



SECTION OF BIOCHEMISTRY, MOLECULAR AND CELL BIOLOGY

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N.Y.S. College of Agriculture and Life Sciences

A Statutory College of the State University  
COLLEGE OF ARTS and SCIENCES

DIVISION OF BIOLOGICAL SCIENCES

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Dr. Maxine Singer, Chief  
Laboratory of Biochemistry  
National Cancer Institute  
Room 4E-28, Building 37  
National Institutes of Health  
Bethesda, Maryland 20205

Dear Maxine:

This letter refers to our telephone conversation of yesterday. I am anxious to continue what has been a mutually useful collaboration with Dr. Claude Klee. During three previous visits as a Fogarty Scholar (3 months, 4 months and 4 months), we investigated the interaction of cAMP-dependent and  $Ca^{2+}$ -calmodulin dependent protein kinases in brain extracts. We also carried out a study on a partially purified brain fraction and demonstrated that it phosphorylates large tryptic fractions of calmodulin in a highly specific way, although its action on calmodulin itself is slight. A manuscript is ready for submission, and in this manuscript, we also dispute a published claim that phospho-calmodulin exists in embryonic chick brain. Finally, we completed another study in which we confirmed the existence of oncomodulin but found that it did not have the enzymatic activity which others had claimed. This has been published (Klee and Heppel, Biochem. Biophys. Res. Commun.).

During the past winter, Dr. Klee and I started a new project on the role of cAMP dependent phosphorylations in the differentiation of neuroblastoma-glioma hybrid cells in culture. Under the influence of dibutyryl cAMP in the medium, they form synapses with co-cultured muscle cells. Dr. M. Nirenberg is interested in this project and supplies cultures of wild-type and variant cell lines and assists in other ways. Early results have been encouraging. I keep in touch with Dr. Klee and Dr. Nirenberg's technician by phone, and the research at the moment is moving ahead in Ithaca. I am anxious to spend two months on this project at N.I.H. during the coming year. Dr. Condliffe is trying to arrange a final month of support for my Fogarty Scholarship, but previous experience tells me that 2 months is a minimum time to make a working visit really worthwhile. I would like to label the differentiated and the control cells with [ $^{35}S$ ]-thiophosphate and separate the thiophosphorylated proteins induced by differentiation on mercury columns as described by Allfrey (Rockefeller). It would take a month just to set up the system. The financial arrangement that you mentioned on the telephone is quite satisfactory, and I am grateful for any possible assistance in arranging a second month for this visit.

Sincerely yours,

Leon A. Heppel  
Professor of Biochemistry, Molecular  
and Cell Biology

LAH:ves