

## Acknowledgements

I would like to express my gratitude to Dr. Hideo Tanaka, Professor of the Institute of Applied Biochemistry, University of Tsukuba, for his heartfelt guidance and various advice.

This doctoral thesis would not have been accomplished without the excellent support of Master of Science, Masami Uebayasi, National Institute of Advanced Industrial Science and Technology. His helpful discussions and continued support were a great help to me.

I wish to express my sincere appreciation to Professor Tadashi Baba, Professor Akiyoshi Fukamizu, and Professor Kunio Yamane for providing valuable comments and suggestion which helped me to improve the quality of this work.

I am also thankful to the member of our laboratory, Mr. Hiroshi Nagasaki for his assistance.

Finally, I am indebted to my husband, Toshihiko Ohfuku, for his appreciation of my interests, and also my children, Kyoko, Ryosuke and Tomoko.