PEROXISOME PROLIFERATOR-ACTIVATED RECEPTOR □(PPAR□) IS REGULATOR OF COLORECTAL CANCER CELL GROWTH AND DIFFERENTIATION

By

Rajnish Anand Gupta

Dissertation

Submitted to the Faculty of the

Graduate School of Vanderbilt University

in partial fulfillment of the requirements

for the degree of

DOCTOR OF PHILOSOPHY

in

Cell Biology

May, 2004

Approved By:

Professor Raymond N. DuBois

Professor Al Reynolds

Professor Stephen J. Brandt

ACKNOWLEDGEMENTS

I would like to thank my mother and father, my sister Archana, and my brother Shailen for their unconditional support and encouragement. I would like to thank my graduate thesis advisor, Dr. Raymond DuBois, for all his support, guidance, and patience over the last four years. I have learned a great deal from him, including the importance of identifying meaningful research problems and on how one can successfully integrate clinical and basic science as a physician-scientist. I would also like to thank the members of my thesis advisory committee, Drs. Reynolds, Brandt, Granner, Magnuson, and Crawford for their support and guidance and for always willing to meet with me to discuss my work. All members of the DuBois lab (past and present) provided me with a great deal of help during the last four years, including Jeff Brockman, Chris Williams, Rebecca Shattuck-Brandt, Wade Krause, Sharada Katkuri, Hongmiao Sheng, Jinyi Shao, Radhika Aramandala, and Zhounghou Zhang. I would in particular like to thank Howard Crawford, whose bench was down the hall from mine and who was always willing to take the time to teach me and help me with my research the many times I wandered down to talk with him. Finally, Pasha Sarraf (Dana Farber Cancer Institute), S. K. Dey (University of Kansas), and Tim Willson (GlaxoSmithKline) were all collaborators on various projects and their involvement has been extremely beneficial to me.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES