

## Acknowledgements

Firstly, I would like to express my sincere gratitude to my advisor **Professor C. Ratna Prabha** for the continuous support of my Ph.D. study and related research and immense knowledge. Her guidance helped me in all the time of research and writing of this thesis. As working on a new project, starting from the scratch is a big risk, I thank her for having the faith in me and assigning a new project to establish in the lab.

I genuinely thank **Professor Stefan Jentsch** (Department of Molecular Cell Biology, Max Planck Institute of Biochemistry, Germany) for providing the *UBC4* plasmid and *ubc1* mutant strain, **Professor David O. Morgan** (Yale University, San Francisco, CA) for *UBC1* plasmid and **Professor Mark Hochstrasser** (Yale school of medicine, Dept. of Molecular Biophysics and Biochemistry, Yale University New Haven, CT) for providing all the *ubc4* mutant and wild-type strains. Without their kind gesture, this project would not have initiated.

Besides my advisor, I would like to thank the members of my thesis committee: **Professor Pushpa Robin**, Dept. of Biochemistry and **Professor Anuradha Nerurkar**, Dept. of Microbiology, for their insightful comments and encouragement, but also for the hard question which encouraged me to widen my research from various perspectives.

*I would like to thank **Professor Sarita Gupta**, Head, Dept. of Biochemistry, for supporting and providing infrastructure which were needed to accomplish the work.*

*My heartfelt thanks go to **Dr. Laxmipriya Nampoothri** for her friendly nature and always being so caring in all the matters. I would like to take this further to **Dr. Sashikant Acharya**, who gave guidance for all troubleshoots whenever required and to all the healthy discussions. Without their precious support completing this journey might have been difficult.*

*I would like to thank **Professor G. Naresh Kumar**, Dept. of Biochemistry, for allowing access to his lab and research facilities.*

*I thank rest of the teachers of the Department namely **Prof. Rasheedunnisa Begum**, **Dr. Jayashree Pohnerkar**, **Dr. Rajesh Singh**, **Dr. Devesh Suthar**, **Dr. Sanjeev Upadhaya** and **Dr. Ravi Vijayvargia** for their encouraging words, criticism, scientific discussions and valuable suggestions throughout the research tenure.*

*I am highly grateful to all the office staff of the Department of Biochemistry namely, **Akshitaben**, **Vyasbhai**, **Manishbhai**, **Shaileshbhai**, **Rameshbhai**, **Vijaybhai** and **Bharatiben** for their help and guidance in all the official matters when required. I thank **Kaushik Bhai**, **Milind Bhai**, and **Mayur Bhai** for their conductive and friendly support at university protocols.*

*Many thanks to **Prof. Arun Arya**, Ex-Head of the Department of Botany who inspired to keep the spirits*

high for achieving the goals and also provided aid whenever necessary.

My warm gratitude goes to my fellow lab-mate/best friend **Brinda Panchamia** for the stimulating discussions, for the sleepless nights we worked together before deadlines, and for all the fun we had in the years. Her immense patience and support towards me is highly to be appreciated. I would extend the same gratitude towards **Arpita Dave**, Dept. of zoology, for the healthy coffee discussions and providing a hand whenever looked-for and always encouraging me to push my limits.

I would also thank my senior **Dr. Pradeep Mishra** for guiding me the correct path. Also, I acknowledge my lab colleagues mrinal sir, swapnali, ankita, jinal and sandeep for showing keen interest in my work. I thank **Megha Chaudhari** for her kind gestures and support provided at the end of the term.

I acknowledge M.Sc dissertation students **Ananya Mukherjee, Maistry Trivedi, Srivalli Puttagunta, Tanvi Khanna, Komal Solanki, Aswin Srivatsav and Pratik Vaghela**. All of them made the lab atmosphere refreshing to work.

Special thanks to **Maharshi Pandya and Riddhi Vyas Pandya** as they helped us to conduct the experiments, also we shared the same platform of Ph.D. life and. I thank other research scholars of the department, **Arpi Dey Jha, Shivani Dhadhal, Tanvi khanna, Sejal Purani Nair, Tabassum Mansuri, Kritharth Singh, Milton Roy,**

*Gaurav Chauhan, Shah Nawaz Jadeja, and Karishma Bhatia* for providing all the help in all the possible ways to conduct the experiments.

I would acknowledge my friends from other departments, *Nirav Mehta*, Dept. of Botany, *Sneha Garge* and *Shweta Talreja*, Dept. of Microbiology for allowing access to their lab facilities.

The journey would definitely be incomplete without immense backing of my friends *Brinda Panchamia, Arpita Dave, Sumeet Pandey, Rohan Chaubal* and *Pratik Gupta*. I intensely thank them for their help which was just a call away in times of despair. All of them facilitated me in every way whether it was on professional or personal terms. Life without them would be a misfortune.

Special cheers to *Simran Hasrajaní* and *Abhishek Desai* for being around especially at the end of the Ph.D. term.

Last but not the least; I would like to thank my family: my parents *Dr. Mohan Raimalani* and *Mrs. Shanta Raimalani*, for providing all the required things and motivation without which this journey would have not begun. Dad's struggle to make my life and work smooth is highly commendable. A very special appreciation to my mother who in spite of her ill health always motivated me to go and work. Thanks to my sister *Aparna Assudani* for supporting me spiritually throughout. Thanks to my brother-in-law *Dinesh Assudani* and nephew *Jai Aditya Assudani* for all the fun

*conversations and good times we spent. All of them are my strengths in different perspectives of life.*

*Lastly, I would like to end this by quoting the following lines,*

She never gave up,  
even though there  
were times she was  
sure she would,  
the struggle was real.  
but she was even more so.

JmStorm

*Varsha Raimalani*