


June 30, 1988

Dear Tosh:

Thank you for agreeing to participate in the July 6 review of The Salk Institute research program on the "Molecular Cloning, Functional Analysis and Biotechnological Manipulation of Rice Protein Kinase and Plasmamembrane ATPase Genes." A progress report and renewal proposal are enclosed. The purpose of this letter is to provide you with terms of reference for the review.

First, I think it would be useful to provide some background on the Foundation's rice biotechnology program and to indicate where we see it heading over the next 3-4 years. Rice is by far the most important food crop in the developing world. Yet in the early 1980s, it was being neglected with regard to development of new crop improvement technologies based on advances in cellular and molecular biology.

In December 1984, the Rockefeller Foundation trustees approved a long-term mission-oriented program intended to assure that new biotechnologies were developed for rice and that they were applied to rice improvement in the developing countries. When the program was initiated in 1985, little was known concerning rice cellular and molecular biology, and few if any of the tools required to do biotechnology research had been developed for rice. In order to generate the necessary tools, establish a knowledge base, and take advantage of progress being made with other plant systems, the Foundation sought to establish rice research programs within several leading plant molecular and cellular biology laboratories. These projects can be viewed as the more fundamental components of the overall program (description also enclosed). It is our hope that this research will generate the techniques, materials and knowledge necessary to do more applied work, that rice will become a test organism for a broader range of research being conducted at these institutions, that excellent young scientists will be trained to work on rice, and that over time progress will be sufficient to attract additional scientists and additional sources of support for continuation and expansion of research on rice. We realized that introducing a new and relatively unknown plant system into these laboratories would be difficult and risky, and that it might take a year or so of working with rice before productive research could be conducted. We have also allowed the principal investigators considerable flexibility to focus on those lines of research within their areas of expertise that looked the most promising once they had become familiar with the rice system.

Progress has been made and in many ways rice turned out to be a better research organism than we had anticipated. Several laboratories are now able to regenerate plants from protoplasts, some laboratories are

reporting success with transformation, and a complete RFLP map of rice is available and published. Much remains to be accomplished but useful tools and promising results are becoming available.

The Foundation's program is mission-oriented and it should evolve over the next 3-4 years toward its goal of rice genetic improvement. Foundation support for lines of research that have proven unproductive will be phased out. Where progress is being made, support will be provided for continued development of biotechnologies and their application to genetic improvement of rice varieties important in the developing world. Additional research programs focused on important agronomic traits will be initiated. Greater emphasis will be placed on technology transfer and application. In selected developing countries, the Foundation will help to build the scientific capacity necessary to generate as well as apply rice biotechnologies.

The above comments provide the background and overview. The following concerns the Foundation-supported rice research program headed by Dr. Christopher Lamb at The Salk Institute. The objective of Dr. Lamb's research is to characterize rice ATPase and protein kinase genes which potentially could be manipulated to influence agronomic traits of rice. The following are the questions we would like to address during the review.

1) Has a significant commitment been made to research on characterizing these rice genes? Is the level of commitment commensurate with the level support provided? Grants totalling \$217,655 have been awarded over the three-year period ending July 31, 1988.

2) Is adequate progress being made? Are significant and/or useful protocols, materials and findings being produced and disseminated to the scientific community? Are important publications being generated.

3) Has this research program reached a level of high productivity or is it still in the building phase? If it is in the building phase, has a solid foundation been established for a program that should become highly productive in the near future?

4) Does the proposed future research plan address important unresolved issues? Is it realistic? Is it consistent with the intended evolution of the Foundation's rice biotechnology program?

5) Are other research programs (i.e. those not supported by the Foundation) of the laboratory/institute contributing to the success of the rice research program? Are there likely to be significant opportunities in the future whereby the rice program can benefit from this larger effort?

6) Have excellent young scientists been selected to participate in the program? Is their performance consistent with what one would expect of graduate students and postdoctoral fellows working at The Salk Institute?

7) If Foundation funds are being used to support research on plant systems other than rice, is such research necessary in order to meet the objectives of the rice research program?

I hope this provides you with an adequate understanding of the issues and questions we would like to address during the review. Basically we need to decide if the commitment, progress, and potential of this research program warrants renewed support.

I look forward to seeing you at 10:00 a.m. on July 6. Dr. Lamb's office (619-453-4100, Ext. 106), can provide you with additional information concerning arrangements. The Foundation will reimburse your travel expenses and provide an honorarium.

Thank you again for your assistance.

Sincerely,

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