Please check title(s) that most
closely describe(s) your position:

- ☐ (1) Professor
- ☐ (2) Graduate student
- ☐ (3) Postdoctoral scientist
- ☐ (4) Lab director
- ☐ (5) Lab technician
- ☐ (6) Medical student
- ☐ (7) Undergraduate student
- ☐ (8) Librarian
- ☐ (9) Publisher

Please check your employment
category:

- ☐ (1) University/college
- ☐ (2) Research institute/foundation
- ☐ (3) Hospital
- ☐ (4) Medical school
- ☐ (5) Industry
- ☐ (6) Government
- ☐ (7) Library/information center

Please check your primary
field of interest:

- ☐ (1) Biochemistry
- ☐ (2) Cell biology
- ☐ (3) Developmental biology
- ☐ (4) Epidemiology
- ☐ (5) Genetics
- ☐ (6) Immunology
- ☐ (7) Microbiology
- ☐ (8) Molecular biology
- ☐ (9) Neurobiology
- ☐ (10) Plant biology
- ☐ (11) Pharmacology
- ☐ (12) Virology
- ☐ (13) Oncology
- ☐ (14) Other _____

Please check title(s) that most
closely describe(s) your position:

- ☐ (1) Professor
- ☐ (2) Graduate student
- ☐ (3) Postdoctoral scientist
- ☐ (4) Lab director
- ☐ (5) Lab technician
- ☐ (6) Medical student
- ☐ (7) Undergraduate student
- ☐ (8) Librarian
- ☐ (9) Publisher

Please check your employment
category:

- ☐ (1) University/college
- ☐ (2) Research institute/foundation
- ☐ (3) Hospital
- ☐ (4) Medical school
- ☐ (5) Industry
- ☐ (6) Government
- ☐ (7) Library/information center

Please check your primary
field of interest:

- ☐ (1) Biochemistry
- ☐ (2) Cell biology
- ☐ (3) Developmental biology
- ☐ (4) Epidemiology
- ☐ (5) Genetics
- ☐ (6) Immunology
- ☐ (7) Microbiology
- ☐ (8) Molecular biology
- ☐ (9) Neurobiology
- ☐ (10) Plant biology
- ☐ (11) Pharmacology
- ☐ (12) Virology
- ☐ (13) Oncology
- ☐ (14) Other _____

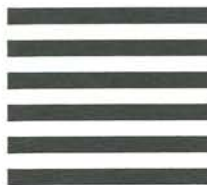
**BUSINESS REPLY MAIL**

FIRST CLASS MAIL PERMIT NO. 150 HICKSVILLE, NY

POSTAGE WILL BE PAID BY ADDRESSEE

COLD SPRING HARBOR LABORATORY PRESS
10 SKYLINE DRIVE
PLAINVIEW, NY 11803-2500

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

**BUSINESS REPLY MAIL**

FIRST CLASS MAIL PERMIT NO. 150 HICKSVILLE, NY

POSTAGE WILL BE PAID BY ADDRESSEE

COLD SPRING HARBOR LABORATORY PRESS
10 SKYLINE DRIVE
PLAINVIEW, NY 11803-2500

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

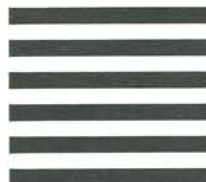
**BUSINESS REPLY MAIL**

FIRST CLASS MAIL PERMIT NO. 150 HICKSVILLE, NY

POSTAGE WILL BE PAID BY ADDRESSEE

COLD SPRING HARBOR LABORATORY PRESS
10 SKYLINE DRIVE
PLAINVIEW, NY 11803-2500

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



RESEARCH METHODS REVIEWS COMMENT



For fastest service, call:

1-800-843-4388

Continental U.S.
and Canada

516-349-1930

All other locations

FAX: 516-349-1946



**COLD SPRING HARBOR
LABORATORY PRESS**

COLD SPRING HARBOR



LABORATORY PRESS

READER SERVICE CARD

Please print clearly:

NAME																			
POSITION										TEL.									
ORGANIZATION																			
ADDRESS																			
CITY										STATE					ZIP CODE				
POSTAL CODE										COUNTRY									

Are you a subscriber?
YES ☐ NO ☐
Is this a pass-along copy?
YES ☐ NO ☐
For further information
WRITE assigned key
numbers in boxes below

Offer valid for 6 mos. from issue date.
For further information about advertisements and new products, write the number(s) corresponding to the number at the base of the item(s) of interest. Enter the issue date, your name and address, and return this card.

Issue date: 1993

PCR METHODS AND APPLICATIONS

Please check title(s) that most closely describe(s) your position:

- ☐ (1) Professor
- ☐ (2) Graduate student
- ☐ (3) Postdoctoral scientist
- ☐ (4) Lab director
- ☐ (5) Lab technician
- ☐ (6) Medical student
- ☐ (7) Undergraduate student
- ☐ (8) Librarian
- ☐ (9) Publisher

Please check your employment category:

- ☐ (1) University/college
- ☐ (2) Research institute/foundation
- ☐ (3) Hospital
- ☐ (4) Medical school
- ☐ (5) Industry
- ☐ (6) Government
- ☐ (7) Library/information center

Please check your primary field of interest:

- ☐ (1) Biochemistry
- ☐ (2) Cell biology
- ☐ (3) Developmental biology
- ☐ (4) Epidemiology
- ☐ (5) Genetics
- ☐ (6) Immunology
- ☐ (7) Microbiology
- ☐ (8) Molecular biology
- ☐ (9) Neurobiology
- ☐ (10) Plant biology
- ☐ (11) Pharmacology
- ☐ (12) Virology
- ☐ (13) Oncology
- ☐ (14) Other

READER SERVICE CARD

Please print clearly:

NAME																			
POSITION										TEL.									
ORGANIZATION																			
ADDRESS																			
CITY										STATE					ZIP CODE				
POSTAL CODE										COUNTRY									

Are you a subscriber?
YES ☐ NO ☐
Is this a pass-along copy?
YES ☐ NO ☐
For further information
WRITE assigned key
numbers in boxes below

Offer valid for 6 mos. from issue date.
For further information about advertisements and new products, write the number(s) corresponding to the number at the base of the item(s) of interest. Enter the issue date, your name and address, and return this card.

Issue date: 1993

PCR METHODS AND APPLICATIONS

Please check title(s) that most closely describe(s) your position:

- ☐ (1) Professor
- ☐ (2) Graduate student
- ☐ (3) Postdoctoral scientist
- ☐ (4) Lab director
- ☐ (5) Lab technician
- ☐ (6) Medical student
- ☐ (7) Undergraduate student
- ☐ (8) Librarian
- ☐ (9) Publisher

Please check your employment category:

- ☐ (1) University/college
- ☐ (2) Research institute/foundation
- ☐ (3) Hospital
- ☐ (4) Medical school
- ☐ (5) Industry
- ☐ (6) Government
- ☐ (7) Library/information center

Please check your primary field of interest:

- ☐ (1) Biochemistry
- ☐ (2) Cell biology
- ☐ (3) Developmental biology
- ☐ (4) Epidemiology
- ☐ (5) Genetics
- ☐ (6) Immunology
- ☐ (7) Microbiology
- ☐ (8) Molecular biology
- ☐ (9) Neurobiology
- ☐ (10) Plant biology
- ☐ (11) Pharmacology
- ☐ (12) Virology
- ☐ (13) Oncology
- ☐ (14) Other

READER SERVICE CARD

Please print clearly:

NAME																			
POSITION										TEL.									
ORGANIZATION																			
ADDRESS																			
CITY										STATE					ZIP CODE				
POSTAL CODE										COUNTRY									

Are you a subscriber?
YES ☐ NO ☐
Is this a pass-along copy?
YES ☐ NO ☐
For further information
WRITE assigned key
numbers in boxes below

Offer valid for 6 mos. from issue date.
For further information about advertisements and new products, write the number(s) corresponding to the number at the base of the item(s) of interest. Enter the issue date, your name and address, and return this card.

Issue date: 1993

PCR METHODS AND APPLICATIONS

Please check title(s) that most closely describe(s) your position:

- ☐ (1) Professor
- ☐ (2) Graduate student
- ☐ (3) Postdoctoral scientist
- ☐ (4) Lab director
- ☐ (5) Lab technician
- ☐ (6) Medical student
- ☐ (7) Undergraduate student
- ☐ (8) Librarian
- ☐ (9) Publisher

Please check your employment category:

- ☐ (1) University/college
- ☐ (2) Research institute/foundation
- ☐ (3) Hospital
- ☐ (4) Medical school
- ☐ (5) Industry
- ☐ (6) Government
- ☐ (7) Library/information center

Please check your primary field of interest:

- ☐ (1) Biochemistry
- ☐ (2) Cell biology
- ☐ (3) Developmental biology
- ☐ (4) Epidemiology
- ☐ (5) Genetics
- ☐ (6) Immunology
- ☐ (7) Microbiology
- ☐ (8) Molecular biology
- ☐ (9) Neurobiology
- ☐ (10) Plant biology
- ☐ (11) Pharmacology
- ☐ (12) Virology
- ☐ (13) Oncology
- ☐ (14) Other



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT #5 COLD SPRING HARBOR, N.Y.

POSTAGE WILL BE PAID BY ADDRESSEE

Advertising Manager
Library Building
COLD SPRING HARBOR LABORATORY PRESS
PO Box 100
Cold Spring Harbor, NY 11724-2300



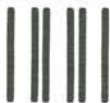
NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT #5 COLD SPRING HARBOR, N.Y.

POSTAGE WILL BE PAID BY ADDRESSEE

Advertising Manager
Library Building
COLD SPRING HARBOR LABORATORY PRESS
PO Box 100
Cold Spring Harbor, NY 11724-2300



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT #5 COLD SPRING HARBOR, N.Y.

POSTAGE WILL BE PAID BY ADDRESSEE

Advertising Manager
Library Building
COLD SPRING HARBOR LABORATORY PRESS
PO Box 100
Cold Spring Harbor, NY 11724-2300



COLD SPRING HARBOR



LABORATORY PRESS



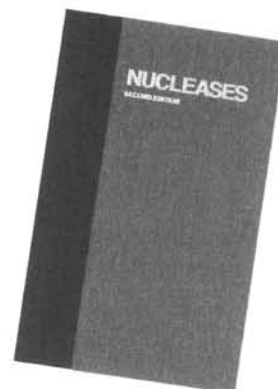
Nucleases, Second Edition

Monograph 25

Edited by Stuart M. Linn, *University of California, Berkeley*; R. Stephen Lloyd, *University of Texas Medical Branch, Galveston*; Richard J. Roberts, *New England Biolabs*

The 1982 publication *Nucleases* was the first book to survey this diverse and important group of enzymes. The new edition has been completely revised and updated. It provides a comprehensive review of all classes of nucleases, their modes of action and biological significance. The book is an invaluable source of information for investigators of DNA replication, recombination and repair and RNA processing, and for everyone interested in the rational use of nucleases as research reagents.

1993, 499 pp., illus., color plates, appendices, index
Cloth \$75 ISBN 0-87969-426-2



The RNA World

Monograph 24

Edited by Raymond F. Gesteland, *University of Utah*; John F. Atkins, *University of Utah*. With Foreword by Francis Crick and Prologue by James D. Watson

"The lively and authoritative chapters of this book deal comprehensively both with the hypothetical RNA world and with the complexities of RNA structure and function we find around us today. I recommend it to all molecular biologists and especially to anyone fascinated by the baroque complexity of the nucleic acids and of RNA in particular."

—Francis Crick

1993, 632 pp., illus., color plates, appendices, index
Cloth \$95 ISBN 0-87969-380-0



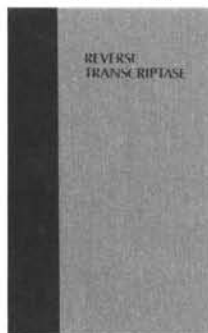
Reverse Transcriptase

Monograph 23

Edited by Anna Marie Skalka, *Fox Chase Cancer Center*; Stephen P. Goff, *Columbia University College of Physicians & Surgeons*

The first comprehensive review of the enzyme's biology. Includes rare discussions of RT's functions outside the context of retroviruses, the latest structural data on RT and a review of the antiviral activity of the enzyme's inhibitors.

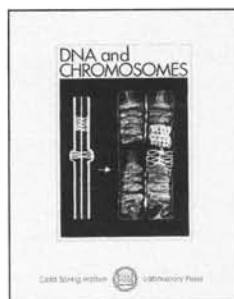
1993, 492 pp., illus., index
Cloth \$85 ISBN 0-87969-382-7



DNA and Chromosomes

Cold Spring Harbor Symposia on Quantitative Biology, Volume LVIII

Over 70 of the world's leading investigators discuss how DNA is replicated and repaired, genes are activated, silenced and transcribed, chromosomes replicate and move, and genomes are constructed. A unique compilation of recent insights into the most pressing questions in molecular genetics and cell biology.



Proceedings of the 1993 Symposium

Due first quarter 1994, 950 pp. (approx.), illus., color plates, indexes

Cloth \$210

ISBN 0-87969-065-8

Paper \$95

ISBN 0-87969-066-6

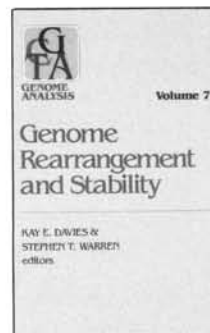
Genome Rearrangement and Stability

Genome Analysis, Volume 7

Edited by Kay E. Davies, *MRC Clinical Sciences Centre, Royal Postgraduate Medical School, London*; Stephen T. Warren, *Emory University School of Medicine, Howard Hughes Medical Institute*

The first book on the role of repetitive genomic sequences in the origins of human disorders such as fragile X syndrome, myotonic dystrophy and Huntington's disease. Also reviews studies in organisms such as yeast and trypanosomes that are illuminating the function of DNA once thought of as "junk."

1993, 165 pp., illus., index
Cloth \$49 ISBN 0-87969-388-6



To order, or request additional information:

Call: 1-800-843-4388 (Continental US and Canada) 516-349-1930 (All other locations)

FAX: 516-349-1946

Write: CSHL Press, 10 Skyline Drive, Plainview, N.Y. 11803

Reader Service No. 388



Instructions for Authors

Submission of Papers

PCR Methods and Applications welcomes high-quality research papers that describe improvements in PCR methodology, new amplification methods, or the results of PCR application. The journal also publishes review and commentary articles, technical tips, and reader correspondence. All submissions to the journal will be peer-reviewed.

The journal accepts primary research papers and technical tips that present original research which has not previously been published. Submission to the journal implies that a paper is not currently being considered for another journal or book. It is also understood that investigators who submit research papers to the journal are prepared to make available to qualified academic researchers materials needed to duplicate their research results.

Review articles are commissioned. Authors wishing to submit review articles should first contact the Editor.

Contributors should submit their papers to:

Judy Cuddihy, Editor
PCR Methods and Applications
Cold Spring Harbor Laboratory
POB 100, 1 Bungtown Road
Cold Spring Harbor, New York 11724-2203
USA

Phone 516-367-8492
FAX 516-367-8532

One original and two copies of the manuscript should be submitted. Original photographs should be supplied with each copy.

Manuscript preparation

Papers accepted by the journal will occupy between 2 and 10 journal pages. A manuscript of 5 to 25 typed, double-spaced pages total (including methods, references, and figure legends) will translate to this length. Computer printouts should be of letter quality, and each page should be labeled with the first author's name and a page number. All figures should be labeled with the first author's name, the figure number, and an indication of the top. The size of figures will be adjusted to fit the journal format; therefore, please try to keep labels, symbols, and other call-out devices in proportion to the figure size and detail. Figures should be supplied as high-quality

glossy prints. Authors wishing to publish four-color art must pay part of the costs; price estimates will be provided on acceptance of a paper.

The following order of manuscript sections is preferred: Title page, abstract, introduction, methods, results, discussion, acknowledgments, references, tables, figure legends. The methods presented should be detailed enough to allow any qualified researcher to duplicate the results. References are cited by number in the text and the reference list should be numbered in the order the references are cited in the text. Bibliographic information should be supplied in the following order. For journal articles: Authors, year, article title, journal title, volume inclusive page numbers. For books: Authors, year, chapter title, book title, editors' names, volume, inclusive page numbers, publisher, city of publication.

Accepted manuscripts

Accepted manuscripts should be supplied on 3 1/2- or 5 1/4-inch discs to expedite typesetting. Please supply the manuscript as an ASCII file if possible. If a word-processing file is being sent, please do not use any underscoring, italic, or boldface; spell out special characters (Greek, math); use two carriage returns at the end of each paragraph, subheads, and list items. Indicate on the disc: computer brand name, type of file (text or word-processing), name of software, and disc format.

Proofs are considered the final form of the paper and correction can be made only in the case of factual errors. If additional information must be added at this stage, it should be in the form of "Note added in proof," subject to the approval of the editors.

Reprints may be ordered; a form will be included with the proofs.