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Nota di contenuto	Cover; Related Titles; Title page; Copyright page; Contents; Foreword; List of Contributors; 1: The Role of Cotranscriptional Recruitment of RNA-Binding Proteins in the Maintenance of Genomic Stability; 1.1 Introduction; 1.2 THO/TREX; 1.2.1 THO/TREX in <i>Saccharomyces cerevisiae</i> ; 1.2.2 THO/TREX in Higher Eukaryotes; 1.2.3 THO/TREX and R-loop Formation; 1.3 Linking Transcription to Export of mRNP; 1.3.1 The Thp1-Sac3-Sus1-Cdc31 (THSC) Complex; 1.3.2 SR Proteins; 1.3.3 The Exon Junction Complex; 1.3.4 The Exosome; 1.4 Cotranscriptional R-loop Formation; 1.4.1 R-loops in <i>Escherichia coli</i> 1.4.2 Naturally Occurring R-loops1.4.3 TREX Protects against R-loop Formation; 1.4.4 SR Proteins Protect against R-loop Formation; 1.5 R-loop-induced Double-Stranded (ds) DNA Breaks; 1.5.1 Class Switch Recombination; 1.5.2 Formation of Double-Strand Breaks; 1.5.3 Rrm3 and Pif1 DNA Helicases; 1.6 Concluding Remarks; References; 2: Transcription Termination by RNA Polymerase II; 2.1 Messenger RNA Gene Termination; 2.1.1 The Allosteric Model; 2.1.2 The Torpedo Model; 2.2 Small Nucleolar RNA Gene Termination Pathway; 2.3 Choice between the Two Termination Pathways 2.4 Regulation of Transcription by Termination2.4.1 Transcription Attenuation, Promoter Upstream/Associated Transcription, and Pausing of RNAPII; 2.4.2 Alternative Polyadenylation and Termination; 2.5

Mechanisms of Termination by Other RNA Polymerases; 2.6 Future Perspectives; Acknowledgments; References; 3: Posttranscriptional Gene Regulation by an Editor: ADAR and its Role in RNA Editing; 3.1 Introduction; 3.2 The RNA Editing Kinship; 3.3 The ADAR Gene Family; 3.4 The Role of RNA in the A-to-I Editing Mechanism; 3.5 Splice Site Alterations  
3.6 A-to-I RNA Recoding Modifies Proteins Such As Neurotransmitters  
3.6.1 Glutamate Receptor Editing - GluR-B; 3.6.2 Serotonin Receptor Editing - 5-HT<sub>2</sub>CR; 3.7 Cellular Effects and in Vivo Phenotypes of ADAR Gene Inactivation; 3.8 Noncoding RNA and Repetitive Sequences; 3.9 Effects on the RNA Interference Silencing Pathway; 3.10 Effects on MicroRNA Processing and Target Selection; 3.11 RNA Editing Role as an Antiviral Mechanism; 3.12 Conclusions; Acknowledgments; References; 4: Posttranslational Modification of Sm Proteins: Diverse Roles in snRNP Assembly and Germ Line Specification  
4.1 Introduction  
4.2 Protein Methylation - Flavors and Functions; 4.3 Sm Proteins Contain sDMA- and aDMA-Modified Arginines; 4.4 SnRNP Assembly, the Survival Motor Neuron (SMN) Complex, and Spinal Muscular Atrophy (SMA); 4.5 PRMT5 and PRMT7 - The Sm Protein Methyltransferases; 4.6 Sm Protein Methylation is Required for snRNP Assembly in Mammals; 4.7 Sm Protein Methylation in Drosophila; 4.8 Unresolved Questions: Sm Protein Methylation and snRNP Assembly; 4.9 Conclusion - The Evolution of snRNP Assembly; 4.10 Sm Proteins Are Required for Germ Cell Specification  
4.11 Dart5, Valois, Sm Proteins, and Tudor Anchoring

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#### Sommario/riassunto

Reflecting the rapid progress in the field, the book presents the current understanding of molecular mechanisms of post-transcriptional gene regulation thereby focusing on RNA processing mechanisms in eucaryotic cells. With chapters on mechanisms as RNA splicing, RNA interference, MicroRNAs, RNA editing and others, the book also discusses the critical role of RNA processing for the pathogenesis of a wide range of human diseases. The interdisciplinary importance of the topic makes the title a useful resource for a wide reader group in science, clinics as well as pharmaceutical industry.

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