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MONOTHIOPHOSPHATE ANALOGS OF DINUCLEOSIDE TETRAPHOSPHATE

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Summary : Monothiophosphate analogs of dinucleoside tetraphosphates have been synthesized in order to study their resistance towards the specific hydrolase of *E. Coli*.

Dinucleoside polyphosphates, especially Ap_4A and Gp_4G are found in certain cells and tissues where they act as signal nucleotides in the cell growth regulation : their concentration correlates with the rate of protein synthesis and the compounds are activators of DNA replication.

Our target was to synthesize, among many other derivatives, the monothiophosphate analogs of these unusual nucleosides, in order to study their biological activity.

For this purpose the following sequence of reactions was performed. The starting material i.e. 2',3' O-isopropylidene derivatives of Adenosine and Guanosine [A(Ip) and G(Ip)] were thiophosphorylated in respectively 60 and 44 % yield by using $PSCl_3$ in pyridine and gave A(Ip)MPS and G(Ip)MPS. These compounds were activated by diphenylphosphorochloridate in order to react with ATP or GTP. In this way after deblocking of the O-isopropylidene group the expected dinucleotide tetraphosphate analogs Apppp(S)A, Apppp(S)G and Gpppp(S)G were obtained with 10 % yield.

These analogs are subjected to studies concerning their activity towards the hydrolase of *E. Coli* and the steric requirement of the enzyme.