## **Preface**

Several breakthrough findings in cell biology during the past three decades have urged the research of chemistry of nucleic acids and their constituents. These include recognition of RNA as a biocatalyst and antibody-like binding agent, highly selective inhibition of gene expression by single stranded DNA oligomers and double stranded RNA oligomers, and successful combat against viral diseases, above all human immune virus (HIV), with the aid of nucleoside analogs. Development of structurally modified nucleosides and oligonucleotides as drugs and artificial RNA and DNA based structures as selective catalysts and target-binding agents has largely been dependent on the contribution of chemists producing innovative molecular libraries for biological studies. Rapidly developing nanotechnology is another emerging field where the role of nucleic acid chemistry will undoubtedly by important. Finally, the central role of RNA in origin of life is an attractive field for nucleic acid chemists. This book is largely based on lectures that I gave in Turku University during more than two decades since early 1990s. I hope that graduate and advanced undergraduate students of organic chemistry who intend to specialize in the chemistry of nucleic acids and their constituents will find it useful. The book may also be of interest of biochemists and cell biologists who like to broaden their knowledge on basic chemistry of compounds with which they are working. The focus is on synthetic and mechanistic chemistry rather than on structural or analytical studies. In addition, the potential of nucleosides, nucleotides and oligonucleotides in drug development is briefly discussed.

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