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Nota di contenuto	Part 1. Synthesis of Natural Oligonucleotides -- Chapter 1. Non-protected Synthesis of Oligonucleotides -- Chapter 2. Various Coupling Agents in the Phosphoramidite Method for Efficient Oligonucleotide Synthesis -- Chapter 3. Recent Development of Chemical Synthesis of RNA -- Chapter 4. RNA Synthesis Using the CEM Group -- Chapter 5. Liquid-Phase Synthesis of Oligonucleotides -- Chapter 6. Large-Scale Oligonucleotide Manufacturing -- Part 2: Synthesis and Properties of Artificial Oligonucleotides -- Chapter 1. Nucleosides and Oligonucleotides Incorporating 2-Thiothymine or 2-Thiouracil Derivatives as Modified Nucleobases -- Chapter 2. Site-Specific Modification of nucleobases in oligonucleotides -- Chapter 3. Four-Hydrogen-Bonding Base Pairs in Oligonucleotides: Design, Synthesis, and Properties -- Chapter 4. Photo-Cross-Linkable Artificial Nucleic Acid: Synthesis and Property of 3-Cyanovinylcarbazole-modified Nucleic Acids and Its Photo-induced Gene-Silencing Activity in Cells -- Chapter 5. Effects of 2´-O-Modifications on RNA Duplex Stability -- Chapter 6. 2',4'-Bridged Nucleic Acids Containing Plural Heteroatoms in the Bridge Moiety -- Chapter 7. Synthesis and Therapeutic

Applications of Oligonucleotides Containing 2'-O,4'-C-Ethylene- and 3'-O,4'-C-Propylene-Bridged Nucleotides -- Chapter 8. RNA Bioisosters: Chemistry and Properties of 4’-ThioRNA and 4’-SelenoRNA -- Chapter 9. Development of Triplex Forming Oligonucleotide including Artificial Nucleoside Analogues for the Antigene Strategy -- Chapter 10. Chemical Synthesis of Boranophosphate Deoxyribonucleotides.

Sommario/riassunto

This book presents the latest knowledge on a broad range of topics relating to the synthesis of natural and artificial oligonucleotides with therapeutic potential. Nucleic acid-based therapeutics are attracting much attention, and numerous therapeutic oligonucleotides, such as antisense oligonucleotides, siRNAs, splice-switching oligonucleotides, and nucleic acid aptamers, are being evaluated in clinical trials for the treatment of a variety of diseases. Synthesis of Therapeutic Oligonucleotides covers a broad range of topics in the field that are of high relevance to researchers, including the synthesis of natural and chemically modified oligonucleotides, the development of novel nucleic acid analogs, industrial scale synthesis and purification of oligonucleotides, and important aspects of chemistry, manufacturing, and controls (CMC). The aim is to provide new insights and inspire fresh ideas in nucleic acid chemistry that may ultimately lead to novel concepts and techniques and the discovery of more effective nucleic acid drugs. The book will be of high value for both established researchers in the field and students intending to specialize in nucleic acid chemistry research.