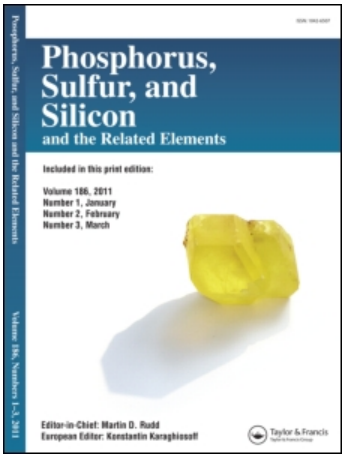

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Chlorophosphatebetaines as Phosphorylating Agents in Nucleotide Synthesis

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CHLOROPHOSPHATEBETAINES AS PHOSPHORYLATING AGENTS IN NUCLEOTIDE SYNTHESIS

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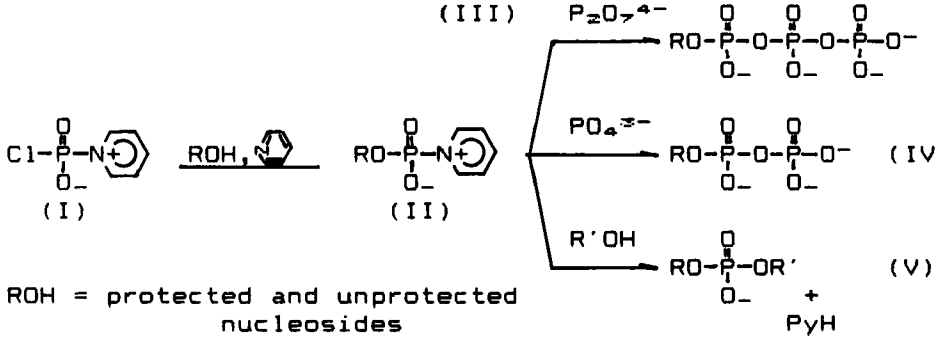
The Chlorophosphatebetaine (I), synthesized 1981 by Meisel and Wolf (1), was applied in one-bottle approach for synthesis of nucleoside di- and triphosphates or dinucleotides in µmol-scale with good yields (2).



ROH = protected and unprotected nucleosides
R'OH = ROH, other alcohols
The reactivity of P-Cl- and P-N+ -bond to OH-groups of nucleosides was studied.

(I) reacts with 2',3'-isopropylideneuridine in absolute pyridine to (II), which is indicated in the ^{31}P-NMR by a triplet signal of 4.7 ppm upfield with J = 7 Hz. The P-Cl-bond in (I) reacts like $POCl_3$ with primary OH-groups in 3'acetylthymidine about thirty times faster than with the secondary OH-groups in 5'-tritylthymidine. (II) reacts fastly with nucleophilic reagents $P_2O_7^{4-}$, HPO_4^{2-} or R'OH in excess in the same solvent to give the products (III), (IV), (V).

Results obtained with a dithioderivate (3) of betaine (I) will be included in the discussion.

(1) G. U. Wolf, M. Meisel, Z. Chem. 22 (2), 54 (1982).
(2) E. Bauschke, M. Meisel, Th. Brankoff, DDR-Patent, WP C07H/223311 (2.12.1981).
(3) M. Meisel, H. Grunze, Z. anorg. allg. Chem. 360, 277 (1968).