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Nota di contenuto	RNA AND DNA EDITING; CONTENTS; PREFACE; ACKNOWLEDGMENTS; CONTRIBUTORS; PART I DIVERSIFICATION OF THE PROTEOME THROUGH RNA AND DNA EDITING; CHAPTER 1 DIVERSIFYING EXON CODE THROUGH A-TO-I RNA EDITING; 1.1 Introduction and Background; 1.1.1 Initial Discovery and Context of A-to-I RNA Editing and ADARs; 1.1.2 Important Cases of Recoding by A-to-I Modification in Pre-mRNA; 1.1.3 Cis-Acting Features for A-to-I Editing; 1.1.4 Properties of the A-to-I Editing Machinery; 1.2 Main Questions in the Field and Approaches; 1.2.1 Biochemical Versus Computational Approaches; 1.2.2 Editing of miRNA Sequences 1.3 Future Directions: Evolution of Editing Sites and MachineryReferences; CHAPTER 2 ANTIBODY GENE DIVERSIFICATION BY AID-CATALYZED DNA EDITING; 2.1 Introduction; 2.2 Before AID; 2.2.1 Without DNA (Darkness) and with DNA (Light); 2.2.2 Prominent Early Models for Antibody Diversification; 2.2.3 How Protein Sequencing Technology Enabled an Understanding of Antibody Diversity; 2.2.4 Somatic DNA Rearrangements Underpin V(D)J Joining and Create the

Primary Antibody Repertoire; 2.2.5 Additional Antibody Diversity by Somatic Hypermutation (and Gene Conversion in Some Animals) 2.2.6 Altering Antibody Function by Class Switch Recombination (Isotype Switching) 2.3 After AID; 2.3.1 A Novel Deaminase Is Required for CSR, SHM, and IGC; 2.3.2 AID Is a DNA Cytosine Deaminase that Directly Triggers Antibody Diversification; 2.3.3 The Importance of Uracil Bases in DNA In Vivo; 2.3.4 Processing of AID-induced Lesions: The Molecular Mechanism of Somatic-Hypermutation; 2.3.5 Processing of AID-induced Lesions: The Molecular Mechanism of Immunoglobulin Gene Conversion; 2.3.6 Processing of AID-induced Lesions: The Molecular Mechanism of Class Switch Recombination 2.4 Hot Areas and Speculations 2.4.1 Immunodeficiency Syndromes Caused by Defects in AID-Mediated Ig Gene Diversification; 2.4.2 Regulating the DNA Mutator Activity of AID; 2.4.3 Misregulation of AID and Cancer; 2.4.4 AID Is But One Member of a Much Larger Family of Polynucleotide Deaminases; 2.5 Conclusions; Acknowledgments; References; CHAPTER 3 PROTEIN-PROTEIN AND RNA-PROTEIN INTERACTIONS IN U-INSERTION/DELETION RNA EDITING COMPLEXES; 3.1 A Bizarre Phenomenon and its Raison D'etre; 3.2 The Catalytic Mechanism and Machinery 3.3 Extent of U-Insertion/Deletion RNA Editing in Trypanosoma and Leishmania Species 3.4 Functional Studies of Editing Complex Subunits; 3.4.1 REN1, REN2, and MP67. Endonuclease Homologs; 3.4.2 REX1 and REX2. Exonuclease Homologs; 3.4.3 RET2. TUTase; 3.4.4 REL1 and REL2. Ligase Homologs; 3.4.5 MP81, MP63, MP42, MP46, MP44, MP24, MP18. Structural Components; 3.5 RNA-Protein Interactions: Isolated Subunits and Assembled Editing Complexes; 3.5.1 MP42; 3.5.2 MP24; 3.5.3 RNA-Protein Interactions in Assembled Editing Complexes; 3.6 Concluding Remarks; Acknowledgments; References CHAPTER 4 MACHINERY OF RNA EDITING IN PLANT ORGANELLES

Sommario/riassunto

RNA and DNA Editing assembles a team of leading experts who present the latest discoveries in the field alongside the latest models and methodology. In addition, the authors set forth the many open questions and suggest routes for further investigation. Overall, the book serves as a practical guide for professionals in the field who need to understand the interrelationship of RNA and DNA editing with other chemical and biological processes.
