Acknowledgement

At the very beginning, I am extremely grateful to Padmashri Dr. G. C. Mishra, Director, NCCS, Pune, for granting me permission, financial support and regular encouragement to fulfill my research interest in the Institute.

I bear an absolute pleasure in expressing my extreme gratitude and indebtedness to my revered teacher and guide Dr. P. B. Parab, Ex-Scientist, National Center for Cell Science, Pune. Through him, I have learnt the nuances of research and the various techniques that are the very foundation for research. Without his patient indulgence of my adventures in experimental science and his penetrating criticism, my training in biology would have remained incomplete.

I feel short of words for expressing my sincere and profound gratitude to Dr. Sangeev Galande, Co-guide, for his valuable guidance in molecular characterization, useful suggestions and his keen interest in watching the progress throughout the period of research work.

I render my sincere thanks to other members of the committee, Dr. R. R. Bhonde, Senior Scientist and Dr. M. R. Wani, Scientist, National Cell for Cell Science, Pune for their valuable advice, constructive criticism and helpful suggestions during the period of this study. I sincerely expressed my thanks to Dr. V. Seshadri for the interaction and review of the manuscript.

I feel immense pleasure in expressing thanks to Dr. (Mrs.) Asha Kelkar, renowned Ophthalmic Surgeon, Kelkar Nursing Home, Pune, for providing her valuable time for the ophthalmic examination of mutant mice eyes and Dr. A. D. Ingle, Scientist In-Charge of Animal Facility and Histology, ACTREC, Kharghar, Navi Mumbai for the histological examination and critically reading slides of the embryonic mutant eyes.
I also express my profound sense of gratitude and heartiest thanks to my colleagues Dr. B. Ramanamurthy, Scientist In-Charge, Dr. R. Bankar, Scientist, Mr. Shaikh, Inamdar, Shelke, Vaishali and all support Staff of the Experimental Animal Facility, NCCS, Pune for the care, breeding and maintenance of the mutant mouse strain and co-operation during the period of investigation.

The help extended by Dr. Mamata Katdare for standardizing the Electrophoresis and Immunoblotting experiments, Sonia M. for PCR, Nitin and his lab mates for 2D electrophoresis, Sarang Satoor for the DNA sequencing is invaluable for which I am grateful to them.

My sincere thanks are due to Dr. A. P. Gore, Professor, Department of Statistics, Pune University, Pune, for suggesting the statistical procedure and their kind help rendered in statistical analysis.

My heartiest thanks to Mr. S. S. Jadhav, Rajesh Solanki, Computer Section, Mr. P. Y. Bhusnale, Mr.Sindgi and all the staff of the Instrumentation & Maintenance department for their dedication and helpful attitude.

I take this opportunity to acknowledge the contribution of various departments of the Institute to my research. I thank the administration for their efficiency in helping me to complete the formalities during my study. I thank the store section to provide me necessary chemicals for my research without any delay.

Last but not the least I wish to express my deep feelings of affection and love to my wife Seema, kids Sayali & Manali for being always with me that could lead my difficult task to see this achievement and satisfaction.