
Preface

Mobile Genetic Elements: Protocols and Genomic Applications brings together a wide array of transposon-based protocols and strategies for studying genome structure, function, and evolution into a highly practical, single-source volume. Such transposable element (TE)-derived techniques have been applied successfully for a variety of purposes ranging from mutagenesis, gene silencing, transgenesis, and their use as polymorphic marker systems. To our knowledge no such synthesis has been presented before.

Chapters 2–4 provide a series of DNA hybridization techniques for analyzing the distribution and dynamics of mobile DNAs at the hosts' genomic level. With the current revolution in genomics and the availability of complete genome sequences, computational analyses provide an extremely powerful tool for isolating and investigating TEs at the *in silico* level (Chapter 5). For the analyses of transpositional mechanisms at the biochemical level Chapter 6 provides a detailed protocol for LTR retrotransposons in heterologous host systems. Chapters 7–10 are focused on TE-based mutagenesis protocols for studying gene functions in a broad range of organisms. Based on their ubiquitous nature and their activity in creating genomic diversity by integrating novel DNA segments into genomes, TEs provide highly informative sets of polymorphic markers (Chapters 11–13). Finally, the last two chapters are dedicated to their technical applications during transgenesis in arthropods and vertebrates.

We hope that *Mobile Genetic Elements: Protocols and Genomic Applications* will appeal to those scientists and students intending to use transposable elements as genetic tools for dissecting the function of a specific gene and elaborating on the mechanisms leading to genetic change and diversity, as well as to those studying the evolutionary impact of mobile DNA on the biology and evolution of organisms.

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