

Recent Advances in Polynucleotide Synthesis

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Acknowledgement. We are delighted to express our gratitude to many colleagues who supported our work by sending us reprints, preprints and/or unpublished results for incorporation into this review. We wish also to acknowledge several grants from the Deutsche Forschungsgemeinschaft for the support of our own work to which reference is made here.

Introduction

During the past decade solutions of an increasing variety of problems in the field of molecular genetics have rested on the availability of synthetic polynucleotides. Thus, to cite only a few examples, the elucidation of the genetic code was based on synthesis of the 64 possible trinucleoside diphosphates and on the preparation of polynucleotides containing repeating sequences (186, 249). More recently the development of synthetic procedures has culminated in the total synthesis of two tRNA-genes (2, 188, 190). A further useful application has been demonstrated in the use of synthetic oligomers of specific base sequence as specific primers for DNA sequencing (247, 366, 379, 467). Because of the many problems which remain with respect to our understanding in gene function or to future gene manipulation, it seems not