

**BIOGRAPHICAL SKETCH**

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NAME <b>Suzanne A.W. Fuqua</b>		POSITION TITLE <b>Professor</b>	
eRA COMMONS USER NAME SFUQUA			
EDUCATION/TRAINING ( <i>Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.</i> )			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
University of Houston	B.Sc	1976	Biology
University of Houston	M.Sc	1978	Microbiology
University of Texas Graduate School of Biomedical Sciences	Ph.D.	1982	Cancer Biology

**A. Positions and Honors**

- 1982-1983 Project Investigator, Department of Tumor Virology, The University of Texas System Cancer Center, M.D. Anderson Hospital and Tumor Institute, Houston, Texas
- 1983-1985 Senior Research Associate, Virology and Immunology Department, Southwest Foundation for Biomedical Research, San Antonio, Texas
- 1985-1986 Postdoctoral Fellow, Department of Medicine/Medical Oncology, University of Texas Health Science Center at San Antonio, San Antonio, Texas
- 1987-1990 Research Instructor, Department of Medicine/Medical Oncology, University of Texas Health Science Center at San Antonio, San Antonio, Texas
- 1990-1994 Assistant Professor, Department of Medicine/Medical Oncology, University of Texas Health Science Center at San Antonio, San Antonio, Texas
- 1994-1999 Associate Professor (tenured), Department of Medicine/Medical Oncology, University of Texas Health Science Center at San Antonio, Texas
- 1999-present Professor (tenured), Breast Center, Depts. Medicine, and Molecular and Cellular Biology, Baylor College of Medicine, Houston, Texas
- 2007-2008 Distinguished Alumna, University of Texas Graduate School of Biomedical Sciences, Houston, Texas

**B. Selected Publications** (from a list of over 140 publications)

- Fuqua, S.A.W., Fitzgerald, S.D., Chamness, G.C., Tandon, A.K., McDonnell, D.P., Nawaz, Z., O'Malley, B.W., McGuire, W.L.: A variant human breast tumor estrogen receptor with constitutive transcriptional activity. *Cancer Res*, 51: 105-109, 1991.
- Fuqua, S.A.W., Fitzgerald, S.D., Allred, D.C., Elledge, R.M., Nawaz, Z., McDonnell, D.P., O'Malley, B.W., Greene, G. L., McGuire, W.L.: Inhibition of estrogen receptor action by a naturally occurring variant in human breast cancer. *Cancer Res*, 52:483-486, 1992.
- Allred, D.C., Clark, G.M., Elledge, R., Fuqua, S.A.W., Brown, R.W., Chamness, G.C., Osborne, C.K., McGuire, W. L.: Association of p53 protein expression with tumor cell proliferation rate and clinical outcome in node-negative breast cancer. *J. Natl Cancer Inst*, 85:200-206, 1993.
- Ciocca, D.R., Tandon, A.K., Fuqua, S.A.W., Welch, W.J., Clark, G.M., McGuire, W.L.: Heat shock protein hsp70 in axillary lymph node-negative breast cancer patients: Prognostic implications. *J. Natl Cancer Inst*, 85:570-574, 1993.
- Elledge, R.M., Clark, G.M., Fuqua, S.A.W., Yu, Y-Y., Allred, D. C.: p53 protein accumulation detected by five different antibodies: Relationship to prognosis and heat shock protein 70 in breast cancer. *Cancer Res*, 54:3752-3757, 1994.

6. Isola, J.J., Kallioniemi, O-P., Chu, L. W., Fuqua, S.A.W., Hilsenbeck, S.G., Osborne, C.K., Waldman, F.M.: Genetic aberrations detected by comparative genomic hybridization predict outcome in node-negative breast cancer. *J Natl Cancer Inst*, 147:905-911, 1995.
7. Oesterreich, S., Hilsenbeck, S.G., Ciocca, D.R., Allred, D.C., Clark, G.M., Chamness, G.C., Osborne, C.K., Fuqua, S.A.W.: The small heat shock protein hsp27 is not an independent prognostic marker in axillary lymph node-negative breast cancer patients. *Clin Cancer Res*, 2:1199-1206, 1996.
8. Zhang, Q-X, Borg, A., Wolf, D.M., Oesterreich, S., and Fuqua, S.A.W.: An estrogen receptor mutant with strong hormone-independent activity from a metastatic breast cancer. *Cancer Res*, 57:1244-1249, 1997.
9. O'Connell, P., Pekkel, V., Fuqua, S.A.W., Osborne, C. K., Allred, D.C.: Loss-of-heterozygosity in precursor lesions of breast cancer. *J Natl Cancer Inst*, 90:697-703, 1998.
10. O'Connell, P., Fischback, K., Hilsenbeck, S., Fuqua, S.A.W., Clark, G.M., Osborne, C.K., and Allred, D.C.: Loss of heterozygosity at D145S62 and metastatic potential of breast cancer. *J Natl Cancer Inst*, 91:1391-1397, 1999.
11. Hilsenbeck, S.G., Friedrichs, W.G., Schiff, R., O'Connell, P., Hansen, R.K., Osborne, C.K., and Fuqua, S.A.W.: Statistical analysis of microarray expression data as applied to the problem of tamoxifen resistance. *J Natl Cancer Inst* I, 91:453-459, 1999.
12. Fuqua, S.A.W., Friedrichs, W. E., Parra, I., and Moore, J.: Expression of wild-type estrogen receptor  $\beta$  and variant isoforms in human breast cancer. *Cancer Res*, 59:5425-5428, 1999.
13. Fuqua, S.A.W., Wiltschke, C., Zhang, Q.X., Borg, A., Castles, C.G., Friedrichs, W.E., Hopp, T., Hilsenbeck, S., Mohsin, S., O'Connell, P., and Allred, D.C.: A hypersensitive estrogen receptor  $\alpha$  mutation in premalignant breast hyperplasias. *Cancer Res*, 60:4026-4029, 2000.
14. Wang, C., Fu, M., Angeletti, R.H., Siconolfi-Baez, L., Reutens, A.T., Albanese, C., Lisanti, M.P., Katzenellenbogen, B.S., Kato, S., Hopp, T., Fuqua, S.A.W., Lopez, G.N., Kushner, P.J., and Pestell, R.G.: Direct acetylation of the estrogen receptor  $\alpha$  hinge region by p300 regulates transactivation and hormone sensitivity. *J. Biol Chem*, 276:18375-18383, 2001.
15. Fuqua, SAW: The role of estrogen receptors in breast cancer metastasis. *J. Mam Gland Bio and Neo* 6:407, 2001.
16. Fu M., Wang C., Wang J.Zhang X., Sakamaki T., Yeung Y.G., Chang C. Hopp T., Fuqua S.A., Jaffray E., Hay R.T., Palvimo J.J., Janne O.A., and Pestell R.G.: Androgen receptor acetylation governs transactivation and MEKK1-induced apoptosis without affecting in vitro sumoylation and transrepression function. *Mol Cell Biol*, 22:3373-3388, 2002.
17. Xian M.Y., Fan S., Xiong J., Yuan R.Q., Meng Q., Gao M., Goldberg I.D., Fuqua S.A., Pestell R.G., and Rosen E.M.: Role of BRCA-1 in heat shock response. *Oncogene*, 9:10-27, 2003.
18. Fuqua, SAW., Schiff, R, Parra, I., Moore, J.T., Mohsin, S.K., Osborne, C.K., Clark, G.M., Allred, D C.: Estrogen receptor  $\beta$  protein in human breast cancer: Correlation with clinical tumor parameters, *Cancer Res*, 63:2434-2439, 2003.
19. Osborne, C.K., Bardou, V., Hopp, T A, Chamness, G.C., Hilsenbeck, S.G., Fuqua, SAW, Wong, J., Allred, D. C., Clark. G. M. and Schiff, R.: Role of the estrogen receptor coactivator AIB1 (SRC-3) and HER-2/neu in tamoxifen resistance in breast cancer. *J Natl Cancer Inst* I, 95:353-361, 2003.
20. Hopp, T.A, Weiss, H.L., Hilsenbeck, S.G., Allred, D C., Horwitz, K B., and Fuqua, SAW.: Breast cancer patients with progesterone receptor A-rich tumors have poorer disease-free survival rates, *Clin Cancer Res*, 10:2751-2760, 2004.
21. Hopp, T.A., Weiss, H.L., Parra, ., Cui, Y., Osborne, C.K., and Fuqua, SAW: Low levels of estrogen receptor  $\beta$  protein predicts resistance to tamoxifen therapy in breast cancer, *Clin Cancer Res*, 10:7490-7499, 2004.
22. Cui, Y., Zhang, M., Pestell, R., Curran, E.M., Welshons, W.V., and Fuqua, SAW: Phosphorylation of estrogen receptor  $\alpha$  blocks its acetylation and regulates estrogen sensitivity, *Cancer Res*, 64:9199-9208, 2004.
23. Herynk, M., and Fuqua, S.A.W. Estrogen receptor mutations in breast cancer. *Endo Reviews*, 25:869-898, 2004.
24. Fuqua, S.A.W., Cui, Y., Lee, A.V., Osborne, C.K., and Horwitz, K.R.: Insights into the role of progesterone receptors in breast cancer, *J. Clin Onc*, 23:931-932, 2005.

25. Singh, RR, Barnes, CJ, Talukder, AH, Fuqua, S.A.W., and Kumar, R.: Negative regulation of ER $\alpha$  transactivation functions by LIM-only protein LM04. *Cancer Res*, 65:10594-10601, 2005.
26. Poola, I, Fuqua, S.A.W., DeWitty, R. L., Abraham, J., Marshallack, J. J., and Liu, A: ER $\alpha$ -negative breast cancer tissues express significant levels of estrogen independent transcription factors, ER $\beta$ 1 and ER $\beta$ 5: Potential molecular targets for chemoprevention. *Clin Cancer Res*, 11:7579-7582, 2005.
27. Cui, Y., Niu, A., Pestell R., Kumar, R, Curran, E. M., Liu, Y., and Fuqua, S. A. W.: Metastasis-associated protein 2 is a repressor of estrogen receptor  $\alpha$  whose overexpression leads to estrogen-independent growth of human breast cancer cells. *Mol Endo*, 20:2020-2035, 2006
28. Cui Y., Parra I., Zhang M., Hilsenbeck S.G., Tsimelzon A., Furukawa T., Horii A., Zhang Z-Y., Nicholson, R. and Fuqua, S.A.W.: Elevated expression of MAPK phosphatase 3 in breast cancer: A mechanism of tamoxifen resistance. *Cancer Res*, 66:5950-5959, 2006.
29. Ramos, C.A., Bowman, T.A., Boles, N.C., Merchant, A.A., Zheng, Y., Parra, I., Fuqua, S.A.W., Shaw, C.A., and Goodell, M.A.: Evidence for diversity in transcriptional profiles of single hematopoietic stem cells. *PLoS Genetics*. 2:1487-1499, 2006.
30. Herynk M.H., Beyer, A.R., Cui, Y., Weiss, H., Anderson, E., Green, T.P., and Fuqua, S.A.W.: Cooperative action of tamoxifen and c-Src inhibition in preventing the growth of estrogen receptor-positive human breast cancer cells. *Mol Cancer Ther* 5:3023-3031, 2006.
31. Herynk, M.H., Parra, I., Cui, Y., Beyer, A., Wu, M-F, Hilsenbeck, S.G., and Fuqua, S.A.W.: Association between the estrogen receptor  $\alpha$  A908G mutation and outcomes in invasive breast cancer. *Clin Cancer Res*, 13:3235-3243, 2007.

### **C. Research Support**

#### **Ongoing Research Support**

Title: SPORE in Breast Cancer, Project 4 "Role of Estrogen Receptor Mutation in Breast Cancer Metastasis"

Agency: NIH/NCI P50 CA58183

Role: Project Director

Period: 12/1/02-11/30/07

The major goal of this large Specialized Program of Resource Excellence is to expedite the translation of basic research into applied clinical applications in breast cancer detection, treatment and prevention. This SPORE project focuses on the role of the K303R estrogen receptor  $\alpha$  mutation in breast cancer metastatic behavior by examining metastasis in a preclinical model.

Title: A Hypersensitive ER $\alpha$  Mutant in Breast Cancer Progression

Agency: NIH/NCI RO1 CA72038

Role: PI

Period: 2/1/03-1/31/08

The major goal of this project is to begin to evaluate the potential clinical significance of the K303R ER $\alpha$  mutation as an indicator of poor prognosis in untreated primary breast cancers.

Title: Translational Breast Cancer Research Training Program

Agency: NIH/NCI T32 CA90221

Role: PI

Period: 7/1/02-6/30/07

The major goal of this grant is to provide training opportunities in translational breast cancer research. The training includes laboratory training, interactions with physician scientists, and exposure to clinical breast cancer issues.

Title: Novel Gene Networks in Breast Development and Cancer, Project 1 "Integrating RNA Expression and CGH Profiles to Predict Long-term Breast Cancer Progression

Agency: NIH/NCI P01 CA30195

Role: Project Director

Period: 12/01/03-11/31/08

The major aims of the project are to identify an RNA expression profile that accurately predicts recurrence of node-negative breast cancer, to identify a DNA profile that predicts recurrence of breast cancer, and to develop biological models of metastasis-associated gene function to identify critical metastatic signaling pathways.

Title: Androgen Receptor Expression and Tamoxifen Resistance

Agency: Dan L. Duncan Cancer Center

Role: PI

Period: 10/1/06-9/30/07

The major goal of this project is to determine how overexpression of the androgen receptor in breast cancer induces tamoxifen resistance.

Title: Refined Prediction of Hormone Response

Agency: Susan G. Komen Foundation

Role: PI

Period: 8/1/07-7/31/09

The major goal of this project is to determine the contribution of mitogen activated kinase phosphatase 3 to the problem of tamoxifen resistance in breast cancer.

Title: Molecular Classification of Genes Involved in African American Breast Cancer Progression

Agency: Department of Defense

Role: Co-PI

Period: 7/1/07-6/30/11

The major goal of this project is to obtain expression microarray profiles from breast tumors from African American women, and to compare these to profiles from Caucasian women to identify markers associated with aggressive disease.

### **Completed Research Support**

Title: Dissection of the Role of Src Family Members in Breast Cancer Metastatic Behavior

Agency: AstraZeneca

Role: PI

Period: 07/02/03-06/30/05

The major goals of this project are to examine c-Src binding to estrogen receptor (ER) alpha and K303R ER $\alpha$ , to determine if c-Src is activated in K303R ER $\alpha$ -expressing breast cancer cells, and to determine if the c-Src inhibitor AZD0530 reverses the invasive and metastatic behavior of K303R ER $\alpha$ -expressing cells.

Title: Cytoskeleton Organization and Tamoxifen Resistance

Agency: Department of Defense

Role: Project Investigator

Period: 7/1/04-5/31/06

The major aim of this project is to determine whether estrogen and/or growth factor signaling alters the expression of actin binding proteins, and to determine their role in the generation of resistance to tamoxifen.

Title: Ebp50 is a New Key Intermediary in Tamoxifen-Resistant Breast Cancer

Agency: Nancy Owens Memorial Foundation

Role: PI

Period: 6/1/06-5/31/07

The major aim of this project is to determine whether ezrin binding protein Ebp50 is an intermediary in resistance to tamoxifen via signaling to HER-2 and the cytoskeleton.

Principal Investigator/Program Director (Last, First, Middle): Fuqua, Suzanne A.W.

Title: DUSP6 and Tamoxifen Resistance

Agency: Mary Kay Ash Foundation

Role: PI

Period: 7/1/05-6/31/07

The major goal of this project is to evaluate the role of the dual specific phosphatase 6 protein in acquired resistance to tamoxifen.