

Acknowledgement

“Intelligence is not knowledge, but the power of imagination is”

Light outside has no meaning if the inner self is not enlightened. To illuminate inner self with light of truth, some walk on the path of devotion and others walk on the path of science. The path of science relieves us from the clutches of hypothetical superstitions, providing us freedom of thought. An unbiased science is an art of sowing seed of knowledge in a fertile brain to grow tree of wisdom. We humans often fear from the things we don't understand. Fear- a feeling that comes from lack of knowledge. Just like a single ray of light is enough to remove darkness, presence of knowledge exterminates fear arising from absence of knowledge. Illumination of enlightened people like **Prof. G. Naresh Kumar** (my Ph.D. supervisor) and **Prof. G. Archana** (My project PI) has left an impact on my thinking. Knowledge of not just science but a true meaning of life with reasons can ascribe their excellence not just as scientists but also as wonderful human beings. They taught me to think out of the box. Rigorous conceptual training and discussions with my mentors were instrumental for my research. Thanks a lot for nourishing my brain with best thoughts and illuminating me every day with the light of knowledge. Under your esteemed guidance, MMBL was the best place to discover my scientific potentials and has helped me to develop rational thinking. I also congratulate Prof. G. Naresh Kumar for completing wonderful and knowledge enriching 25 years in the Biochemistry Department. May you enlighten many more students like me.

Prof. Sarita Gupta, Head of the Department has been constantly motivating and promoting me to take part in various scientific and cultural activities of the Department. Her valuable suggestions during my annual presentations have been instrumental to enhance the scientific significance of my thesis. Having trust on my research strength and selecting me as an appropriate candidate for DBT-ILSPARE project has boosted my confidence during my final Ph.D. days. Madam, you have a beautiful smile, makes everyone's day.

Whenever it comes to scientific presentations, **Prof. Rasheedunnisa Begum** had been a constant inspiration. Your appreciation and critical suggestions have boosted my confidence and presentation skills. I literally use to prepare my presentations keeping your presence in my mind. Looking at your happy face during

my presentation gave me a feeling of satisfaction. I wish to have your critical review on my future scientific career also.

Prof. C. Ratna Prabha and Dr. Jayshree Pohnerkar were always ready to solve any kind of queries or confusion for protein purification and molecular biology work. I will always remember long discussions regarding recombinase assay and purification strategies in the corridor of first floor.

Prof. Pushpa Robin and Dr. Laxmi Priya are actually blessings in disguise for our department. Talk with them after a long stressful day, you'll be relieved in no time.

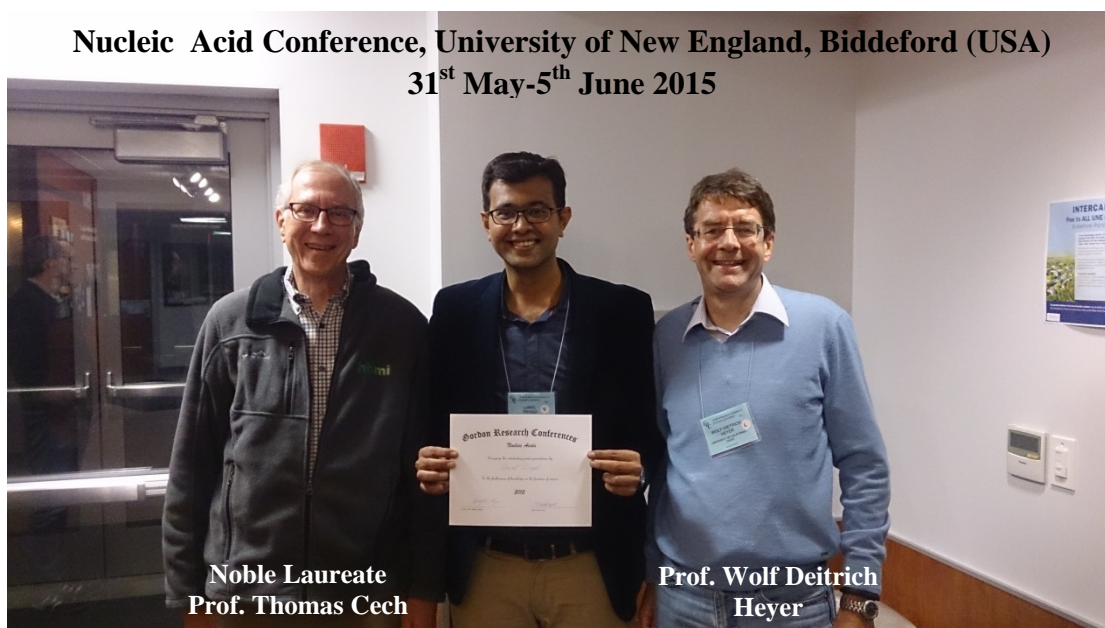
I guess no words can explain what I feel for **Dr. Acharya**. He has contributed significantly in my thought process. Discussions over a cup of tea with him has developed my skills of thought experiments. He always emphasized on sticking to the basic problem and solving it at the root level. Have been very friendly with me and at times I have shared many thicks and thins with you. Thanks for being there and listening to me.

Our department is lucky to have new faculties like **Dr. Ravi Vijayvargiya, Dr. Devesh Suthar and Dr. Rajesh Singh**. They are young (well relatively) enthusiastic and are filled with scientific aggression. I thank them for providing me friendly suggestions during my Ph.D.

Thanks are due to the members of the office including Mr. Pethe, Akshitaben, Shaileshbhai, Manishbhai, Vyasbhai, Rameshbhai (Nare), Sandeep, Balwant, Kiran, Anilbhai & all other office staff for their support & help in all the department & faculty official work. Thanks are also due to Bhartiben, for handling the project accounts efficiently & minimizing a lot of my project related university hassles. Thanks to Anilbhai for maintaining the lab cleanliness & keeping it hygienic for microbial work.

I deeply acknowledge **Department of Biotechnology**, Government of India for providing financial assistance to pursue my doctoral work. I acknowledge **Nature Publishing Group and Department of Biotechnology** for providing financial assistance to attend **Nucleic Acid Conference** at University of New England, Biddeford (Maine State) USA. I am thankful to **Prof. Wolf Deitrich Heyer**, (Chair of the Conference), for recognizing my work and selecting me for the **Nature Publishing Group** Travel Grant. I have no words to express for critical reviews and valuable discussions on my research by **Noble Laureate Prof. Thomas Cech** at the

conference. I express my deep gratitude to him for taking interest in my work and judging me for **Excellent Scientific Poster Award** at the conference.



I am thankful to Prof. **James. W. Golden**, Department of Biological Sciences, University of San Diego (USA) for providing me plasmids pMX25 and pAM461 for my research work. I am also thankful to my first Molecular Biology Mentors **Dr. Shesheer** and **Dr. Rachna**, RAS Lifesciences Hyderabad. You both have significantly contributed in my Molecular Biology Skills. I learned all the basics at your lab during my dissertation period, which helped me a lot during my Doctoral work. I also acknowledge **Prof. Shree Kumar Apte**, Department of Biological Sciences, (BARC), **Prof. V. Nagaraja** (IISc, Bangalore) and **Prof. Saravanan Matheshwaran** (IIT Kanpur) for critically reviewing my manuscript.

Time spent at MMBL has played a crucial role in my professional development. The 30 year old mystery of XisA protein is now a history. My experienced XisA research group seniors, Ram Karunakaran, Gopit Shah and Prashant Devjibhai Kunjadia always helped me in critical evaluation of the research and for setting up an excellent concept of XisA. I am also thankful to Aditi Buch madam for listening to my research time and again. My dissertation student Shubham Kaushik (also the second author in the XisA paper) and now a Ph.D. scholar at our lab has been very supportive during my Doctoral study. I am also thankful to my other dissertation students Ganesh Agam, Neha, Abhijeet and Gaurav Kansagara without whom, the journey of my research would have been impossible. My lab seniors **Dr. Chanchal**, **Dr. Kavita**, **Dr. Jitendra**, **Dr. Prashant** and **Dr. Hemanta** have been

very supportive to me during trouble shooting in my experiments. I have enjoyed the journey of my Ph.D. with my lab mates **Ashish, Sumit, Archana, Ruma, Riddhi and Parini**. I wish them best of luck for their future endeavours.

I don't know how am I gonna cope up with absence of my best buddies **Abhay and Rushikesh**. Buddies you were like my bros. I have shared all the ins and outs of my life with you guys. At times, I was little difficult to manage, but you guys always brought reverberating laughter in such times. Gonna miss all the night outs, movies, and night dinner, those meaningless jokes and those late night lab works. Truly, it was an honour to have you both guys in my life. You both rock in the Department and I wish you a rocking life ahead.

I am also thankful to all the Research Scholars of Biochemistry Department for creating a light atmosphere. Will miss all the Garba nights, various days celebrations and especially the RS meetings...ha ha ha. I wish you all a rocking scientific career ahead.

Family has a very pivotal role for one's personal and professional development. We follow the footsteps of our parents. I dedicate all my achievements to my beloved mom and dad, without whom I am nothing. They gave me an educational atmosphere and always promoted me to pursue higher studies not thinking about the financial conditions. You both always took interest in my weird science ideas. Mom, with your blessings, I will achieve many more milestones and will make you proud. Love you mom. How can I forget to mention about a soon to be new member in my family- **Ruchi**, my Fiancée. Destiny brought us close on a very critical stage of my Ph.D. i.e. during my thesis writing. The time was tough, but your presence made it smooth. With all your loving support, I was able to sail thorough this difficult time with comfort. Awaiting beautiful years of life together with you. I do not have a real brother but never felt the absence of one. **Bhargav**, my cousin the computer genius, was always ready to help me day and night. Spent best years with him. Bhargav you are the best example of brotherhood. Although there are uncountable instances where you supported me but one worth mentioning is during my USA trip. You were on your feet to get the things done on time. Whenever I felt tired you took the charge as if it was your own work and helped me with full dedication. Thanks for being always there round the clock. At last, I thank all my acquaintance for helping me in any direct or indirect way in my thesis and Almighty lord for giving me with a healthy body and a fertile brain to succeed in life.