

## **Victoria A. Stuart, Ph.D.**

Owner, Persagen Consulting  
Apt. 107 – 1050 West 10th Avenue  
Vancouver, British Columbia, Canada. V6H 1H8  
Phone / Fax: 604-569-4145  
Website: <http://Persagen.com>  
E-mail: [mail@Persagen.com](mailto:mail@Persagen.com)

### **EDUCATION**

#### **Ph.D., Biology (Molecular Genetics), June 2000**

University of Victoria, Victoria, British Columbia, Canada  
Dissertation: "Influences of Ageing and Diet on Mutational Frequency and Specificity  
in Big Blue<sup>®</sup> *lacI* Transgenic Rodents"  
Supervisor: Dr. Barry W. Glickman

#### **M.Sc., Occupational Hygiene Programme (Genotoxicity), May 1995**

University of British Columbia, Vancouver, British Columbia, Canada  
Thesis: "Genotoxicity of Captan Measured in the Comet Assay"  
Supervisors: Dr. P.J.E. (Jenny) Quintana; Dr. Christopher van Netten

#### **B.Sc. with Honours, Biochemistry (minor in Chemistry), October 1983**

Dalhousie University, Halifax, Nova Scotia, Canada  
Honours Thesis: "Dimroth Rearrangement of the Oligodeoxyribonucleotide  
Synthesis Precursor N<sup>6</sup>-Benzoyl-Deoxyadenosine"  
Supervisor: Dr. Robert W. Chambers

### **CURRENT POSITION**

**Owner, Persagen Consulting.** Since June 2009 I have been self-employed as a Scientific Consultant (Persagen Consulting, Persagen.com, a sole proprietorship), providing scientific expertise and support in the areas of molecular biology, genomics, bioinformatics, genetics, toxicology, occupational health and scientific review. During this period, I have been working under contract (via Battelle Chapel Hill) for two U.S. Federal clients: The U.S. Army Research Office (ARO, Durham, N.C.), for which I provide scientific review (e.g. research proposals), and the Walter Reed Army Institute of Research (WRAIR, Washington, D.C.), for which I provide advanced genomics and bioinformatic analyses.

### **RECENT AFFILIATIONS**

**Research Scientist**, Laboratory of Molecular Genetics, National Institute of Environmental Health Sciences, P.O. Box 12233, MD E3-01, Research Triangle Park, North Carolina 27709.  
May 2001 – November 2008. Throughout this period support was provided by:

**U.S. Army Research Office**, May 2001 – November 2008

**National Research Council Resident Research Associateship Award**, May 2005 – November 2008

**Research Assistant**, Department of Molecular Genetics and Microbiology, Duke University Medical Center, Durham, North Carolina, May 2002 – April 2005

**International Research Scholar**, Department of Microbiology, North Carolina State University, Raleigh, North Carolina, May 2001 – April 2002

## **PROFESSIONAL INTERESTS**

### **Health-Related:**

- Carcinogenesis
- Environmental and occupational health and safety
- Personalized genomics and medicine
- Sex and gender-specific effects
- Toxicology

### **Genetics:**

- DNA damage and repair
- Functional genomics
- Gene expression
- Genotoxicology
- Microbial genetics
- Mitochondrial genetics
- Mutagenesis and carcinogenesis

### **Bioinformatics:**

- Construction of protein-protein / protein-DNA interaction networks (“interactomes”)
- Data mining, data visualization, data analyses / management
- Systems biology
- Validation and verification

### **Science Policy / Management:**

- Science education and training
- Scientific research societies
- Scientific social networking and communication
- Socioeconomic issues

## **PERSONAL AND PROFESSIONAL MISSION STATEMENT AND VISION**

My personal and professional mission is to work collaboratively and productively with others to address scientific and societal issues, and to seek solutions to these issues.

My vision is the application of science and technology for the betterment of human health, the environment, and society.

## **SUPERVISORY AND SOCIAL NETWORKING SKILLS**

**President (2006 – 2007), President-Elect (2005 – 2006) and Councilor (2002 – 2005)**, Genetics and Environmental Mutagenesis Society, Durham N.C. During this period I planned, organized, chaired Spring and Fall / Annual Meetings (2006), and scheduled and chaired the Board of Directors meetings (2005 – 2006).

**Project Leadership:** My Ph.D. studies (*lacI* transgenic rodent mutational assays) employed a team approach. For each of these projects, I planned, participated and supervised the experiments, including supervision of technical support, data collection and analyses. During this period, I supervised undergraduate summer students (1997 – 2001), research technicians (1997 – 2001), and graduate students (2001).

**Project Leader, Individual Susceptibility Group**, Centre for Environmental Health, Department of Biology, University of Victoria, 2000 – 2001. Supervision of graduate students.

**President**, 1985 – 1996: Phi Kappa Pi Fraternity, Dalhousie University, Halifax, Nova Scotia, Canada

#### **Social Networking and Leadership:**

**Founder, Durham Gender Alliance**, April 2008 [<http://groups.yahoo.com/group/durhamgenderalliance>]

**Founder, TransAdvocates**, December 2007 [<http://groups.yahoo.com/group/transadvocates>]

**Chair, Trans Alliance Society**, February 2009 – June 2009.

In addition to my scientific leadership, I have served as a leader and an advocate for the transgender community. While living in North Carolina I founded a transgender support group, The Durham Gender Alliance, which continues to serve and currently exceeds 140 Members. I also founded an online advocacy group, TransAdvocates. I am the former Chair (2009) of the Trans Alliance Society, the leading transgender-specific support and advocacy group in British Columbia, that was awarded Community Group of the Year by our peers in April 2009. Through these associations, I possess a thorough knowledge and understanding of the issues affecting the GLBT community, including employment-related issues.

#### **PROFESSIONAL AFFILIATIONS**

**President**, Genetics and Environmental Mutagenesis Society, 2006 – 2007

**President-Elect**, Genetics and Environmental Mutagenesis Society, 2005 – 2006

**Councilor**, Genotoxicity and Environmental Mutagenesis Society, 2002 – 2005

**Member**, Environmental Mutagen Society, 1994 – 2008

**Member**, Small Eukaryotes Group (yeast special-interest group), 2002 – 2008

**Member**, Federation of American Societies for Experimental Biology, 2001 – 2002

#### **HONORS AND AWARDS**

National Research Council Research Associateship Award, National Academies, Washington D.C., 2005 – 2008

National Cancer Institute of Canada (NCIC) Student Travel Award, 1999

Environmental Mutagen Society Student Travel Award, 1997

Foundation for the Promotion of Cancer Research Fellowship for Research in Japan, National Cancer Center Research Institute, Tokyo, Japan, 1996

Cancer Research Society Inc. Graduate Student Stipend, Montreal, Canada, 1995 – 1999

Natural Sciences and Engineering Research Council of Canada (NSERC) Undergraduate Summer Research Fellowship, Ottawa, Canada, 1981; 1982

## **PEER-REVIEW AND SCIENTIFIC SERVICE**

**Reviewer:** I have served (on-going) as a Reviewer for various grant applications and manuscripts:

**Grant Peer-Review:**

Medical Research Council (Canada); National Cancer Institute of Canada; U.S. Army Research Office (ongoing; contracted)

**Journal Peer-Review:**

Acta Biochimica et Biophysica Sinica; Archives of Biochemistry and Biophysics; Cancer Letters; Environmental and Molecular Mutagenesis; Eukaryotic Cell; Functional and Integrative Genomics; Genetics; Molecular and Cellular Biology; Mutagenesis; Mutation Research; NIEHS Internal Review (reviews for PNAS; Nature Genetics; ...); Proceedings of the National Academy of Sciences of the United States of America

## **TEACHING EXPERIENCE**

Co-Lecturer: Biology 437/550E, DNA Repair and Mutagenesis, University of Victoria, Spring 2001; Spring 2000

Co-Lecturer, Course Coordinator, Administrator: Biology 439/550E, Molecular Epidemiology, University of Victoria, Winter 2000

Supervision and training of undergraduate summer students and technicians, 1997 – 2001

Laboratory Instructor – Biochemistry Laboratory course (Dalhousie University, 1983).

## **PARTICIPATION AT CONFERENCES, SEMINARS, POSTERS**

NIEHS Laboratory of Molecular Genetics Retreat (Poster) – March 26, 2007 – "Disruption of the *S. cerevisiae* Mitochondrial NADH Kinase Gene (*POS5*) Results in Down-Regulation of the Oxidative Stress Response and An Anaerobic Phenotype"

NIEHS Laboratory of Molecular Genetics Seminar – February 07, 2007 – "*S. cerevisiae pos5Δ* Microarray Analyses"

Environmental Mutagen Society Annual Meeting 2006 (Vancouver, British Columbia, Canada; Poster) – September 19, 2006 – "Disruption of the *S. cerevisiae* Mitochondrial NADH Kinase Gene (*POS5*) Results in Down-Regulation of the Oxidative Stress Response and An Anaerobic Phenotype"

Small Eukaryote Group Seminar – March 16, 2006 – "Stress Response in *S. cerevisiae pos5Δ*, *sod1Δ* and *sod1Δ* Mutants"

NIEHS Laboratory of Molecular Genetics Seminar – March 08, 2006 – "*S. cerevisiae pos5Δ* Microarray Analyses"

NIEHS Laboratory of Molecular Genetics Board of Scientific Counselors Review (Poster) – November 07, 2005 – "Mitochondrial and Nuclear DNA Defects in *Saccharomyces cerevisiae* With Mutations in DNA Polymerase Gamma Associated With Progressive External Ophthalmoplegia"

NIEHS Laboratory of Molecular Genetics Retreat (Poster) – October 17, 2005 – "Mitochondrial and Nuclear DNA Defects in *Saccharomyces cerevisiae* With Mutations in DNA Polymerase Gamma Associated With Progressive External Ophthalmoplegia"

Small Eukaryote Group Seminar – March 17, 2005 – "Disease-Associated mtDNA Polymerase Gene Mutations Characterized in *S. cerevisiae*"

NIEHS Laboratory of Molecular Genetics Seminar – January 28, 2004 – "Studies of Mitochondrial Function Using the Yeast *Saccharomyces cerevisiae*"

NIEHS Laboratory of Molecular Genetics Seminar – December 03, 2003 – "mtDNA Replication and Stability"

NIEHS Laboratory of Molecular Genetics Seminar – July 17, 2002 – "Cloning and Characterization of the *S. cerevisiae* POS5 Gene, A Mitochondrial Mutator"

Small Eukaryote Group Seminar – April 18, 2002 – "*S. cerevisiae* POS5, A Mitochondrial Mutator Gene, Encodes the Mitochondrial NADH Kinase"

**Older:**

Environmental Mutagen Society: 1995 – 1999 inclusive (platform presentations)  
Gordon Research Conferences, Genetic Toxicology: 1997 (poster)  
National Cancer Centre Research Institute, Tokyo: 1996 (invited lecture)  
American Industrial Hygiene Association: 1994 (poster)

**INVITED LECTURES**

University of Victoria Sustainability Project, "Genetic Studies of Dietary and Environmental Mutagens and Carcinogens Using *lacI* Transgenic Rodents," March 29, 2000

Occupational Hygiene Programme, University of British Columbia, "*In vivo* Mutagenicity (Genotoxicity) Assays Using *lacI* Transgenic Rodents," February 05, 1999

Carcinogenesis Division, National Cancer Center Research Institute, Tokyo, "A study of *Tris*(2,3-dibromopropyl)-phosphate in Big Blue<sup>®</sup> transgenic mice, and aflatoxin B<sub>1</sub> in Big Blue<sup>®</sup> mice and rats," January 18, 1996

**LABORATORY SKILLS**

**Biochemistry / Molecular Biology**

Expertise in Molecular Biology, including autoradiography; polymerase chain reaction (PCR); DNA isolation, purification, manipulation, cloning, enzymatic reactions; DNA sequencing (manual; automated); basic protein purification; radioisotope handling; site-directed mutagenesis; basic tissue culture

**Chemistry**

Expertise in Polynucleotide Chemistry (1982-1988), including oxygen-free organic syntheses, transfer of reagents *in vacuo*, syntheses under argon gas; distillation of anhydrous solvents; manual synthesis of oligonucleotides; synthesis of polysubstituted cyclopropanes for nuclear magnetic resonance (NMR)

## Microbiology

Expertise in the Growth and Genetic Manipulation of the Yeast *Saccharomyces cerevisiae*: DNA purification, transformation; gene replacement; 'delitto perfetto' site-directed mutagenesis; generation, isolation of haploid, diploid strains; tetrad analyses, micromanipulation of spores; verification of genetic markers, haploidy, diploidy, mating type

Yeast Genomic Analyses: Microarray analyses of gene expression; expertise with the bioinformatics tools provided at the *Saccharomyces* Genome Database (SGD; [www.yeastgenome.org](http://www.yeastgenome.org))

Expertise in Yeast Mitochondrial Genetics, including *Arg8<sup>m</sup>* transgenic mitochondrial mutational assay; petite frequency analyses; generation of strains lacking mitochondrial DNA; generation of *rho<sup>+</sup>* strains from *rho<sup>0</sup>* strains; site-directed mutagenesis *in situ*

Expertise in *E. coli* Strain Constructions: Interrupted matings using Hfr strains; DNA transductions using bacteriophage P1

Expertise in Mutational Assays, including bacterial, bacteriophage, yeast (mitochondrial, nuclear DNA), *lacI* transgenic rodents; handling of mutagens, carcinogens, rodents; collection, storage of tissues; isolation of high-molecular weight DNA; mutant isolation, DNA sequencing, analysis of mutational data

## Instrumentation

Chromatography: Silica gel, ion exchange, size exclusion column chromatography; thin layer chromatography; high performance liquid chromatography (HPLC)

Comet Assay: Custom assembly of fluorescence microscope, CCD camera, Macintosh computer for single-cell gel electrophoresis assay

Confocal Microscopy: Zeiss LSM 510 laser-scanning microscope

DNA Sequencers: Pharmacia A.L.F., Li-COR 4200, ABI Prism 377

Electrophoresis: Automated and manual DNA Sequencing

Micromanipulator: Singer Instruments MSM System (microdissection of yeast spores)

Nuclear Magnetic Resonance (NMR) Spectrometer: Varion Associates T-60, 60 MHz (1980)

Spectrophotometry: UV-Visible; infrared

Ultracentrifugation: CsCl-EtBr gradients, alkaline and neutral sucrose gradients, gradient fractionation

## SOFTWARE SKILLS

**Bioinformatics**: Agilent GeneSpring, GenMAPP, Cytoscape (microarray data analyses); construction of human and yeast protein-protein and protein-DNA interaction networks (interactomes) for use with Cytoscape; familiarity with Omniviz (data mining), GCG Wisconsin Package (molecular biology); GoMiner; some familiarity with Phylogenetic 'Bootstrap' Analyses (1992)

**Linux**: Intermediate but increasing knowledge (home computer is Linux-based)

**Macintosh**: Intermediate knowledge

**Windows 95, NT, 2000, XP:** Expert user

**Office Software:** Microsoft Word, PowerPoint, Excel (simple macro programming); OpenOffice; Endnote; Adobe Acrobat, Photoshop

**Programming:** Familiarity with Pascal (proficient in 1984); custom macros for NIH Image for semi-automated image analyses of comet assay data (M.Sc. project); increasing familiarity with Linux scripts

**HTML:** Intermediate-level HTML authoring skills. I create and code my personal web pages using a plain-text editor (faster and easier).

## **PEER-REVIEWED PUBLICATIONS**

Stuart, G.R., Copeland, W.C. and Strand, M.K. (2009) "Construction and Application of a Protein and Genetic Interaction Network (Yeast Interactome)" *Nucleic Acids Research* **37**, e54.

Stuart, G.R., Humble, M.M., Strand, M.K. and Copeland, W.C. (2009) "Transcriptional Response to Mitochondrial NADH Kinase Deficiency in *Saccharomyces cerevisiae*." *Mitochondrion* **9**, 211-221.

Stuart, G.R., Santos, J.H., Strand, M.K., Van Houten, B. and Copeland, W.C. (2006) "Mitochondrial and nuclear DNA defects in *Saccharomyces cerevisiae* with mutations in DNA polymerase  $\gamma$  associated with progressive external ophthalmoplegia." *Human Molecular Genetics* **15**, 363-374.

Thornton, A.S., Oda, Y., Stuart, G.R., Holcroft, J. and de Boer, J.G. (2004) "The dioxin TCDD protects against aflatoxin-induced mutation in female rats, but not in male rats." *Mutation Research* **561**, 147-152.

Strand, M.K., Stuart, G.R., Longley, M.J., Graziewicz, M.A., Dominick, O.C. and Copeland, W.C. (2003) "POS5 Gene of *Saccharomyces cerevisiae* encodes a mitochondrial NADH kinase required for stability of mitochondrial DNA." *Eukaryotic Cell* **2**, 809-820.

Yang, H., Stuart, G.R., Glickman, B.W. and de Boer, J.G. (2001) Modulation of 2-amino-1-methyl-6-phenylimidazo[4,5-*b*]pyridine-induced mutation in the cecum and colon of Big Blue<sup>®</sup> rats by conjugated linoleic acid and 1,2-dithiole-3-thione. *Nutrition and Cancer* **39**, 259-266.

Stuart, G.R., de Boer, J.G., Haesevoets, R., Holcroft, J., Kangas, J., Sojonky, K., Thorleifson, E., Thornton, A., Walsh, D.F., Yang, H. and Glickman, B.W. (2001) Mutations induced by 2-amino-1-methyl-6-phenylimidazo [4,5-*b*]pyridine (PhIP) in cecum and proximal and distal colon of *lacI* transgenic rats. *Mutagenesis* **16**, 431-437.

Thornton, A.S., Oda, Y., Stuart, G.R., Glickman, B.W. and de Boer, J.G. (2001) Mutagenicity of TCDD in Big Blue<sup>®</sup> transgenic rats. *Mutation Research* **478**, 45-50.

Stuart, G.R., Holcroft, J., de Boer, J.G. and Glickman, B.W. (2000) Prostate mutations in rats induced by the suspected human carcinogen 2-amino-1-methyl-6-phenylimidazo[4,5-*b*]pyridine. *Cancer Research* **60**, 266-268.

Stuart, G.R., Oda, Y., de Boer, J.G. and Glickman, B.W. (2000) Mutation frequency and specificity with age in liver, bladder and brain of *lacI* transgenic mice. *Genetics* **154**, 1291-1300.

Stuart, G.R., Oda, Y., de Boer, J.G. and Glickman, B.W. (2000) No change in spontaneous mutation frequency or specificity in dietary restricted mice. *Carcinogenesis* **21**, 317-319.

Stuart, G.R. and Glickman, B.W. (2000) Through a glass, darkly: Reflections of mutation from *lacI* transgenic mice. *Genetics* **155**, 1359-1367.

Stuart, G.R., Thorleifson, E., Okochi, E., de Boer, J.G., Ushijima, T., Nagao, M. and Glickman, B.W. (2000) Interpretation of mutational spectra from different genes: Analyses of PhIP-induced mutational specificity in the *lacI* and *cII* transgenes from colon of Big Blue<sup>®</sup> rats. *Mutation Research* **452**, 101-121.

Stuart, G.R., Influences of Ageing and Diet on Mutational Frequency and Specificity in Big Blue<sup>®</sup> *lacI* Transgenic Rodents. Ph.D. Dissertation, University of Victoria, 1999.

Okonogi, H., Stuart, G.R., Okochi, E., Ushijima, T., Sugimura, T., Glickman, B.W. and Nagao, M. (1997) Effects of gender and species on spectra of mutation induced by 2-amino-1-methyl-6-phenylimidazo[4,5-*b*]pyridine in the *lacI* transgene. *Mutation Research* **395**, 93-99.

Dycaico, M.J., Stuart, G.R., Tobal, G.M., de Boer, J.G., Glickman, B.W. and Provost, G.S. (1996) Species-specific differences in hepatic mutant frequency and mutational spectrum among lambda/*lacI* transgenic rats and mice following exposure to aflatoxin B<sub>1</sub>. *Carcinogenesis* **17**, 2347-2356.

Stuart, G.R., Gorelick, N.J., Andrews, J.L., de Boer, J.G. and Glickman, B.W. (1996) The genetic analysis of *lacI* mutations in sectored plaques from Big Blue<sup>®</sup> transgenic mice. *Environmental and Molecular Mutagenesis* **28**, 385-392.

Mazur-Melnyk, M., Stuart, G.R. and Glickman, B.W. (1996) Benzo[*a*]pyrene diol-epoxide induces loss of heterozygosity in a Chinese hamster ovary *aprt* heterozygote. *Mutation Research* **358**, 89-96.

Stuart, G.R., Application of the single-cell gel electrophoresis ('Comet') assay to lymphocytes exposed *in vitro* to captan, a fungicide. M.Sc. Thesis, University of British Columbia, 1995.

Pohajdak, B., Dixon, B. and Stuart, G.R., Immune System, *In: Biochemistry and Molecular Biology of Fishes*, Volume 2, Chapter 8. Hochachka, P.W., and Mommsen, T.P. (Eds), Elsevier Science Publishers B.V., Amsterdam, 1993. pp. 191-205.

Stuart, G.R., Dixon, B. and Pohajdak, B. (1992) Isolation of a putative retrovirus *pol* gene fragment from trout. *Comparative Biochemistry and Physiology. B Comparative Biochemistry* **102**, 137-142.

Stuart, G.R. and Chambers, R.W. (1987) Synthesis and properties of oligodeoxynucleotides with an AP site at a preselected position. *Nucleic Acids Research* **15**, 7451-7462.

### **Published Abstracts**

Stuart, G.R., Copeland, W.C. and Strand, M.K. (2006) "Disruption of the *Saccharomyces cerevisiae* mitochondrial NADH kinase gene (*POS5*) results in down-regulation of the oxidative stress response and an anaerobic phenotype. *Environmental and Molecular Mutagenesis* **47**, 444.

Stuart, G.R., de Boer, J.G. and Glickman, B.W. (1999) Re-examination of PhIP-induced mutational specificity in colon of male and female Big Blue<sup>®</sup> rats. *Environmental and Molecular Mutagenesis* **33** (Supplement 30), 61.

Thornton, A.S., Oda, Y., Stuart, G.R., Holcroft, J., de Boer, J.G. and Glickman, B.W. (1999) Protective effects of 2,3,7,8-tetrachlorodibenzo-*p*-dioxin in female but not male Big Blue<sup>®</sup> transgenic rats treated with aflatoxin B<sub>1</sub> *Environmental and Molecular Mutagenesis* **33** (Supplement 30), 63.

Yang, H., Stuart, G.R., de Boer, J.G. and Glickman, B.W. (1999) Protection against 2-amino-1-methyl-6-phenylimidazo[4,5-*b*]pyridine-induced mutation in colon of *lacI* transgenic rats by conjugated linoleic acid and 1,2-dithiole-3-thione. *Environmental and Molecular Mutagenesis* **33** (Supplement 30), 69.

Thornton, A.S., Oda, Y., Stuart, G.R., de Boer, J.G. and Glickman, B.W. (1998) Synergistic effects of 2,3,7,8-tetrachlorodibenzo-*p*-dioxin and aflatoxin B<sub>1</sub> in Big Blue<sup>®</sup> transgenic rats. *Environmental and Molecular Mutagenesis* **31** (Supplement 29), 11.

Stuart, G.R., Oda, Y., de Boer, J.G. and Glickman, B.W. (1998) Mutagenic effects of ageing in liver, bladder, and brain of *lacI* transgenic mice. *Environmental and Molecular Mutagenesis* **31** (Supplement 29), 7.

Stuart, G.R., Oda, Y., de Boer, J.G. and Glickman, B.W. (1997) Mutational spectra from aged and calorie-restricted *lacI* transgenic mice. *Environmental and Molecular Mutagenesis* **29** (Supplement 28), 49.

Stuart, G.R., Gorelick, N.J., Andrews, J.L., de Boer, J.G. and Glickman, B.W. (1996) Mutation spectra from sectored plaques recovered in the Big Blue<sup>®</sup> transgenic rodent Assay. *Environmental and Molecular Mutagenesis* **27** (Supplement 27), 66.

Dixon, B., Stuart, G. and Pohajdak, B. (1991) Isolation and cloning of  $\beta$ 2 microglobulin from the teleost fish, *Oreochromis nilotica*. (1991) *Fifth International Society for Developmental and Comparative Immunology Congress. Developmental and Comparative Immunology* **15**, S39.

## **REFERENCES**

Please contact me (mail@Persagen.com) for the names, affiliations and contact information for my References.