

February 6, 1951

Dr. Henry A. Lardy
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The University of Wisconsin
1702 University Avenue
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Dear Henry:

I was happy to get your letter and especially the information that you may have isolated uridine triphosphate from muscle. I remember very well the data which Kuby showed me when I was in Madison, but, as you point out, the impression at that time was that you might be dealing with adenosine tetraphosphate. In view of the lower absorption coefficient of uridine and cytidine, this must have been a mixture containing some adenosine polyphosphate as well.

The history of our interest in UTP goes like this: When Leloir's work came out, I wondered whether UTP might be a condensing agent like ATP forming a pyrophosphate bridge with glucose-1-phosphate. Recently Ted Park (at Camp Detrick) was kind enough to send me some uridine diphosphate isolated from his Staph. aureus compound. We observed that in a system containing phosphopyruvate and a rather purified transferring enzyme from rabbit muscle, there was a quantitative conversion to uridine triphosphate. We did some preliminary work with UTP and glucose-1-phosphate in yeast extracts, but the results are too uncertain to be relied upon. At the moment our chief concern is to get adequate amounts of uridine diphosphate for further work. We have had very poor luck with yeast as a source material, the yields being far lower than anticipated from Leloir's report. We are just about to try to prepare it from Staph. aureus according to Park and Johnson's method.

Since the enzymatic synthesis of UTP was carried out in a rather purified system and we have not had the problem of separating it from adenine compounds, I probably cannot be of much help on your separation problem. I might suggest this, however: In some other work we were doing recently, we attained very handsome chromatograms of ATP on Dowex-1 chloride using .01 M HCl in .05 M NaCl as the eluting agent. Also, it is my impression that the ability of mercuric salts to precipitate ATP in acid solution is related to the amino group, and this might prove to be a means of separation.

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I am planning to present this work at the ACS meetings in Boston in April, and I wonder whether you will be attending these sessions. In any case, I will try to keep you informed of our progress in this work, and will, in turn, be very grateful for information about what you folks are finding out.

With best regards to you and Mr. Kuby,

Sincerely yours,

Arthur Kornberg

AK:rsb