Acknowledgements

I would like to thank my advisors Dr. Lalji Singh and Dr. L.S. Shashidhara for all the encouragement and support. Dr. Lalji Singh’s encouragement and patience has been useful in the keeping morales high under trying situations. Shashi’s constant support, guidance and enthusiasm has helped me see the finish line of my PhD and I am eternally grateful to him.

The first person I would like to thank for extending significant help in the ambitious APC project is post-doc Ramakrishnan Kannan, whose excellent molecular biology skills helped me generate a large set of transgenic flies. The next person who directly worked with me and helped me in the in this project was Mr. Phanikiran, a summer trainee who helped me standardize the ARM sequestration assays. I would also credit him for asking a counterintuitive question “why can’t beta-catenin inhibit APC in the Wnt pathway?” which has helped me think of interesting possibilities in this area of investigation. In addition I would like to thank Poonam Bhandari for the constructs generated earlier and the unpublished NTD-APC. I would like to thank Mrs. Uma Prasad for the primary clones of WDR13 that she has generated and Amritha and Bhupen for introducing me to WDR13. I would like to thank Dr.Nagasuma Chandra and Sridhar Harirtharputran for the APC-catenin Molecular modeling studies. I would like to thank Gurudatta for suggesting generation of MCR-APC and pestering me to find a working APC antibody that came in handy. I would like to thank Mohit for suggesting CyclinE and HTH in my WDR13 experiments and for noting the A/P boundary expansion phenotype and Vasanthi for noting ESC related lethality and also for a large number of Trithorax and Polycomb group stocks. I would like to thank Ruchi for introducing me to Drosophila in my earliest days in flylab and Ashishbhai for enlightening me about the chemical aspects of biology. I would also like to thank Sir Walter Bodmer and Dr. Jenny Wilding for our interest in missense APC and for my stay in Oxford.

It goes without saying that one person who has helped me in each and every aspect of my PhD from suggestions to criticism through stainings to stock maintenance and thesis completion is my dear wife Kalpana whose contribution I can never repay. I thank my parents-in-law for their support and encouragement and my sisters-in-law Jaya and Nisha, for keeping my spirits high.

I would also like to thank Nagraj, Usha, Anu, Pallavi, Rajesh, Bharathi, Neha, Sushmitha and Suchi for useful discussions. I specially thank Kavitha for taking care of our Bloomington orders and handing main stocks instantaneously on request and I would like to appreciate the help of members of Rakesh and his lab for reagents and discussions especially Andrea for deficiency kit, Vivek for enlightening me about Hox and rock with equal enthusiasm, Ram for sharing his Omb story passionately. I would like to thank Sumit for Slbo-Gal4. I would also like to appreciate the congenial atmosphere created by Pawan, Jeevan, Prafulla, Sudha, Tripura Ramesh P ,RameshY, Kalyani, Srividya, Pallavi Ghana, Pramod, Mahesh, Satish, Hina, Hemant, Narender, Shayanthani, Krishnamohan, Debashish and each and every member of fly lab. I would like to thank Razaaliji, Venkatesh, Narasimhaji and all members of Nectar, our fly kitchen. I would like to thank Nitin for advice on realtime.
My special thanks to my closest friend Prabhu for interesting discussions that have broadened my views on science in general and for questions and suggestions that have influenced my thinking and would be widely applicable to any scientific problem.

I would like to thank the members of genetics group specially Ramesh, Shankar, Kasbekar and Imran for their critical suggestions.

I would also thank the various visiting scientists to CCMB interactions with whom have helped me- Dr. Viji Draviam, Dr. Raghavendra Nagraj, Dr. Steve Cohen, Dr. Bradley Hersh, Dr. Aurnab Ghose, Dr. Henry Sun, Dr. Nick Brown, Dr. Luke Alphay and countless others.

Finally I would like to thank all Central facilities of CCMB for the support extended to me in my PhD. Special thanks are due to Mehar and Nagesh for Oligo and sequencing facilities. Special thanks to Dr. Nandini Rangaraj for help with confocal microscopy and Chakravarthy, Nagamallesh from microscopy. I am indebted to the Fine Biochemicals section for making available the necessary reagents. I am grateful to Mr. Sekar Ramachandran and all members of the Instrumentation Group, the Digital Imaging facility especially Mr. Giridhara for printing and Mr. Mallesh for help with photocopying.

I would like to thank CSIR for the SRF and Dr. Shivaji for a year of extended fellowship.

I am indebted to my relatives in Hyderabad- the Late Anand uncle, Nirmala aunty and Anil for their affection.

I thank my landlord and landlady Dr and Mrs. Venkob Rao for their support and encouragement.

Last but not the least I am grateful to my parents for waiting patiently for this day and supporting me throughout and my brothers Praveen and Pratish for their love and support.

I am sure that this is not the complete list. I thank one and all for every help.