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DNA Electrophoresis

Methods and Protocols

Edited by

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Preface

Gel electrophoresis of DNA is one of many routine laboratory methods in molecular biology and is used for the analysis and purification of DNA fragments. To date, electrophoresis has been used for the analysis of various DNA reactions in vitro, such as polymerase chain reaction (PCR), restriction enzyme digestion, characterization of enzymes involved in DNA reactions, and sequencing. There is no doubt that electrophoresis has contributed to biological studies, particularly the understanding of single gene function(s). A recent trend in molecular biology is to endeavor to understand the genome-wide functions of biochemical DNA reactions within cells including the detection of intermediate DNA structures. To address this, many new techniques have been developed, among them new applications for DNA electrophoresis. For successful genome-wide analysis, it is important that the technical aspects of electrophoresis and DNA sample preparation are considered. Therefore, I have collected step-by-step protocols covering these aspects that are applicable to various species including bacteria, yeasts, and mammalian cells.

Finally, I would like to thank all the contributors that have enabled the publication of this book, especially to those scientists who have shared their hands-on expertise through their publications. Without their contribution, this book would not have been possible.

Yufu, Oita, Japan

Katsuhiko Hanada

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