## **ACKNOWLEDGEMENTS**

Early in the process of completing this project, it became quite clear to me that a researcher cannot complete a Ph.D. thesis alone. Although the list of individuals I wish to thank extends beyond the limits of this format, I would like to thank the following persons for their dedication, prayers, and support:

I express my sincere thanks to my research supervisor, **Prof.Sarita S. Gupta**, who has been a significant presence in my life. Her ability to probe beneath the text is a true gift, and her insights have strengthened this study significantly. Her excellent guidance and critical suggestions were instrumental in completing this work successfully. I will always be thankful for her wisdom, knowledge, and deep concern for enabling the successful completion of thesis work and her constant encouragement for taking up new challenges in diverse projects. Her insistence to bridge the laboratory work to that of the real life scenario is highly commendable. It has been an honor to work with her.

It is an honor for me to get an opportunity to share some of my life's best memorable moments with **Prof. A.V. Ramachandran**, Ex-Dean, Faculty of Science, & Head, Dept. of Zoology, who apart from chairing all these positions, was an excellent 'teacher' beyond imagination. He epitomizes everything that a spiritual leader should be. I owe my greatest debt for his whole heartedly support and guidance for my career development apart from inculcating some great qualities that remains trademark of his own personality. My life is blessed simply by knowing him.

I thank **Prof. G. Nareshkumar**, Head, Department of Biochemistry, for allowing me to work in the department and providing me with all necessary research facilities and above all providing an excellent research ambience.

I am grateful to all the teachers of Department of Biochemistry, (Late) Prof.S.D.Telang, Prof L.J.Parekh, Prof. Tara Mehta, Prof.S.S.Katyare, Dr.M.D.Jani, Prof.Rasheedaunnisa Begum, Dr.Jayshree Pohnerkar, Dr.Pushpa Robin, Dr. C. Ratna Prabha, Dr.S.R. Acharya, Dr.P.N.Laxmipriya and Dr. Devesh Suthar, for showing their concern and being supportive and above all providing all kind of help whenever needed throughout my research.

I owe my deepest gratitute to **Dr.Sharad Gupta**, *Gupta Pathalogy Lab*, *Baroda*, for making this thesis more meaningful. I also take this opportunity to thank him for his benevolent acts by graciously providing us with some key laboratory instruments and showing great interest in our research work.

My special acknowledgement also goes to **Prof. M. M. Aruldhas**, Director, PGIBMS, Taramani Campus, Chennai, for kindly allowing me to work along with the research team of Department of Endocrinology. My sincere thanks to all the **teaching and research staff of Department of Endocrinology**, **Taramani Campus**, for providing an excellent environment and introducing me to the world of RNA & Real-time PCR, Microarrays etc and making my stay at Taramani campus very meaningful that helped me a lot in later years of my research.

I would also like to thank **Dr. T. Shivanandappa**, Senior Scientist, CFTRI, for his valuable suggestions and critical comments during my early days of research. I am also very grateful to **Dr.Krishnan**, Department of Archaeology, M.S.U, and his family for their moral support as well as his special help concerned with microscopy and AAS studies.

My special thanks to the Animal House in-charges Department of Biochemistry, Dr.M.D.Jani, Prof.Sarita Gupta, and all staff members, (Late) Mr. Suresh Nate, Ramesh bhai, Shankar bhai, Vijay bhai and Narayan bhai for their valuable co-operation and constant help throughout the research programme. I would also like to thank all the non-teaching staff members, Department of Biochemistry for their constant support and co-operation.

My sincere thanks also go to Head, Pharmacy Department, Faculty of Technology and Engineering, M.S.U, for kindly allowing me to carry out the fluorimetric assays in their laboratory.

I also take this opportunity to thank all the **Teaching staff and Research scholars**, **Department of Zoology** for their constant support, encouragement and co-operation. My sincere thanks to **Mr. Milind**, M.S.U, Main Office, for rendering all kind of co-operation concerned with administrative work.

I am thankful to **Mr.Hemant Parmar** for helping me in preparing histological slides. I am also grateful to all the **non-teaching staff-members**, Department of Zoology, for their kind co-operation during this programme.

The financial support given by the UGC in the form of Minor Research **Project** is gratefully acknowledged.

I owe my greatest debt to my lab-senior **Dr. Vihas Vasu and Dr.P.N.Laxmipriya**, for introducing me to this research field and giving all needed encouragement and support throughout my research work. My sincere thanks also goes to **Dr. Anilkumar Pillai** for kindly going through many of the manuscripts and giving critical comments that was instrumental in the process of communicating many research articles. I am heartily thankful to **Dr. Jyoti Vihas**, for her constant motivation and support throughout the research work.

It is with pleasure that I cherish the memorable association with my lab colleagues, **Chirayu and Niraj**, for their constant support, encouragement and long fruitful discussions. It was indeed a great time spent in the laboratory discussing issues that was of prime importance but whose range was not limited only to scientific but all the aspects of life, which we never measured. I believe those days have eventually made me more rationale in my thoughts and helped immensely in developing self-confidence.

I am extremely thankful to my lab colleague **Sanket**, for being such a wonderful support during compilation of my thesis work. His commitment, dedication, discussions and above all hard-working attitude, helped me a lot in compiling the data and giving the thesis a meaningful look.

I would like to specially acknowledge the recently joined research members, **Anubha**, **Nidheesh**, **Tushar and Akhilesh** for being always helpful and supportive throughout. It was a pleasure to work with all of them. I would also like to acknowledge Tushar for his technical assistance in setting up the COMET assay.

My special thanks to all the former research scholars of Department of Biochemistry, Vikas, Keyur, Shajil, Prashant, Maulik, Munjal, Samir, Minal, Saiyed, Aditi, Namita, Gopit, Hiren, Divya for all the help and support they have provided. My sincere thanks also goes to Dr. Mukta Mohan, Hemendra,

Pradeep, Hina, Jyotika, Iqbal, Jisha, Purva, Jitendra, Mrinal, Naresh, Mitesh, Hemanta, Chanchal, Vijay for being helpful throughout. I am very fortunate to have the opportunity to share both space and time with such dynamic and ever enthusiastic personalities.

My sincere thanks to Dr.Leena Abraham, Dr. Shivakumar, Sudeep, Niraj Joshi for their constant moral support and encouragement throughout this research programme.

I greatly acknowledge all the help and support that I received from teachers & research scholars of Chemistry, Microbiology departments, M.S.U, in course of my Ph.D tenure.

I am also thankful to all those students who had worked in this project during their M.Sc. dissertation programme, Linu, Aishwarya, Gauri, Renu, Bira, Ritesh, Dilip, Ansarullah and Roopak. I am also grateful to Arif, Arunodhay, Dhananjay and Shivika who have contributed in many ways to this study.

I am also very much thankful for kind co-operation and support extended by **Zoology students** over these many years. Their co-operation meant a lot.

It is with great pleasure that I cherish my memorable association with my good old friends Zala, Harshit, Purvadh, Jasmi, Prashant, Ajay, Falguni, Dhwani, Madhurima, Amol, Saurabh, Arpit, Dhwani, Nikhil, Jennipher.

I owe my affectionate gratitude to my parents and family members for their constant encouragement, understanding, and support during these years that I have pursued my doctorate. To my wife, Sucheta, and my little sweet angel, Divya, all I can say is it would take another thesis to express my deep love for you. Your patience, love and encouragement have upheld me, particularly in those many days in which I spent more time with my computer than with you. Special thanks are also to my in-laws for their moral support and much needed encouragement throughout.

I extend my gratitude to **The Almighty** of this creation for providing me such a precious life and his everlasting blessings to me and my family.

Prakash Pillai