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## Nucleosides, Nucleotides and Nucleic Acids

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### Enzymic Phosphorylation of Some 5-Aminoimidazole Nucleosides to the 5'-Phosphates

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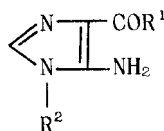
ENZYMIC PHOSPHORYLATION OF SOME 5-AMINOIMIDAZOLE  
NUCLEOSIDES TO THE 5'-PHOSPHATES

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Phosphotransferases from wheat<sup>1</sup> shoots and a suitable phosphate donor have been used for the specific conversion of unprotected pyrimidine and purine nucleosides and some analogues into nucleoside 5'-phosphates. We have been interested to investigate the application of this technique to the phosphorylation of 5-aminoimidazole nucleosides to afford corresponding 5'-phosphates related to intermediates in purine nucleotide *de novo* biosynthesis. Several D-ribofuranosyl, D-xylofuranosyl and D-arabinofuranosyl 5-aminoimidazoles have been successfully phosphorylated (TABLE) to 5'-phosphates using a phosphotransferase from wheat shoots and *p*-nitrophenylphosphate as a phosphate donor.

TABLE



	yield of Nucleotide <sup>+</sup> (%)
(1) R <sup>1</sup> = OEt, R <sup>2</sup> = β-D-ribofuranosyl	23
(2) R <sup>1</sup> = OEt, R <sup>2</sup> = α-D-xylofuranosyl	24
(3) R <sup>1</sup> = OEt, R <sup>2</sup> = β-D-arabinofuranosyl	41
(4) R <sup>1</sup> = OEt, R <sup>2</sup> = 2,3-O-isopropylidene-β-D-ribofuranosyl	28
(5) R <sup>1</sup> = NH <sub>2</sub> , R <sup>2</sup> = 2,3-O-isopropylidene-β-D-ribofuranosyl	37
(6) R <sup>1</sup> = NH <sub>2</sub> , R <sup>2</sup> = α-D-ribofuranosyl	9
(7) R <sup>1</sup> = OEt, R <sup>2</sup> = 2,3-O-isopropylidene-α-D-ribofuranosyl	18
(8) R <sup>1</sup> = OCH <sub>2</sub> Ph, R <sup>2</sup> = β-D-ribofuranosyl	80
(9) R <sup>1</sup> = OCH <sub>2</sub> Ph, R <sup>2</sup> = 2,3-O-isopropylidene-β-D-ribofuranosyl	74

+ Yields were determined by direct weighing of purified solid nucleotides.

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- Giziewicz, J; Shugar, D. "Nucleic Acid Chemistry". Townsend, L.B; Tipson, R.S. eds., Plenum Press, 1979, p.955 and references.