
Preface

The term “RNA editing,” coined in 1986 to describe the insertion of four uridines into a mitochondrial transcript in *Trypanosoma brucei*, has evolved into a collective definition of processes that change RNA nucleotide sequence. Setting these pathways apart from splicing, 5' capping, or 3' extensions is uncomplicated while drawing a clear distinction from RNA modifications is less so. Spread throughout the Eukarya, editing creates genetic information de novo, alters decoding capacity, influences structure, stability, export, and other aspects of nucleic acids metabolism by inserting, deleting, adding, or modifying nucleotides. Evolutionarily unrelated, although sometimes confined to the same organism or organelle, editing events occur cotranscriptionally or posttranscriptionally. Mechanistically, RNA editing reactions include guide RNA-directed cascades of nucleolytic and phosphoryl transfer reactions, RNA polymerase stuttering, site-specific deamination, 3'–5' polymerization, and others. A more recent but most exciting development, DNA editing is emerging as the key component of antibody gene diversification and antiviral defense.

Such diversity of organisms and editing types stimulated development of many unique genetic, molecular, biochemical, and computational approaches. The purpose of this volume is to introduce methods developed over the last few years to study the diversity of editing substrates, mechanisms of specificity, and functions of RNA and DNA editing enzymes and complexes.

I wish to express my sincere gratitude to the authors for their contributions and continued enthusiasm for our field. This volume is dedicated to Rob Benne in appreciation of his seminal discovery.

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<http://www.springer.com/978-1-61779-017-1>

RNA and DNA Editing

Methods and Protocols

Aphasizhev, R. (Ed.)

2011, XIII, 275 p., Hardcover

ISBN: 978-1-61779-017-1

A product of Humana Press