Acknowledgements

Today, when I look back, I realized that the process of Ph. D. was a long journey during which, I came across so many wonderful people who over the years have contributed through their support, cooperation, encouragement and prayers. I would like to express my gratitude and thank all of them who were vital to the success of this study and made it memorable for me.

First and foremost, I would like to thank my supervisor Prof. D. D. Dubey. I consider it an honor to work with him and thank him for providing me an opportunity to address a fundamental question related with the fundamental process of every individual cell. I thank him for his critical comments, suggestions, ideas and care throughout my Ph.D. It is great to see his single minded enthusiasm for science. I have learnt a lot from him. He has always been supportive and enthusiastic towards each experiment. The greatest thing about Sir is the time he devotes to lab and how available he is for any help or suggestion I need. I have truly enjoyed working under a very cool, kind and understanding mentor. His teachings (scientific, spiritual and personality development) helped me to stay stable during tough times in the PhD pursuit and taught me the value of patience and perseverance. Thank you Sir for everything.

I am indebted to Dr. M. M. Panicker, NCBS Bangalore, who is my second mentor, who helped me in performing all the timing experiments by providing the lab space, chemicals and important suggestions. My thesis could have not been possible without him thus I specially thank him for this support and contribution to my work.

I express my gratitude towards Dr. K VijayRaghavan, NCBS Bangalore, for providing me the opportunity to work and live in NCBS for two years and introduced me with the coolest PI in the world Dr. Panicker.

I would like to thanks Dr. Yamuna Krishnan for Radioactive lab facility, Dr. H Krishnamurthi for FACS facility, Dr M K Mathew for Microscopy and Yeast cultures at NCBS Bangalore.
I would like to thanks Dr. Rajiv Raman, BHU Varanasi, for providing me the DNA Sequencing facility at CGD BHU Varanasi.

I am extremely grateful to all the teachers of the Department of Biotechnology, Dr. V. K. Singh, Dr. M. P. Singh, Dr. Vandana Rai, Dr. Ram Narain, Dr. Rajesh Sharma and Dr. Pradeep Kumar who supported me by every means and boosted my moral whenever I felt low.

My gratitude goes to faculty members of other departments at faculty of Science, Dr. S P Tiwari (Department of Microbiology), Dr. Kartikeya Shukla, Dr. Sudheer Upadhyay and Dr. Vivek Pandey (Department of Environmental Sciences) for their constant encouragement and support.

I would like to thank to the administrator of VBS Purvanchal University, Jaunpur, for much needed help with the administrative proceedings which necessarily accompany the act of submitting a thesis.

I cannot forgot the non-teaching staff of the department Mr. Mohinder Pal, Mr. Jay Singh, Mr. Nand Lal, Mr. Jia Lal and Seth Jee for their office assistance; and I also express my gratitude to the librarian Dr. Bidyut Mal and Mr. Awadhesh Sir for their constant support in making availability of the books and journals required during this work. I am also thankful to Mr. Prabhakar Chaubey (Finance Office) for providing me the fellowships and other necessary documents on time, Mr. Dheeraj Srivastava (Electrician) and Mr. Deepak, the lab attendant.

I would like to thank all my friend-cum-fellow researchers who departed from the department specially Dr. Aditya, Dr. Mukesh, Sreedevi, Dr. Yashwant, Dr. Upendra, Dr. Sanjay, Susheel and Dr. Abhishek, Dr. Rachna Nagar (BHU) who always helped me with all my problems, cheered me and showed their faith to move forward.

I thank my friends Avinash, Amita, Prakash, Rishi, Rahul, (VBSPU), Sarvesh (IIVR), Ankur, Sandeep, Naveen, Shalu; Shishu, Radhika, Megha, Selvam, Shabana, Shukla Jee, Ashwani, Gopal (NCBS), Poonam (IISc), Dr. Vibhor,
Dr. Shweta Dr. Deepankar and Dr. Anshuman who made my life easy with their affection and care.

I don’t have words to thank my family because their support and patience are priceless. I couldn’t summarize the contribution of my father Mr. Chandra Mani Tripathi, my younger brothers Aatm Prakash (Raj) and Satya Prakash (Ashu), Khushi, baby Avanija and (fufa ji) Dr. Prem Narain Tiwari who did everything for me. I thank God for sending an angel, my wife "champagne Arti" in my life. She has been an amazing friend and partner who supports me every second of my life. Blessings from Mr. Krishna Kumar Tiwari, Mrs. Sarita Tiwari, Mr. Saurabh, Ms. Preeti and Master Aarav are greatly acknowledged.

At the end, I thank the Almighty (Baba Vishwanath, Sankat Mochak Hanuman Ji and Devi Maa) for giving me strength and endurance.

Funding from CSIR Extramural Grant #38(1233)/09/EMRII to the lab is greatly acknowledged. I thank ICMR for funding Senior Research Fellowship for 2 years (Scheme No. 45/12/2013/CMB/BMS).

Vishnu…..