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OAK RIDGE NATIONAL LABORATORY
OPERATED BY
CARBIDE AND CARBON CHEMICALS DIVISION
UNION CARBIDE AND CARBON CORPORATION



POST OFFICE BOX P
OAK RIDGE, TENN.

March 15, 1951

Dr. Arthur Kornberg
Federal Security Agency
Public Health Service
National Institutes of Health
Bethesda 14, Maryland

Dear Arthur:

Volkin and I are not quite with you in your discussion of our "a, b" nucleotides. We do not see why there should only be one type of linkage, be it 5' or 3'. We would like to think of at least two kinds, one in greater number than the other. We hope that something like our new diphosphates may prove to be the junctions between similar polynucleotides in the intact nucleic acid. Also, as Volkin pointed out to me today when we were discussing these matters, there are two bonds for each phosphorus atom so that summation of all phosphorus linkages is 200% of the amount of phosphorus^{or} of all mononucleotides present. At any rate, we think we are on a profitable tack as far as chemical structure is concerned.

Doherty and I are in agreement on the following: the chemical evidence is in the same state as the enzymatic evidence with regard to the structure of the "a" nucleotides; both are not unequivocal. Enzymes which differentiate between alpha and beta isomers are known; phosphomigration and ^{single} phosphates doubly bound to a single sugar molecule are also known. The problem is right where it was a year ago and it will remain there until someone like Todd synthesizes a 2' nucleotide or the cyclic phosphorus compound referred to or until better degradative conditions are worked out. Doherty feels that Todd will be the one to do these jobs and has sent him a gram of each of the adenylic acids of the highest purity.

We have used up the last of that wonderful preparation of bull semen 5' nucleotidase that Leon sent Carter a long time ago. Before we start on the job of preparing some for ourselves, we would like to know whether Leon would consider letting us have some more, that is assuming he has any on hand. It was a great help to have this preparation on hand, as you can well imagine.

Dr. Arthur Kornberg

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March 15, 1951

I am afraid that I cannot get to Boston, much as I would like to, but do hope to see you in Cleveland. Are you going to the Gordon Conference the last week in August?

Best regards to Bernie and Leon.

Sincerely,



Waldo E. Cohn

WEC:cee