

## IV Acknowledgements

First of all, I must give very special thanks to Prof. Takehiko Saito who offered many helpful criticisms over the years and allowed me to finish this dissertation. He gave me the opportunity to study for becoming a scientist.

I am grateful to Prof. Yoshimasa Tanaka and Prof. Ryohei Kanzaki of the Institute of Biological Sciences, the University of Tsukuba and Prof. Masahiro Yamada of Department of Production and Information Systems Engineering, Tokyo Metropolitan Institute of Technology for their critical reading of the manuscript and their valuable comments.

I am grateful to Prof. Andrew T. Ishida of the Section of Neurobiology, Physiology, and Behavior, University of California, Davis, for his critical reading of the manuscript in many times and for his valuable suggestions.

I am grateful to Prof. Robert B. Barlow of the Section of Neuroscience/Ophthalmology, State University of New York Upstate Medical University for his critical reading of the manuscript, helpful suggestions, and generous support.

I especially thank to Assistant Prof. Chikafumi Chiba of the Institute of Biological Sciences, the University of Tsukuba for his valuable technical advice and a lot of suggestions. I learned the fundamentals of patch-clamp methods from him.

I wish to thank Dr. Fuminobu Tamalu of Department of Physiology, Saitama Medical School and Dr. Eun Woo Cheon of Department of Anatomy

and Neurobiology, College of Medicine, Gyeongsang National University for their helpful advice and generous support.

I wish to thank Dr. Yumiko Umino and Ms. Motoko Ohmasa who have constantly encouraged me and are sharing so many precious memories.

I would like to thank Ms. Anna Bowen for kindly reading and correcting the English of the manuscript.

I would like to thank all the members of Prof. Takehiko Saito's Lab for their valuable discussions. I would also like to thank Prof. Mihoko Takahashi, Associate Prof. Kei Nakatani, Associate Prof. Hiroshi Yamagishi and Assistant Prof. Kazunori Oami of A1 group, the Institute of Biological Sciences, the University of Tsukuba who have always concerned me and gave me valuable advice.

Finally, I wish to express my deepest appreciation for my parents Masakazu and Sachiyo, my grand mother Chiyoko, my brother Yasuyuki and my sister-in-law Yuki for ensuring that my education would be the best as possible.