



METHODS • AND • APPLICATIONS

Editors

David Bentley
Sanger Centre
Richard Gibbs
Baylor College of Medicine
Eric Green
National Center for Human Genome
Research, NIH
Richard Myers
Stanford University School of Medicine

Editorial Board

Rakesh Anand
Zeneca Pharmaceuticals
Johannes Bos
University of Utrecht
Anne Bowcock
University of Texas Southwestern Medical
Center
Jeff Chamberlain
University of Michigan Medical School
Nicholas Dracopoli
National Center for Human Genome
Research, NIH
Joe Ecker
University of Pennsylvania
Ray Fenwick
Biodale Laboratories
Kenshi Hayashi
National Cancer Center Research Institute,
Tokyo
Bernhard Horsthemke
University of Essen
Pieter de Jong
Roswell Park Cancer Institute
David Kemp
Menzies School of Health Research
Mary-Claire King
University of California, Berkeley
Ulf Landegren
University of Uppsala Medical Center
Doug Marchuk
Duke University Medical School
Chris Mathew
UMDS Guy's & St. Thomas' Medical and
Dental School
David Nelson
Baylor College of Medicine
Debbie Nickerson
University of Washington School of Medicine
Svante Pääbo
University of Munich
Lena Peltonen
University of Helsinki
Eric Spitzer
SUNY at Stony Brook
Lap-Chee Tsui
Hospital for Sick Children, Toronto
Rick Wilson
Washington University School of Medicine
Steven Wolinsky
Northwestern University School of Medicine
Maria Zapp
University of Massachusetts Medical Center

Managing Editor

Judy Cuddihy
Cold Spring Harbor Laboratory Press

December, 1994
Volume 4, Number 3

RESEARCH

- 139 Alteration of Hairpin Ribozyme Specificity Utilizing PCR**
Paula DeGrandis, Arnold Hampel, Scott Galasinski, James Borneman,
Andrew Siwkowski, and Mitchell Altschuler
- 145 Direct Gene Quantitation by PCR Reveals Differential Accumulation
of Ectopic Enzyme in Rat-1 Cells, v-fos Transformants,
and Revertants**
M. Bahman Bahramian and Helmut Zarbl
- 154 Quantitative Analysis of Gene Expression in Different Tissues by
Template-calibrated RT-PCR and Laser-induced Fluorescence**
Wolfram J.P. Karges, Roger Gaedigk, and H.-Michael Dosch
- 160 Quantitation of mRNA Species by RT-PCR on Total
mRNA Population**
Samar Hamoui, Jean-Pierre Benedetto, Maurice Garret, and Jacques Bonnet
- 167 A Competitive Deletion Mutant Quantitative PCR Assay for
Angiotensin-converting Enzyme mRNA in Smooth Muscle Cells**
Joseph J. Lanzillo, Xue-Jun Kong, and Barry L. Fanburg
- 172 Minimal Length Requirement of the Single-stranded Tails for
Ligation-independent Cloning (LIC) of PCR Products**
Charalampos Aslanidis, Pieter J. de Jong, and Gerd Schmitz
- 178 An Improved Method for Semiquantification of Gene Amplification
from Archival Material**
M.A. Underwood, J.M.S. Bartlett, and T.G. Cooke

TECHNICAL TIPS

- 185 A Comparison of Methods for RNA Extraction from Lymphocytes for RT-PCR**
W. Liedtke, L. Battistini, C.F. Brosnan, and C.S. Raine
- 188 Improved Heteroduplex Detection of Single-base Substitutions in
PCR-amplified DNA**
A.V. Peeters and M.J. Kotze

(continued)

Published by Cold Spring Harbor Laboratory Press.
Sponsored by The Perkin-Elmer Corporation.

Editorial Staff
Nadine Dumser, Technical Editor
Valerie Nicolette, Production Editor
Doris Lawrence, Secretary
Jim Suddaby, Design

Advertising
Nancy Kuhle

191 Wax-embedded PCR Reagents
Patricia Blair, Rama Ramanujam, and Brent A. Burdick

MANUAL SUPPLEMENT

195 **Getting Started: A PCR Primer**

197 *Contents*