



genes



Special Issue Reprint

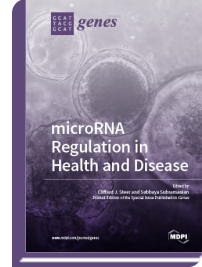
microRNA Regulation in Health and Disease

www.mdpi.com/books/reprint/2044

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ISBN 978-3-03921-714-4 (Softback)

ISBN 978-3-03921-715-1 (PDF)

MicroRNAs (miRNAs) are small regulatory RNAs that play a crucial role in posttranscriptional gene regulation. Over two thousand miRNAs have been identified in humans, and many of them are conserved in other species. miRNAs are implicated in fundamental cellular functions, including development and disease. In the last decade, there has been an overwhelming amount of data contributing to the understanding of miRNA biogenesis and their target genes. Moreover, a significant amount of work has been carried out in developing miRNA biomarkers and therapeutics for various disease conditions. RNA-based markers and therapeutics have been proven to have a clinical impact, and many of these miRNA-based therapies are at various stages of human clinical trials and clinical applications. Notably, miRNAs are also found in exosomes, and are considered to impart intercellular communication and function via several different modalities, including tunneling nanotubes. In spite of our understanding of miRNA biology and function, there are many challenges in effectively using miRNAs as biomarkers and therapeutic agents in clinical applications. In this Special Issue, we are inviting reviews, perspectives, and original research articles to address some of these challenges. Topics will include, but are not limited to, miRNA biogenesis, clinical applications, extracellular function, biomarkers, miRNA immune regulation, signaling pathways, and preclinical models.



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