BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors in the order listed on Form Page 2.
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NAME	POSITION TITLE
Stephen G. Grant, Ph.D.	Associate Professor
eRA COMMONS USER NAME (credential, e.g., agency login) STEPHENGGRANT	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	MM/YY	FIELD OF STUDY
University of Toronto, Canada	B.Sc.	1979	Biochemistry and Chemistry, Zoology
Hospital for Sick Children Research Institute, University of Toronto, Canada	Ph.D.	1985	Medical Genetics
Roswell Park Cancer Institute, Buffalo, NY	Post-Doctoral Fellowship	1988	Molecular Genetics
University of California, San Francisco, CA	Clinical Fellowship	1992	Medical Genetics

A. Personal Statement

I am a geneticist and toxicologist with a career-long interest in creating techniques for biomonitoring of environmental exposures with significant health effects. Beginning at Lawrence Livermore Laboratories, I was charged with developing a blood-based method of detecting and quantifying occupational and accidental radiation exposure. When it became clear that we had developed a suite of methods relevant to all types of genotoxic exposure I moved back into the academic world as a founding member of the Center for Environmental Oncology at the University of Pittsburgh Cancer Institute. I have served as faculty on several federally funded training grants and have experience providing education tailored to the needs of adults looking to apply their knowledge in real-world situations. The present proposal calls for the training of individuals working in and with the maritime industry who may encounter hazardous materials, including weapons of mass destruction, or who may respond to the cleanup of hazardous waste. These are the types of public health issues and exposures that I have spent my career investigating. I am looking forward to working with our established cadre of instructors and colleagues in NIOSH, the EPA and NIEHS to continue to promote best practices in mediation of maritime toxic incidents of all kinds, and to continuing to provide the successful training courses developed and delivered under the auspices of this cooperative agreement.

B. Positions and Honors

1988-1992 **Senior Biomedical Scientist**, Biomedical Sciences Division, Lawrence Livermore National Laboratory, Livermore, CA

1992-1993 **Assistant Research Scientist**, Departments of Radiology and Obstetrics, Gynecology and Reproductive Sciences, University of California, San Francisco, CA

1993-2001 **Assistant Professor**, Departments of Environmental and Occupational Health and Obstetrics, Gynecology and Reproductive Sciences, University of Pittsburgh, PA

1994-2010 **Member**, Molecular Carcinogenesis/Molecular Epidemiology Programs, University of Pittsburgh Cancer Institute, Pittsburgh, PA

1995-2010 **Member**, Magee-Womens Research Institute, Magee-Womens Hospital, Pittsburgh, PA

1997-2010 **Director**, Cancer Toxicology Satellite Facility, Molecular Cytogenetics Laboratory, University of Pittsburgh Cancer Institute, Pittsburgh, PA
1999-2002 **Director**, Molecular Toxicology Program, Interdisciplinary Biomedical Graduate Program, University of Pittsburgh School of Medicine, Pittsburgh, PA
2001-2010 **Associate Professor**, Departments of Environmental and Occupational Health and Obstetrics, Gynecology and Reproductive Sciences, University of Pittsburgh, PA
2006-2007 **Associate Director**, Center for Environmental Oncology, University of Pittsburgh Cancer Institute, Pittsburgh, PA
2011-2013 **Visiting Associate Professor**, Department of Pharmaceutical Sciences, College of Pharmacy, Nova Southeastern University, Fort Lauderdale, FL
2011-present **Director**, Cancer Research Laboratory, Health Professions Division, Nova Southeastern University, Fort Lauderdale, FL
2013-present **Associate Professor**, Public Health Program, College of Osteopathic Medicine, Nova Southeastern University, Fort Lauderdale, FL

Board Certification

1993 Clinical Molecular Genetics (renewed 2002, 2007, 2009)

Federal Advisory Committees

2001	EPA: Novel Mechanistic Approaches in Human Risk Assessment
2003, 2005	NASA: Radiation Biology
2005, 2006	Army Breast Cancer CDMRP: Cell Biology
2006	Army Breast Cancer CDMRP: Clinical and Experimental Therapeutics
2007	NSERC (Canada): Collaborative Health Research Projects
2009, 2010	Army Breast Cancer CDMRP: Molecular Biology and Genetics
2009	Army Breast Cancer CDMRP: Concept Awards
2010, 2014	EPA: Science to Achieve Results (STAR) Fellowships
2010, 2012	ANR (France): ATIP-AVENIR Programme
NIH/NCI:	Disparities, Cancer Risk, Prevention and Prognostic Factors SEP
2013	Army Breast Cancer CDMRP: Pre-Clinical Research
2014	Army Breast Cancer CDMRP: Biomarkers Research
2015	Army Breast Cancer CDMRP: Prevention Research (Chair)

Honors

2010	Editorial Board, *Toxicology* In Vitro
2010	Editorial Board, *Journal of Carcinogenesis and Mutagenesis*
2010	Editorial Board, *Journal of Pharmacology and Clinical Toxicology*

C. Selected Peer-Reviewed Publications

Bakos J, Bacova Z, **Grant SG**, *et al*. Are molecules involved in neuritogenesis and axon guidance related to autism pathogenesis? *Neuromol Med* 2015; **17**: 297–304.

Latimer JJ, Pimpley MR, Pabon-Padin Y, *et al*. Regulation and disregulation of mammalian nucleotide excision repair. *Photochem Photobiol* 2015; **91**: 493–500.

Keohavong P, Xi L, **Grant SG**. Molecular analysis of mutations in the human *HPRT* gene. *Meth Mol Biol* 2014; **1105**: 291–301.

Myers NT, **Grant SG**. The blood-based glycophorin A human *in vivo* somatic mutation assay. *Meth Mol Biol* 2014; **1105**: 223–244.

Grant SG, Joshi N. DNA double strand break damage and repair assessed by pulsed-field gel electrophoresis. *Meth Mol Biol* 2014; **1105**: 193–202.

Keohavong P, **Grant SG**. **Molecular Toxicology Protocols, 2nd Edition, Methods in Molecular Biology**, **Volume 1105**, Springer, New York, New York, 2014, 646 pages.

Wend P, Runke S, Wend K, *et al*. WNT10B/β-catenin signaling induces HMGA2 and proliferation in metastatic triple-negative breast cancer. *EMBO Mol Med* 2013; **5**: 1–16.
Grant SG. Translating mutagenesis into carcinogenesis. *J Carcinogen Mutagen* 2012; **3**: e106.
Visus C, Ito D, Dhir R, *et al*. Identification of hydroxysteroid (17β) dehydrogenase type 12 (HSD17B12) as a $CD8^+$ T-cell-defined human tumor antigen of human carcinomas. *Cancer Immunol Immunother* 2011; **60**: 919–929.
Latimer JJ, Johnson JM, Kelly CM, *et al*. Nucleotide excision repair deficiency is intrinsic in sporadic stage I breast cancer. *Proc Natl Acad Sci USA* 2010; **107**: 21725–21730.
Grant SG. Tobacco smoke exposure and somatic mutation in newborns. *Open Pediatr Med J* 2010; **4**: 10–13.
Sajithlal GS, Rothermund K., Zhang F, *et al*. Permanently blocked stem cells derived from breast cancer cell lines. *Stem Cells* 2010; **28**: 1008–1018.
Grant SG, Melan MA, Latimer JJ, Witt-Enderby PA. Melatonin and cancer: a review of clinical studies, cellular mechanisms and future perspectives. *Expert Rev Mol Med* 2009; **11**: E5.
Latimer JJ, Johnson JM, Miles TD, *et al*. Cell-type-specific level of DNA nucleotide excision repair in primary human mammary and ovarian epithelial cell cultures. *Cell Tissue Res* 2008; **333**: 461–467.
Grant SG, Das, R., Cerceo CM, *et al*. Elevated levels of somatic mutation in a manifesting *BRCA1* mutation carrier. *Pathol Oncol Res* 2007; **13**: 276–283.
Donovan M, Miles TD, Latimer JJ, *et al*. Association between biomarkers of environmental exposure and increased risk of breast cancer. *Nature Rev Cancer* 2006; **6**: c1.
Grant SG. Qualitatively and quantitatively similar effects of active and passive maternal tobacco smoke exposure on *in utero* mutagenesis at the *HPRT* locus. *BMC Pediatr.* 2005; **5**: 20.
Latimer JJ, Rubinstein WS, Johnson JM, *et al*. Haploinsufficiency for *BRCA1* is associated with normal levels of DNA nucleotide excision repair in breast tissue and blood lymphocytes. *BMC Med Genet* 2005; **6**: 26.
Evdokimova VE, McLaughlin RK, Wenger SL, **Grant SG**. Use of the glycophorin A bone marrow somatic mutation assay for rapid, unambiguous identification of Fanconi anemia homozygotes regardless of *GPA* genotype. *Am J Med Genet A* 2005; **135**: 59–65.
Keohavong P, Xi L, Day RD, *et al*. *HPRT* gene alterations in umbilical cord blood T-lymphocytes in newborns of mothers exposed to tobacco smoke during pregnancy. *Mutat Res* 2005; **572**: 156–166.
Grant SG. Molecular epidemiology of human cancer: biomarkers of genotoxic exposure and susceptibility. *J Environ Pathol Toxicol Oncol* 2001; **20**: 237–253.
Moser MJ, Oshima J., Bigbee WL, *et al*. Genetic instability and hematologic disease risk in Werner syndrome patients and heterozygotes. *Cancer Res* 2000; **60**: 2492–2496.
Grant SG, Bigbee WL. Variable induction and persistence of bone marrow somatic mutation following genotoxic cancer therapy. *Lancet* 1994; **343**: 1507–1508.

D. Research Support (Last Three Years)

Ongoing research support

"Persistently elevated somatic mutation as a biomarker of clinically relevant exposures in Gulf War illness" (Grant SG, PI, $581,848) 8/1/16–7/31/19 Gulf War Illness Research Program, Congressionally-Directed Medical Research Program, U.S. Department of Defense
The major aim of this grant is to determine whether Gulf War veterans with symptomatic Gulf War illness show evidence of greater cumulative genotoxic exposure.

"Project SEAMIST (South East Area Maritime Industry Safety Training)" (Grant SG, PI, $4,319,274) 8/1/15–7/31/20 National Institute for Environmental Health Sciences

The major aim of this cooperative agreement is to train marine industry workers in the safe handling of hazardous materials and proper response to potential exposure due to accident, disaster or terrorism.

"Cytotoxicity of Deepwater Horizon oil/dispersant on human models of breast and blood" (Grant SG, PI, $15,000) 6/1/15–5/31/16 Nova Southeastern University President's Fund for Research and Development
The major aim of this pilot study is to quantify the cytotoxicity of oil mixtures representative of the Deepwater Horizon oil spill on cultures of primary breast epithelial cells and lymphocytes.

"Targeting African American and Ashkenazi Jewish triple negative breast cancers" (Latimer JJ, PI, $15,000) 6/1/15–5/31/16 Nova Southeastern University President's Fund for Research and Development
The major aim of this pilot study is to optimize the cytotoxic effects of established chemotherapeutic chemicals on cultures of triple negative breast tumors derived from African American and Ashkenazi Jewish patients.

"The role of DNA repair, genomic instability and stem cells in leukemia relapse" (Latimer JJ, PI, $30,000) 7/31/12–7/30/14 Children's Leukemia Research Association
The major aim of this grant is to render leukemia cell lines resistant to chemotherapeutic drugs and study changes in functional DNA repair and DNA repair gene expression.

<u>*Completed Research Support (Last 3 Years)*</u>
"Hazardous Material Worker Health and Safety Training—Project SEAMIST" (Grant SG, PI, $337,000) 6/1/14–5/31/15 National Institute for Environmental Health Sciences
The major aim of this cooperative agreement is to train marine industry workers in the safe handling of hazardous materials and proper response to potential exposure due to accident, disaster or terrorism.

"Detailed Molecular Profiling of Sporadic Stage I Breast Cancer" (Grant SG, PI, $15,000) 6/1/14–5/31/15 Nova Southeastern University President's Fund for Research and Development
The major aim of this pilot study is to identify molecular changes (mutations, copy number alterations) in early stage breast cancer cell lines.

"Transformation Assay to Identify Florida Environmental Breast Carcinogens" (Latimer JJ, PI, $15,000) 6/1/14–5/31/15 Nova Southeastern University President's Fund for Research and Development
The major aim of this pilot study is to develop a transformation assay relevant to breast carcinogenesis.

"The role of DNA repair, genomic instability and stem cells in leukemia relapse" (Latimer JJ, PI, $30,000) 7/31/12–7/30/14 Children's Leukemia Research Association
The major aim of this grant is to render leukemia cell lines resistant to chemotherapeutic drugs and study changes in functional DNA repair and DNA repair gene expression.

"Human breast tissue engineering model for environmental chemical assessment" (Latimer JJ, PI, $100,000) 10/1/12–9/30/14 Florida Breast Cancer Foundation
The major aim of this grant is to use two of Dr. Latimer's novel breast cell lines to quantify the impact of four major endocrine disruptors on organotypic ductal differentiation.

"Molecular mechanism of DNA repair deficiency in breast cancer" (Grant SG, PI, $10,000) 6/1/12–5/31/14 Nova Southeastern University President's Fund for Research and Development
The major aim of this pilot study is to identify specific miRNAs negatively regulating the expression of key nucleotide excision repair genes in early stage breast cancer cell lines.

"Breast epithelial stem cell number and potency in African American women" (Latimer JJ, PI, $10,000) 6/1/12–5/31/14 Nova Southeastern University President's Fund for Research and Development

The major aim of this pilot study is to determine whether there are ancestry-related differences in breast epithelial stem cell number or potency in breast reduction cell lines.