

ACKNOWLEDGEMENTS

I humbly bow my head before the God Almighty, who have blessed me with the will power and valor to complete this endeavor. I submit this small venture before God for his grace in providing me the much needed strength and health throughout the study.

I have been blessed with some extraordinary people, who have spun a web of support around me. Words can never be enough in expressing how grateful I am, to those incredible people in my life, who made this thesis possible. I would like to thank them for giving me inspiration & motivation during my research, a tenure which I will treasure.

It is my great privilege and pleasure to express my inexplicable and deep sense of gratitude to my supervisor, Professor Ashok Chaudhury, Department of Bio & Nano Technology, Dean, Faculty of Environmental and Bio Sciences and Technology, Guru Jambheshwar University of Science and Technology, Hisar for your endless support, excellent advice, placid patience and great encouragement throughout my research tenure.

I would like to thank my co-supervisor, Dr. Sabyasachi Chakraborty, Director Biology, TCG Life sciences for his valuable guidance, scientific discussions and brainstorming sessions with constructive criticism. Thank you for being my supervisor. You've been my mentor, my colleague and a never-ending fount of moral support for me. You've laid so much effort in critically evaluating the publications & this manuscript, I owe you so much for this.

I am also greatly indebted to Dr. Manas Majumdar, Ex Director Biology, TCGLS. You have also provided insightful discussions about the research and always kept my moral high. I couldn't forget how well you took care of the communication between TCGLS and my supervisor.

I also express my heartiest regards to Dr. Manish Banerjee, Associate Director, Pharmacology, TCGLS for designing in-vivo studies for my research, constant supervision, prudent guidance and helping me to perform animal studies.

My cordial thanks goes to Dr. Subrata Chattopadhyay, Director, Biology, TCGLS, Dr. Rajib Barik and their team for providing me much needed help during completion of few in-vitro assays and molecular biology experiments.

I am extremely grateful to Dr. Manas Pathak, Associate Director, toxicopharmacology, TCGLS and his team for extended help in genotoxicity studies. I really appreciate your scientific advice, knowledge, proactive guidance and very friendly attitude.

I owe my deepest gratitude to Dr. Pradip Malak, Associate Director and his team for trying hard to develop LC/MS based experiments for analyzing my all PK and ADME sample. It gives me great pleasure in acknowledging the contribution of Dr. Susanta and his ADME team in my research. Thank you everybody for your commendable help.

Very special thanks goes to my employer TCGLS, Kolkata for giving me the lifetime opportunity to carry out my doctoral research along with my service and at the same time for providing me scientific & financial support. It would have been impossible for me to even think of my PhD, had management not signed MOU with GJUST University, Hisar.

I'm delighted to be a part of the collaborative PhD program between GJUST, Hisar and TCGLS Kolkata.

TCGLS has always been like a family to me and great friends here. I cannot name all, but I want to thank

I've also been fortunate enough to have a group of

a couple of very special people here.

I am greatly indebted to my two colleagues Sunita & Mausami. Friends, you really helped me in most of the in- vitro assays at very crucial time.

I will forever be thankful to my friends and labmates Niti, Trina, Madhan, Nipa, Tirtho, Sebak, Tonmoy, Rajib, Kanakana, Neha and Manab. Thank you all for your constant support and encouragement.

I am glad to express special thanks to my friends Anshu, Shally, Apoorva, Alka and Mayukh for sharing some light and joyful moments during my stressed days.

I am thankful to all the members of pharmacology group who contributed immensely to my research. The in- vivo experiments would not have been possible without you all. Your group has been a source of good advice and collaboration to me. I am especially grateful to Subhasis, Soumya, Atul, Sanjay and Chaitali for your much needed help, especially in those odd hours.

My sincere thanks also go to the members of ethical animal committee for approving the in- vivo experiment protocols.

I offer my gracious thanks to whole team of HR & Administration team of TCGLS for managing my all PhD related activities, communication and financial aspects tremendously.

I am also thankful to Dr. Sourav Basu, Ex COO, TCGLS for his encouragement and technical help.

A big "Thank you!" also goes out to everybody, who participated in this study including purchase department and support staff of TCGLS, who directly or indirectly helped me to complete my research.

I would like to thank Dr. Lavleen Kumar Gupta for encouraging my research and for allowing me to grow as a research scientist. Your advice on this research as well as for my career has been invaluable.

At this juncture, I should not forget the animals that laid their lives for this work, I will always be indebted to them for their sacrifices.

Words are inadequate to express my sincere regards and indebtedness to my beloved parent, without their sacrifice and guidance, it would be impossible for me to achieve such a milestone. The unconditional love and encouragement provided by my family served as a secure anchor during the hard and easy times. Thank you Mummy, Papa, Chanchal and Anuj for believing in me and encouraging me to follow my dreams. I would also like to thank my in-laws who have helped to care my daughter so that I would have additional time to complete my research work,

Above all, I never forget the sacrifice and inspiration of my amazing husband Sumit who lost his social life and have occasionally missed his wife, during the time taken to complete my research work, Thank you for standing beside me as a source of inspiration throughout the research.

Last, but by no means least, I thank my lovely daughter 'Piyu', a source of unending joy and love. This thesis would have remained a dream had you not supported and loved me when I stayed back in lab, even when I couldn't be there for you, the time you missed me. Your naughty smile and cutie face is always my source of inspiration & motivation.

This thesis is dedicated to my family who have always stood by myside and dealt with all circumstances of my absence from many family occasions with a smile.

Place:

Mrs Bhawana Gupta

Date:

(Registration No. 120999003)