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## Preface

In 2006, Fire and Mello received the Nobel Prize in Physiology or Medicine for their discovery of RNA interference (RNAi). RNAi refers to posttranscriptional, sequence-specific control of gene expression mediated by small, noncoding inhibitory RNAs, called microRNAs (miRNAs). To date, thousands of conserved and species-specific miRNAs have been identified in organisms ranging from single-celled algae to humans. RNAi and miRNAs are now known to play fundamental roles in developmental biology and disease pathogenesis, although only a small fraction of miRNAs has a known function. RNAi has also emerged as a technology; designer inhibitory RNAs can be engineered to mimic natural miRNAs and suppress any gene of interest. These synthetic inhibitory RNAs have been used to ask basic biological questions or develop therapeutics for dominant genetic disorders, cancer, or viral infection. Thus, the field of RNAi and miRNAs is growing rapidly and gaining increasing importance in basic and translational biology.

This volume presents detailed methods for designing and delivering artificial inhibitory RNAs to neural tissue, and for detecting or cloning endogenous miRNAs.

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