Waters
Lab Highlights
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FASTER ANALYSIS OF CYCLIC NUCLEOTIDES ON RADIAL-PAK™ μBONDAPAK™ C_{18}

Cyclic nucleotides comprise a special class of compounds in nucleic acid chemistry. The structures of these compounds are analogous to nucleotides in that they contain a purine or pyrimidine base bonded to a sugar moiety, either β-D-ribose or β-D-2-deoxyribose, to which is bonded a phosphate group. In a nucleotide compound, the phosphate group is linked to the sugar via a phosphate ester linkage. The linkage is usually formed at the C-5 position but can also form at the C-3 position of the pentose. Cyclic nucleotides are synthesized in vivo from the corresponding 5'-triphosphate nucleotide by the action of a specific membrane-bound cyclase enzyme. They contain two ester linkages between a single phosphate group and the C-3 and C-5 positions of the pentose.

Many investigators have utilized anion exchange methods for the chromatography of cyclic nucleotides. However, an alternative procedure for complete cyclic nucleotide determinations using reversed-phase packings has been reported by Krstulovic, et. al.[1] A simple 25 minute gradient system on a μBONDAPAK™ C_{18} column was utilized to generate the chromatography. The method has been extended to the Z-Module™ RCSS with a Radial-PAK™ μBONDAPAK™ C_{18} cartridge and accelerated to provide reduced sample analysis times.

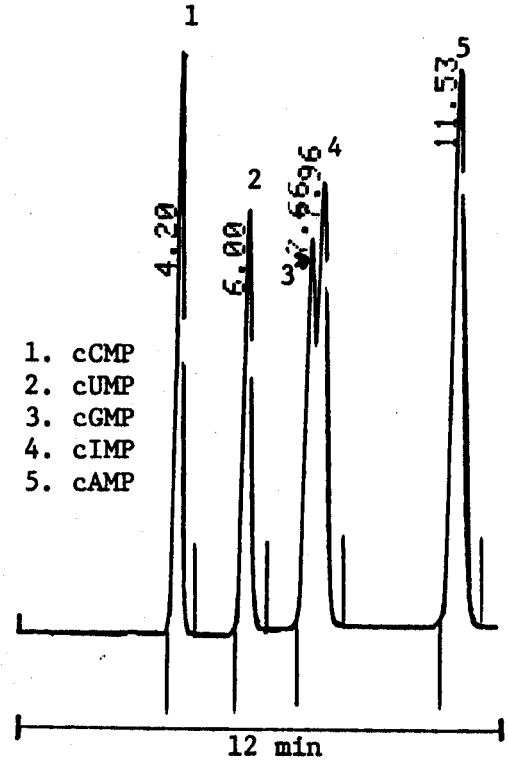
Column: Radial-PAK™ μBONDAPAK™ C_{18}

Eluents: A: 0.02M KH_2PO_4 pH 3.7
B: CH_3OH/H_2O (60:40)

Gradient: 0% ——> 25% B
Curve 6 in 17.3 mins.

Flow Rate: 4.0 ml/min

Detector: M440; 254 nm



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1. A. M. Krstulovic, R. A. Hartwick, and P. R. Brown, Clin.Chem. 25/2, 235-241 (1979).