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The three campuses of the Mayo Graduate School provide an advanced clinical and research training environment for conducting an integrated, multidisciplinary, predoctoral training program based in the study of cell and molecular biology of breast cancer. Thirty-two full-time faculty members currently participate in Mayo's didactic tumor biology training curriculum which supports the training of postdoctoral trainees in NCI sponsored postdoctoral training programs at Mayo. This strong multidisciplinary tumor biology curriculum provides the foundation for the didactic component of a specialized predoctoral training program in breast cancer. The development of this new training program has been facilitated through the development of two new graduate courses in the cell and molecular biology of breast cancer, as well as through the initiation of a new journal club and an intramural research workshop for trainees in this training program. The research training component of this new predoctoral track is laboratory-based and is fostered by Mayo's highly competitive and interdisciplinary research environment and by the heightened interest in breast cancer research stimulated through the recent development of the Mayo Women's Cancer Program within the Mayo Cancer Center.

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Biology of Breast Cancer: A Predoctoral Training Program

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Introduction

The objective of the Mayo Biology of Breast Cancer (BBC) Training Program is to provide an educational environment that stimulates excellence in scientific thought and training while simultaneously providing exposure to all of the major fields of study relevant to human breast cancer. A defining feature of our program is its integral link with the clinical realities of breast cancer. For example, BBC trainees regularly attend and participate in seminars and didactic course lectures covering the natural history of breast cancer. They hear case presentations that illustrate genetic predisposition, hormonal responsiveness and resistance, relevant biomarkers for prognosis, treatment approaches, and barriers to successful therapy. BBC trainees also have repeated exposure to clinical mentors and are challenged to design experiments that utilize human specimens and address clinically relevant problems.

Besides our wealth of clinical breast cancer specimens (over 500 breast cancer surgeries at Mayo annually), links to related cancers are stressed, such as other hormonally regulated tumor systems (e.g., prostate carcinoma, endometrial carcinoma) as well as the genetic and epidemiologic links with ovarian cancer. Other major strengths of our environment include an internationally recognized epidemiology program; a model program for the evaluation of health services and their outcomes; strong psychosocial research, particularly targeting women's cancers; and a large clinical trials base that uniquely supports a variety of specific laboratory-based studies.

This opportunity to ground a predoctoral training program at a major clinical center in the targeted study of breast cancer has provided a uniquely fertile environment for the training of individuals committed to translational work. In summary, Mayo's clinical resources have provided the foundation for the development of a predoctoral training program in breast cancer that is unparalleled in its commitment to clinically relevant investigation and the application of new information generated through these studies to the management and treatment of breast cancer patients. A description of our progress in the development of this new training program is provided below.

Body

Our objective in applying to USAMRDC funding was to develop a specialized graduate training program in the biology of breast cancer. The focus of this program is to provide an educational environment that stimulates excellence in scientific thought and training while simultaneously providing exposure to all of the major fields of study relevant to breast cancer. The establishment of such a program has occurred building upon an exceptionally strong tumor biology curriculum already in place at Mayo. This objective has been achieved through the Mayo Graduate School, and has been facilitated by the Mayo Women's Cancer Program of the Mayo Cancer Center.

During the past year, we have used the award provided in response to this training grant application to formalize a new and specialized track in the Mayo Graduate School with an emphasis in Tumor Biology, using women's cancers, and particularly breast cancer, as the model malignancy to illustrate fundamental principles of all aspects of cancer biology. After various levels of institutional

(Mayo Foundation) review, the new curriculum and faculty associated with the "Biology of Breast Cancer", as described in the original training grant application, have been approved, and this program is now recognized as a new and separate area of specialization within the Mayo Graduate School. This approval is significant, not only because it formalizes a new area of specialization for predoctoral candidates at Mayo, but also because it indicates that the institution (Mayo Foundation) considers this training area of such significance, that this new program will be allowed to compete internally for sustained institutional support at the end of this award period.

Four students have been identified to participate in this new training program during the 1995-1996 academic year: Ms. Margaret Adelsman, Mr. Michael Rogers, Mr. Steve Ritland, and Mr. Jonathan Baines. In addition, active recruitment for the 1996-1997 term has been initiated in collaboration with the Mayo Graduate School. Color posters will be distributed in October, 1996 to approximately 1,000 undergraduate training programs nationwide. In addition, announcements of this new program will appear in several scientific journals during Fall Quarter, 1995. We have also worked with the Mayo Graduate School to target several of Mayo's "Summer Undergraduate Research Fellowships" to prospective BBC candidates, and anticipate this will be a very effective mechanism of recruitment of highly qualified candidates into this new training program.

Conclusions

In summary, during the first year of this award, we have formalized a new training program within the Mayo Graduate School, we have recruited our first four trainees into this new program, and we have initiated a comprehensive recruitment effort to identify exceptionally well qualified candidates for academic '96 - '97. In addition, we have used this award to solicit a commitment from the Mayo Foundation to sustain this new training program, on a competitive (internal) basis beyond the period of this award. This commitment should allow us to support students in this new training program beyond the period of the award, and should also allow us to attract and maintain a high level of faculty enthusiasm and participation in this new training program.