Preface

CRISPR/Cas9 (clustered regularly interspaced short palindromic repeats) and CRISPR-associated gene (Cas) form an adaptive immune response of most archaea and bacteria. Initially discovered in 1987 by a Japanese group, the system was characterized in 2002. In 2012, the *in vitro* cleavage activity of Cas9 was observed followed by its first genome engineering application in eukaryotic cells. To date, more than 4000 papers have been published showing the development and applications of Cas9 for wide areas of biological research. The extensive review of the applications of this system across diverse fields is important to explore further avenues and research directions of this highly potent editing technology. For this book, *The CRISPR/Cas System: Emerging Technology and Application*, we invited several researchers to discuss CRISPR/Cas technology across various genomes, from plants to animals, from reproduction to development, from its role in immunity to genetic diseases, from the system structure to system specificity and to debate ethical concerns.

This volume is designed keeping in view the urgent need of scientists to get a rigorous review of the applications and new opportunities in using CRISPR/Cas system to progress the field more efficiently. This volume also deals with some of the potential problems with CRISPR/Cas system that need urgent attention. Specificity of CRISPR/Cas system remains the topic of attention for many researchers across the globe as improvement in this can lead to the more direct and efficient use of CRISPR/Cas system in clinical set-up. The speed and efficiency of the CRISPR/Cas system in *ex vivo* applications make it one of best systems for gene therapy. The coming years will unfold many potential uses of the CRISPR/Cas technology, of which this review volume on its applications will prove a seed of thought.

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