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Oligoribonucleotides and Their 2'-O-Me-Analogs Carrying Alkylating and Intercalating Groups

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OLIGORIBONUCLEOTIDES AND THEIR 2'-O-Me-ANALOGS CARRYING
ALKYLATING AND INTERCALATING GROUPS

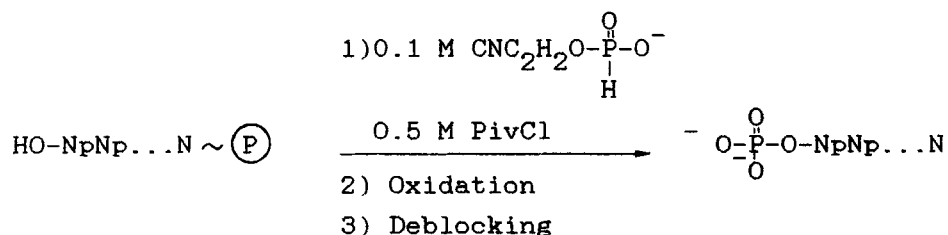
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Abstract. Oligoribonucleotides and their analogs carrying N-methyl-4 [(N-2-chloroethyl-N-methyl)amino]-benzylamino and N-(2-hydroxyethyl)phenazinium residue were synthesized.

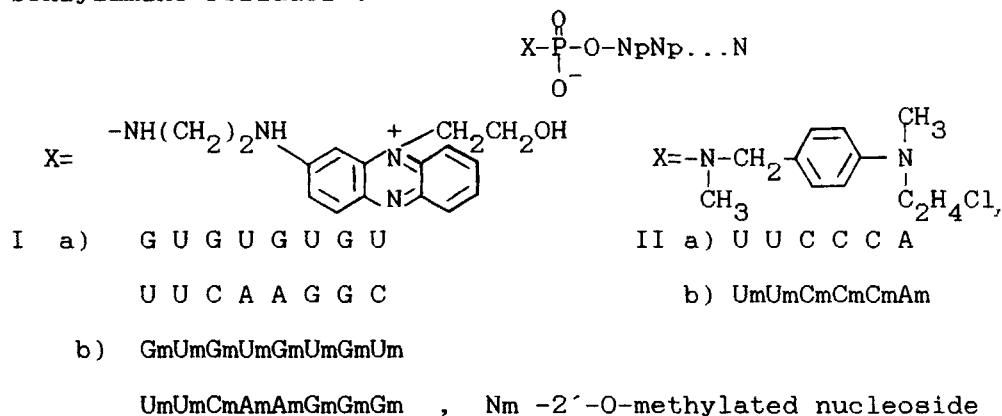
Oligoribonucleotides and their 2'-O-Me-analogs are regarded among the most promising antisense oligonucleotides¹. The data on chemical synthesis of these derivatives carrying alkylating and intercalating groups are presented. The oligonucleotides up to eight monomeric units in length were synthesized in "Victoria-5M" (USSR) and "Syngen-2" (CSR) automatic synthesizers by the H-phosphonate method and chromatographically isolated with the average yield of 45-65 %².

Oligonucleotide structures were confirmed by complete phosphodiesterase digestion followed by chromatographic analysis.

A simple and efficient method for the synthesis of 5'-phosphorylated oligonucleotides by cyanoethylphosphite has been developed³.



The oligonucleotides with 5'-terminal phosphate groups were converted into derivatives with N-(2-hydroxyethyl)phenazinium or N-methyl-4 [(N-2-chloroethyl-N-methyl)amino]benzylamino residues⁴.



Electron spectra of the oligonucleotides Ia and Ib had the same maximal absorbances as those observed for the oligonucleotide (260nm) and N-(2-hydroxyethyl)phenazinium residue (237,290,390 and 530nm).

Melting temperature of duplexes of the dodecadeoxyribonucleotide with the complementary oligoribonucleotide and its 2'-O-Me-analog with or without N-(2-hydroxyethyl)phenazinium group was higher than that of duplexes with analogous oligodeoxyribonucleotides.

The limiting extents of modification of model icozadeoxynucleotide by the compounds II a and b were comparable.

REFERENCES

1. A.J. Lamond, B. Sproat, U. Ryder, J. Hamm, Cell., 1989, 58, 383.
2. A.G. Venjaminova, Z.A. Kossolapova, M.N. Repkova, Bioorgan. Chem. 1990, 5, 635.
3. A.G. Venjaminova, M.N. Repkova, N.A. Chentsova, A.S. Levina, Bioorgan. Chem. 1989, 15, 844.
4. V.F. Zarytova, I.V. Kutyavin, V.N. Silnikov, G.V. Shishkin, Bioorgan. Chem. 1986, 12, 911.