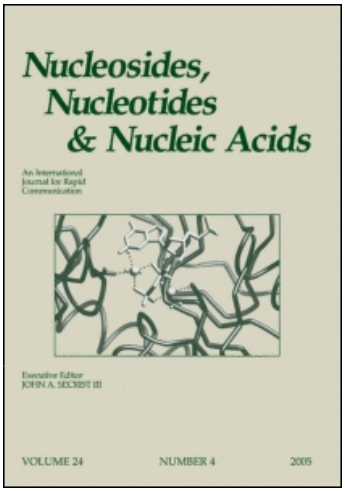

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New Strategies for Chemical Synthesis of Phosphorodithioates Derived from 2'- or 3'- or 5'-Thionucleosides

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NEW STRATEGIES FOR CHEMICAL SYNTHESIS OF PHOSPHORODITHIOATES DERIVED FROM 2'- or 3'- or 5'-THIONUCLEOSIDES

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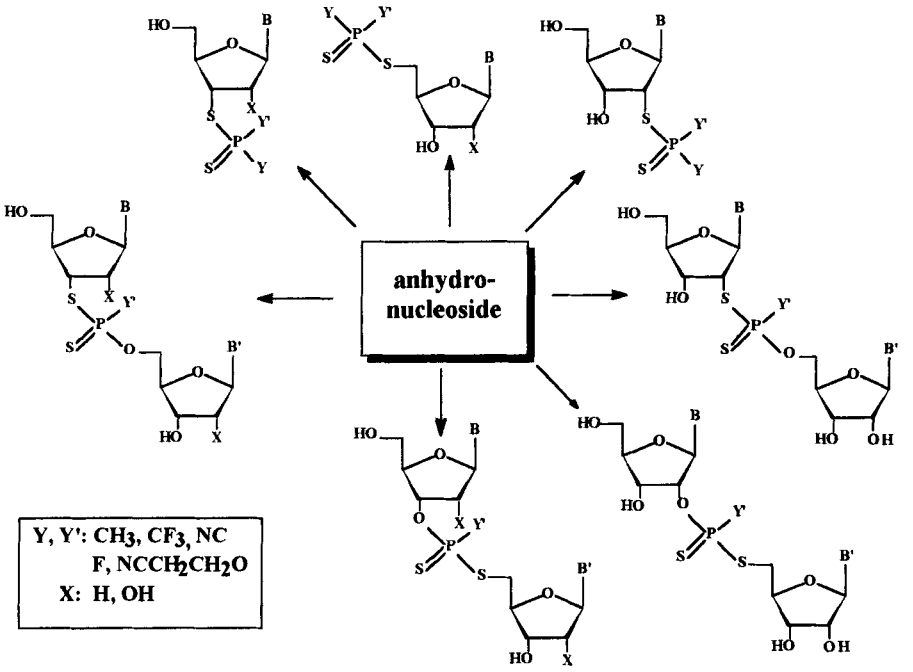
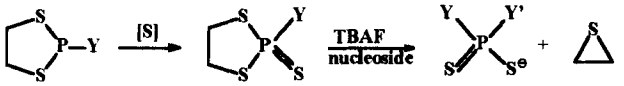
ABSTRACT: Various phophorodithioates derived from thionucleosides were synthesis by the reaction anhydronucleosides with phosphorodithioic acids

(Oligo)nucleotide analogues containing phosphorothiolate linkages[1] are valuable for investigating the biochemistry of nucleic acids.[2] We have found that 2, 3'-anhydro-thymidine reacts with phosphorus dithioacids to phosphorodithioates derived from



3'-thiothymidine.[3] Here we present generality and efficiency this method for the synthesis of nucleotides with internucleotide linkage P(S)-S-C

Our method required disclose the efficient synthesis of phosphorodithioic acids **1**. Therefore we have propose now a novel synthesis of the compounds **1** *via* 1,3,2-dithiaphospholane derivatives **2.** The roots of this approach was derived from dithiaphospholane methodology.[4] The protocol we have developed involves two consecutive reactions: sulfurization of the compound **2** to form the compound **3** and finally the reaction with nucleophile to formation of the desired acid **1**.



2 3 1

Y: nucleosid-5'-yl, nucleosid-3'-yl, CH_3, CF_3, NC, $(CF_3)_2CHO$, $(CH_3)_3CO$	TBAF: **Y' : F**
Y: CH_3, CF_3, NC, citronellyl, cholesteryl, $(CF_3)_2CHO$, $(CH_3)_3CO$	nucleoside / DBU **Y':** nucleosid-5'-yl, nucleosid-3'-yl

General procedure: A solution of anhydronucleoside and phosphorodithioate **1** in MeCN was acidified with toulene-*p*-sulphonic acid. After 2-12 h at 20^0 C the reaction mixture was concentrated *in vacuo.* The product was isolated by silica gel chromatography.

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