

May 21, 1962

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Dear Tetsuo:

While I still have the matter fresh in mind I wanted to rush this note back to you which is a continuation of our discussion at the airport. Did I already bring up the possibility with any explicit experimental suggestions of finding mutants whose flagella forming ribosome - perhaps we should just call this now a flagellasome although there is almost certainly some other and more suitable name than basal granule - is independently resistant to some antibiotics compared to the other protein synthetic mechanisms of the bacterium. In fact it may be rather easy to select for such mutants if they exist as being organisms which are capable of regenerating their flagella in the presence of inhibitory concentrations of the various drugs. These organisms should be motile and this would give some basis for selection even if they are prevented from proliferating by the general inhibition of protein synthesis.

It should be pretty obvious what important advantages such strains could furnish in addition to the information they give on the separation of the protein forming systems. For example, they might be the ideal material for the production of large quantities of flagellin, the synthesis of which might go on in inhibited cells which were unable to form any other protein. It would probably be advisable to use a monophasic strain for the initial experiment in case there is any alteration of flagellasome with phase variation.

It may be important to use chloramphenicol and tetracycline in these experiments as well as streptomycin since the latter seems to be a special case in experiments on the behavior of isolated ribosomes from resistant organisms. You may remember some of our discussions about this with Dr. Yokota.

The paper by Spotts and Stanier that we were discussing appeared in Nature for November 18, 1961 on page 633. They also refer to papers by Erdos and Ullmann in Nature 185, 100, 1960 and 183, 618, 1959 which should also be brought to Dr. Yokota's attention.

The possibility that there are several independent ribosome systems may conceivably be related to the multi-step pattern of resistance to the antibiotics, each different step corresponding to some independent ribosomal pattern. Except for the flagellasome it would be a serious mistake to distract you with these general issues, but the flagellasome perhaps forms one of the most convenient and directly selectable systems to study this problem. Its importance for the general problems of differentiation should be obvious.

Iino

Dr. Iino

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I am sure there are innumerable notes for other things to comment and discuss and you will hear further from me before very long. Our best