

## ANDREW J. PIERCE, Ph.D.

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**'An experienced translational cancer cell biologist with proven ability to drive preclinical innovation'**

### KEY STRENGTHS AND ACHIEVEMENTS:

- **Translational Research:** Established a tissue-based assay for genomic instability in adult and pediatric cancer specimens: lung, colorectal and leukemia. *Clinically validated.*
- **Assay Development:** Invented a flow cytometry based method for determining molecular responses to chemotherapy, amenable to medium and high throughput small molecule/siRNA screening. *Highly cited.*
- **Oncology Knowledgebase:** Imaging, interventional radiology, pathology, surgical options, radiation medicine, medical oncology. Entry and exclusion criteria for clinical trials.
- **Biomarker Applications:** Prognostic/predictive biomarker analysis: FISH, aCGH, IHC, sequencing. Molecular pathology, signaling pathway interpretation, selection of targeted therapeutics.
- **Cross-Functional Interactions:** Assembled and directed a multidisciplinary team of basic and preclinical scientists, clinicians and hospital staff leading to published translational studies.
- **Leadership:** Directed a productive translational oncology laboratory with seven researchers.

### PROFESSIONAL EXPERIENCE:

#### **ONCOLOGY BIOMARKER ANALYST: N-of-One Therapeutics, Inc., Boston MA (2010 – present)**

- Develop patient strategies for molecular biomarker testing and individualized therapeutic indications.
- Act as a liaison between cancer patients, medical teams, world-experts and diagnostic testing laboratories.
- Synthesize scientific and medical literature into evidence-based actionable treatment plans.

#### **ASSISTANT PROFESSOR: University of Kentucky, Markey Cancer Center, Lexington KY (2003 – 2011)**

Department of Microbiology, Immunology and Molecular Genetics; Graduate Center for Toxicology

- Set all scientific directions and priorities for a translational cancer cell biology laboratory.
- Principal author of nine papers. Contributing author on seven additional papers.
- Managed personnel hiring, training and supervision, resource allocation and budgetary management.
- Created documentation and maintained IRB and HIPAA approval for 200+ fully identified human subjects.
- Responsible for all regulatory compliance: blood-borne pathogens, chemical and radiation safety.
- Assembled and directed national and international collaborative research teams.
- Gave presentations at local, regional and international meetings.
- Raised over \$200,000 in support of multiple projects.

### EDUCATION AND TRAINING:

**B.Sc.**, (honors), Molecular and Cellular Biology, University of Toronto, Canada (1986 – 1990)

**Ph.D.**, Molecular Genetics, University of North Carolina at Chapel Hill, NC (1990 – 1995)

**Post-doctoral**, Duke University, NC (1995 – 1997)

**Senior Post-doctoral**, Memorial Sloan-Kettering Cancer Center, NY (1997 – 2003)

### TECHNICAL EXPERTISE:

- Expert knowledge of DNA damage and repair, mechanisms of chemotherapeutic resistance.
- Expert knowledge of flow cytometry (FACS): solid tumors, normal tissues, blood and cultured cells.
- Tissue culture and fluorescent microscopy of immortalized and primary human cells.
- Isolation and characterization of nucleic acids and proteins from blood and solid tissues.
- Molecular analysis of genomic architecture: gene copy number variation, genomic instability.
- Transgene design and construction, transfection/transduction, stable integration, gene targeting, shRNA.
- Protein engineering: cloning, mutagenesis, expression in bacteria, insect and mammalian cells.
- Protein purification: column chromatography, FPLC, affinity tag.
- All standard molecular biology techniques: PCR, western blotting, SDS-PAGE, ELISA, IEF, etc.
- Statistical and database analysis in Excel, G\*Power and R.

**PEER RECOGNITION:****Editorial Boards:**

- BioMed Central (BMC) Molecular Biology. (Associate Editor)
- American Journal of Translational Science. (Associate Editor)

**Journal Reviewer:**

- Journal of Biological Chemistry, Human Molecular Genetics, Genome Research, Nucleic Acids Research, Molecular Carcinogenesis, Journal of Cell Science, Frontiers in Bioscience, etc.

**Grants Awarded:**

- NCI – Developmental Therapeutics Program, American Cancer Society, Kentucky Lung Cancer Research Program.

**Grant Reviewer:**

- National Science Foundation (USA), National Medical Research Council (Singapore).

**OTHER EXPERTISE****Mentoring:**

- Ph.D. advisor – two graduate students. Doctoral degrees awarded 2010, 2011.
- Doctoral dissertation committee member – six graduate students.
- Annual mentor at the University of Kentucky Clinical and Translational Science meeting.

**Teaching:**

- Six year course director and instructor for “Illustrated Topics in Advanced Molecular Genetics” – 62 graduate students.

**Computer Programming:**

- Authored an optimized molecular biology protocols resource written in Python with an HTML interface and back-end UNIX support. <http://www.paralog.com/wiki/?FrontPage>

**Software Fluency:**

- Microsoft Word, Excel, PowerPoint, EndNote, Adobe Photoshop, Acrobat, Illustrator, ImageJ.

**Social Media:**

- Co-manager of Translational Oncology – Oncology Pharma™, LinkedIn group for global information sharing between the pharmaceutical, biotechnology and clinical communities.

**PUBLICATIONS: (28 TOTAL)**

PDF reprints available from: <http://paralog.com/ajp/Pierce-reprints.htm>

- 2011 Killen MW, Stults DM, Wilson WA, **Pierce AJ**. Escherichia coli RecG is a functional ortholog of BLM, the human Bloom syndrome protein. *submitted*
- 2011 Killen MW, Stults DM, **Pierce AJ**. The gene cluster instability (GCI) assay for recombination. *submitted*
- 2011 Stults DM, Killen MW, **Pierce AJ**. The sister chromatid exchange (SCE) assay -- a step by step guide. *submitted*
- 2011 Killen MW, Taylor TL, Stults DM, Jin W, Wang LL, Moscow JA, **Pierce AJ**. Configuration and rearrangement of the human GAGE gene clusters. *American Journal of Translational Research in press*
- 2011 Stults DM, Killen MW, Shelton BJ, **Pierce AJ**. Recombination phenotypes of the NCI-60 collection of human cancer cells. *BMC Molecular Biology in press*
- 2011 Rajesh C, Baker DK, **Pierce AJ**, Pittman DL. The splicing-factor related protein SFPQ/PSF interacts with RAD51D and is necessary for homology-directed repair and sister chromatid cohesion. *Nucleic Acids Res* 39: 132-45.
- 2010 Zaitlin D, **Pierce AJ**. Nuclear DNA content in Sinningia (Gesneriaceae); intraspecific genome size variation and genome characterization in *S. speciosa*. *Genome* 53: 1066-82.
- 2010 Singh TR, Saro D, Ali AM, Zheng XF, Du CH, Killen MW, Sachpatzidis A, Wahengbam K, **Pierce AJ**, Xiong Y, Sung P, Meetei AR. MHF1-MHF2, a histone-fold-containing protein complex, participates in the Fanconi anemia pathway via FANCM. *Mol Cell* 37: 879-86.
- 2009 Stults DM, Killen MW, Williamson EP, Hourigan JS, Vargas HD, Arnold SM, Moscow JA, **Pierce AJ**. Human ribosomal RNA gene clusters are recombinational hotspots in cancer. *Cancer Res* 69: 9096-104.

- 2009 Killen MW, Stults DM, Adachi N, Hanakahi L, **Pierce AJ**. Loss of Bloom syndrome protein destabilizes human gene cluster architecture. Hum Mol Genet 18: 3417-28.
- 2009 Kurepa J, Wang S, Li Y, Zaitlin D, **Pierce AJ**, Smalle JA. Loss of 26S proteasome function leads to increased cell size and decreased cell number in Arabidopsis shoot organs. Plant Physiol 150: 178-89.
- 2008 Stults DM, Killen MW, Pierce HH, **Pierce AJ**. Genomic architecture and inheritance of human ribosomal RNA gene clusters. Genome Res 18: 13-8.
- 2005 **Pierce AJ**, Jasin M. Measuring recombination proficiency in mouse embryonic stem cells. Methods Mol Biol 291: 373-84.
- 2005 Nakanishi K, Yang YG, **Pierce AJ**, Taniguchi T, Digweed M, D'Andrea AD, Wang ZQ, Jasin M. Human Fanconi anemia monoubiquitination pathway promotes homologous DNA repair. Proc Natl Acad Sci U S A 102: 1110-5.
- 2005 Bindra RS, Gibson SL, Meng A, Westermarck U, Jasin M, **Pierce AJ**, Bristow RG, Classon MK, Glazer PM. Hypoxia-induced down-regulation of BRCA1 expression by E2Fs. Cancer Res 65: 11597-604.
- 2004 Stark JM, **Pierce AJ**, Oh J, Pastink A, Jasin M. Genetic steps of mammalian homologous repair with distinct mutagenic consequences. Mol Cell Biol 24: 9305-16.
- 2002 Stark JM, Hu P, **Pierce AJ**, Moynahan ME, Ellis N, Jasin M. ATP hydrolysis by mammalian RAD51 has a key role during homology-directed DNA repair. J Biol Chem 277: 20185-94.
- 2002 Wiese C, **Pierce AJ**, Gauny SS, Jasin M, Kronenberg A. Gene conversion is strongly induced in human cells by double-strand breaks and is modulated by the expression of BCL-x(L). Cancer Res 62: 1279-83.
- 2002 Araujo FD, **Pierce AJ**, Stark JM, Jasin M. Variant XRCC3 implicated in cancer is functional in homology-directed repair of double-strand breaks. Oncogene 21: 4176-80.
- 2001 **Pierce AJ**, Jasin M. NHEJ deficiency and disease. Mol Cell 8: 1160-1.
- 2001 **Pierce AJ**, Hu P, Han M, Ellis N, Jasin M. Ku DNA end-binding protein modulates homologous repair of double-strand breaks in mammalian cells. Genes Dev 15: 3237-42.
- 2001 **Pierce AJ**, Stark JM, Araujo FD, Moynahan ME, Berwick M, Jasin M. Double-strand breaks and tumorigenesis. Trends Cell Biol 11: S52-9.
- 2001 Moynahan ME, **Pierce AJ**, Jasin M. BRCA2 is required for homology-directed repair of chromosomal breaks. Mol Cell 7: 263-72.
- 2001 Slupianek A, Schmutte C, Tomblin G, Nieborowska-Skorska M, Hoser G, Nowicki MO, **Pierce AJ**, Fishel R, Skorski T. BCR/ABL regulates mammalian RecA homologs, resulting in drug resistance. Mol Cell 8: 795-806.
- 1999 **Pierce AJ**, Johnson RD, Thompson LH, Jasin M. XRCC3 promotes homology-directed repair of DNA damage in mammalian cells. Genes Dev 13: 2633-8.
- 1997 Longley MJ, **Pierce AJ**, Modrich P. DNA polymerase delta is required for human mismatch repair in vitro. J Biol Chem 272: 10917-21.
- 1993 Azizkhan JC, Jensen DE, **Pierce AJ**, Wade M. Transcription from TATA-less promoters: dihydrofolate reductase as a model. Crit Rev Eukaryot Gene Expr 3: 229-54.
- 1992 **Pierce AJ**, Jambou RC, Jensen DE, Azizkhan JC. A conserved DNA structural control element modulates transcription of a mammalian gene. Nucleic Acids Res 20: 6583-7.