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TITLE: Interdisciplinary Breast Cancer Training Program

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CONTRACTING ORGANIZATION: The University of Alabama at Birmingham
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4. TITLE AND SUBTITLE
Interdisciplinary Breast Cancer Training Program

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U.S. Army Medical Research and Materiel Command
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13. ABSTRACT (Maximum 200 Words)
The goal of the University of Alabama at Birmingham Interdisciplinary Breast Cancer Training Program (IBCTP) is to educate and train predoctoral students in a multidisciplinary environment with a focus on breast cancer research. The aims are to 1) recruit predoctoral trainees to the Interdisciplinary Breast Cancer Training program; 2) assure that predoctoral trainees obtain a broad-based breast cancer education and carry out interdisciplinary breast cancer research; 3) administer this program with sufficient oversight to ensure high-quality education and training, efficient completion of degree requirements, and productive research careers. For academic year 2004-2005, we recruited 2 new students, had one previous student transfer to another program, resulting in a total of 10 students in the IBCTP (six more than initially recommended by the study section). Two students have been accepted for Ph.D. candidacy. The IBCTP hosted 12 scientists to present seminars on cancer related research and to talk to the predoctoral trainees. The Breast Cancer Causation and Regulation course and Breast Cancer Journal Club received “very good” evaluations. Seven abstracts/presentations were made by 4 students at scientific meetings. One Susan Komen predoctoral grant was renewed and two new research grants were awarded to faculty, in part, because of student data used in the preparation of the grant applications.

14. SUBJECT TERMS
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Unlimited
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INTRODUCTION

The goal of the University of Alabama at Birmingham Interdisciplinary Breast Cancer Training Program (IBCTP) is to educate and train predoctoral students in a multidisciplinary environment with a focus on breast cancer research. The aims are to 1) recruit predoctoral trainees to the IBCTP; 2) assure that predoctoral trainees obtain a broad-based breast cancer education and carry out interdisciplinary breast cancer research; 3) administer this program with sufficient oversight to ensure high-quality education and training, efficient completion of degree requirements, and productive research careers. Our training program is designed to prepare and motivate trainees to pursue careers in the fields of breast cancer causation, prevention, diagnosis, therapy and education.

BODY

The executive committee is the same as last year: Dr. Danny Welch (Mechanisms of Growth Control), Dr. Therese Strong (Gene Therapy), Robert B. Diasio (Cancer Pharmacology), Clinton Grubbs (Chemoprevention), Charles N. Falany (Cancer Causation), and Dr. Coral A. Lamartiniere (Program Director), plus one new elected student/trainee, Tim Whitsett. The executive committee is responsible for interviewing and selecting prospective IBCTP students, developing and implementing the academic and research program, review of individual student progress, the budget, and participating in Quarterly and Annual Program reviews.

TASKS FOR YEAR FOUR (9/03 - 8/04)

1) Schedule IBCTP seminar speakers (Aim 2).
The APPENDIX contains the list of breast cancer seminar speakers (pages 10 and 11).

2) Hold quarterly program reviews (Aim 3).
Quarterly program reviews were held by the executive committee to discuss recruitment, the progress of the trainees, the curriculum and the evaluation of courses. Two new students were recruited: Sarah Jenkens and Heath McCorkle.

3) Monitor progress of trainees (Aim 3).
At the quarterly meetings, progress of individual students was discussed. At the end of the summer meeting, laboratory evaluations turned in by the mentors were taken into consideration. All 2003 students made satisfactory progress academically (A & B grades) and have selected research mentors: James Cody with Dr. Joanne Douglas (gene therapy), April Adams with Dr. Kurt Zinn (imaging); Kevin Roarty with Dr. Rosa Serra (TGF-beta in mammary). A list of students, research topic and mentors is provided in the APPENDIX (page 9).

4) Attend AACR meeting.
Craig Rowell and Tim Whitsett attended and made poster presentations at the AACR meeting in Orlando. The PI was not able to attend because of previous commitments, but was coauthor on 2 abstracts to the AACR meeting. Also, Damon Bowe attended and presented at the Mammary Gland Biology, Gordon Research Conference, Bristol, RI, and Craig Rowell attended and presented at the Susan Komen Breast Cancer Meeting in New York. The PI has attended 3 Breast Cancer and the Environment meetings in Philadelphia, Research Triangle Park NC, and
Washington. A list of all abstracts/presentations is contained in Reportable Outcomes.

5) Hold annual program review (Aim 3). At the end of the summer executive committee meeting, the following recommendations were made. The Breast Cancer Causation and Regulation course and new format Breast Cancer Seminar Series received very good evaluations and it was recommended that the contents be kept the same. A copy of the Breast Cancer Causation and Regulation course content is enclosed in the APPENDIX (page 12).

6) Prepare and submit annual report to DOD. Submitted.

KEY ACCOMPLISHMENTS

- The program now has 10 predoctoral Breast Cancer students in good academic standing and/or making good progress in breast cancer research. One (Chantelle Bennetto) has decided to switch field (to pharmacy). The second year students, (James Cody, April Adams and Kevin Roarty) have selected their mentors (Drs. Joanne Douglas, Kurt Zinn and Rosa Serra, respectively, all breast cancer research).

- Two students Craig Rowell and Damon Bowe have been admitted into candidacy for the Ph.D.

- For academic year 2004-2005, 6 applicants (from 30 completed applications) were interviewed and fellowships were offered to and accepted by 2 students (Sarah Jenkins and Heath McCorkle). Their credentials are provided in the APPENDIX (page 8).

- The appendix contains the lectures for the Breast Cancer Causation and Regulation course (page 12). The 2003-2004 course received a “very good” evaluation.

- Renewed Susan Komen Breast Cancer Predoctoral Award for one student and received 2 new breast cancer research grants based in part on preliminary data from 2 trainees (listed in Reportable Outcome).

REPORTABLE OUTCOMES

1) Presently, we have 10 students enrolled via the IBCTP.

2) Published Abstracts


3) Renewal of Predoctoral Award
Susan Komen Breast Cancer Predoctoral Award (DISS0201242)
P.I.: Dr. C.A. Lamartiniere; Predoctoral Student: Craig Rowell
First year: $30,000; Total: $60,000; 5/1/03 – 4/30/05
Grant Title: Effects of Genistein and TCDD on the Maturation of the Rat Mammary Gland: Alterations in Protein Tyrosine Kinase Activity and Signaling.

4) Research grants received in part because of preliminary data produced by Breast Cancer predoctoral students, Craig Rowell and Tim Whitsett.


Center for the Study of Environment and Mammary Gland Development. NIH/NIEHS. 1U01 ES012771-01. J. Russo, Fox Chase Cancer Center, Director; Lamartiniere, Co-PI. 9/29/03 – 7-31/-10. UAB PI share: $1,540,000.
APPENDIX

Student Credentials

Student Research and Mentors

IBCTP Seminar Speakers

2003-2004 Breast Cancer Causation and Regulation Lectures
**Students Presently Enrolled in the University of Alabama at Birmingham Interdisciplinary Breast Cancer Training Program**

<table>
<thead>
<tr>
<th>Student</th>
<th>Previous Degree Institution</th>
<th>Date of Entry</th>
<th>GPA</th>
<th>GRE Verbal</th>
<th>GRE Quantitative</th>
<th>GRE Analytical</th>
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</thead>
<tbody>
<tr>
<td>Craig Rowell</td>
<td>BS (95) Lake Forest IL</td>
<td>2000</td>
<td>3.8</td>
<td>580</td>
<td>610</td>
<td>680</td>
</tr>
<tr>
<td></td>
<td>MS (00) UAB</td>
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<td></td>
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<tr>
<td>Mubina Nasrin</td>
<td>MD (94) M.R. Medical College, India</td>
<td>2001</td>
<td></td>
<td>no GPA</td>
<td>690</td>
<td>650</td>
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<tr>
<td>Damon Bowe</td>
<td>BS (99) Bates College Maine</td>
<td></td>
<td>3.5</td>
<td>590</td>
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<tr>
<td>Hope Amm</td>
<td>BS (02) Saint Mary’s College</td>
<td>2002</td>
<td>3.38</td>
<td>550</td>
<td>640</td>
<td>490</td>
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<tr>
<td>Timothy Whitsett</td>
<td>BS (02) Yale University</td>
<td>2002</td>
<td>3.59</td>
<td>530</td>
<td>700</td>
<td>750</td>
</tr>
<tr>
<td>James Cody</td>
<td>BS (01) UAB</td>
<td>2003</td>
<td>3.37</td>
<td>590</td>
<td>670</td>
<td>640</td>
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<tr>
<td>April Adams</td>
<td>BS (01) U. Chicago</td>
<td>2003</td>
<td>3.38</td>
<td>660</td>
<td>710</td>
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<tr>
<td>Kevin Roarty</td>
<td>BS (95) Virg. Tech. M.S. (02)</td>
<td>2003</td>
<td>3.74</td>
<td>520</td>
<td>680</td>
<td>480</td>
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<tr>
<td>Sarah Jenkins</td>
<td>BS (04) St College of West Georgia</td>
<td>2004</td>
<td>3.5</td>
<td>550</td>
<td>690</td>
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<tr>
<td>Heath McCorkle</td>
<td>BS (01) Emory Univ</td>
<td>2004</td>
<td>3.1</td>
<td>570</td>
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### Students, Breast Cancer Research, and Mentors

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<thead>
<tr>
<th>Student</th>
<th>Research Description</th>
<th>Mentor (Department)</th>
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<tbody>
<tr>
<td>Craig Rowell</td>
<td>Proteomic Discovery of Genistein Action in the Rat Mammary Gland</td>
<td>Coral Lamartiniere (Pharmacology and Toxicology)</td>
</tr>
<tr>
<td>Mubina Nasrin</td>
<td>Therapeutic Potential of UAB 30 (a retinoic acid derivative) against Breast Cancer</td>
<td>Coral Lamartiniere (Pharmacology and Toxicology)</td>
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<tr>
<td>Damon Bowe</td>
<td>NCOAT Splice Variant Function in Mammary Gland Development</td>
<td>Jeffrey Kudlow (Molecular Endocrinology)</td>
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<tr>
<td>Hope Amm</td>
<td>Combination Immunotherapy and radiation Therapy against Breast Cancer</td>
<td>Donald Buchsbaum (Radiation Oncology)</td>
</tr>
<tr>
<td>Timothy Whitsett</td>
<td>Chemoprevention Against Breast Cancer with Genistein and Resveratrol</td>
<td>Coral Lamartiniere (Pharmacology and Toxicology)</td>
</tr>
<tr>
<td>James Cody</td>
<td>Gene Therapy for Breast Cancer</td>
<td>Joanne Douglas (Pathology)</td>
</tr>
<tr>
<td>April Adams</td>
<td>Molecular Imaging in Animal Models</td>
<td>Kurt Zinn (Radiation Oncology)</td>
</tr>
<tr>
<td>Kevin Roarty</td>
<td>Mechanisms of TGF-beta Action in Mammary Gland Development and Breast Cancer</td>
<td>Rosa Serra (Cell and Molecular Biology)</td>
</tr>
<tr>
<td>Sarah Jenkins</td>
<td>Breast Cancer Lab Rotations</td>
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<tr>
<td>Heath McCorkle</td>
<td>Breast Cancer Lab Rotations</td>
<td></td>
</tr>
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</table>
2003-2004 University of Alabama at Birmingham
Interdisciplinary Breast Cancer Training Program Seminars

August 26, 2003
Satyabrata Nandi, Ph.D.
Professor
Dept of Molecular & Cellular Biology
University of California, Berkeley
“Estrogen Can Prevent Breast Cancer”

September 3, 2003
Kevin Brown, Ph.D.
Assistant Professor
Department of Biochemistry and Molecular Biology
Louisiana State University/Health Sciences Center
“ATM is a Target for Epigenetic Silencing in Breast Cancer”

October 7, 2003
Coral Lamartiniere, Ph.D.
Professor, Pharmacology & Toxicology
UAB
“Genistein Suppresses the Development of Mammary Cancer”

October 21, 2003
Sam Lee, Ph.D.
Assistant Professor, Division of Cancer Biology
Harvard Medical School
“Two Faces of Tumor Suppressor p53 Function: Survival and Apoptosis”

November 25, 2003
Craig Rowell
Graduate Student/UAB
Department of Pharmacology & Toxicology
“Systems Biology: Proteomic Approaches to Biomarker Discovery in the Mammary Gland”

December 9, 2003
Charles Falany, Ph.D.
Professor, Pharmacology & Toxicology
UAB
“Steroid Sulfation in Hormone Responsive Human Tissues”

December 16, 2003
J. Mark Cline, Ph.D.
Associate Professor, Department of Pathology
Wake Forest University School of Medicine
“Effects of Soy Isoflavones on the Reproductive System: Independent and Interactive Effects”

February 17, 2004
Zafar Nawaz, PhD
Professor
Creighton University, Nebraska
“Ubiquitin-Proteasome Pathway Enzymes as Modulators of Steroid Hormone Receptor Functions”

February 24, 2004
Leena Hilakivi-Clark, PhD
Professor
Georgetown University, DC
“Prepubertal Diet and Breast Cancer Risk”

March 16, 2004
Pam Cowin, PhD
Associate Professor, Cell Biology
NYU Medical Center
“Beta-Catenin and Plakoglobin in Cell Adhesion and Breast Cancer”

April 6, 2004
Wesley Gray, PhD
Professor, Chemistry & Environmental Toxicology
Southern University, LA
“Developing a Model System for Studying Phytoestrogen-Dependent Gene Expression”

April 13, 2004
Saraswati Sukumar
Professor, Pathology
Johns Hopkins University, MD
“Ductal Access to Breast Cancer Prevention, Therapy and Early Diagnosis”

May 4, 2004
Richard Peterson, PhD
Professor, Pharmacology & Toxicology
University of Wisconsin – Madison
“Impairment of Development by Dioxin”
### Breast Cancer Causation and Regulation

**TOX 750**  
**Fall 2003**  
**Mondays and Wednesdays, 3-5 pm in Volker Hall 108D**  
**Course Director:** Coral A. Lamartiniere  
**Volker Hall 124; 4-7139; Coral.Lamartiniere@ccc.uab.edu**  
**Administrative Coordinator:** Becky Warnix Volker Hall 101C; 4-4579; Becky.Warnix@ccc.uab.edu

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<tr>
<th>Date</th>
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<th>Instructor (Department)</th>
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<tr>
<td>Wed Sept 3</td>
<td>Overview of the Breast Cancer Problem</td>
<td>John Waterbor (Epi)</td>
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<tr>
<td>Mon Sept 8</td>
<td>Environmental Carcinogenesis</td>
<td>Coral Lamartiniere (Pharm/Tox)</td>
</tr>
<tr>
<td>Wed Sept 10</td>
<td>Steroid Hormone Action in the Breast</td>
<td>Barnes (Pharm/Tox)</td>
</tr>
<tr>
<td>Mon Sept 15</td>
<td>Oncogenes and Suppressor Genes</td>
<td>Mike Ruppert (Medicine)</td>
</tr>
<tr>
<td>Wed Sept 17</td>
<td>Signal Transduction and Breast Cancer</td>
<td>Jeffrey Kudlow (Endocrinology)</td>
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<tr>
<td>Mon Sept 22</td>
<td>Exam</td>
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<tr>
<td>Wed Sept 24</td>
<td>Nuclear Receptors as Targets for Novel Small Molecule Therapeutics</td>
<td>Donald Muccio (Chemistry)</td>
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<td>Mon Sept 29</td>
<td>Tumor-host/stroma interactions</td>
<td>Rossa Serra (Cell Biol)</td>
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<td>Wed Oct 1</td>
<td>Primary Prevention</td>
<td>Mona Fouad (Preventive Medicine)</td>
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<td>Mon Oct 6</td>
<td>Chemically-induced Models of Breast Cancer (Chemoprevention)</td>
<td>Clinton Grubbs (Chemoprevention)</td>
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<td>Wed Oct 8</td>
<td>Cancer Pharmacology</td>
<td>Robert Diasio (Pharm/Tox)</td>
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<td>Wed Oct 15</td>
<td>Pathology of Breast Cancer</td>
<td>Andra Frost (Pathology)</td>
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<td>Mon Oct 20</td>
<td>Targeted Immunotherapy</td>
<td>Denise Shaw (Medicine)</td>
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<td>Wed Oct 22</td>
<td>Breast Cancer Metastasis</td>
<td>Joanne Douglas (Pathology)</td>
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<td>Mon Oct 27</td>
<td>Gene Therapy</td>
<td>Theresa Strong (Gene Therapy)</td>
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<td>Wed Oct 29</td>
<td>Cancer Metastasis (Mechanisms)</td>
<td>Danny Welch (Pathology)</td>
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<tr>
<td>Mon Nov 3</td>
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