

Acknowledgements

You have in you all and a thousand times more is in all the books. Never lose faith in yourself, you can do anything in this universe. Never weaken, all power is yours. The road to good is the roughest and steepest in the universe. It is a wonder that so many succeed, no wonder that many fall. Character has to be established through a thousand stumbles. Stand up and fight! Not one step back. Let the stars move from the spheres! Let the whole World stand against you....

These power capsules of SWAMI VIVEKANANDA were passed on to me by my supervisor Prof. Asis Datta. The person who stood by me always, gave enough strength to stride over rough waters, held on to me when others rejected, gave freedom when needed, tightened the screws when required, pampered me when dejected, counseled me when excited...indeed a great personality with a class of his own. Therefore I feel privileged and proud to be called as his student throughout my life. I am immensely grateful to him for giving me an opportunity to work under his guidance. Being director of the institute, he is loaded with lot of additional administrative responsibilities, but for the person for whom "Science is passion" it was never the excuse. He gave his time generously to listen to me, discuss the problems and even took lot of pain in reading the thesis line by line.

I acknowledge Prof Mrs. Kasturi Datta for her kind behavior and wonderful hospitality during functions at her residence which I really enjoyed.

I would like to acknowledge Dr. Niranjana and Dr. Subhra Chakraborty for their support, guidance, patience and confidence in me during my PhD tenure. Thank you sir and maam!

I take this opportunity to thank my seniors Archanadi, Sharmisthadi, Monideepadi, Manjisthadi, Deboleeni, Sunit, Deepali, Subhrajit and Arnab. Their positive attitude towards science rekindled my interest and I still remember them when I feel low. Their constant encouragement and guidance during the experiments reduced my efforts to a great extent. At this point I would like to Arnab (Alias BABA), a great personality, always ready to help anybody anytime. He has solution to every problem, but each is worth 5 rupees. He has influenced me in different walks of life. Thank you Arnab! for caring and consoling me, and playing the role of a BIG brother.

I have been lucky in meeting a bunch of good friends, Nagu (Dash), true to heart, can take any responsibility, and can go to any extent to fulfill them, whether it is work or sleep. Bhumika, needs a whole paragraph to describe. Kundu, with whom I shared my room, listening to wonderful music and discussing science till late night. Ajaswata, a good friend of mine, ready to do shopping any time anywhere. Vandy, the person who discovered speaking Hindi, in English accent. Jyoti, in a different world all together, had headache everynight therefore took VIKAS/VICKS ki goli. Deepti, the one who showed us the path, path to CP, for the reason best known to her. Niroj always busy with WWE. Above all Arnab, managing all these vibrant people and keeping them together. We all had lots of fun together which was very much necessary to release the work pressure. Thanks to all....

I share the niche with some of the colleagues Hanumanth, Vijay nalla, Swagatha, Pranjan and Kaushik (Doctor sab). I thank them all for their valuable discussions, and many questions especially raised by Vijay Nalla which helped me during the work. I acknowledge Swagatha, doctor saab and vijay for critically reading the thesis and giving me the true feed back.

I thank my juniors, Ajay, Rajgourab, lalit, kishwer, Manikant, Deepa, Aarti, Vinay, Pyniar and Dinesh for their respect, help and concern during my tenure, and how can I forget Nasheeman, a true Leo, always fighting for her share. I admire her for her character and strength which made her unique among the juniors

Sumit, Raghu, Ayushi and Mohan the 'Fantastic four' as I would regard them. I couldn't resist myself without describing them. Raghu, the religious man as my boss addressed him, wouldn't enter the lab without uttering 'MaaTara' from his mouth and giving a big smile to

everybody on the way. Mohan, bubbling with enthusiasm and confidence, with an urge to create a new thing every day. Ayushi, busy bee, working constantly, thinking continuously and performing consistently. Sumit, soft, simple and agile, always complementing me in every work and experiment, a great junior I ever had in my life. I wish to work with him in the future if I continue to be in this field. His keen interest in science, enthusiasm, sincerity and witty nature are worth admiration. I admit, without his support my PhD would have been a Herculean task. My thanks are due to Sumit, Ayushi and Mohan for taking lot of pain in reading the manuscript carefully and correcting the mistakes during my compilation.

A special thanks to Devraj who took care of the tissue culture section apart from helping us, and still working hard to fight the unbeatable fungus. I hope his enthusiasm will not die in the coming years and will continue to work hard. During this long and tiring journey, few came, helped, and left making an impact. Among them are Anil, Muthu and Gaurav who worked as trainees with me, really took lot of interest and reduced my burden. At present Anil and Rajkumar are helping me whole heartedly and are performing beyond their potential.

Every morning, I see him in front of me with a smiling face. It's none other than our 'information officer (Khabari)', Sarjeetda, very big by heart, and ready to help any time. Constantly working and constantly chewing. Taking care of the lab requirements, running up and down and still I don't know why has his belly blown? Thank you sarjeetda! for being so helpful and sportive throughout my PhD tenure. I also thank rajveer ji for little advices which helped me throughout. I also acknowledge Mrs. Uma Natarajan and Anand Rana for their co-operation during my work.

Our lab has a very good support staff that takes care of all the materials required for our experiments. This includes Aurobindo da, Bishu da, Mahinder ji, Ajay ji, Sujanda Neeta ji and Brijesh ji who take lot of interest in providing us the clean glass ware which is a basic requirement for the success of any experiment. In the same enthusiasm I would thank Shanker and Ravi, the core duo of the lab, for their help in maintaining conducive environment in the tissue culture lab. I also acknowledge Jasbeer for his all-round support. Thanks to all the field staff, Amar, Rajesh, and Sonathan any many more who worked in the scorching sun to maintain the field.

Juniors from other labs, who have influenced me include Rakesh, as confident as ever and helping everybody throughout, Kamal, whose big smile touches both the corner of his face, Sourav, whose eyes speak more than he does, Kundan, with a big question mark on his face, Prabhakhar, who starts laughing from a kilometer, Susheel as well mannered as his name, Monica (Dost), I can introduce my brother to you. Ramayya, Chandru, Vineeta, Deepti, Prasad, Eeshan, Kunal many more.... Have done it.

Without people seeing to it that practical problems are solved, work would become difficult in any workplace. I thank all the administrative and technical staff of the institute for helping me out in conducting experiments in the CIF. Ashokji, needs a special thanks for taking pain in helping me perform experiments, with Sobaramji and Surenderji making the CIF a better place to work. Thanks to Arun for efforts in sequencing and Mishra ji for helping me out in the library.

I would like to acknowledge Dr Manoj Prasad for lending me his wonderful camera to capture our observations during the study. I thank Dr. Praveen Verma for making the CIF a best place to work and Dr. Debasis Chattopadhyay for making radioactive room a very safe place to work. And sincere thanks to all the faculties who introduced me the new subjects during the course work. At this juncture I would take this opportunity to acknowledge my MSc supervisor, Dr VV Shenoy for cultivating interest in the scientific research and laying a good foundation.

I acknowledge greatly, the help of Dr. Rashmi during my tough times. I owe many things to her. My ready made elder sister, Dr. Purnima, whose constant encouragement made me to run towards my goal.

I acknowledge my stand-in mother (Arnav's mother) who took care of me as her younger son and encouraged to go on during hard times. She did all possible efforts to pacify our taste buds by cooking delicious cuisine during our visit to her residence.

Even though this PhD dissertation can yield at most one doctor's title to at most one person, it has involved the help, interest, and support of many. In this list, family comes first

My parents, who are the constant inspiration for me, still continue to give up their dreams to fulfill mine. Their constant encouragement never allowed to abort my mission. Although my mother will not be able to read what I feel for her, but she knows that values given by her will be practiced and taken forward. "Son, if you are true and right, no body will dare to touch you" these words said by my father still motivate me and keep me moving ahead in the right tract. He gave me enough freedom and strength to continue in spite of several failures. His confidence in me made me more responsible. His saying 'Tough times never last, but tough people do! Success is never ending, Failure is never final' kept me going. I am so grateful to be his son.

Two strong pillars of my moral support are my two sisters, Poornima and Rajeshwari. At a very early age, they had to take lot of responsibilities due to untimely demise of our mother. They held the family to gather and performed the duties in a very nice manner. They always encouraged me to perform and excel. I really love them.

From my brother in law, Arvind, I have picked up qualities like sincerity and hard work from his extravagant treasure. I acknowledge him for being one of my ideals. Talking and playing with my nephews Pratham and Soham makes me forget the long and tiring day in the lab.

I acknowledge the support and motherly love provided by my aunt (Chikamma) who filled the void space created after my mother's demise. My grandparents love and blessings helped me to pursue PhD and do science to my satisfaction.

God upsets our plans to set up his, and his plans are always perfect. I believe my marriage with Bhumika is a perfect example for the saying 'marriages are made in heaven'. I came all the way from Dharwad to Delhi, and later found that she was one for whom I waited. It all happened and I am very lucky it happened. She is one who has held me during harsh and rough times, shared my agony, listened to my tantrums, never uttered a word in spite of not give her enough time.

I am very much thankful to mother in law and father in law for their love, constant support and encouragement. I am overwhelmed by the care and support provided by Mausai and Mausaji, Tinu, bittu, Guddu and moni. I am very grateful to all members of Shokeen and Dabas family for accepting me whole heartedly.

I acknowledge CSIR and NIPGR for making me financially sound and independent to fulfill my small desires.

I owe my most sincere gratitude to the Almighty for giving me such a great combination of family, friends and teachers.

The more opposition there is- the better. Does a river acquire velocity unless there is resistance? It is the opposition which foretells success.

Swami Vivekananda

With this end note..... I take some profound memories.....

Ganga dhaba, session after the lab meetings, Saraswati puja, walk the talk with my boss, Yamuna hostel night, Shambu's canteen, Gopalan, Godavari, A-37DDA, KC-OAT, Shramdeep Noida Sc-62

20/9/2007


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