

Contents

Preface	v
Contributors	ix
1 Introduction to Isolating RNA, <i>Donald E. Macfarlane and Christopher E. Dahle</i>	1
2 Large and Small Scale RNA Preparations from Eukaryotic Cells, <i>Wolfgang Uckert, Wolfgang Walther, and Ulrike Stein</i>	7
3 An Improved Rapid Method of Isolating RNA from Cultured Cells, <i>David B. Batt, Gordon G. Carmichael, and Zhong Liu</i>	15
4 Isolating RNA with the Cationic Surfactant, Catrimox-14, <i>Christopher E. Dahle and Donald E. Macfarlane</i>	19
5 RNA Extraction from Formalin-Fixed and Paraffin-Embedded Tissues, <i>Giorgi Stanta, Serena Bonin, and Rosella Perin</i>	23
6 Extraction and Purification of RNA from Plant Tissues Enriched in Polysaccharides, <i>Shu-Hua Cheng and Jeffrey R. Seemann</i>	27
7 Isolation of Plant Mitochondrial RNA from Green Leaves, <i>Fei Ye, Wolfgang O. Abel, and Ralf Reski</i>	33
8 Extraction of RNA from Fresh and Frozen Blood, <i>Bimal D. M. Theophilus</i>	39
9 Isolation of Total RNA from Bacteria, <i>John Heptinstall</i>	47
10 Isolation of Total RNA from Tissues or Cell Lines: Visualization in Gel, <i>Tapas Mukhopadhyay and Jack A. Roth</i>	55
11 Isolation of Messenger RNA, <i>Sian Bryant and David L. Manning</i>	61
12 UV Spectrometric Analysis of Ribonucleic Acids <i>Ralph Rapley and John Heptinstall</i>	65

13	Formaldehyde Gel Electrophoresis of Total RNA, Sian Bryant and David L. Manning	69
14	Preparation of RNA Dot-Blots, Rachel Hodge	73
15	Nonradioactive Northern Blotting, Rainer Low	77
16	The Use of RNA Probes for the Analysis of Gene Expression: Northern Blot Hybridization and Ribonuclease Protection Assay, Dominique Belin	87
17	Analysis of RNA by Northern Blotting Using Riboprobes, Rai Ajit K. Srivastava	103
18	RNA Quantitative Analysis from Fixed and Paraffin-Embedded Tissues, Giorgi Stanta, Serena Bonin, and Rene Utrera	113
19	Quantitative Analysis of RNA Species by PCR and Solid-Phase Minisequencing, Anu Suomalainen and Ann-Christine Syvanen	121
20	Preparation of Tissue Sections and Slides for mRNA Hybridization, Giorgi Terenghi	133
21	Detecting mRNA in Tissue Sections with Digoxigenin-Labeled Probes, Giorgi Terenghi	137
22	One-Tube RT-PCR with Sequence Specific Primes, Ulrich Pfeffer	143
23	Identification of Differentially Exposed Genes by Nonradioactive Differential Display Messenger RNA, Thomas C. G. Bosch and Jan U. Lohmann	153
24	Characterization of RNA Using Continuous RT-PCR Coupled with ELOSA, Francois Mallet, Guy Oriol, and Bernard Mandrand	161
25	Gene Expression Analysis by CD-RT-PCR, Eric de Kant	173
26	Primer Extension Analysis of mRNA, Maggie Walmsley, Mark Leonard, and Roger Patient	187

27	S1 Mapping Using Single-Stranded DNA Probes, Stephane Viville and Roberto Mantovani	195
28	Measurements of Rate of Transcription in Isolated Nuclei by Nuclear "Run-Off" Assay, Rai Ajit K. Srivastava and Gustav Schonfeld	201
29	Transcription In Vitro Using Bacteriophage RNA Polymerases, Elaine T. Schenborn	209
30	In Vitro Translation of Messenger RNA in a Rabbit Reticulocyte Lysate Cell-Free System, Louise Olliver and Charles D. Boyd	221
31	In Vitro Translation of Messenger RNA in a Wheat Germ Extract Cell-Free System, Louise Olliver, Anne Grobler-Rabie, Charles D. Boyd	229
32	The <i>Xenopus</i> Egg Extract Translation System, Glenn M. Matthews and Alan Colman	235
33	Purification and Characterization of Viral dsRNA Genome Profiles by Crosshybridization, Lesley-Ann Martin and Peter P. C. Mertens	249
	Index	261

ALAN COLMAN • School of Biochemistry, Birmingham University, Birmingham, UK

CHRISTOPHER E. DAVIS • Department of Medicine, University of Iowa, Iowa

ERIC DE KROM • Academic Hospital Utrecht, Department of Internal

Medicine, Utrecht, The Netherlands

ANNE GROBLER-RABIE • University of Health Sciences and Technology of New Brunswick

New Brunswick, NJ

JOHN P. HARTSHALL • Biomedical Sciences School of Natural and Agricultural Sciences

Sheffield Hallam University, Sheffield, UK

ROBERT HOGUE • Department of Biology, University of Toronto, Toronto, ON

MARK LEONARD • Developmental Biology Research Centre, King's College,

University of London, UK

ZHANG LIL • Department of Microbiology, University of Connecticut Health

Center, Farmington, CT

JÜRGEN U. LOHMANN • Institut der Universität, München, Germany

ROBERT LOW • Biomedical Institute, Robert-Koch-Institut, Heidelberg,

Germany