

Acknowledgment

Little accomplishments come with long efforts and bittersweet experiences. This is only possible when the almighty keeps his handful of blessings on our heads. I want to submit everything to his feet.

I would like to express my gratitude and approbation to my guide Dr. Sanjeev K Upadhyay, for his guidance, encouragement, and support during this entire journey of my research. His insightful suggestions and patience have been extremely useful for me and helped shape my research. I am grateful for his constant motivation.

I would like to thank Prof. C Ratnaprabha, HOD, Department of Biochemistry, for her leadership and for providing basic facilities for the work. Special thanks to Prof. Rajesh Singh for supporting us during the initial days of my PhD. I am also thankful to my PhD committee members Prof. Rajesh Singh and Dr. Ratika Shrivastava for their efforts and constructive criticism to improve the quality of this work. I would also acknowledge my humility to all faculty members of the department.

I extend my heartfelt thanks to Dr. Ashwini Godbole and her lab members (Veer, Thackrey, Prasanna, Dr. Varghese, and Arman) for their valuable support and assistance. I also appreciate Debashish, Madhu, and other staff of TDU for their support and motivation. Special thanks go to Dr. Raju Mukherjee and Tejan Lodhiya for their collaborative efforts and discussions to complement our project.

I would more than ever like to thank my lab members Vikas, Neerav and Sandhya for creating a joyful lab environment and supporting me with all their inputs in my work. Working with them has made this journey more enjoyable and enriching. I appreciate Megha and Minal for their camaraderie.

I am also thankful to the non-teaching staff of the Biochemistry Dept. for their assistance and support during this period.

I owe a lot to my parents Mr. Kishor K Bhatia and Mrs. Vandana Bhatia for their support, encouragement and good wishes throughout this journey. To my brother Mayank, for his care and affection for the successful completion of my dissertation. I appreciate Tejas for his constant support, patience and belief in me.