
Preface

Rapid evolutions in vector technologies and identification of key molecular targets have facilitated the use of gene therapy as a vital approach for treating cardiovascular diseases. In the past decade, there has been substantial progress in clinical translation of cardiac gene therapy. Nevertheless, recent early clinical trials using gene therapy as a therapeutic approach to improve heart failure have shown neutral results, and the difficulty of transferring the genes to human hearts has become ever more recognized. Efficient, cardiac-specific, and safe vectors, as well as refined vector delivery methods, are key for successful cardiac gene transfer and eventually for improving patients' outcomes. Newer vectors and more efficient vector delivery methods have the potential to dramatically improve gene transduction efficacy, while novel gene manipulation techniques enforce the therapeutic power and broaden disease targets.

The aim of this book is to provide methodological information on cardiac gene delivery from classic to state-of-the-art technologies and techniques. Detailed and practical protocols described in this volume will be valuable tools for molecular biologists and physiologists in the cardiology field to conduct cardiac gene transfer research, which will ultimately lead to further advancements in the field.

I thank all expert authors for their dedication in describing step-by-step methodologies that will undoubtedly lead to successful cardiac gene therapy. I am very grateful to Dr. Roger J. Hajjar (Icahn School of Medicine at Mount Sinai) for assisting me with the organization of the contents and also for contributing a number of chapters himself. Lastly, I would like to thank John M. Walker, the series editor, who provided me with this opportunity and guiding the volume's preparation process. We hope that the readers find *Cardiac Gene Therapy: Methods and Protocols* to be a useful reference for conducting and improving their projects.

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