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The goal of this training program is to significantly extend our existing, highly successful Doctoral Training Program in Tumor Biology and several Cancer Center mechanisms that provide traditional postdoctoral training and junior faculty career development. The program integrates faculty from the Lombardi Cancer Center programs in Cancer Prevention and Control and Cancer Genetics and makes use of the existing organizational structure of the Interdisciplinary Doctoral Training Program in Tumor Biology and incorporates a multi-disciplinary faculty who are devoted to research and education in breast cancer. We have two postdoctoral fellows who have successfully completed their first year in the program and are now entering their second year of research. We have recruited one postdoctoral fellow to the program thus far who will arrive in September, 2001. Our recruitment for our second incoming class will be completed in the Fall, 2001.

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**COMPREHENSIVE POSTDOCTORAL TRAINING PROGRAM IN BREAST  
CANCER BIOLOGY**

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## COMPREHENSIVE POSTDOCTORAL TRAINING PROGRAM IN BREAST CANCER BIOLOGY

### INTRODUCTION

The Comprehensive Postdoctoral Training Program In Breast Cancer Biology has successfully completed its first year. The goal of the program is to significantly extend our existing, highly successful Doctoral Training Program in Tumor Biology and several Cancer Center mechanisms that provide traditional postdoctoral training and junior faculty career development. The education and training of new investigators is essential to our progress in the prevention, detection, diagnosis, and treatment of breast cancer. The Postdoctoral Training Program in Breast Cancer provides comprehensive career development and integrates interactive research in basic biology of breast cancer, formal and informal coursework in key areas, and individualized guidance in career development. The program is enriched with both new and existing courses of interest to postdoctoral fellows covering scientific writing, teaching methodologies, scientific resources and technologies for cancer research, ethics in science, career development seminar series, and provides a firm foundation in the skills needed to succeed in a career science, as well as a focused research experience in basic breast cancer biology in a strong laboratory environment. Additional programmatic activities include monthly Oncology Grand Rounds, weekly Tumor Biology Seminar Series, and weekly journal clubs. The program makes use of the existing organizational structure of the Interdisciplinary Doctoral Training Program in Tumor Biology and incorporates a multi-disciplinary faculty who are devoted to research and education in breast cancer.

In the future it is envisioned that postdoctoral fellows will also be given the opportunity to choose multiple mentors who will form a guiding committee, enabling them to seek research and career advice from a number of senior faculty. The development of this more structured Tumor Biology Postdoctoral training program will provide excellent preparation for successful careers in cancer research.

### BODY

#### *Training and Research Accomplishments*

The accomplishments of this program include the recruitment and progress of postdoctoral fellows. In the past 10 years, over 100 postdoctoral fellows have been trained by our Tumor Biology program preceptors. These fellows have an outstanding record of research productivity and peer-reviewed publication, and over 50% of them have obtained academic faculty level positions.

In the first year of the program we have funded two post doctoral fellows for research specific to breast cancer. Fadwa Attiga, PhD has successfully completed her first year in Stephen Byers' lab, researching the cross regulation between the IKK and the beta-catenin signaling pathways in breast and colon cancer. Dr. Attiga is now studying how different kinases regulate the level of oncogene beta-catenin in tumor cells and identifying the key players in the signaling cascades that alter the beta-catenin protein level and transcriptional activity in tumors. Dr. Attiga has attended courses TBIO546 – *Resources for Cancer Research* and Pharmacology/Biochemistry 528 – *Modern Methods in Molecular Biology*.

Also in the DOD postdoctoral program, Tushar Baran Deb, PhD has completed his first year of research in Dr. Robert Dickson's lab studying the EGFR and ErbB2, ErbB3, and ErbB4 pathways which are utilized in c-Myc oncoprotein-overexpressing mammary epithelial cells (Myc83 cells) to circumvent normal apoptotic mechanisms. For these studies, Dr. Deb used transgenic mouse mammary epithelial cells to understand the mechanism of EGF-dependent survival signaling in Myc83 cells.

In terms of recruitment, we have recruited Marcia Noble, Ph.D. to the Comprehensive Postdoctoral Training Program in Breast Cancer Biology. Dr. Noble will begin her postdoctoral fellowship in September 2001 under collaborative mentorship of Dr. Michael Johnson and Dr. Robert Dickson. She is expected to develop a research project on the mechanism of VEGF to promote breast cancer metastases in transgenic mouse models.

As noted earlier, our Postdoctoral Program incorporates elements of our existing Tumor Biology PhD program as well as new, Postdoctoral Training-specific elements as a part of a Breast Cancer Prevention Track. In addition to the existing courses offered through the Interdisciplinary Doctoral Training Program in Tumor Biology, new course components have recently been incorporated into the Breast Cancer Prevention Track. These include a new course in Biostatistics, called *Applied Biostatistics* offered in the Spring, that focuses on statistical design and methodology for research, and a new course on Cancer Genetics, called *Genetics, Health, and Society in the 21<sup>st</sup> Century* also offered in the Spring, which focuses on practical and ethical questions raised by genetic information and technology. In addition, we have now established *Career Development/Opportunity* seminar series that will begin in the fall.

#### KEY ACCOMPLISHMENTS

- *Recruitment of Trainees and Progress of Trainees:*  
We are currently in the process of recruiting class #2 of our Postdoctoral Trainees. Based on our prior years' experience, we anticipate an excess of 200 applicants. We have currently identified one new fellow, Dr. Marcia Noble, who will begin 9/01. We anticipate filling our second slot for class #2 by later in Fall, 01. Two postdoctoral

fellows enrolled in our DOD program, Drs. Attiga and Deb, will be entering their second year in the program studying breast cancer biology.

- *Development of Courses:*  
The following courses were revised or developed for the Breast Cancer Prevention track of the Interdisciplinary Doctoral Training Program in Tumor Biology – *Biostatistics and Experimental Design, Cancer Genetics, Topics in Molecular Epidemiology of Cancer Risk, and Principles of Cancer Prevention*. In addition, new courses *Genetics, Health and Society in the 21<sup>st</sup> Century*, and *Applied Biostatistics* have been added to the program. An academic/non-academic career development seminar series will be offered in the fall.

### REPORTABLE OUTCOMES

- *Publications:*

**Tushar Baran Deb, Ph.D. -**

Deb, T.B., Wong, L., Wells, A., Johnson, G.R. (2001). Mitogenic signaling by a kinase-I inactive epidermal growth factor receptor in fibroblast requires ErbB2. (In Preparation).

Wang, JK, Deb, T, Cottichia, C, and Dickson RB. P38 MAPU mediated apoptosis and survival signalling in c-Myc-overexpressing mouse mammary carcinoma cells. (Under revision for resubmission to *Cell growth and Different*).

**Fadwa Attiga, Ph.D. –**

Dr. Attiga currently has a manuscript in preparation, "Tumor necrosis factor alpha regulates NFkb and beta catenin signaling in colon cancer cells." (In Preparation).

### CONCLUSIONS

The goal of the program is to significantly extend our existing, highly successful Postdoctoral Training Program in Cancer with a new specialization in Breast Cancer Biology. We have successfully completed our first year of the Comprehensive Postdoctoral Training Program in Breast Cancer Biology and have two postdoctoral fellows who are now entering their second year of research. We have recruited one new postdoctoral to the program who will begin in September 2001; recruitment for our second class will be completed later in Fall, 2001.