

DEVELOPMENTAL/CANCER RESEARCH PROGRAM

Updated: 9/14/2015

Note: For all of the following publications and presentations, investigators at more than one of the Partnership institutions participated in the work associated with their preparation. Thus, an asterisk (*) is not provided for each document.

Initial funding period 9/1/06-8/31/11

I. Cheryl Holt (UAB)/Lee Caplan (MSM) - Spirituality, Religiosity, and Cancer Coping Among Blacks (Funding period: 9/1/06-8/31/08)

Publications:

1. Schulz, E; **Holt, C.L.; Caplan, L.**; Blake, V.; Southward, P.; Buckner, A.; Lawrence, H. Role of spirituality in cancer coping among African Americans: A qualitative examination. J. Cancer Surviv. 2008;2:104-115. <http://www.ncbi.nlm.nih.gov/pubmed/18648979> PMID:PMC3646591.

Contributions by Dr. Holt: Conducted data analysis; drafted manuscript sections; served as corresponding author; worked with first author to bring manuscript through stages of publication.

Contributions by Dr. Caplan: Conducted data analysis; drafted manuscript sections; provided detailed editing and overall critical review prior to submission (several iterations).

2. **Holt, C.L.; Caplan, L.**; Schulz, E.; Blake, V.; Southward, P.; Buckner, A.; Lawrence, H. Role of religion in cancer coping among African Americans: A qualitative examination. J. Psychosoc. Oncol. 2009;27:248-273. <http://www.ncbi.nlm.nih.gov/pubmed/19337932> PMID:PMC3646589.

Contributions by Dr. Holt: Conducted data analysis; drafted most manuscript sections; led manuscript through stages of publication.

Contributions by Dr. Caplan: Conducted data analysis; drafted manuscript sections; provided detailed editing and overall critical review prior to submission.

3. **Holt, C.L.; Caplan, L.**; Schulz, E.; Blake, V.; Southward, V.L.; Buckner, A.V. Development and validation of measures of religious involvement and the cancer experience among African Americans. J. Health Psychol. 2009;14:525-535. <http://www.ncbi.nlm.nih.gov/pubmed/19383653> PMID:PMC3646509.

Contributions by Dr. Holt: Conducted data analysis; drafted most manuscript sections; led manuscript through stages of publication.

Contributions by Dr. Caplan: Conducted data analysis; drafted manuscript sections; provided detailed editing and overall critical review prior to submission (several iterations).

4. **Holt, C.L.**; Schulz, E.; **Caplan, L.**; Blake, V.; Southward, V.L.; Buckner, A.V. Assessing the role of spirituality in coping among African Americans diagnosed with cancer. J. Religion Health 2010;51:507-521. <http://www.ncbi.nlm.nih.gov/pubmed/21246282> PMID:PMC3653318.

Contributions by Dr. Holt: Provided scientific leadership to the team with regard to instrument development, conducted the statistical analyses, and provided a first draft of most parts of the paper.

Contributions by Dr. Caplan: Involved directly in the instrument development as well as in the foundational qualitative work. Provided an in-depth scientific review of the draft manuscript and assisted in completing it for the peer-review process.

5. **Holt, C. L.**; Wang, M.Q.; **Caplan, L.**; Schulz, E.; Blake, V.; Southward V. L. Role of religious involvement and spirituality in functioning among African Americans with cancer: Testing a mediational model. J. Behavior. Med. 2011;34:437-448. <http://www.ncbi.nlm.nih.gov/pubmed/21222026> PMID:PMC3653301.

Contributions by Dr. Holt: Provided scientific leadership to the team with regard to instrument development, conducted the statistical analyses, and provided a first draft of most parts of the paper.

Contributions by Dr. Caplan: Involved directly in the instrument development as well as in the foundational qualitative work. Provided an in-depth scientific review of the draft manuscript and assisted in completing it for the peer-review process.

Presentations:

1. **Holt, C.L.;** Schulz, E.; **Caplan, L.;** Blake, V.; Southward, P.; Lawrence, H., Buckner, A. (2006, November). Role of religion and spirituality in cancer coping among African Americans: A qualitative examination. Poster session presented at the annual meeting of the American Public Health Association, Boston, MA.
2. **Holt, C.L.;** Schulz, E.; **Caplan, L.;** Blake, V.; Southward, P.; Buckner, A.; Lawrence, H. (2006, October). Role of religion and spirituality in cancer coping among African Americans: A qualitative examination. Poster presented at the University of Alabama at Birmingham Comprehensive Cancer Center Annual Research Retreat and Poster Competition, Birmingham, AL.
3. **Holt, C.L.;** Schulz, E.; **Caplan, L.;** Blake, V.; Southward, P.; McLin, E.; Frost, R. (2007, October). Role of religion and spirituality in cancer coping among African Americans: Operationalizing a model. Poster presented at the University of Alabama at Birmingham Comprehensive Cancer Center Annual Research Retreat and Poster Competition, Birmingham, AL.
4. Schulz, E.; **Holt, C.L.;** **Caplan, L.S.** (2007, April). Using the spiritual context to provide culturally relevant health promotion for African Americans. Presented at the annual meeting of the American Occupational Therapy Association, St. Louis, MO.
5. **Holt, C.L.;** **Caplan, L.;** Blake, V.; Schulz, E.; Southward, P.; McLin, E.; Frost, R. (2008, October). Role of religion and spirituality in cancer coping among African Americans: Testing a theoretical model. Poster presented at the annual meeting of the American Public Health Association, San Diego, CA.
6. **Holt, C.L.;** **Caplan, L.;** Blake, V.; Schulz, E.; Southward, P. (2009, November). Development and validation of instruments to assess the role of spirituality in cancer coping among African Americans. Poster presented at the annual meeting of the American Public Health Association, Philadelphia, PA.
7. **Holt, C.L.;** Rosmarin, D.; Feldman, R.; **Caplan, L.;** Pirutinsky, S. (2010, June). Assessing spiritual health locus of control beliefs in a Jewish population. Presented at the annual meeting of the Society for Spirituality, Theology, and Health. Durham, NC.
8. Caplan, L.; Sawyer, C.; **Holt, C.L.;** Allman, R. (2009, November). Religiosity and depression among African American and White cancer survivors. Presented at the annual meeting of the Gerontological Society of America, Atlanta, GA.
9. Caplan, L.S.; **Holt, C.L.;** Schulz, E.; Southward, P.; Blake, V. (2008, June). Utilization of religion and spirituality by African American cancer patients in coping with their illness. Presented at the 1st annual meeting of the Society for Spirituality, Theology, and Health, Durham, NC.

Career development: Although Dr. Holt has moved to the University of Maryland College Park (UMCP), accepting a position as an Associate Professor, she continues to collaborate with Dr. Caplan, who has received another grant in this field of research. Together, with a collaborator at a different institution, they are developing another project that will examine the role of religious involvement in a Jewish population. This is expected to provide preliminary information for a subsequent grant application. Dr. Holt has been accepted as a member of the American Academy of Health Behavior. At UMCP, she is presently serving on the Graduate Program Committee and Grant Review Committee. She is the mentor for three students and is on the dissertation committee for another.

- II. **Oh Wah Stephanie Yap (MSM)/Trygve Tollefsbol (UAB) - Novel Epigenetic Approaches in Drug- and Hormone-Resistant Ovarian Cancer Therapy. (Funding period:9/1/06-8/31/08)**

Publication:

Yap, O.W.S.; Bhat, G.; Liu, L.; **Tollefsbol, T.O.** Epigenetic modifications of the estrogen receptor β gene in epithelial ovarian cancer cells. *Anticancer Res.* 2009;29:139-144. [PMCID: PMC2737468](https://pubmed.ncbi.nlm.nih.gov/19331143/)
<http://www.ncbi.nlm.nih.gov/pubmed/19331143>

Contributions by Dr. Yap: Worked with Dr. Tollefsbol to design the study and the specific experiments; wrote the first draft of the proposal; visited the Tollefsbol lab at UAB to learn techniques that she had not previously performed, such as bisulfite methylation sequencing, 5-azacydine treatments and trichostatin A treatments of cultured cells; enlisted the help of Dr. Liang Liu to learn techniques required for the core components of the paper; performed additional experiments at MSM; wrote the first draft of the paper; made necessary changes suggested by Dr. Tollefsbol and other co-authors.

Contributions by Dr. Tollefsbol: Edited the proposal, offered suggestions and provided preliminary data on epigenetics; edited the paper and offered suggestions for improvement; chose *Anticancer Research* as the most appropriate journal; and submitted the manuscript.

Contributions by Dr. Bhat: In addition to his work with Dr. Grizzle (see below), Dr. Bhat worked on this project, performing some of the experiments and assisting in preparation of the manuscript.

Career development: Shortly after she finished the experimental aspects of the study, Dr. Yap entered clinical practice for further development of her clinical skills and to learn more about primary care. This is consistent with her previous training. Dr. Yap benefited from the project in that she was able to publish a paper as first author. She also developed skills in epigenetic techniques and in cell culturing and become familiar with the research literature in epigenetics and cancer.

III. Roland Matthews (MSM)/Chandrika Piyathilake (UAB) – Protein Biomarkers of Cervical Cancer Risk (Funding period: 9/1/06-8/31/08)

Publications:

1. **Matthews, R.;** Brewster, E.; Asmellash, S.; Azuero, A.; **Partridge, E.E.;** **Piyathilake, C.J.** Usefulness of mass spectrometry to identify women diagnosed with higher grades of cervical intraepithelial neoplasia may differ by race. *Int J Womens Health.* 2011;3:185-192. [PMCID: PMC3140814](https://pubmed.ncbi.nlm.nih.gov/21792340/)
<http://www.ncbi.nlm.nih.gov/pubmed/21792340>

Contributions by Dr. Matthews: Acquisition of data, data analysis and interpretation, initial drafting of manuscript, and final approval of the version to be published.

Contributions by Dr. Piyathilake: Conception and design of experiments, data analysis and interpretation, and final approval of the version to be published.

3. Weragoda, J.; Azuero, A.; Badiga, S., Bell, W.C.; Matthews, R.; Piyathilake, C. An examination of racial differences in 5-year survival of cervical cancer among African American and Caucasian American women in the Southeastern US from 1985 to 2010. *Cancer Medicine*, in press.

Contributions by Dr. Matthews: Acquisition of data, data analysis and interpretation, initial drafting of manuscript, and final approval of the version to be published.

Contributions by Dr. Piyathilake: Conception and design of experiments, data analysis and interpretation, and final approval of the version to be published.

Grant applications:

Piyathilake, C.; **Matthews, R.** Proteomic tests for clinical management of HPV16 infections. R21, submitted on June 16, 2008 to NCI in response to PA-08-157. **Not funded.**

Piyathilake, C.; **Matthews, R.** Racial differences in the molecular characteristics of cervical cancer and response to treatment. A pilot project for the U54 Partnership. 9/1/14-8/31/16. **Funded.**

Patent application:

Piyathilake, C.J. Patent application U2008-0070 has been **approved by UAB**. IP disclosure title: A Proteomic Test in Urine for Identifying HPV 16 Infected Women.

Career development: Dr. Matthews developed an expertise in proteomics that complements his interest in gynecologic malignancy and pre-invasive cervical cancer. This allowed him to participate in development of his institution's Cancer Program. With his new manuscript writing skills, he has authored several manuscripts, made presentations at national meetings, and renewed his award as a Distinguished Cancer Clinician and Scientist from the Georgia Cancer Coalition. He was appointed Director of the Georgia Cancer Center of Excellence at Grady Health Systems (GHS) and is presently the GHS Principal Investigator on Georgia CORE's Gynecology Oncology Group application.

IV. Adelia Bovell-Benjamin (TU)/James Shikany (UAB) – Modification of a Food Frequency Questionnaire for use in African Americans in the Rural South (Funding period: 9/1/06-8/31/09)

Publications:

1. **Bovell-Benjamin, A.C.**; Dawkins, N.; Pace, R.; **Shikany, J.M.** Use of focus groups to understand African-Americans' dietary practices: implications for modifying a food frequency questionnaire. *Prevent. Med.* 2009;48:549-554. <http://www.ncbi.nlm.nih.gov/pubmed/19285101>

Contributions by Dr. Bovell-Benjamin: conception and design, acquisition of data, data analysis and interpretation, initial drafting of manuscript, and final approval of the version to be published.

Contributions by Dr. Shikany: conception and design, acquisition of data, data analysis and interpretation, critical review and revision of the manuscript, and final approval of the version to be published.

2. **Bovell-Benjamin, A.C.**; Dawkins, N.; Pace, R.D.; **Shikany, J.** Dietary consumption practices and cancer risk in African-Americans in the rural south. *J. Health Care Poor Underserved.* 2010;21:57-75. <http://www.ncbi.nlm.nih.gov/pubmed/20675946>

Contributions by Dr. Bovell-Benjamin: conception and design, acquisition of data, data analysis and interpretation, initial drafting of manuscript, and final approval of the version to be published.

Contributions by Dr. Shikany: conception and design, acquisition of data, data analysis and interpretation, review of the manuscript, and approval of the version to be published.

Presentations:

1. **Shikany, J.**; **Bovell-Benjamin, A.**; Dawkins, N.; Hubbell, A.; Pace, R. Modification of a food frequency questionnaire for use in African Americans in the rural South. *FASEB J.* 2008;22:868.2. http://www.fasebj.org/cgi/content/meeting_abstract/22/1_MeetingAbstracts/868.2

2. **Bovell-Benjamin, A.C.**; Dawkins, N.; Pace, R.; **Shikany, J.M.** (2009). A modified food frequency questionnaire for African-Americans. Presented at the Minority Institution and Comprehensive Cancer Partnership (MICCP) Meeting, Washington, DC, September 17, 2009.

Career development: Dr. Bovell-Benjamin improved her skills in (a) inter-institution collaboration, (b) grant writing (she did the bulk of the writing on the original proposal and on a new proposal submitted to the Partnership), (c) manuscript preparation (by preparing two first-author papers, (d) study design, and (e) data analysis. These accomplishments increase her competence as a scientist and should increase her prospects for promotion.

IV. Harvey Bumpers (MSM)/Upender Manne (UAB) – Predictive Molecular Markers of Colorectal Cancer for African- American Patients. (Funding period: 9/1/07-8/31/11)

Publications:

1. Katkoori, V.R.; Jia, X.; Shanmugam, C.; Wan, W.; Meleth, S.; **Bumpers, H.**; Grizzle, W.E.; **Manne, U.** Prognostic significance of p53 codon 72 polymorphism differs with race in colorectal adenocarcinoma. *Clin.*

Cancer Res. 2009;15:2406-2416. **Journal impact factor: 7.5.**
<http://www.ncbi.nlm.nih.gov/pubmed/19339276> PMID:PMC3635077

Contributions by Dr. Bumpers: Acquisition of data, data analysis and interpretation, initial drafting of manuscript, and final approval of the version to be published.

Contributions by Dr. Manne: Conception and design, acquisition of data, data analysis and interpretation, initial drafting of manuscript, and final approval of the version to be published.

This manuscript was selected for **AACR Highlights**, and a **press release** was issued. Several news agencies, including the Birmingham News (Thursday, April 2, 2009) carried the story. The NCI Cancer Bulletin also covered the publication.

- Hines, R.B.; Chatla, C.; **Bumpers, H.L.**; Waterbor, J.W.; McGwin, G., Jr.; Funkhouser, E.; Coffey, C.S.; Posey, J.; **Manne, U.** Predictive capacity of three comorbidity indices in estimating mortality following surgery for colon cancer. J. Clin. Oncol. 2009;27:4339-4345. **Journal impact factor: 17.2.** PMCID: PMC2744274 <http://www.ncbi.nlm.nih.gov/pubmed/19652054>

Contributions by Dr. Bumpers: Acquisition of data, data analysis and interpretation, initial drafting of manuscript, and final approval of the version to be published.

Contributions by Dr. Manne: Conception and design, acquisition of data, data analysis and interpretation, initial drafting of manuscript, and final approval of the version to be published.

- Harrington, W.; Bond, V.; Huang, M.B.; Powell, M.; Lillard, J.; **Manne, U.**; **Bumpers, H.** HIV Nef-M1 effects on colorectal cancer growth in tumor-induced spleens and hepatic metastasis. Mol. Cell Pharmacol. 2009; 1: 85-91. PMCID: PMC2851221 <http://www.ncbi.nlm.nih.gov/pubmed/20383296>

Contributions by Dr. Bumpers: Acquisition of data, data analysis and interpretation, initial drafting of manuscript, and final approval of the version to be published.

Contributions by Dr. Manne: Provided training in molecular techniques that were utilized in this study.

- Manne, U.**; Shanmugam, C.; Katkooori, V.R.; **Bumpers, H.L.**; Grizzle, W.E. Development and progression of colorectal neoplasia. Cancer Biomark. 2011; 9(1-6):235-65. PMCID: PMC3445039 <http://www.ncbi.nlm.nih.gov/pubmed/22112479>

Contributions by Dr. Bumpers: Provided a draft outline and input, from a surgeon's perspective, to several sections.

Contributions by Dr. Manne: Developed the concept, provided a draft outline, and wrote much of the text.

- Manne, U.**; Shanmugam, C.; Bovell, L.; Katkooori, V. R.; **Bumpers, H. L.** miRNAs as biomarkers for management of patients with colorectal cancer. Biomarkers Med. 2010; 4: 761-770. PMCID: PMC3078806 <http://www.ncbi.nlm.nih.gov/pubmed/20945991>

Contributions by Dr. Bumpers: See above.

Contributions by Dr. Manne: See above.

- Katkooori, V.R.; Suarez-Cuervo, C.; Shanmugam, C. Jhala, N.C.; Callens, T.; Messiaen, L.; Posey, J. III; **Bumpers, H.L.**; Meleth, S.; Grizzle W.E.; **Manne, U.** Bax expression is a candidate prognostic and predictive marker of colorectal cancer. J. Gastrointest. Oncol. 2010; 1: 76-89. PMCID: PMC3397579 <http://www.ncbi.nlm.nih.gov/pubmed/22811811>

Contributions by Dr. Bumpers: See above.

Contributions by Dr. Manne: See above.

- Shanmugam, C.; Hines, R.B.; Jhala, N.C.; Katkooori, V.R.; Zhang, B.; **Bumpers, H.L.**, Posey, J., Bumpers, H.L.; Grizzle, W.E.; Eltoum, I.E.; Siegal, G.P.; **Manne, U.** Evaluation of lymph node numbers for adequate staging of Stage II and III colon cancer. J. Hematol. Oncol. 2011; 25:1-9. PMCID: PMC3124418 <http://www.ncbi.nlm.nih.gov/pubmed/21619690>

Contributions by Dr. Bumpers: See above.

Contributions by Dr. Manne: See above.

8. Bowman, E.; Oprea, G.; Okoli, J.; Gundry, K.; Rizzo, M.; Gabram-Mendola, S.; **Manne, U.** Smith, G.; Pambuccian, S.; **Bumpers, H.L.** Pseudoangiomatous stromal hyperplasia (PASH) of the breast: A series of 24 patients. *Breast J.* 2012;18: 242-247. PMID:PMC3658111
<http://www.ncbi.nlm.nih.gov/pubmed/22583194>

Contributions by Dr. Bumpers: See above.

Contributions by Dr. Manne: See above.

9. Katkoori, V.R.; Shanmugam, C.; Jia, X.; Salih, C.; Sthanam, M.; Chen, D.; Zhang, B.; **Bumpers, H.L.**; Collens, T.; Messiaen, L.; Grizzle, W.E.; Posey, J.A. III; **Manne, U.** Prognostic significance and gene expression profiles of p53 mutations in microsatellite-stable stage III colorectal adenocarcinomas. *PLoS One* 2012; 7(1): e30020. doi:10.1371/journal.pone.0030030. PMID: PMC3261849
<http://www.ncbi.nlm.nih.gov/pubmed/22276141>

Contributions by Dr. Bumpers: See above.

Contributions by Dr. Manne: See above.

10. **Bumpers H.L.**; Spencer, A.; Okoli, J.; Gabram-Mendola, S.; Rizzo, M.; Lund, M.J.; **Manne, U.**; Tadros, T. Phyllodes tumors in African American women. *Ann. Surg. Oncol.* 2015 Mar 24. pii: S0002-9610(15)00120-8.

Contributions by Dr. Bumpers: See above.

Contributions by Dr. Manne: See above.

11. **Bumpers, H.**; Huang, M-B.; Katkoori, V.; **Manne, U.**; Bond, V. Nef-M1, a CXCR4 peptide antagonist, enhances apoptosis and inhibits primary tumor growth and metastasis in breast cancer. *J. Cancer Ther.* 2013; 4: 898-906.

Contributions by Dr. Bumpers: See above.

Contributions by Dr. Manne: See above.

Presentations:

1. Katkoori, V.R.; Jia, X.; Callen, T.; Messiaen, L.; **Bumpers, H.**; Meleth, S.; **Manne, U.** p53 mutations predict aggressiveness of stage II microsatellite stable sporadic colorectal adenocarcinomas. In: Proceedings of the 100th Annual Meeting of the American Association for Cancer Research; 2009 Apr 18-22; Denver, CO. Philadelphia (PA): AACR; 2009. Abstract nr 1637.
2. **Bumpers, H.**; **Manne, U.** Predictive and prognostic molecular markers of colorectal cancer of African-American patients. Presented at the Minority Institution and Comprehensive Cancer Partnership (MICCP) meeting in Washington, DC, on September 17, 2009. (Abstract # 4).
3. **Manne, U.** Race/ethnicity-specific molecular determinants: colorectal cancer. Presented to the President's Cancer Panel, Los Angeles, CA, on October 27, 2009.
4. **Manne, U.** Preclinical evaluation of molecular biomarkers of colorectal cancer. Presented at the 13th Annual Research Retreat of the UAB Comprehensive Cancer Center, Birmingham, AL, on October 28, 2009.
5. Bovell, L.; Katkoori, V.R.; Shanmugam, C.K.; Lee, C-H.; Sreelatha, M.; **Bumpers, H.L.**; Grizzle, W.E.; **Manne, U.** The prognostic value of microRNAs in colorectal cancer varies with patient race/ethnicity. UAB-CCC-Annual Retreat. Presented in October, 2009.

6. Katkoori, V.R.; Shanmugam, C.K.; Chen, D.; **Bumpers, H.L.**; Birdsong, G.; **Manne, U.** Gene expression signatures associated with p53 mutations in microsatellite-stable Stage III colorectal adenocarcinoma. Presented at the UAB-CCC-Annual Retreat, in October, 2009.
7. **Bumpers, H. L.** Presentation at the NCI translational meeting, November 5-7, 2009
8. Shanmugam, C.; Hines, R.B.; Jhala, N.C.; Bumpers, H.L.; Manne, U. Clinical relevance of lymph node evaluation in stage II and III colon cancers. Presented at the 2010 meeting of the AACR. Abstract # 846.
9. Katkoori, V.R.; Shanmugam, C.K.; Chen, D.; **Bumpers, H.L.**; Collens, T.; Messiaen, L.; **Manne, U.** Gene expression signatures of microsatellite-stable stage III colorectal adenocarcinomas based on the p53 status. Presented at the 2010 meeting of the AACR. (Abstract # 4655).
10. Bovell, L.; Katkoori, V.R.; Shanmugam, C.; Lee, C.H.; Meleth, S.; **Bumpers, H.L.**; Grizzle, W.E.; **Manne, U.** Higher expressions of miR-21, miR-106a, miR-181b, and miR-203 are associated with poor prognosis in colorectal cancer patients. Presented at the 2010 meeting of the AACR. Abstract # 4037. A **press release** was made. This report was also featured in the April 20, 2010, issue of the UAB Reporter and in the UAB MHRC eNews.
11. **Bumpers, H.** Long-distance mentoring can be successful. Invited presentation at the AACR/Minorities in Cancer Research Forum, 2010.
12. Vogtmann, E.; Shanmugam, C.K.; Waterbor, J.; **Bumpers, H.L.**; **Manne, U.** Factors associated with colorectal cancer survival vary between males and females. Presented at the 2010 meeting of the AACR. (LB-418).
13. Vogtmann, E.; Shanmugam, C.K.; Waterbor, J.; **Bumpers, H.L.**; **Manne, U.** Factors associated with colorectal cancer survival vary by race and gender. 5th Annual Health Disparity Research Symposium, Minority Health and Health Disparities Research Center, UAB, April, 2010 (Abstract#48).
14. **Bumpers, H.** Molecular markers and racial disparity in colon and rectal cancers, to be presented at the Convention of the National Medical Association in Orlando, Florida on August 3, 2010.
15. **Bumpers, H.** Diet, weight, and exercise: Breast cancer risk and prognosis. 15th Annual HeLa Conference, Atlanta, GA, September 24, 2010.
16. **Bumpers, H.**; Goud, J.; DeBeatham, W.; **Manne, U.** Nanomagnetic levitation based 3-D cultures of breast and colon cancer cells for high throughput drug screening and xenograft studies [abstract]. In: Proceedings of the 102nd Annual Meeting of the American Association for Cancer Research; 2011 Apr 2-6; Orlando, Florida. Philadelphia (PA): AACR; 2011. Abstract nr 4298.
17. Katkoori, V.; Salih, C.; Sthanam, M.; Shanmugam, C.; Callens, T.; Messiaen, L.; Grizzle, W.; **Bumpers, H.**; Birdsong, G.; **Manne, U.** Prognostic significance of the low level microsatellite instability phenotype differs with race in colorectal adenocarcinoma. In: Proceedings of the 102nd Annual Meeting of the American Association for Cancer Research; 2011 Apr 2-6; Orlando, Florida. Philadelphia (PA): AACR; 2011. Abstract nr 2261.
18. **Bumpers, H.**; Debeatham, W.; **Manne, U.**; Goud, J.D. Development of *in vitro* tumorigenic models as 3-D cultures using hydrogels and nanomagnetic levitation. Society of Black Academic Surgeons, April 27-30, 2011; Boston MA, Platform Abstract.
19. **Bumpers, H.L.**; Huang, M.B.; Harrington, W.; Goud, J.; **Manne, U.**; Bond, V.C. Exploitation of the CXCR-4 receptors on human breast cancers using a novel apoptotic peptide (Nef-M1). Era of Hope. August 2-5, 2011; Orlando, FL.
20. **Bumpers, H.**; **Manne, U.** Predictive molecular markers of colorectal cancer for African-American patients. Center to Reduce Cancer Health Disparities (NCI). Bethesda, MD. July 12, 2011.
<http://www.cancermeetings.org/CHDProgramMeetings2011/viewAbstract.cfm?id=137>

21. **Bumpers, H.L.**; Huang, M-B.; Harrington, W.; Goud, J.; **Manne, U.**; Bond, V.C. Exploitation of the CXCR-4 receptors on human breast cancers using a novel apoptotic peptide (Nef-M1). Era of Hope Breast Conference (DoD). Orlando, FL. August 2-5, 2011.
22. **Bumpers, H.**; **Manne, U.** Predictive and prognostic molecular markers of colorectal cancer of African-American patients. Presented at the Summer Institute, July 21, 2011.
23. **Bumpers, H.L.**; Janagama, D.G.; **Manne, U.**; Basson, M.; Katkoori, V. Development of magnetic levitation 3-d cultures of breast and colon cancer cells using carbon encapsulated cobalt magnetic nanoparticles. Presented at the 9th Annual Academic Surgical Congress on February 4-6, 2014 in San Diego, CA.
24. Katkoori, V.R.; Basson, M.D.; **Manne, U.**; **Bumpers, H.L.** Nef-M1, a peptide antagonist of CXCR4, inhibits tumor angiogenesis by attenuating AKT and mitogen-activated protein kinase signaling in colon cancer. Presented at the 105th Annual Meeting of the American Association for Cancer Research, San Diego, CA.

Grant applications:

1. **Bumpers, H.** (PI) DoD - BC074381. 9/2008-8/2011. Effects of a Viral Peptide (Nef) on Growth and Metastasis of Human Breast Cancer. **Funded.**
2. **Manne, U.** (PI); **Bumpers, H.** (co-PI) R01 – Prognostic Molecular Markers of Colorectal Cancer. **Not funded.**
3. **Manne, U.** (PI); **Bumpers, H.** (co-PI) U01 –Establishment of a clinical validation center (CVC) for the Early Detection Research Network (EDRN) at UAB. **Not funded.**
4. **Manne, U.** (PI); **Bumpers, H.** (co-PI) R01 - Aggressive polymorphisms of colorectal cancer in African-African patients. **Not funded.**
5. **Manne, U.** (PI); **Bumpers, H.** (co-PI) RC4 – High-throughput technologies to predict disparities in colon cancer outcomes. **Not funded.**
6. **Manne, U.** (PI); **Bumpers, H.** (co-PI) U01 – Mechanistic studies of polymorphisms of colorectal cancer: Ethnic disparities. **Not funded.**
7. **Manne, U.** (PI); **Bumpers, H.** (co-PI) R01 – Validation of molecular markers of early colorectal neoplasias. **Not funded.**
8. Samuel, T.; **Manne, U.**; **Bumpers, H.** (co-Leaders) U54 (full project) 9/11-8/13 – Molecular characterization of aggressive colon cancers of African-American patients. **Funded.**
9. **Bumpers, H.** (PI); **Manne, U.** (co-PI). R21 – Effects of NefM1 apoptotic peptide on primary and metastatic colorectal cancer xenografts. **Funded.**

Honors:

1. **Dr. Bumpers** was selected for membership on the AACR Disparities Conference Program Committee for 2011.
2. **Dr. Bumpers** was invited to serve on the program committee to prepare the agenda for the national meeting of the *Minority Institution Cancer Center Partnerships* (MI/CCP) to reduce Cancer Health Disparities (CPRCHD). Washington, DC, July 2011.

Career development: In process.

V. Ganapathy A. Bhat (MSM)/William Grizzle (UAB) – Role of Erg in Prostate Cancer (Funding period: 9/1/07-8/31/10)

1. Maniccia, A.; Lewis, C.; Begum, N; Xu, J.; Cui, J.; Chipitsyna, G.; Aysola, K.; Reddy, V.; **Bhat, G.**; Fujimura,

Y.; Henderson, B.; **Reddy, E.S.P.**; Rao, V.N. Mitochondrial localization, ELK-1 transcriptional regulation and growth inhibitory functions of BRCA1, BRCA1a and BRCA1b proteins. *J. Cell Physiol.* 2009; 219:634-641. [PMCID:PMC3693557 http://www.ncbi.nlm.nih.gov/pubmed/19170108](http://www.ncbi.nlm.nih.gov/pubmed/19170108). **Journal impact factor: 3.99.**

Contributions by Dr. Bhat: In addition to carrying out experiments in studying the role of ELK-1 in breast cancer, he also mentored two of the postdoctoral fellows on this project.

Contributions by Dr. Reddy: Dr. Reddy mentored the postdoctoral fellows involved in this project regarding the growth inhibitory functions of the BRCA1, BRCA1a, and BRCA1b proteins.

2. Fortson, W.S. II; Kayarthodi, S.; Fujimura, Y.; Xu, H.; **Matthews, R.**; **Grizzle, W.E.**; Rao, V.N.; **Bhat, G.K.**; **Reddy, E.S.** Histone deacetylase inhibitors, valproic acid and trichostatin-A induce apoptosis and affect acetylation status of p53 in ERG-positive prostate cancer cells. *Int. J. Oncol.* 2011; 33:111-119. [PMCID: PMC3329756 http://www.ncbi.nlm.nih.gov/pubmed/21519790](http://www.ncbi.nlm.nih.gov/pubmed/21519790)

Contributions by Dr. Bhat: Mentored a postdoctoral fellow in studying the effect VPA on prostate cancer cells.

Contribution by Dr. Matthews: Mentored a postdoctoral fellow regarding use of appropriate clinical drugs on ERG-positive prostate cancer cells.

Contributions by Dr. Grizzle: As an expert in prostate cancer, he mentored Dr. Reddy, Dr. Bhat, and others with his advice on maintaining prostate cancer cells and on immunohistochemical techniques. Dr Bhat spent some time in Dr. Grizzle's laboratory learning these techniques.

Contributions by Dr. Reddy: Mentored Dr. Bhat, Dr. Fortson, and others in designing and executing the experiments.

Presentations:

1. Chai, Y.; Aysola, K.; Okoli, J.; **Bhat, G.**; Watkins, T.; Cui, J.; Xu, J.; Aikhionbare, F.; **Matthews, R.**; Reddy, E.S.P.; Rao, V.N. (2008). p21WAF1/CIP1 is a downstream target of the ELK-1 growth suppressive pathway in breast and prostate cancer cells. Presented at the 4th Annual National Symposium on Prostate Cancer at Clark Atlanta University, Atlanta, Georgia in March, 2008.
2. Fortson, W.S.; **Bhat, G.K.**; Kayarthodi, S.; Fujimura, Y.; Lee, L.; Olatinwo, M.; **Matthews, R.**; Grizzle, W.; Rao, V.N.; Reddy, S. (2008). Molecular genetics of Erg in prostate cancer. UAB Health Disparities Research Symposium held on April 07, 2008 in Birmingham, Alabama.
3. **Bhat, G.K.** Role of Erg in prostate cancer. Presented to the Program Steering Committee of the MSM/TU/UAB CCC Partnership, on July 17-18, 2008 in Birmingham, Alabama.
4. Fortson, W.S. II; Kayarthodi, S.; Fujimura, Y.; Lee, L.; Olatinwo, M.; **Bhat, G.**; **Matthews, R.**; Rao, V.N.; Reddy, E. S. (2008). The role of erg in prostate cancer. 10th Annual Curtis L. Parker Research Day, Morehouse School of Medicine Atlanta, Georgia, October 30-31, 2008 in Opelika/Auburn, Alabama.
5. Chai, Y.; **Bhat, G.K.**; Aysola, K.; Watkins, T.; Cui, J.; Reddy, V.; Aikhionbare, F.; **Matthews, R.**; Okoli, J.; Reddy, E.S.P.; Rao, V. (2008). Elk-1 functions in vitro as a tumor suppressor. Presented at the 11th RCMI International Symposium on Health Disparities held in Honolulu, Hawaii on December 1-4, 2008.
6. **Bhat, G.K.** Role of Erg in prostate cancer. Presented to the Program Steering Committee of the MSM/TU/UAB CCC Partnership, on January 23, 2009 in Tuskegee, Alabama.
7. Chai, Y.; **Bhat, G.K.**; Aysola, K.; Watkins, T.; Cui, J.; Reddy, V.; Aikhionbare, F.; **Matthews, R.**; Okoli, J.; Reddy, E.S.P.; Rao, V. (2009). Anti-proliferative activity of ETS-like gene ELK-1 on prostate cancer. Presented at the 5th Annual National Symposium on Prostate Cancer held at Clark Atlanta University, Atlanta, Georgia in March, 2009.
8. Senadhi, V.; Kayarthodi, S.; Fujimura, Y.; **Bhat, G.**; Buchsbaum, D.; Rao, V.; Reddy, E.S.P. (2009). A novel targeted therapeutic agent to prostate cancer. *Am. J. Gastroenterol.* Abstract #220.

9. **Bhat, G.K.**; Chai, Y.; Aysola, K.; Cui, J.; Xu, M.; Reddy, A.; Okoli, J.; **Matthews, R.**; Bond, V.; Reddy, E.S.P.; Rao, V.N. (2010). Mechanism of growth inhibition by Elk-1 in prostate cancer cells. Presented at the 12th RCMI International Symposium on Health Disparities held at Nashville, Tennessee, on December 6-9, 2010.
10. Chai Y.; Aysola, K.; **Bhat, G.K.**; Cui, J.; Kasi, A.; Reddy, A.; Yezdani, S.; Desai, A.; Okoli, J.; **Matthews, R.**; Reddy, E.S.P.; Rao, V.N. (2011). Molecular mechanism of growth inhibition by Elk-1 in prostate cancer cells. Presented at the 4th National Meeting of ASIOA held at Suwanee, Georgia, on January 15-17, 2011.

Grant applications:

1. **Bhat, G.** Elk-1 as a growth regulator of prostate cancer cells. Submitted in January 2009 to the NCI/NIH as a two-year R03 application. **Not funded.**
2. **Bhat, G.** NIH/NCRR G12 - RR03034S1. ELK-1 as a growth regulator of prostate cancer. **Funded.** 10/24/2009-9/23/2011.
3. **Bhat, G.** Georgia Cancer Coalition's Breast Cancer, Prostate Cancer, and Ovarian Cancer Research Award. November 2008. **Not funded.**
4. **Bhat, G.**, Co-investigator. DoD Idea grant. Submitted June 2009. **Not funded.**

Career development: Participation as an investigator on the U54 Partnership grant allowed me gain experience in writing manuscripts and grant proposals. I also learned about health disparities research, statistics, and IRB issues. I was able to attend various scientific meetings and to make numerous presentations. I also took courses to extend my experience with techniques in molecular biology. I feel that I am now qualified to function as an independent investigator.

VI. Maria Pisu (UAB)/Robert Levine (MSM/Meharry) – Geographic Variation in Racial Disparities and Availability of Medical Resources (Funding period: 9/1/07-8/31/10)

Publications:

1. **Pisu, M.**; Wang, D.; Martin, M.Y.; Baltrus, P.; **Levine, R.S.** Presence of medical schools may contribute to reducing breast cancer mortality and disparities. J Health Care Poor Underserv. 2010; 21: 961-76. PMCID: PMC2946795 <http://www.ncbi.nlm.nih.gov/pubmed/20693738>

Contributions by Dr. Pisu: Dr. Pisu worked with Dr. Levine to design the study, formulate hypotheses, and develop an analytic plan. She obtained the data, conducted the analysis, and drafted the manuscript. She then made necessary changes suggested by Dr. Levine and other co-authors, and submitted the manuscript.

Contributions by Dr. Levine: Dr Levine designed the study with Dr. Pisu and guided her in obtaining the data. He edited the paper and offered suggestions for improvement. He suggested journals for submission.

2. Austin, S.; Martin, M.Y.; **Levine, R.S.**; **Pisu, M.** Breast cancer screening interventions across the US: Types and populations served. Cancer Causes Control 2010;2165-2172. PMCID: PMC3010185 <http://www.ncbi.nlm.nih.gov/pubmed/20820899>

Contributions by Dr. Pisu: Dr. Pisu designed the study, the survey collection form, and the target respondents with Dr. Levine. She guided Ms. Austin in collecting the data and drafting the manuscript. She then edited the manuscript and suggested improvements to make it ready for publication.

Contributions by Dr. Levine: Dr. Levine worked with Dr. Pisu in conducting the survey, revised the manuscript for important related content, and suggested improvements.

3. **Levine, R.S.**; Rust, G.S.; **Pisu, M.**; Agboto, V.K.; Baltrus, P.T.; Briggs, N.C.; Zoorob, R.; Juarez, P.; Goldzweig, I.; Husaini, B.A.; Hull, P.C.; Kilbourne, B.; Hennekens, C.H. Increased black-white disparities in mortality following life-saving innovations: A possible consequence of United States federal laws. Am J

Public Health 2010; 100:2176-2184. [PMCID: PMC2951928
http://www.ncbi.nlm.nih.gov/pubmed/20864727](https://pubmed.ncbi.nlm.nih.gov/20864727/)

Contributions by Dr. Pisu: Dr. Pisu worked with Dr. Levine in planning the data analysis and interpreting results. She then edited the draft of the manuscript and made suggestions for improvements.

Contributions by Dr. Levine: Dr. Levine planned the study, conducted the analyses, and drafted the manuscript. He submitted it for publication.

4. Virk-Baker, M.K.; **Martin, M.Y.**; **Levine, R.S.**; Wang, X.; Nagy, T.R.; **Pisu, M.** Mammography utilization among Black and White Medicare beneficiaries in high breast cancer mortality US counties. *Cancer Causes Control*. 2013 Sep 29. [Epub ahead of print] <http://www.ncbi.nlm.nih.gov/pubmed/24077760>

Contributions by Dr. Pisu: See above.

Contributions by Dr. Levine: See above.

Presentations:

1. **Pisu, M.**; Wang, D.; Martin, M.; **Levine, R.S.** What characterizes counties successful in reducing disparities in breast cancer mortality? (2009). Presented at the AACR Science of Cancer Health Disparities Meeting, February 3-6, Carefree, AZ.
2. **Pisu, M.** Geographic variation in epilepsy among Medicare beneficiaries. Grand Rounds Presentation for the Division of Preventive Medicine, May 10, 2010.
3. Virk-Baker, M.; **Martin, M.**; **Levine, R.**; Nagy, T.; Pisu, M. Disparity in mammography utilization among Medicare beneficiaries from high breast cancer mortality counties. *Am Soc Prevent Oncol* 2011, March 5-8, Las Vegas, NV.
4. **Pisu, M.**; Oster, R.; Drentea, P.; Martin, M.Y. Economic hardship of minority and non-minority cancer survivors one year after diagnosis. 33rd Annual Meeting and Scientific Sessions of the Society of Behavioral Medicine. April 11-14, 2012, New Orleans, LA.

Grant applications:

1. **Pisu, M.** Mammography-promoting programs: Frequency and effect. Submitted in March 2008 to the Centers for Disease Control and Prevention. 09/30/08 – 09/29/10. **Not funded.**
2. **Pisu, M.** RC1 - Breast cancer disparities are not inevitable: Characterizing community success. This proposal addressed Broad Challenge Area (09): Health Disparities, topic 09-AG-101, entitled Geographic Disparities in Medicare Usage and Cost. Funding dates: 10/2009 – 9/2011. **Not funded.**
3. **Pisu, M.** R21 – Community attitudes and action for breast cancer outcomes across races. **Funded.**

Career Development: Dr. Pisu has (a) expanded her skills in statistics and survey methodology; (b) developed a better understanding of minority health issues; (c) become an independent researcher. She has three grants on which she is the PI and seven publications. She has also made several presentations. She is currently developing an area of research involving the economic burden of disease for cancer survivors and diabetes patients.

VII. Elizabeth Brown (UAB)/Shyam Reddy (MSM) – Genetic Susceptibility of Multiple Myeloma in a High-Risk African American Population (Funding period: 9/1/07-8/31/10)

Publication:

Brown, E.E.; **Reddy, E.S.** Genetic susceptibility of multiple myeloma in a high-risk African-American population. **In preparation.** Data collection was complete in 2011.

Presentations:

1. **Brown, E.E.** Multiple myeloma in a high-risk African American population. Program Steering Committee Meeting. January 17-18, 2008. University of Alabama at Birmingham Comprehensive Cancer Center.
2. **Brown, E.E.** Multiple myeloma – The past, present and future. 2nd Annual International Multiple Myeloma Meeting. July 31, 2008. Sydney, Australia.
3. **Brown, E.E.** Genetics of multiple myeloma – an update. Fifth Annual International Lymphoma Consortia Meeting. Barcelona, Spain, 2007.
4. Gold, L.S.; DeRoos, A.J.; **Brown, E.E.**; Lan, Q.; Milliken, K.; Davis, S.; Chanock, S.J.; Zhang, R.; Severson, S.; Zahm, S.; Zheng, T.; Rothman, N.; Baris, D. Associations of common variations in metabolic genes and risk of myeloma. Presented at the Society for Epidemiologic Research, 2007.
5. **Brown, E.E.** Molecular epidemiology of multiple myeloma. UAB Comprehensive Cancer Center, Executive Committee Meeting, August 17, 2007.
6. **Brown, E.E.** The molecular and genetic epidemiology (iIMAGE) study of myeloma. International Multiple Myeloma Consortium. Vancouver, BC. July 22, 2009.
7. **Brown, E.E.** What is monoclonal gammopathy of undetermined significance and multiple myeloma. Relay for Life, American Cancer Society. Birmingham, AL. May 5, 2009.
8. **Brown, E.E.** Community education: the molecular and genetic epidemiology (iIMAGE) study of myeloma. Bone Marrow Transplant Unit, University of Alabama at Birmingham. Birmingham, AL. July 3, 2009.
9. **Brown, E.E.** Recruitment and Retention to the Molecular and Genetic Epidemiology (iIMAGE) Study of Myeloma. Hematology and Medical Oncology Grand Rounds. University of Alabama at Birmingham. Birmingham, Alabama. March 26, 2010.
10. **Brown, E.E.** The Molecular and Genetic Epidemiology (iIMAGE) Study of Myeloma. Center to Reduce Cancer Health Disparities Professional Development Workshop. Rockville, Maryland. April 14-15, 2010.
11. **Brown, E.E.** Molecular and genetic study of myeloma: epigenetic contributions to multiple myeloma pathogenesis. First Annual Epigenetics Retreat, Birmingham, Alabama, 2012.

Grant applications:

1. **Brown, E. E., PI**, subcontract. 12/01/2009 – 11/30/2014, R01, NIH/NCI. A genome-wide admixture scan of multiple myeloma in African-Americans. **Funded.**
2. **Brown, E. E., PI**. 06/01/2010 – 05/31/2011 ACS-UAB Comprehensive Cancer Center. Functional copy number variation and susceptibility of monoclonal gammopathy of undetermined significance and multiple myeloma. **Funded.**
3. **Brown, E.E., PI**. R21CA10032. 7/7/2011 – 12/31/2014 NIH/NCI. Genome-wide methylation study of epigenetic contributions to multiple myeloma. **Funded.**
4. **Brown, E.E., PI**. R21 CA158569. Targeted epigenomic contributions to multiple myeloma in ethnic populations. **Not funded.**
5. **Brown, E.E., Co-PI**. UAB Comprehensive Cancer Center. 11/30/2013 – 12/01/2014. Transcriptome analysis of myeloma and asymptomatic plasma cell dyscrasias. **Funded.**
6. **Brown, E.E., Co-PI**. R01 CA138340. 5/1/2014 – 4/30/2019. Heparanase regulation of myeloma metastasis: mechanism and therapy. **Funded.**
7. **Brown, E.E., PI**. R21 CA182861. 7/1/2014 – 6/30/2016 NIH/NCI. The role of exosome heparanase and miRNAs as biomarkers for myeloma. **Funded.**

8. **Brown, E.E., PI.** R01 CA186646-01. 07/01/2014 - 05/31/2015. Molecular characterization of myeloma and related asymptomatic precursor states. NIH/NCI. **Funded.**

Career development: Dr. Brown's primary goal was to understand the interactions between genetic and environmental factors in the susceptibility and rate of progression and severity of multiple myeloma (MM). Her activities have continued to be focused on (a) expanding the multi-center study, Molecular And Genetic Epidemiology (iMAGE), through the recruitment and follow up of participants; (b) working in collaboration with the International Multiple Myeloma Consortium (IMMC), the Mayo Clinic, and the University of Southern California to facilitate discovery of genes pertinent to MM; and (c) exploring factors relevant to MM and MM-related outcomes. Although the U54 no longer supports the recruitment of new cases and comparison subjects, participants are being recruited through other mechanisms. Funding through the U54 provided a basis for synergy with the IMMC, for increased scientific productivity, and for additional initiatives and opportunities for funding.

IX. Clayton Yates (TU)/Danny Welch (UAB) – Influence of Tumor Microenvironment of Breast Cancer Metastasis (Funding period: 9/1/09-8/31/11)

Publication:

Wang, H.; Jones, J.; Turner, T.; He, Q.P.; Hardy, S.; **Grizzle, W.E.; Welch, D.; Yates, C.** Clinical and biological significance of KISS1 expression in prostate cancer. Am. J. Pathol. 2012;180:1170-1178.
PMCID: PMC3349884 <http://www.ncbi.nlm.nih.gov/pubmed/22226740>

Contributions by Dr. Yates: All work performed in vitro, including generation of stable KISS1 cell lines, proliferation, invasion, and attachment assays was accomplished by Dr. Yates. He also compiled the clinical data for the statistician. Statistics were performed by collaboration with Dr. He at Tuskegee. The manuscript was written at Tuskegee, and sent for comments to Dr. Welch and Dr. Grizzle.

Contributions by Dr. Welch: Dr. Welch provided the over-expression of full-length KISS1 construct and the KFMΔSS construct, which lacks the KISS1 secretion signal sequence. Dr. Welch further edited the original proposal, and provided suggestions during writing the manuscript.

Contributions by Dr. Grizzle: Jackie Jones, a graduate student in Dr. Yates' laboratory, was trained in Dr. Grizzle's laboratory at UAB. Prostate tissue was provided by Dr. Grizzle. Furthermore, analyses were performed by Dr. Grizzle and Jackie Jones during multiple training sessions.

Presentations:

1. Phillips, Z.; Wu, Q.; Wells, A.; **Yates, C.** Determining the regulatory function of Kaiso on cell migration as an indicator of metastasis in prostate cancer. Annual Biomedical Research Conference for Minority Students (ABRCMS), November 4-7, 2009, Phoenix, AZ.
2. **Yates, C.** Influence of tumor-stromal interactions on metastatic prostate cancer. NCIBI-RCMI Translational Bioinformatics Workshop, Ann Arbor, MI (July 29-30, 2010).
3. **Yates, C.** Human cell transformations. McGill University, Montreal Canada (October 20-21, 2010).
4. Theodore, S.C.; Rhim, J.; Turner, T.; **Yates, C.** miR-200C: a mediator of EGFR signaling in prostate cancer. Presented at the 68th Annual Meeting of Beta Kappa Chi/National Institute of Science, March 23-27, 2011, Atlanta, GA.
5. Hardy, S.; Wang, H.; **Yates, C.** The regulatory role of Kaiso in prostate cancer metastasis. Presented at the 68th Annual Meeting of Beta Kappa Chi/National Institute of Science, March 23-27, 2011, Atlanta, GA.
6. **Yates, C.** Establishment and characterization of a pair of non-malignant and malignant tumor derived cell lines from an African American prostate cancer patient. Presented at a meeting, Frontiers in Stem Cells in Cancer, sponsored by Howard University and the University of Pittsburgh, March 14-19, 2011.
7. **Yates, C.; Grizzle, W.** Influence of tumor microenvironment on breast cancer metastasis. Presented April

21, 2011, to the Scientific Review Committee of the MSM/TU/UAB.

8. Wang, H.; Wei, L.; **Yates, C.** Transcriptional repressor Kaiso promotes metastasis by regulating EMT related genes and microRNAs in prostate cancer. 6TH Annual meeting of the Biological Stain Commission. June 3, 2011. Atlanta, GA. (Second place award).

Honor:

In 2011, **Dr. Yates** was selected as Guest Editor for a special edition of Prostate Cancer entitled, "Epigenetics and Hormonally Regulated Prostate Cancer."

Grant applications:

1. **Yates, C.**, Pilot Project PI. 08/1/10-7/31/15 G12 RR03059-21A1 (NIH/RCMI) Identification of molecular targets for African American prostate cancer patients using miRNA profiling. **Funded.**
2. **Dr. Yates** was selected in May, 2011, as PI for a two-year project in the Cancer Development Program of the UAB Pancreatic Spore. Title: Kaiso expression and function in pancreatic cancer. **Funded.**
3. **Yates, C.**, PI. 9/01/2010-8/31/2014 (DOD). Epigenetic silencing of KiSS-1/KiSS-1R during prostate cancer metastasis. **Not funded.**
4. **Yates, C.**, Co-PI. 06/2011-05/2013 NIH, R21. Detecting gene-gene interactions in CaP disease in African American men. **Not funded.**
5. **Yates, C.; Grizzle, W.** 9/11-8/13 U54 (full project): Kaiso as a prognostic factor and potential therapeutic target in breast cancer. **Funded.**

Career Development: In process.

X. Xuebiao Yao (MSM)/Andra Frost (UAB) – Molecular Delineation of ACAP4 Signaling Cascade Underlying CCL18-Induced Breast Cancer Metastasis (Funding period: 9/1/10-8/31/11)

Publications:

1. Yu, X.; Wang, F.; Liu, H.; Adams, G.; Aikhionbare, F.; Liu, D.; Cao, X.; Fan, L.; Hu, G.; Chen, Y.; **Frost, A.**; Partridge, E.; Ding, X.; **Yao, X.** ACAP4 cooperates with GRB2 to orchestrate EGF-stimulated integrin β 1 recycling in cell migration. J. Biol. Chem. 2011; 286: 43735-43747. (Most highly cited biochemistry journal; impact factor: 5.33) [PMCID: PMC3243555 http://www.ncbi.nlm.nih.gov/pubmed/22027826](https://pubmed.ncbi.nlm.nih.gov/22027826/)

Contributions by Dr. Yao: Dr. Yao designed the study and the specific experiments and wrote the first draft of the manuscript.

Contributions by Dr. Frost and Dr. Partridge: Drs. Frost and Partridge made appropriate comments on the manuscript and on the revision.

2. Chen, Y.; Wang, D; Guo, Z; Zhao, J; Wu, B; Deng, H; Zhou, T; Xiang, H; Gao, F; Yu, X; Liao, J; Ward, T; Xia, P; Emenari, C; Ding, X; Thompson, W; Ma, K; Zhu, J; Aikhionbare, F; Dou, K; Cheng, SY; **Yao, X.** Rho kinase phosphorylation promotes ezrin-mediated metastasis in hepatocellular carcinoma. Cancer Res. 2011;71:1721-1729. PMCID:PMC3119000 [http://www.ncbi.nlm.nih.gov/pubmed/21363921](https://pubmed.ncbi.nlm.nih.gov/21363921/)

Contributions by Dr. Yao: Dr. Yao designed the study and the specific experiments and wrote the first draft of the manuscript.

Contributions by Dr. Frost: Dr. Frost made appropriate comments on the manuscript and on the revision.

3. Dou, Z.; Liu, X.; Wang, W.; Zhu, T.; Wang, X.; **Hill, D.L.**; Xu, L.; Abrieu, A.; Fu, C.; **Yao, X.** Dynamic localization of Mps1 kinase to kinetochores is essential for accurate spindle microtubule attachment. Proc. Natl. Acad. Sci. U S A, **in press.**

Presentations:

1. **Yao, X.; Frost, A.** Molecular delineation of ACAP4 signaling cascade underlying CCL18-induced breast cancer metastasis. Presented May 5, 2011, to the Scientific Review Committee of the MSM/TU/UAB.
2. **Yao, X.; Frost, A.** Molecular delineation of ACAP4 signaling cascade underlying CCL18-induced breast cancer metastasis. Presented July 21, 2011, at the Summer Institute.

Grant application:

Yao, X. R01. Function of ACAP4 in CCL18-stimulated breast cancer metastasis. **Funded.**

Career development: The U54 partnership has been a great resource to my research on cancer cell biology. It provided an effective network to accelerate our translational studies by accessing tissue bank materials. The members of the partnership, Drs. Don Hill, Edward Partridge, Andra Frost, and Upender Manne, provided extensive support to my R01 application. Dr. Hill routinely provided scientific and editing help on manuscripts.

XI. Kamel Khazal (TU)/Clinton Grubbs (UAB) – Chemopreventive Activity of *Withania somnifera* and its Mechanism of Action in Human Cells (Funding period: 9/1/10-8/31/11)**Presentations:**

1. **Khazal, K.;** Samuel, T.; Hill, D.; **Grubbs, C.** Chemopreventive activity of *Withania somnifera* and its mechanism of action in human breast cancer. Presented at the Health Disparities Research Symposium in Birmingham on April 25-26, 2011.
2. **Khazal, K.;** Samuel, T.; Hill, D.; **Grubbs C.** Chemopreventive activity of *Withania somnifera* in experimentally induced mammary tumors in rats. Presented at the AAVPT 17th Biennial Symposium at the University of Wisconsin on May 22-25, 2011.
3. **Khazal, K.;** **Grubbs, C.** Chemopreventive activity of *Withania somnifera* and its mechanism of action in human breast cancer cells. Presented to the Scientific Review Committee of the MSM/TU/UAB on April 21, 2011.
4. **Khazal, K.;** **Grubbs, C.** Chemopreventive activity of *Withania somnifera* and its mechanism of action in human breast cancer cells. Presented, at the Summer Institute on July 21, 2011.

Grant applications:

1. **Khazal, K.;** **Grubbs, C.** 9/1/11-8/31/14 U54 (pilot project): Chemopreventive and therapeutic activity of *Withania somnifera* and its mechanism of action in human breast cancer. **Funded.**
2. **Khazal, K.** Research Centers in Minority Institutions (RCMI) Translational Research Network (RTRN) Small Grants Program. Efficacy of *Withania somnifera* root extract on development and progression of prostate cancer in mice. 7/1/2011 – 6/30/2012. **Not funded.**

Career development: In process.