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PRINCIPAL INVESTIGATOR: Coral A. Lamartiniere, Ph.D.

CONTRACTING ORGANIZATION: The University of Alabama at Birmingham
Birmingham, Alabama 35294-0111

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The University of Alabama at Birmingham
Birmingham, Alabama 35294-0111

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**9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)**
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**14. ABSTRACT**
The goal of the University of Alabama at Birmingham Interdisciplinary Breast Cancer Training Program (IBCTP) was to educate and train predoctoral students in a multidisciplinary environment with a focus on breast cancer research. Twelve students matriculated. Two have graduated with Ph.D.s, of which one is doing postdoctoral breast cancer research at Duke University and the other is making the transition for a postdoctoral position. Five are accepted into candidacy for the Ph.D. and two more are progressing on their research. The Breast Cancer Causation and Regulation course, seminar program and Breast Cancer Journal Club received “very good” evaluations. Students have 12 manuscripts accepted/submitted for publication. 27 Abstracts/presentations were made by students at scientific meetings. The students have received 17 awards, including two DOB-, one Susan Komen-, and one PhRNA Foundation- predoctoral training awards. Five new research grants were awarded to faculty, in part, because of student data used in the preparation of the grant applications.

**15. SUBJECT TERMS**
Breast cancer, interdisciplinary, predoctoral, training

**16. SECURITY CLASSIFICATION OF:**

<table>
<thead>
<tr>
<th>a. REPORT</th>
<th>b. ABSTRACT</th>
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**18. NUMBER OF PAGES**
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**USAMRMC**

**19b. TELEPHONE NUMBER (Include area code)**

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Table of Contents

Cover.................................................................................................................1
SF 298..................................................................................................................2
Table of Contents.................................................................................................3
Introduction ...........................................................................................................4
Body.......................................................................................................................4
Key Accomplishments ..........................................................................................5
Reportable Outcomes............................................................................................6
  Publications.........................................................................................................6
  Abstracts .............................................................................................................7
  Awards to Students ............................................................................................9
  Research Grants ..............................................................................................10
  Summary ..........................................................................................................10
Appendices..........................................................................................................11
  Student Credentials ........................................................................................12
  Student Research and Mentors ......................................................................13
  IBCTP Seminar Speakers ..............................................................................14
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 consist of: 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 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 FIVE (No Cost Extension 9/05 - 8/06)

1) Schedule IBCTP seminar speakers (Aim 2).
The APPENDIX contains the list of breast cancer seminar speakers for 05 – 06. (page 14).

2) Hold quarterly program reviews (Aim 3).
Quarterly program reviews were held by the executive committee to discuss the progress of the trainees.

3) Monitor progress of trainees (Aim 3). At the quarterly meetings, progress of individual students was discussed. Over the course of five years, 12 students matriculated with one returning to earn her MD and to practice medicine, one switching to another biomedical field and soon to graduate, and one leaving for health reasons. Two have graduated with Ph.D.s, of which one is doing postdoctoral breast cancer research at Duke University and the other is making the transition for a postdoctoral position. Five are accepted into candidacy for the Ph.D. and two more are progressing on their research. A list of students, research topic and mentors is provided in the APPENDIX (page 13).

4) Attendance at Scientific Meetings (for 05-06)

April Adams. Attended and presented at the 2006 97th meeting of the AACR in Washington DC, and the Academy of Molecular Imaging meeting in March 2006, Orlando Florida.

Hope Amm. Attended and presented at the 2006 97th meeting of the AACR in Washington DC
Chantelle Bennett. Attended 13th Conference on Retroviruses and Opportunistic Infections (CROI), Feb 2006, Denver, CO


Sarah Jenkins. Attended the 7th International Symposium on Mass Spectrometry in the Health and Life Sciences (August 2005), and the 2006 97th meeting of the AACR in Washington DC.

Kevin Roarty
Attended and presented at UAB Department of Cell Biology 2006 Annual Retreat on Sept. 9, 2006.

Craig Rowell. Attended and presented at the 2006 97th meeting of the AACR in Washington DC


The PI attended and presented at the 2006 97th Annual AACR meeting in Washington, DC, the Breast Cancer and the Environment meeting in Washington, DC (2006), and the 2006 Gordon Research Conference: Mammary Gland Biology in Tuscany Italy.

A list of student abstracts/presentations is contained in Reportable Outcomes.

A list of student 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. Since DOD is not funding the institutional Interdisciplinary Breast Cancer Training Program (IBCTP) any more, we will have to discontinue it. However, training in breast cancer research has been incorporated as one of the research foci in the Integrative Biomedical Sciences Program at UAB.

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

KEY ACCOMPLISHMENTS

• The program has graduated 2 Ph.D.s and one has left the program. Five are accepted into candidacy for the Ph.D. and two are progressing on their research.
REPORTABLE OUTCOMES

• Publications (for all years)


• Abstracts (for all years)

**Hope M. Amm**, Patsy G. Oliver, Donald J. Buchsbaum. TRA-8 anti-DR5 antibody and chemotherapy agents produce cytotoxicity and activate apoptotic pathways in breast cancer cells. 2006 97th meeting of the AACR in Washington DC.


**Jenkins, S.** Craig Rowell, Nandini Raghuraman, Joe Ritchie, and Coral Lamartiniere. Proteomic evaluation of mammary glands of adult rats exposed prenatally to TCDD. AACR 2006.


**Roarty, K** and Rosa Serra. The regulation of Wnt5a by TGF-β1 and its inhibitory role in mammary gland development." - ASCB San Francisco CA Dec 2005


Rowell, C. and C.A. Lamartiniere. From Discovery to Validation: Statistical and Biological evaluations of Proteomics data. Department of Mathematics and Statistics, Auburn University, Auburn, AL 2005


- **Awards to Predoctoral Students**

**April Adams**: AACR Minority Travel Scholar Award in Cancer Research, November 2004

**Hope Amm**: DOD Predoctoral Training Fellowship: Mechanisms and Therapeutic Efficacy of Combination TRA-8, Anti-DR5 Monoclonal Antibody, and Chemotherapy in Breast Cancer

**Damon Bowe**: Merck Toxicology Externship, Safety Assessment Division, Merck & Co., West Point, PA, May 2005

**Damon Bowe**: PhRMA Foundation predoctoral scholarship

**James Cody**: Elected Presiding Officer in the Molecular and Cellular Pathology graduate program for both the '04-'05 and '05-'06 academic years.

**Craig Rowell**: First place, student presentation at the Annual Meeting of the Southeast Society of Toxicology, Chattanooga, TN, 2003


**Craig Rowell**: "AACR Scholar in Training Award” Travel award for the 2004 AACR meeting

**Craig Rowell**: 1st place for scientific posters sponsored by the Breast Cancer and the Environment Research Centers (BCERC) in November 2004 in Princeton NJ


**Craig Rowell**: Awarded Graduate Student of the Year, Department of Pharmacology and Toxicology, 2005

**Tim Whitsett**: Southeastern Society of Toxicology Poster Award (2003)


**Tim Whitsett**: Susan G. Komen Foundation Travel Scholarship (2004)

**Tim Whitsett**: Graduate Student-Postdoctoral Fellow Conference Award (Gordon Research Conference 2005)
Tim Whitsett: Society of Toxicology Travel Award (2005)

Tim Whitsett: DOD Predoctoral Training Award (BC043793) Chemoprevention Against Breast Cancer with Genistein and Resveratrol. 2/25/05 - 2/25/08

- Research grants received in part because of preliminary data produced by Breast Cancer predoctoral students

NIEHS 1R21 ES012326-01 (C.A. Lamartiniere, PI) 4/18/03 – 3/30/06
First Year: $100,000; Total: $300,000
In Utero TCDD Programming for Mammary Cancer: Proteomic analysis of mammary gland from rats treated in utero with TCDD.

DOD DAMD BC 17-03-1-0433 (C.A. Lamartiniere, PI) 7/1/03-7/31/06
First Year: $150,000; Total: $428,249


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.

NIH 1 R01 CA108585-01A2 , Armed Replicating Ad for Breast Cancer Bone Metastasis, Joanne Douglas, PI.

Summary. The UAB institutional predoctoral breast cancer training grant has been a success on this campus. It has catered to a subset of focused bright young students/researchers that are dedicated to investigating the cause, chemoprevention and therapy of breast cancer. These young researchers are being trained to carryout cutting edge breast cancer research. While the BCTP has been in existence for only 5 years, we have graduated two students have graduated with Ph.D.s, of which one is doing postdoctoral breast cancer research at Duke University and the other is making the transition for a postdoctoral position. Five are accepted into candidacy for the Ph.D. and two more are progressing on their research. Two are minorities. The IBCTP has hosted an active seminar program on cancer related research and provided the opportunity of the predoctoral trainees to talk to invited speakers. The Breast Cancer Causation and Regulation course and Breast Cancer Journal Club received “very good” evaluations. Students have 12 manuscripts accepted/submitted for publication. 27 Abstracts/ presentations were made by students at scientific meetings. The students have received 17 awards, including two DOD predoctoral training grants, one Susan Komen predoctoral grant, and one PhRMA Foundation predoctoral training ward. Five new research grants were awarded to faculty, in part, because of student data used in the preparation of the grant applications.

UAB is appreciative of the opportunity of hosting a DOD breast cancer training program.
APPENDIX

Student Credentials

Students, Research and Mentors

IBCTP Seminar Speakers
<table>
<thead>
<tr>
<th>Student</th>
<th>Previous Degree Institution</th>
<th>Date of Entry</th>
<th>GPA</th>
<th>Verbal</th>
<th>Quantitative</th>
<th>Analytical</th>
<th>Status</th>
</tr>
</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>
<td>Postdoc Duke U</td>
</tr>
<tr>
<td></td>
<td>MS (00) UAB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>UAB</td>
</tr>
<tr>
<td>Chantelle Bennetto</td>
<td>BS (99) U. Saskatoon</td>
<td>2000</td>
<td>4.0</td>
<td>510</td>
<td>660</td>
<td>710</td>
<td>Postdoc UAB</td>
</tr>
<tr>
<td>Damon Bowe</td>
<td>BS (99) Bates College Maine</td>
<td>2001</td>
<td>3.5</td>
<td>590</td>
<td>580</td>
<td>710</td>
<td>Received Ph.D. Summer 2006</td>
</tr>
<tr>
<td>Mubina Nasrin</td>
<td>MD (94) M.R. Medical College, India</td>
<td>2001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Medical Doctor Maine</td>
</tr>
<tr>
<td>Hope Amin</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>
<td>Accepted into Ph.D. Candidacy</td>
</tr>
<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>
<td>Accepted into Ph.D. Candidacy</td>
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<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>
<td>Accepted into Ph.D. Candidacy</td>
</tr>
<tr>
<td>April Adams</td>
<td>BS (01) U. Chicago</td>
<td>2003</td>
<td>3.38</td>
<td>660</td>
<td>710</td>
<td>-</td>
<td>Accepted into Ph.D. Candidacy</td>
</tr>
<tr>
<td>Kevin Roarty</td>
<td>BS (95) Virg. Tech. M.S. (02) UAB</td>
<td>2003</td>
<td>3.74</td>
<td>520</td>
<td>680</td>
<td>480</td>
<td>Accepted into Ph.D. Candidacy</td>
</tr>
<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>
<td>-</td>
<td>Into third year research and academics</td>
</tr>
<tr>
<td>Heath McCorkle</td>
<td>BS (01) Emory Univ</td>
<td>2004</td>
<td>3.1</td>
<td>570</td>
<td>740</td>
<td>-</td>
<td>Withdrew because of health problems</td>
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<tr>
<td>Scharri Ezell</td>
<td>BS (05) Tougaloo College</td>
<td>2005</td>
<td>3.5</td>
<td>480</td>
<td>710</td>
<td>-</td>
<td>Into second year Research</td>
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<tr>
<td>Student</td>
<td>Research Description</td>
<td>Mentor (Department)</td>
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</tr>
<tr>
<td>Craig Rowell</td>
<td>Proteomic Discovery of Genistein Action in the Rat Mammary Gland</td>
<td>Coral Lamartiniere (Pharmacology and Toxicology)</td>
<td></td>
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</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>
<td></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>
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<tr>
<td>Timothy Whitsett</td>
<td>Chemoprevention Against Breast Cancer with Genistein and Resveratrol</td>
<td>Coral Lamartiniere (Pharmacology and Toxicology)</td>
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<td></td>
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</tr>
<tr>
<td>James Cody</td>
<td>Gene Therapy for Breast Cancer</td>
<td>Joanne Douglas (Pathology)</td>
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<tr>
<td>April Adams</td>
<td>Molecular Imaging in Animal Models</td>
<td>Kurt Zinn (Radiation Oncology)</td>
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<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>
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<tr>
<td>Sarah Jenkins</td>
<td>Endocrine Disruptors and Breast Cancer</td>
<td>Coral Lamartiniere (Pharmacology and Toxicology)</td>
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<tr>
<td>Scharri Ezell</td>
<td>Breast cancer therapy</td>
<td>Ruiwen Zhang (Pharmacology and Toxicology)</td>
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# Breast Cancer Training Program Seminars

## 2005 - 2006

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Seminar Speaker</th>
<th>Lecture Room</th>
<th>Title of Seminar</th>
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<tbody>
<tr>
<td>Tuesday, 09/27/05</td>
<td>12:00</td>
<td>Steven M. Swanson, Ph.D. Department of Medicinal Chemistry and Pharmacognosy University of Illinois, Chicago, IL</td>
<td>C</td>
<td>New Animal Models to Study the Role of Growth Hormone Signaling in Carcinogenesis</td>
</tr>
<tr>
<td>Tuesday 2/14/06</td>
<td>12:00</td>
<td>Gerald Cunha University of California, San Francisco</td>
<td>C</td>
<td>Role of Stroma in Hormonal Carcinogenesis</td>
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<tr>
<td>Tuesday 2/21/06</td>
<td>12:00</td>
<td>Tim Whitsett Graduate Student UAB Breast Cancer Program</td>
<td>C</td>
<td>Breast Cancer Chemoprevention with the Polyphenols Genistein and Resveratrol</td>
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<tr>
<td>Tuesday, 03/21/06</td>
<td>12:00</td>
<td>Dr. Priscilla Furth, MD Georgetown University</td>
<td>C</td>
<td>Mouse Modeling of the Diversity of Human Cancer Pathways</td>
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<td>Tuesday, 03/28/06</td>
<td>12:00</td>
<td>Dr. Susan Nowell, University of Arkansas for Medical Sciences</td>
<td>C</td>
<td>SULT1A1 pharmacogenetics: influence on tamoxifen therapy for breast cancer</td>
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<tr>
<td>Tuesday, 05/02/06</td>
<td>12:00</td>
<td>Olufunmilayo I. Olopade, M.D., Ph.D. The University of Chicago</td>
<td>C</td>
<td>Genetics of Breast Cancer</td>
</tr>
<tr>
<td>Friday, 06/23/06</td>
<td>11:00</td>
<td>Damon Bowe UAB Breast Cancer Program Dissertation Defense</td>
<td>C</td>
<td>Regulation of mammary gland development by O-GlcNAc</td>
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