Contents

Preface ................................................................. v
Contributors ........................................................... ix

1 DNA Electrophoresis: Historical and Theoretical Perspectives ............... 1
   Gareth A. Roberts and David T.F. Dryden

2 Basic DNA Electrophoresis in Molecular Cloning: A Comprehensive Guide for Beginners .................................................. 11
   Svetlana Makovets

3 Analysis of Branched DNA Replication and Recombination Intermediates from Prokaryotic Cells by Two-Dimensional (2D) Native–Native Agarose Gel Electrophoresis ........................................... 45
   Nicholas P. Robinson

4 Analysis of DNA Structures from Eukaryotic Cells by Two-Dimensional Native–Native DNA Agarose Gel Electrophoresis .................................................. 63
   Andreas S. Ivessa

5 Directionality of Replication Fork Movement Determined by Two-Dimensional Native–Native DNA Agarose Gel Electrophoresis ......................... 83
   Andreas S. Ivessa

6 Native/Denaturing Two-Dimensional DNA Electrophoresis and Its Application to the Analysis of Recombination Intermediates ......................... 105
   Jessica P. Lao, Shangming Tang, and Neil Hunter

7 Plasmid DNA Topology Assayed by Two-Dimensional Agarose Gel Electrophoresis ............................................................. 121
   Jorge B. Schwartzman, María-Luisa Martínez-Robles, Pablo Hernández, and Dora B. Krimer

8 A Neutral Glyoxal Gel Electrophoresis Method for the Detection and Semi-quantitation of DNA Single-Strand Breaks ........................................... 133
   Brian Pachkowski and Jun Nakamura

9 Denaturing Gradient Gel Electrophoresis (DGGE) .................................. 145
   Fiona Strathdee and Andrew Free

10 Polycrylamide Temperature Gradient Gel Electrophoresis ....................... 159
   Viktor Viglasky

11 Separation of DNA Oligonucleotides Using Denaturing Urea PAGE ........ 173
   Fiona Flett and Heidrun Interthal

12 Pulsed-Field Gel Electrophoresis of Bacterial Chromosomes ................... 187
   Julia S.P. Mawer and David R.F. Leach
13 Resolution of Budding Yeast Chromosomes Using Pulsed-Field Gel Electrophoresis
Aziz El Hage and Jonathan Houseley

14 Analysis of DNA Damage via Single-Cell Electrophoresis
Diana Anderson and Julian Laubenthal

15 Fluorescence In Situ Hybridization on Electrophoresed Cells to Detect Sequence Specific DNA Damage
Julian Laubenthal and Diana Anderson

16 Analysis of DNA–Protein Interactions Using PAGE: Band-Shift Assays
Lynn Powell

17 Assaying Cooperativity of Protein–DNA Interactions Using Agarose Gel Electrophoresis
Tanya L. Williams and Daniel L. Levy

18 DNA Bending by Proteins: Utilizing Plasmid pBendAT as a Tool
Fenfei Leng

19 Using PCR Coupled to PAGE for Detection and Semiquantitative Evaluation of Telomerase Activity
Laura Gardano

Index
DNA Electrophoresis
Methods and Protocols
Makovets, S. (Ed.)
2013, X, 299 p. 56 illus., 20 illus. in color., Hardcover
ISBN: 978-1-62703-564-4
A product of Humana Press