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RNA Interference (RNAi): Mechanisms and Applications

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Message from the Guest Editor

Dear Colleagues,

RNA interference (RNAi) is a conserved gene-regulation mechanism in all eukaryotic cells, where miRNA, siRNA, and shRNA interact with mRNAs in a sequence-specific way and lead to the cleavage or translational blockage of the gene. Since its discovery in 1996, it has been widely used as a powerful tool for gene function studies in biology laboratories worldwide. In addition, RNAi-mediated gene silencing (RNAi therapy) is believed to hold great promise for effectively treating many diseases. For example, RNAi has been proven to be effective in gene therapy for viral infections, genetic disorders, and cancers.

siRNA delivery has seen great progress and exciting new results, bringing RNAi therapy much closer to clinical application. In addition to RNAi therapy, another area attracting attention is the relationship between the RNAi pathway and host immune system; that is, RNAi not only involves innate immunity but also adaptive immunity. A better understanding of this relationship and combination of gene silencing with induced immunity will lead to more effective and safer therapies for cancer or other diseases.

Dr. Wenyi Gu

Guest Editor



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