ACKNOWLEDGEMENT

First of all, I would like to bow my head in humble obeisance to my guruji(s) who gave me the nerve and courage to withstand succumbing pressure of arduous difficulties in completing this uphill task. In the process, I learnt to be patient, humble and hopeful that with one more step, one more try, I am going to succeed.

I wish to express my heartfelt gratitude to my supervisor, Prof. S.K. Jain (Head, Department of Biotechnology, Jamia Hamdard) for his constant encouragement, valuable guidance and moral support during the course of this study. I shall deeply value and treasure his training and constant scrutiny that gave me boundless energy and taught me how to face a problem head-on. His never-say-die attitude is a fountainhead of inspiration for me.

I would also like to thank Dr. Deepshikha Pande Katare (Head, Department of Biotechnology, Amity University) for providing much needed constructive criticism, valuable guidance and a positive attitude towards my abilities that made the achievement of this goal a challenging, enjoyable, rewarding and stimulating experience.

I offer my sincere thank to Prof. M.Z. Abdin (Dean, Faculty of Science, Jamia Hamdard) for granting me access to his lab and humaneness. I would like to thank the ever smiling and considerate Prof. P.S. Srivastava, for all his help and support in completing my research work. I would like to appreciate the assistance I received from other faculty members; Dr. Sandeep Das, Dr. Alka Narula, Dr. Farhat Afrin, Dr. Saima Wajid. I feel equally overwhelmed with deep appreciation for the entire team of academicians in this and other departments for their kindness, great support and valuable suggestions.

I thank and acknowledge the financial assistance provided by Department of Research and Developmental Organisation (DRDO, Timarpur, Delhi) in the form of project grant to Dr SKJ and DPK.

I wish to show my indebtedness to Dr. Kalpana Bhargava, Dr. Sudhir Chandana, Dr. Rajendra Singh (DRDO) for their exceptional finesse, kindness and granting me access to their labs. I am deeply obliged to the entire team for helping me in the 2D and cloning experiments.

I also acknowledge Dr. Ashok Mukherjee (AIIMS, New Delhi) for interpretation of histopathological slides.

I would like to offer thanks to my former labmates; Dr. Arfat Madni, Dr. Nowsheen Hamid, Dr. Seema, Dr. Promila, Dr. Sikander. Thanks are due to my current labmates; Naveen Chaudhary,
Jasmine Kaur, Shabnam Malik, Smita Kumari and Maryam for their help and assistance throughout my journey in the lab.

I feel warmly appreciative of the unparallel love, support, encouragement and advice that I received from my dear friend and labmate, Jasmine Kaur. She made the entire journey, my life in general a happy feat to recount and remember.

I am also grateful to my other colleagues Shivli Naomani and Tanveer from Department of Pharmacy, Jamia Hamdard and also to my juniors Leena, Deepti, Aftab, Mojeer, Swati, Shoaib and many more for their timely support during the course of my thesis.

I am thankful to the non-teaching staff in Department of Biotechnology, Jamia Hamdard; Noor Maa’m, Ms. Sheeba, Ms. Sarika and especially Anish Cherian Sir, who provided their sincere help when needed. I must also put in a word for Diwanji and other lab attendents; Nafees, Satishji, Taufiq, Gautam, Sajid who helped me in and outside the lab on several occasion. I should thank CIF and library staff for affording their help during the pursuit of research.

I take this opportunity to thank each and everyone who ever helped me here in Jamia Hamdard.

I feel fortunate to have lovable and affectionate friends Dharna, Sudhir, Sumant. I cherish the time we spent together and hope that we stay in touch despite the large distances between us.

It takes both sunshine and rain to make the rainbow. My grandmom, mom, dad, uncle, aunt, brothers, sisters-in-law, my little niece Trisha provided all sunshine that was needed to absorb the sodden track I had undertaken. I owe immense gratitude to my husband, Ankit, whose prayers, love, care, immense support and sacrifice, made this road to success possible. I wish I could return them all, the infinite care and concern that they bestowed on me. I owe my life and this thesis to my parents and my husband.

The chain of my gratitude would be definitely incomplete if I forget to thank my in-laws and family back home whose precious support have helped me overcome all the hurdles and thrive in my doctoral work.

I thank all my well-wishers and relatives for their love and blessings.

In the end my deepest gratitude goes to the almighty for guiding me through every crisis. I pray to him to guide me to the right path at all times.