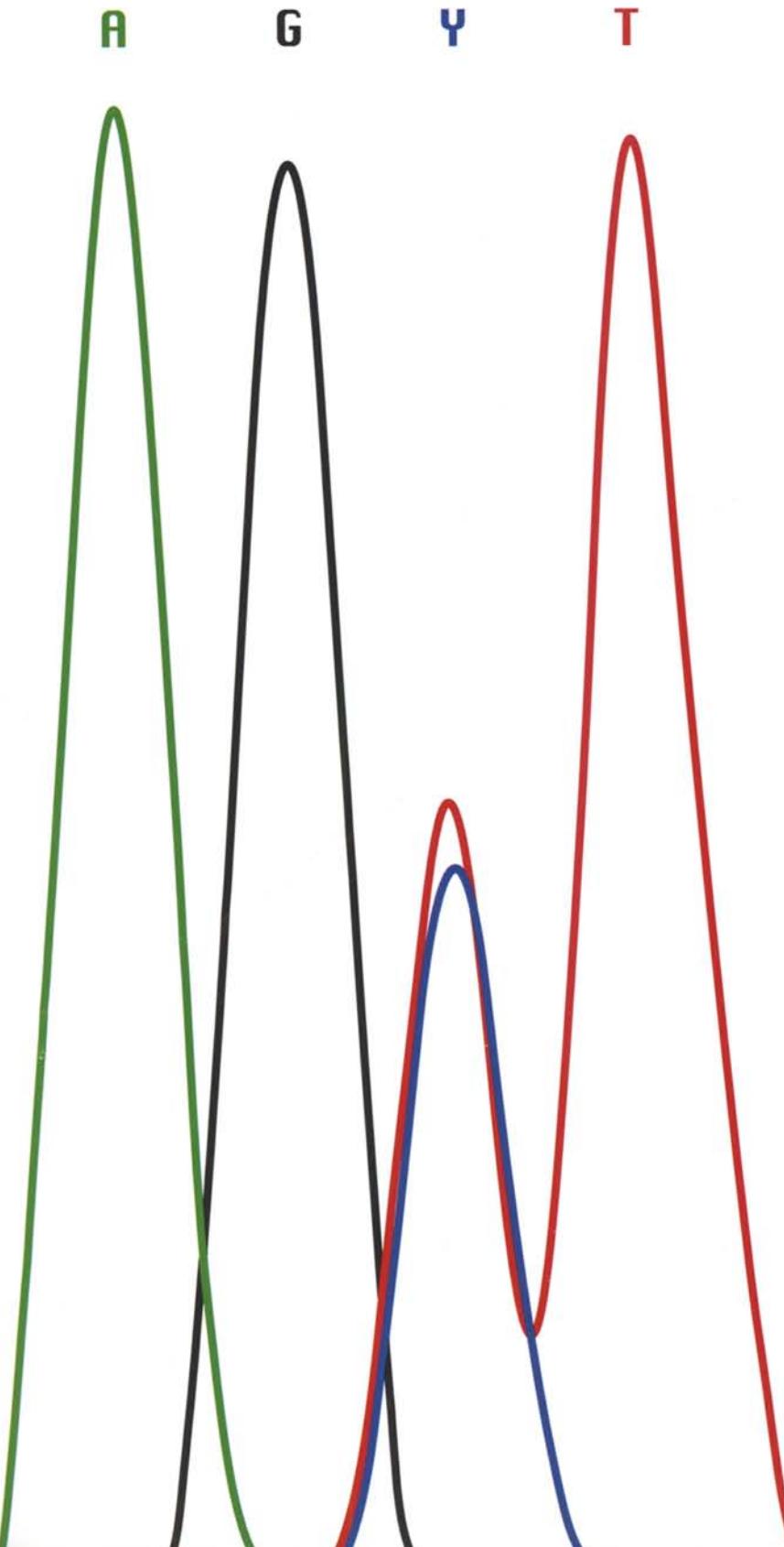


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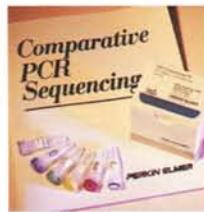
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Genetic Analysis of Pathogenic Bacteria A Laboratory Manual

By Stanley R. Maloy, *University of Illinois*; Valley J. Stewart, *Cornell University*; Ronald K. Taylor, *Dartmouth Medical School*

The study of bacterial pathogens with genetic methods is a new and explosive field set to dominate microbiology in the next decade. Five years' progressive refinement in the celebrated Cold Spring Harbor course in Advanced Bacterial Genetics has produced a manual that teaches theoretical and practical molecular genetic approaches to bacterial pathogenicity. Chapters on concepts, technologies, and applications are followed by 15 multifaceted experiments with *Salmonella* and *Vibrio*, in which protocols and expected findings are fully demonstrated and strategies for similar approaches to other bacteria are discussed. This manual, the latest in a distinguished series from this long-established course, is the creation of three leading authorities on bacterial pathogens and is a conceptually unique book written for a broad audience of microbiologists in research, industrial, and public health labs.

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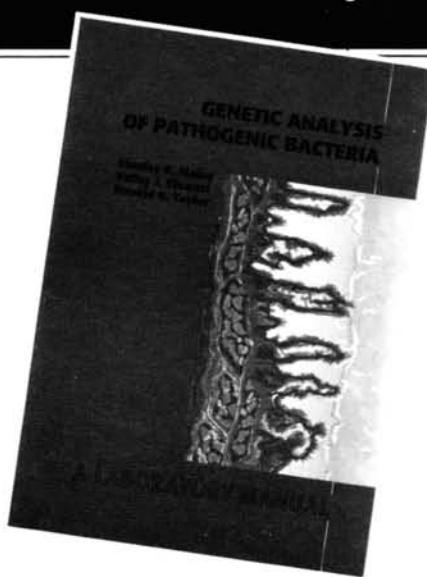
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Vivo Molecular Cloning; Experiment 6. Physical Mapping of Bacterial Chromosomes by Pulsed-field Gel Electrophoresis; Introduction to Experiments 7-11; Experiment 7. Construction of P22 Challenge Phage; Experiment 8. Challenge Phage Assays; Experiment 9. Isolation of Operator Mutations; Experiment 10. DNA Sequence Analysis of Challenge Phage Mutants; Experiment 11. Isolation of Second-site Suppressor Mutations that Recognize Mutant Operator Sites; Introduction to Experiments 12-15; Experiment 12. Isolation of *Vibrio cholerae* *TnphoA* Insertions; Experiment 13. Southern DNA Hybridization to Map *TnphoA* Insertions; Experiment 14. Allelic Exchange in Gram-negative Bacteria Utilizing Suicide Plasmid Vectors; Experiment 15. Oligonucleotide-directed Site-specific Mutagenesis

Appendices

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Culture Media and Supplements: Liquid culture media, Solid culture media, Culture media supplements, Antibiotics, Buffers, P22 indicator media, MOPS culture medium

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PCR Primer: A Laboratory Manual

Edited by Carl W. Dieffenbach, *National Institute of Allergy and Infectious Diseases*, Gabriela S. Dveksler, *Uniformed Services University of the Health Sciences*

From its first-published account in 1985, the polymerase chain reaction has become a standard research tool in a wide range of laboratories. Its impact has been felt in basic molecular biological research, clinical research, forensics, evolutionary studies, and the Human Genome Project. The PCR technique originally conceived by Nobel laureate Kary Mullis has proven to be exceptionally adaptable and has been transformed into a myriad array of methods, each with different applications.

PCR Primer: A Laboratory Manual introduces the complex world of PCR by beginning at an accessible level and then moving to more advanced levels of application. First, the practical requirements for performing PCR and other amplification techniques in the lab are introduced and then the basic aspects of the technique are explained by exploring important issues such as sample preparation, primer design, efficiency, detection of products, and quantitation. Protocols for a wide range of PCR and amplification techniques—each written by an expert investigator—are presented for cloning, sequencing, mutagenesis, library construction and screening, exon trapping, differential display, and expression, and these include RT-PCR, RNA PCR, LCR, multiplex PCR, panhandle PCR, capture PCR, expression PCR, 3' and 5' RACE, in situ PCR, and ligation-mediated PCR. Each protocol is augmented by analysis and troubleshooting sections and complete references.

CONTENTS

Introduction to PCR

Setting Up a PCR Laboratory (C.W. Dieffenbach et al.); A Standard PCR Protocol: Rapid Isolation of DNA and PCR Assay for β -Globin (M.T. Vahey et al.); Enzymatic Control of Carryover Contamination in PCR (J.L. Hartley, A. Rashtchian); Ultraviolet Irradiation of Surfaces to Reduce PCR Contamination (R.W. Cone, M.R. Fairfax); Specificity, Efficiency, and Fidelity of the PCR (R.S. Cha, W.G. Thilly); Optimization and Troubleshooting in PCR (K.H. Roux); Long-Distance PCR (O.S. Foord, E.A. Rose)

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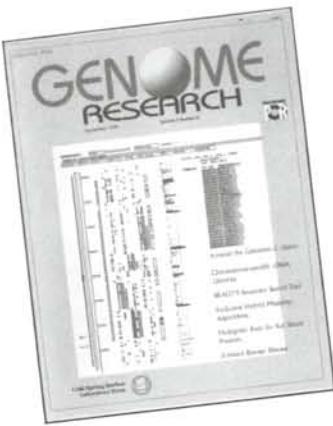
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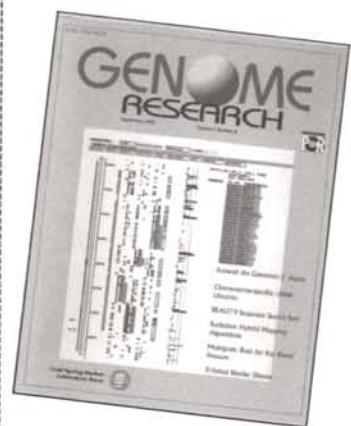
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- (10) Plant biology
- (11) Pharmacology
- (12) Virology
- (13) Oncology
- (14) Other

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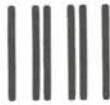
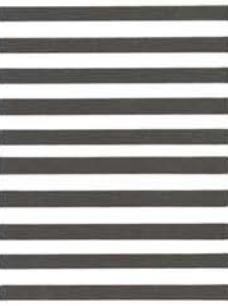
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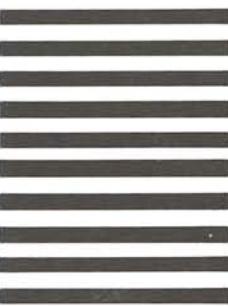
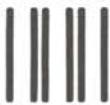
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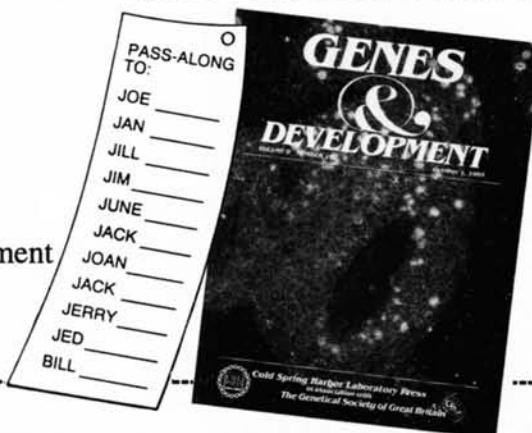
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- (6) Immunology
- (7) Microbiology
- (8) Molecular biology
- (9) Neurobiology
- (10) Plant biology
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- (14) Nonisotopic labeling and detection
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- (16) Nucleic acid radiolabeling
- (17) Nucleic acid sequencing
- (18) Nucleic acid synthesis

- (19) PCR
- (20) Prokaryotic expression
- (22) Pulsed field electrophoresis
- (23) RNA analysis
- (24) RNA purification
- (25) Software-aided sequence analysis
- (26) Transfections

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- (32) Affinity
- (33) Gas
- (34) HPLC
- (35) Thin layer
- (36) Electrophoresis of proteins
- (37) Glycoprotein analysis
- (38) Peptide mapping
- (39) Peptide synthesis
- (40) Protein kinase assays
- (42) Protein purification
- (43) Protein sequencing

IMMUNOLOGY

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- (59) Western blotting

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