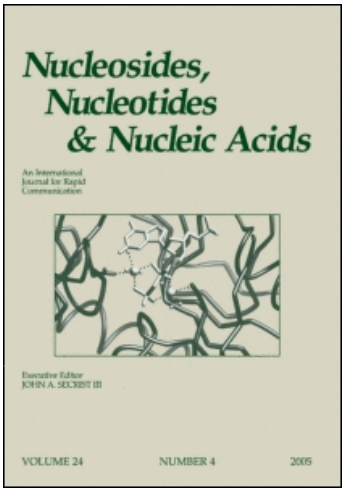

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Oligoribonucleotide Synthesis by the Phosphite Procedure from 2'-Dimethoxytritylated Nucleosides

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OLIGORIBONUCLEOTIDE SYNTHESIS BY THE PHOSPHITE PROCEDURE FROM 2'-DIMETHOXYTRITYLATED NUCLEOSIDES

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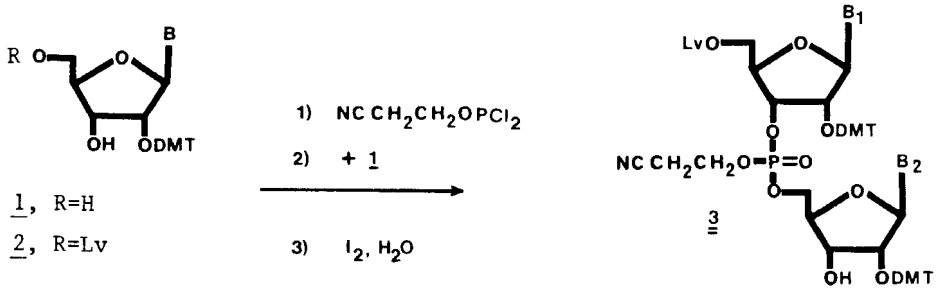
Summary: 2'-Dimethoxytritylated ribonucleosides were prepared and condensed with cyanoethyl phosphodichloridite to form oligoribonucleotides.

For the synthesis of ribonucleotides the choice of protecting groups is crucial. The protecting groups influence the efficiency of coupling steps, the ease of work-up, and the success of deprotection. The dimethoxytrityl group was investigated with regard to these questions.

Compounds 2 were prepared by tritylation of the respective 3',5'-di(t-butyldimethylsilylated) nucleoside[1] followed by the removal of the silyl groups to give compounds 1 which were selectively levulinated[2] at the 5'-position to give 2.



1, R=H

2, R=Lv

B=U,N-BzC,N-BzA,N-BzG

Compound 2 was condensed successively[3] with β-cyanoethyl phosphodichloridite and compound 1 to give the dinucleotide 3 which is abbreviated as Lv-UC-OH (C has Bz at N-4). The removal of the Lv group with hydrazine gave HO-UC-OH which was condensed with 2 to give Lv-AUC-OH in good yield. The chains could be extended from the 3'-end

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as shown by the synthesis of Lv-UUU-OH and Lv-AAG-OH from Lv-UU-OH and Lv-AA-OH respectively. The block condensation of two trimers, Lv-AAG-OH and HO-AUC-OH, produced the hexamer Lv-AAGAUC-OH. The oligomers were deprotected in two steps: base removal of Lv, Bz and cyanoethyl groups followed by acidic removal of the DMT groups. Free nucleotides were characterized by enzyme degradation. No evidence of 3'-3' linkages in the products was found.

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