## IMPERIAL CANCER RESEARCH FUND LABORATORIES

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P.O. BOX NO. 123 LINCOLN'S INN FIELDS, LONDON, WC2A 3PX Cables: Cancerch

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Dr. Harold E. Varmus, University of California, School of Medicine, Dept. of Microbiology, San Francisco, California 94143, USA.

4 October 1977

Dear Harold,

Sorry to be so long in answering your letter, it arrived just after I left to go to the USA. I believe some clarification is necessary about genetic engineering here in the ICRF and in Britain.

As you know an application is made to GMAG for each genetic engineering experiment. GMAG will specify the type of containment facility in which the experiment should be done and may also give other advice as to vectors, hosts and experimental details. They will also come and inspect a facility of the 3 or 4 category. GMAG's application form requires a number of official signatures including, Chairman of local safety committee, safety officer and employer.

Any experiment coming from ICRF must come from an ICRF employee, although other names including visitors can be included. Also according to Stoker the experiment must be in the interests of people at the ICRF. Experiments when proposed are first approved by the Biological Safety Officer. Then they must be approved by the Safety Committee and finally must be approved by the ICRF Council (board of directors) before the necessary signature can be obtained. After all this, the application is sent to GMAG who consider it at their next meeting (they meet once a month).

From the above information I hope it is clear that you cannot apply by yourself to GMAG to work on genetic engineering at ICRF. (I enclose the application, anyway). I am also not clear on what you will actually be working at ICRF when you arrive. I am now more acquainted with the ways of GMAG from applications I or others have made, and also from some of the GMAG subcommittee I sit on. In my opinion the cloning of the integrated genomes of MuLV and MMTV and the TK of pseudorabies would all be classified as type 4 at the present time. Possibly if you could convince GMAG you would lose the tumourogenic ability of MuLV they might consider it as a 3.

At present I am the only person at ICRF involved in genetic engineering and have been involved in getting a small British-type 3 lab set up which has been approved by GMAG and should be functional this week. I myself will be trying to clone rodent genes including TK using polyoma virus DNA and TK cells and see no reason to clone a viral TK. Joe Sambrook and I had a proposal approved by GMAG to clone cDNA from an eukaryotic mRNA in a procaryotic vector. We have not set the system up yet as the cDNA is not made (Sambrook is now back in CSH working on this). At present I have little experience with procaryotic systems.

Until I know where at ICRF you will be working and on what experiments I don't think I can make any more useful suggestions. I hope I have made the procedures for genetic engineering here clearer to you. Please let me know what you decide.

All the best,

Mike Fried