
BIOGRAPHICAL SKETCH

Provide the following information for the key personnel and other significant contributors in the order listed on Form Page 2.

Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME Fariba Behbod	POSITION TITLE Assistant Professor		
eRA COMMONS USER NAME fbehbod			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
College of Pharmacy, University of Texas at Austin, Austin, TX	B.S.	1984-1987	Pharmacy
Memorial-Hermann Hospital Pharmacy Department, Houston, TX	Residency	1987-1988	Hospital Pharmacy
University of TX Health Science Center at San Antonio University of TX at Austin; San Antonio, TX University of TX Health Science Center	Pharm.D.	1989-1991	College of Pharmacy
Houston-Medical School University of Texas M.D. Anderson Cancer Center, Houston, TX	Ph.D.	1998-2001	Integrative Biology & Pharmacology
Baylor College of Medicine, Houston, TX	Post-Doc Fellow	2002-2006	Molecular and Cellular Biology

A. Personal Statement

The main focus of my research is to study the factors in ductal carcinoma in situ (DCIS) and their microenvironment that mediate progression to invasive breast cancer (IBC). One of the major obstacles to studying human DCIS has been the unavailability of suitable models. We have introduced a mouse intraductal (MIND) model which involves delivery of primary DCIS cells derived from patient's surgical and biopsy samples into the mouse mammary ducts. The model closely mimics the natural progression of human DCIS and allows one to study the early processes associated with DCIS invasive progression.

I have a dual doctorate degree in clinical pharmacology and basic sciences in cell biology. My post-doctoral training was funded by NCI and focused on studying the role of stem cells in mammary development and tumorigenesis. Following my post-doctoral training, I received K99/R00 from the NCI to study the role of cancer stem cells in the development and progression of subtypes of human DCIS. This award allowed my successful transition to an independent scientist at the University of Kansas Medical Center (KUMC) in 2008. Soon after my arrival, I established collaborations with the Breast Cancer Prevention group at KUMC and set up procedures for obtaining human DCIS biopsy and surgical samples. Largely due to a tremendous support from the clinicians, we were successful in showing that the MIND model may be utilized to reproducibly grow human primary DCIS cells using the MIND model. My recent publication in Breast Cancer Research in September 2009, is the first introduction of MIND transplantation model focused on DCIS cell lines. This manuscript received a highly accessed designation. The next publication, in preparation, will be focused on reporting the model as the first reproducible model of primary human DCIS. The model is most suitable for our studies focused on identifying biomarkers that predict DCIS invasive progression and identifying novel genes and signaling pathways in the DCIS epithelium and the stromal microenvironment that induce DCIS to IBC transition.

B. Positions and Honors

Positions and Academic Appointments

1990-1991	Clinical Pharmacy Consultant, Mental Health and Mental Retardation, Texas State Hospital; San Antonio, Texas.
1991-1997	Clinical Manager/Specialist, Department of Pharmacy Services, Memorial-Hermann Hospital; Houston, Texas.
1997-1998	Research Pharmacist, Department of Organ Transplantation, University of Texas Houston-Medical School; Houston, Texas.
1997-1998	Visiting Assistant Professor, College of Pharmacy, University of Houston; Houston, Texas.
1991-2002	Adjunct Faculty, University of Houston College Of pharmacy; Houston, TX.
2006-2008	Instructor, Baylor College of Medicine, Department of Molecular and Cellular Biology; Houston, TX
2008-Present	Assistant Professor, Department of Pathology and Laboratory Medicine, The University of Kansas Medical Center (KUMC); Kansas City, Kansas.

Other Experience and Professional Membership:

1994-2001	Board Certified in Pharmacotherapy Specialty
1997-1999	Editorial Advisory Board Member of the Texas Pharmacy Association
2002-	Associate Member, American Association for Cancer Research
1992-2008	Member, American College of Clinical Pharmacy
2008-2009	Member, KUMC Interdisciplinary Graduate Program In Biomedical Sciences, Admission Committee
2008-	Full Member; The University of Kansas Cancer Center (KUCC)
2008-	Co-Leader; KUCC Cancer Prevention Program, Stem Cell and Biomarker Division
2009-	KUMC M.D./Ph.D. Admission Committee
2009-	Member; KUMC Junior Faculty Mentoring Committee
2009-	Member; Flow Cytometry Advisory Committee
2008	Member; Institute for Reproductive Health and Regenerative Medicine Advisory Committee
2009-	Full Member; Institute for Reproductive Health and Regenerative Medicine
2011	CDMRP Review Panel; DOD Grant Reviewer

Honors

1999	John P. McGovern Award; Graduate Student Poster Presentation, First Place
2000	John P. McGovern Award, Graduate Student Poster Presentation, Second Place
2001	Cell and Regulatory Biology Student Achievement Award, 1 st Place
2003	Edward A. Smuckler Memorial Pathobiology of Cancer Workshop, Keystone, Colorado, July 13-20
2004	Travel Award, Keystone Symposia, Stem Cells, January 23-29
2005	Travel Award, Keystone Symposia, Stem Cells, Senescence and Cancer, Singapore, October 25-30
2007	Travel Award, Roayn Congress International Twin Congress, Stem Cell Research Symposium, Tehran, Iran, September 5-7
2007	Novartis Oncology Basic Science Scholar Award, San Antonio Breast Cancer Symposium, San Antonio, TX, December 13-17

C. Selected Publications (most relevant to this proposal)

1. **Behbod F**, Nagy ZS, Stepkowski SM, Karras J, Johnson CR, Jarvis WD, Kirken RA. Specific inhibition of Stat5a/b promotes apoptosis of IL-2-responsive primary and tumor derived lymphoid cells. **Journal of Immunology** 2003, 171:3919-27. (PMID14530308)
2. Welm B, **Behbod F**, Goodell MA, Rosen JM. Isolation and characterization of functional mammary gland stem cells. **Cell Proliferation** 2003, 36:17-32. (PMID14521513)

3. **Behbod F**, Marshall G. Molecular Biology Techniques for the Investigation of Immune Activation and Immunologic Dysfunction: In Atlas of Allergic Diseases. Lieberman PL and Blaiss MS, eds. **Current Medicine**, Philadelphia, PA. 2005. pp. 3-12.
4. Wang M, Kirken R, **Behbod F**, Erwin-Cohen R, Stepkowski SM, Kahan BD. Inhibition of Jak3 tyrosine kinase by PNU156804 blocks rat heart allograft rejection. **Transplant Proceedings** 2001, 33: 201.
5. **Behbod F**, Rosen JM. Will cancer stem cells provide new therapeutic targets? **Carcinogenesis** 2005, 26(4):703-11. (PMID15459022)
6. **Behbod F**, Xian W, Shaw CA, Hilsenbeck SG, Tsimelzon A, Rosen JM. Transcriptional profiling of mammary gland side population cells. **Stem Cells** 2006 Apr; 24(4): 1065-74 (PMID16282442)
7. Woodward WA, Chen MS, **Behbod F**, Rosen JM. On mammary gland stem cells. **J Cell Sci** 2005 Aug 15;118 (Pt 16):3585-94. Review. (PMID16105882)
8. Chen MS, Woodward WA, **Behbod F**, Alfaro MP, Buchholz TA, Rosen JM. Wnt/ β -Catenin mediates radiation resistance of Stem Cell Antigen-1 positive progenitors in an immortalized mammary gland cell line. **J Cell Sci** 2007 Feb 1: 120(pt3): 468-77. (PMID17227796)
9. Woodward WA, Chen MS, **Behbod F**, Alfaro MP, Buchholz TA, Rosen JM. WNT/betacatenin mediates radiation resistance of mouse mammary progenitor cells. **Proc Natl Acad Sci USA**. 2007 Jan 9;104(2):618-23.(PMCID1766434)
10. Zhang M, **Behbod F**, Atkinson RL, Landis MD, Kittrell F, Edwards D, Medina D, Tsimelzon A, Hilsenbeck S, Green JE, Michalowska AM, Rosen JM. Identification of Tumor-initiating Cells in a p53 Null Mouse Model of Breast Cancer. **Cancer Research**. 2008 June 15;68(12):4674-82. (PMCID 2459340)
11. **Fariba Behbod**, Frances S. Kittrell, Heather LaMarca, David Edwards, Sofia Kerbawy, Jessica C. Heestand, Evelin Young, Purna Mukhopadhyay, Hung-Wen Yeh, D. Craig Allred, Min Hu, Kornelia Polyak, Jeffrey M. Rosen, Daniel Medina. An intra-ductal human-in-mouse (HIM) transplantation model mimics the subtypes of ductal carcinoma in situ. **Breast Cancer Research** 2009 Sep 7; 11(5): 1-11. (PMCID 2790841)
12. Lamarca HL, Visbal AP, Creighton CJ, Liu H, Zhang Y, **Behbod F**, Rosen JM. C/EBP β Regulates Stem Cell Activity and Specifies Luminal Cell Fate in the Mammary Gland. **Stem Cells**. 2010 Jan 6. (PMID20054865)
13. Karen M Bussard, Corinne A Boulanger, Frances S Kittrell, **Fariba Behbod**, Daniel Medina, and Gilbert H Smith. Immortalized, pre-malignant epithelial cell populations contain long-lived, label-retaining cells that asymmetrically divide and retain their template DNA. **Breast Cancer Research** 2010, **12**:R86doi:10.1186/bcr2754. (PMID # 20964820)
14. Paul A, Valdez KE, Carletti MZ, **Behbod, F**. Targeting the perpetrator: breast cancer stem cell therapeutics. **Current Drug Targets**. 2010 Sep; 11(9): 1147-56. (PMID # 20545606).
15. Frances S Kittrell, Martha Z. Carletti, Sofia Kerbawy, Jessica Heestand, Wa Xian, Mei Zhang, Heather L. LaMarca, Arnoud Sonnenberg, Jeffrey M. Rosen, Daniel Medina, **Fariba Behbod**. Prospective isolation and characterization of committed and multipotent progenitors from immortalized mouse mammary epithelial cells with morphogenic potential. **Breast Cancer research**, 2011, **13**:R41 (5 April 2011)

D. Research Support

Ongoing Research Support

5 R00 CA127462-05 Behbod (PI) 06/01/2007 - 05/31/2012
 Role of Cancer Stem Cells in Malignant Progression of Human DCIS
 Major Goals: to test whether premalignant cell lines, SUM225, MCF10ATDCIS.com, and subtypes of human DCIS contain distinct cancer stem cell subpopulations which exhibit unique cancer stem cell properties of increased self-renewal potential, quiescence, and tumorigenicity.

No number Behbod (PI) 06/24/2008 - 06/23/2011
 Fariba Behbod KBA funds
 Major Goals: Funding needed to establish Dr. Behbod's research at KU Medical Center

IRB-09-062-01 Kimler (PI) 01/01/2009 - 12/31/2011
 Am Cancer Society

Institutional Research Grant

The use of an shRNA library for the identification of novel genes involved in invasive progression of human ductal carcinoma in situ.

Major Goals: The main focus is to determine novel genes in breast cancer progression.

Role: Co-Investigator

No number Behbod (PI) 06/01/2010 - 05/31/2011

The role of p63 in the transition from ductal carcinoma in situ (DCIS) to invasive disease

Major Goals: The main focus is to determine the role of p63 isoforms in invasive progression of mouse and estrogen induced rat mammary tumors.

Completed Support

Grant Number: 5 F32 CA101560-03 Behbod (PI) 04/01/2003-04/30/2006

NCI

National Research Service Award

Major Goals: Role of Stem Cells in Normal Mammary Development and Cancer

5 P50 CA058183-13 DEV PJ19 Behbod (PI) 07/01/2007-6/31/2008

NCI Spore Project Grant

Major Goals: To develop a stable xenograft model of human ductal carcinoma in situ.