Acknowledgement

Though only my name appears on the cover of this thesis, many great people have contributed to its production. This work would not have been possible without the guidance and the help of several individuals who in one or another way contributed and extended their valuable assistance in the preparation and completion of this study. I owe my gratitude to all those people who have made this PhD. Thesis possible and because of whom my experience has been one that I will cherish forever. "Time passes like a flow of water" the phrase completely sets as the devotion was set to complete the doctorate thesis under the supervision of Prof. Pragna Parikh. I bow down to the almighty for giving me such a good guide. I am unexpressive, when it comes to express my gratitude towards her. She is a mentor with full of Principles on one hand and a motherly figure on other side. I never ever felt as I was her student, instead I felt I was her real son because of her extreme caring nature. She has immensely supported me during my PhD tenure and has encouraged me in developing my teaching skills. She has inspired me by her courage and conviction in every situations of life. Her suggestions and experience has guided me to focus on work and on my career goals. I bow down to her, whatever she has taught me in the journey of my PhD and life. I also take the opportunity to express my gratitude to Mr. Hitesh Parikh, Mr. Yashesh Parikh and Mrs. Vaidehi Parikh for boosting me in completing my thesis work and keeping the atmosphere light in the house.

The work was not possible without the facilities provided by the department. From my bottom of the heart I would like to thank **Prof. P.C.Mankodi**, Head Department of Zoology for allowing me to work in his lab and providing me the facilities required for my work. He also has constantly encouraged me by giving me suggestions and supported me when I needed any help from the department. A huge round of appreciation to **Prof. Dolly Kumar** for her sweet and enthusiastic nature towards me. She has supported me in my ill health and I thank her for uplifting me in my teaching skills. My deepest thanks to **Prof. B. Suresh** who has ignited my thought process and gave practical valuable suggestion during the thesis tenure. He also supported me whenever I was in need of help and helped me every time I went for suggestions to him.

I would also like to express my gratefulness to **Prof. Geeta Padate**, **Prof. K.D.Vaccharajani**, **Dr.Sunita Salunke**, **Dr,Vihas Vasu**, **Dr.Prakash Pillai**, **Dr.Hetal Roy**, **Dr R.V. Devkar and Dr. U.K Gaurikumari** (my teachers) for their continuous encouragement in completion of my thesis.

A special thanks to **Dr. Hetal Roy** for helping me in editing my thesis and giving me new thoughts while doing the PhD. work. We had a great exchange of ideas on various research works while having coffee which kept a pleasant atmosphere around me. I am highly grateful to Dr. Rupal Shah to solve my queries in various statistical programs and to Prof. Parhar for providing me the antibodies in western blotting. I was lucky to have a group of pleasant seniors who played a role in nurturing the practical and theoretical qualities in me. I am thankful to **Dr** Ayaz Rangrez for helping in critical evaluation of my thesis, Dr Bhavika Patel for guiding me in doing my work and **Dr. Shalaka Gaekwad** for helping me in finalizing my research proposal and constant support throughout my work. I am highly grateful to Mr. Ankur Upadhyay, my best friend who is standing as my backbone in ups and downs of my life. He teached me to collect blood from the fish as he is having a good hand and marvelous practical approach. His constant appreciation promoted my level of confidence to pursue my work. A big round of appreciations to **Ms Bhumi Thakkar** who has immensely helped me when I was surrounded with a ton of work. She always stood by me and made the lab environment extremely pleasant. I also had an opportunity to work with Mrs Rukhsar Mansoori, she is very dynamic and supportive which boosted our lab progress. She helped me in growth of my thesis for which I am highly thankful to her.

Dr.Khushali Pandya, a sister who lend a hand by keeping the environment pleasant, which helped me to concentrate on my work. She was very helpful in each and every deed towards me. I am highly pleased to have her around and thank her from deepest portion of my heart. My deepest admiration towards Ms Nevya Thakkar and Mrs Pinal Shah for helping me whenever I was in need of it. They helped me in standardization of various genes by providing various practical approach in front of me. I am also thankful to Mr Kangan Sarma and Mr Kapil Upadhyay for appreciating my qualities which helped me to enhance my work. I also express a big appreciation to Mr. Jaldeep for aiding me in the initiation of my work and thereafter in troubleshooting the method. My thanks to Ms. Lipi Buch, Ms. Juhi Singh and other research scholars of the department for helping me in some or the other way in my thesis possession. I am also gratified to Ms. Ragitha for helping me out in doing western blotting, Ms. Komal Raval for giving continuous support and to Mr. Akhilesh Prajapati, Mr.Tushar Patel, Mr. Abhay Srivastava, Mr.Mitul Bhavsar for such a caring and supporting nature towards me.

I would be failing in my duties if I forget to thank Ms Hinal Kharva, Mr. Jay Trivedi, Mr. Tanay Bhatt, Ms. Gaurangi Dhumal, Ms. Monali Shah, Mrs. Rinkal Parmar, Mrs Nikita Jaiswal, Ms. Riddhi Thakkar, Mr. Hitarth Changani, Mr. Hiren Panchal, Ms. Yesha Patel, Ms. Rajni Fulluke, Mrs. Ankita Salunke, Mr. Gopal Chovatia, Mr. Kandarp Acharya, Mr. Bhruguraj Yagnik, Mr.Bhavik Patel, Mr.Nikunj Raninga, Mr. Hardik Jadav, Mr. Bhavik Jain, Ms Sharmi Nath, Ms. Devna Chaturvedi, Mr. Dhyan Bhatt and Shivansh group, Ms. Prutha Mankodi and pavitra group for constantly giving support to me. I also would like to be grateful to my two musketeers Mr.Venus Patel and Mr. Chitrang Dani for helping me in correcting my thesis.

Last but not the least I am extremely thankful to my parents mom and dad, my soul mate khushali, my brother Kautilya, my Bhoomi bhabhi and other family members without whom I am nothing. You are truly adorable to me and who believed in me in each and every moment of my hard work.

-Parth Pandya