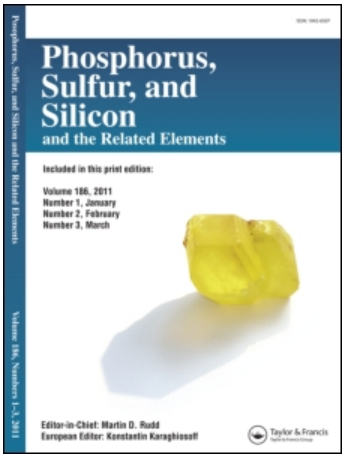


Phosphorus, Sulfur, and Silicon and the Related Elements
Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t713618290

Synthetic, Structural and Biological Studies on Cyclic 3',5'-Nucleotide Analogs and Derivatives

J. Beres[a]
[a] Central Research Institute of Chemistry, Budapest, Hungary

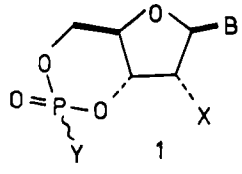
To cite this Article Beres, J.(1990) 'Synthetic, Structural and Biological Studies on Cyclic 3',5'-Nucleotide Analogs and Derivatives', Phosphorus, Sulfur, and Silicon and the Related Elements, 51: 1, 376
To link to this Article: DOI: 10.1080/10426509008040903
URL: http://dx.doi.org/10.1080/10426509008040903

Phosphorus, Sulfur, and Silicon, 1990, Vols. 51/52, p. 376
Reprints available directly from the publisher
Photocopying permitted by license only

SYNTHETIC, STRUCTURAL AND BIOLOGICAL STUDIES ON CYCLIC 3',5'-NUCLEOTIDE ANALOGS AND DERIVATIVES

J.BÉRES
Central Research Institute of Chemistry,
H-1025 Budapest, Hungary

Cyclic 3',5'-monophosphates (with the general formula I) of 5-alkylcytidines, 5-alkyl-2'-deoxyuridines, 5-halocytidines, 5-halouridines and 5-halo- and 5-(trifluoromethyl)-2'-deoxyuridine have been synthesized and evaluated for their antiviral and antitumor properties.



1

Methods for the preparation of cyclic 3',5'-monophosphate P-O-alkyl (aralkyl) esters of 5-substituted-2'-deoxyuridines and ribonucleoside 3',5'-cyclic N-substituted phosphoramidates have also been elaborated. Analysing the ^{13}C NMR data, correlations suitable for determining the specific geometry at the phosphorus atom in nucleoside 3',5'-cyclic monophosphate P-O-alkyl (aralkyl) esters and N-substituted phosphoramidates were observed. Enzymic studies (cAMP-dependent protein kinase type 1) showed that pyrimidine ribonucleoside 3',5'-cyclic phosphates are also capable of interacting with the enzyme but to a much less extent than cyclic 3',5'-ribonucleotides with adenine ring. Comparative antiviral and antitumor evaluations showed the 5-fluoro and 5-trifluoromethyl analogs significantly active against DNA virus strains and in the growth inhibition of murine and human tumor cells. A certain group of the compounds exhibited remarkable activity against thymidine kinase deficient herpes simplex virus type 1.