CYNTHIA A. AFSHARI, PhD., DABT
Janssen Pharmaceutical Companies

PHONE Redacted EMAIL Redacted

Profile

Over twenty years' experience as an impactful scientific leader in basic and applied research settings. Significant drug development experience supporting safety assessment of small molecule and biotherapeutics for multiple therapeutic areas. Drives innovation with a practical approach that leverages collaborative partnerships and risk-balanced investment strategy in scientific areas including regulated toxicology, predictive/translational safety and biomarkers. Effective management style enables success of diverse teams. Strong external network and track record for success from cross-industry/academic partnerships and outsourcing.

Key Attributes

- Nonclinical drug development experience from discovery through post-registration for multiple modalities and therapeutic areas
- Develops novel approaches for the science of translational safety/predictive toxicology to protect patient safety and maximize investment in R&D
- Rapidly resolves molecule issues to recommend clear "go/no-go" decisions
- Recruits, retains and develops top talent
- Well-developed leadership style and effective coaching creates empowered, decisive, high-performing staff and effective, geographically-dispersed teams
- Pro-actively balances short and long-term investments
- Drives industry-leading approaches to outsourcing
- Valued as a leader and nonclinical expert opinion in cross-industry collaborations

Employment History and Selected Key Activities

Janssen Pharmaceutical Companies of Johnson & Johnson 2019-present
GLOBAL HEAD AND VICE PRESIDENT, NONCLINICAL SAFETY

- Responsible for day-to day operations, scientific delivery and strategic development of Nonclinical Safety (NCS) for Janssen Pharmaceutical companies in order to progress programs in research and development. NCS' primary function is to provide nonclinical safety sciences including exploratory and regulatory toxicology, pathology, laboratory and animal sciences to support programs from discovery through post-registration. Additional NCS functions include an innovative lab function aimed at predictive and translational systems biology as well as extensive outsourced and external partnerships.
- Responsible for ensuring NCS provides a strong collaborative relationship at all phases of drug discovery and development and to support accurate and timely decision-making. NCS ensures accurate risk assessments that protect patient safety and meet all requirements of regulatory authorities and Boards of Health around the world.
- Responsible to attract, motivate, and develop exceptional talent. Coordinates activities at all NCS functional sites that span 3 US-based sites, plus Beerse, Belgium and Shanghai, China to ensure operational and scientific excellence.
- Institutional accountability for all nonclinical packages for regulatory submissions (in transition to signatory to be implemented by end of 2019)
- Member of review teams for portfolio and due diligence governance

Amgen Inc., Comparative Biology and Safety Sciences
VICE PRESIDENT – Global Role 2015- 2019

- Responsible for day-to day operations, scientific delivery and strategic development of Comparative Biology & Safety Sciences (CBSS) in order to progress programs in research and development. CBSS' primary function is to provide nonclinical safety sciences including exploratory and regulatory toxicology, pathology, laboratory and animal sciences to support programs from discovery through post-registration. Additional CBSS functions include an innovative lab function aimed at predictive and translational systems biology as well as extensive outsourced and external partnerships.
- Responsible for ensuring CBSS provides a strong collaborative relationship at all phases of drug discovery and development and to support accurate and timely decision-making. CBSS ensures accurate risk assessments that protect patient safety and meet all requirements of regulatory authorities and Boards of Health around the world.
- Responsible to attract, motivate, and develop exceptional talent. Coordinates activities at all CBSS functional sites that span 3 US-based sites, plus Burnaby Canada, Munich, Germany, and Shanghai, China to ensure operational and scientific excellence.
- Institutional accountability/signatory to all nonclinical packages for regulatory submissions (>25 new molecular entities)
- Member of Amgen Early Portfolio Governance Board
- Research Compliance Council Chair: Includes council leadership and cross functional oversight on strategy and issue resolution for GLP compliance, controlled substance use, and preclinical research compliance
- Crisis management advisory and business continuity team member for R&D
- Institutional Official, responsible for oversight of compliance and upholding high standard for animal research program
- Chair, Grants Review Committee, Amgen Foundation
- Lead, R&D initiative on talent development

Amgen Inc., Comparative Biology and Safety Sciences 2010 - 2015
SCIENTIFIC EXECUTIVE DIRECTOR, Discovery Toxicology, Thousand Oaks, CA

- Created Discovery Toxicology department (40+ staff) to provide integrated safety strategy for the Amgen portfolio. Department includes multi-disciplinary laboratory based scientists, computational biologists, and toxicology project team representatives across three US and one international site conducting screening, investigative, and regulatory toxicology work. Work is conducted using a combination of internal, external, and contract partners.
- Accountable for safety-related recommendations for pipeline advancement of targets and development candidates
- Responsible for development and execution of "fit for purpose" exploratory toxicology plans to characterize target liability and integration of predictive and translational toxicology assays with regulatory requirements to enable optimal path to "first in human" studies. Implementation has significantly decreased unanticipated safety-associated attrition in development.

- Rapid resolution of molecule issues to drive clear "go/no-go" decisions
- Drove research plans and specialized scientific needs for the post- Phase1 portfolio
- Developed innovative research and applied scientific program in Translational Safety including collaboration with leading academic investigators and institutions
- Drove successful outsourcing partnerships for core work in novel assay areas (e.g. genomics work, specialty in vitro tox assays, in vivo toxicology)
- Advisor, standing functional representative to internal governance review board
- Service oriented activities within Amgen: Chair, Amgen Foundation Grant Review Committee, and Member of Scientific and Technical Career Promotion Committee. Member numerous Amgen Full Potential Next Decade of R&D Committees
- Recognized as Healthcare Business Women's Association (HBA) Rising Star Awardee
- Chaired the FDA Science Advisory Board to the National Center for Toxicological Research (NCTR) and drove/authored numerous program reviews for FDA Science programs

Amgen Inc., Comparative Biology and Safety Sciences 2006- 2010
SCIENTIFIC DIRECTOR, Investigative Toxicology, Thousand Oaks, CA

- Created Investigative Toxicology unit by hiring, developing, and integrating scientists with expertise in molecular biology, safety pharmacology, cell biology, in vivo toxicology, genetic toxicology imaging, biochemistry, and immunology to direct cutting edge techniques toward candidate screening and investigative pipeline work
- Developed and implemented the Predictive Safety Program, a cross-functional integration of scientists from multiple departments at Amgen to develop and implement emerging assays for safety screening; Success emerged from developing an effective partnership with research therapeutic, early development, biologics, and medicinal chemistry teams
- Active mentor in the Amgen Mentoring Program
- Completed custom executive leadership training program to hone already successful skills in cross-matrix management, navigating conflict, return on investment modeling, executive communication, and empowering high performing teams

Amgen Inc., Comparative Biology and Safety Sciences 2002 - 2006
ASSOCIATE DIRECTOR, Toxicology Dept., Thousand Oaks, CA

- Created Molecular Toxicology group and capabilities along with supporting infrastructure systems for tracking workflow, samples, data
- Piloted new strategies to drive decision-making and strong cross-functional data integration as a Toxicology project team representative for a number of small and large molecule projects
- Developed understanding of drug discovery pipeline, with emphasis on Exploratory and Discovery phases, while building deep expertise in regulatory toxicology
- Drove partnership with Amgen libraries and regulatory for improved literature and competitive pipeline mining tools

- Chaired the International Life Sciences (ILSI-HESI) Leader on Toxicogenomics and Biomarkers and drove novel discovery of kidney safety biomarkers
- PhRMA Deputy Topic Leader, Pharmacogenomics Group, International Committee on Harmonization (ICH)
- Member of several National Academy of Science Committees in the role of report author or reviewer in the topics of Predictive Safety

National Institutes of Health, Institute of Environmental Health Sciences 1995 - 2002
SENIOR STAFF RESEARCH FELLOW, Research Triangle Park, NC

- Developed the Gene Regulation Group to research mechanisms of early processes in carcinogenic transformation with an emphasis on transcriptional regulation and tumor suppressor gene function
- Established the Environmental Genome Center that was an interdisciplinary group of biologists, engineers, and computer scientists who built and investigated applications of new technologies in mechanistic toxicology
- Managed group of 25 multi-disciplinary staff members who worked collaboratively with both academic and industrial partners on diverse projects, including toxicogenomics.
- Scientific consultant for scientists within the National Toxicology Program
- Developed and drove impactful research collaborations in industry consortia and via CRADAs with industry partners

University of North Carolina, Toxicology Program 1999 - 2002
ADJUNCT PROFESSOR, Chapel Hill, NC

- Research advisor for numerous graduate students and post-doctoral fellows
- Lectured for numerous courses including Biochemical Toxicology, Molecular Toxicology, Toxicology Journal Club

Duke University Medical Center, Center for Aging and Human Development 1992 - 1995
POST-DOCTORAL FELLOW, Durham, NC

- Conducted research on the role of the E2F transcription factor in carcinogenesis, aging, and viral activation
- Collaboration and extensive interaction with clinicians and clinical researchers

University of North Carolina School of Medicine 1986 - 1992
GRADUATE STUDENT, Chapel Hill, NC

- Applied human and animal cell culture models to explore assays and mechanisms for carcinogenic action
- Discovered molecular mechanisms for cell cycle control and cellular senescence

University of Pittsburgh, Dept. Biochemistry/Biophysics 1985 - 1986
RESEARCH ASSISTANT, Pittsburgh, PA

- Conducted proteomics work using biochemical separation techniques, 2 dimensional protein gels, and mass spectrometry methods to analyze enzyme activity and to classify evolution of a variety of fungal and agricultural species

Education and Certificates

Diplomate of the American Board of Toxicology (DABT) Certificate Awarded 2004
Recertification Awarded - current 2009, 2014, 2019 (pending)

Ph.D. Curriculum in Toxicology 1992
University of North Carolina Medical School, Chapel Hill, North Carolina

B.S. Major in Biochemistry/Biophysics, with minor in Chemistry; *cum laude* 1986
University of Pittsburgh, Pittsburgh, Pennsylvania

Awards and Honors

1982-1986	Provost Scholarship, University of Pittsburgh
1995	The Geron Corporation-Samuel Goldstein Distinguished Publication Award for the *Journal of Gerontology*
1998	U.S. Patent No. 5,705,350. Mudryj, M. and Afshari, C.A., co-inventors. Patent Title: "Transcription factor complexes in senescent cells."
2000, 2001	National Institutes of Health Merit Award
2002	National Institutes of Health Director's Award
2007	Colgate-Palmolive *In Vitro* Award, Society of Toxicology
2011	Healthcare Business Women's Assoc. (HBA) Rising Star Award

Special Committees

2015-2019 National Toxicology Program, Board of Scientific Counselors
2014- 2019 FDA Science Board
2012- Present Amgen Scientific and Technical Career Path Promotion Committee
2012-Present Amgen Foundation Grant Review Committee, Chair role assumed 2013
2013- 2014 Society of Toxicology Communications Committee member
2013- Present Massachusetts Institute of Technology Industry Advisory Board member, Human Physiome on a Chip Project
2012- Present HESI Board of Directors, Member at Large; Membership sub-committee, Emerging Issues Committee
2010 – 2012 FDA Science Advisory Board Chair, National Center for Toxicology Research (NCTR)
2010 Reviewer for National Academy of Sciences Standing Committee on Risk Analysis Issues and Reviews report on Toxicity Pathway-Based Risk Assessment
2010-2012 Councilor, Society of Toxicology Specialty Section Governance Committee
2008- 2011 FDA Science Advisory Board Member, National Center for Toxicology Research (NCTR); Chair site visit team for Division of Systems Toxicology review (2009); Member site visit team for Division of Genetic and Reproductive Toxicology (2009); Member of site visit team for Division of Neurotoxicology (2010); Chair site visit team Nanotoxicology (2011)
2008: Panel advisor, California Institute for Regenerative Medicine: Predictive Toxicology Applications
2008: ILSI-HESI Subcommittee Chair: Workshops and Outreach in Industry-FDA Case Studies of Preclinical Genomics Applications and NIH- non-rodent genomics/pharmacogenomics
2008-2011 Councilor, Scientific Program Committee, Society of Toxicology
208-2011 President/Vice President/Vice President elect Drug Discovery Toxicology Specialty Section of the Society of Toxicology (President Term 2010-2011)
2008-2010 Councilor of the Regulatory and Safety Evaluation Specialty Section of the Society of Toxicology (2008-2009); Secretary (2010)
2004- 2008 Chair, International Life Sciences Institute (ILSI), HESI Subcommittee on Application of Genomics and Proteomics to Mechanism-based Risk Assessment
2005-2007 Chair (2007) and Vice-Chair (2005) Gordon Conference on Toxicogenomics
2004-2007 Member and report co-author, National Academy of Sciences Committee on Applications of Toxicogenomics Technologies to Predictive Toxicology
2007 Study Section Reviewer: "Biological Response Indicators of Environmental Stress," for U01 and U54 RFA-ES-0612 and RFA-ES-0613
2007 Reviewer CEGIB Pilot Project Grant, Embryonic Stem Cells as Targets of Environmental Injury, University of Louisville Health Sciences Center
2007 Reviewer for Strategic Plan for Development of Science for the Society of Toxicology
2004-2007 PhRMA Genomics Committee Member, Amgen liaison
2006 NCI/NHGRI Development of Advanced Genomic Characterization Technologies Committee R21 Review Study Section for CA07-021
2006 Center for Environmental Health Sciences Project Pilot Grant Review Committee
2006 Reviewer for National Academy of Sciences/National Research Council Committee on Toxicity Testing and Assessment of Environmental Agents, Report: "Toxicity Testing in the Twenty-First Century: A Vision and Strategy" published National Academy Press, 2007.
2005-2006 Member, National Research Council/National Academies of Sciences Committee on Emerging Issues and Data on Environmental Contaminants, Report generation committee: Validation of Toxicogenomic Technologies: A Focus on Chemical Classification Strategies

2005	PhRMA Deputy Topic Leader, Pharmacogenomics Group, International Committee on Harmonization (ICH)
2005	Reviewer, Inflammatory Bowel Disease Grants, Broad Medical Research
2005	Reviewer, NIEHS Superfund Basic Research and Training Program Study Section, Phase I
2005	Mock Site Review Committee, University of Louisville Health Science Center
2003-2004	Chair, International Life Sciences Institute (ILSI), HESI Subcommittee on Application of Genomics and Proteomics to Mechanism-based Risk Assessment, Nephrotoxicity Working Group
2001, 2002	Reviewer, Intramural Research Proposal, National Center for Toxicological Research (NCTR, FDA, Arkansas)
2001-2005	International Life Sciences Institute (ILSI), HESI Subcommittee on Application of Genomics and Proteomics to Mechanism-based Risk Assessment, Nephrotoxicity Working Group and Database Working Group
2001, 2002	Reviewer for Pilot Project Grants, Center for Environmental and Rural Health, Texas A&M University
2000	Reviewer, National Cancer Institute RFP-BRC-1108-12
2000-2002	Scientific Advisory Board, Critical Assessment of Microarray Data Workshop (CAMDA), Duke University, Durham North Carolina
2000-2002	Scientific Advisory Board Member, Bioinformatics Research Center Program, North Carolina State University, Raleigh, North Carolina
1999-2002	Member, Coordination Panel for the National Center for Toxicogenomics
1999 - 2002	National Cancer Institute Breast Cancer Think Tank
1997	Ad-hoc reviewer, Study Section on Supplemental Award for Shared Instrumentation at NIEHS Centers

Editorial Boards

2016- 2018	Editorial Board, *Toxicological Sciences*
2008 - Present	Associate Editor, Forums and Reviews, *Toxicological Sciences*
2008 - 2011	Editorial Advisory Board, *Chemical Research in Toxicology*
2008 – Present	Editorial Advisory Board, *Int. J. Toxicology*
2004 - 2007	Reviewing Editor, *Toxicological Sciences*
2004 - 2006	Associate Editor, *Toxicologic Pathology*
2002 - 2012	Reviewing Editor, *Environmental Health Perspectives*

Special Funding

2000-2002	NCI Breast Cancer Think Tank Award "Regulation of Angiogenic Factors in Normal Epithelial Cells and Ductal Carcinoma In Situ (DCIS) of the Breast by Insulin-Like Growth Factor-1 Receptor Signaling." Co-Principal Investigator in collaboration with Dr. Sandra Dunn, NC State University and Dr. Richard Di Augustine, NIEHS.
1998-2002	Cooperative Research and Development Award (CRADA) "Utilization of cDNA Microarrays to Predict Cellular Chemical Toxicity from Oxidant Stress" in collaboration with Glaxo-Wellcome.
1998-2002	Cooperative Research and Development Award (CRADA) "Development and Utilization of cDNA Microarrays for Use in Analysis of Gene Expression Changes in Model Organisms for Toxicological Studies" in collaboration with Boehringer-Ingelheim Pharmaceuticals, Inc.

1998-1999	Cooperative Research and Development Award (CRADA) "Development of Yeast Gene Expression Arrays for Analysis of Toxic/Stress Response in a Whole Genome" in collaboration with Paradigm Genetics, Inc.
1996-1998	Cooperative Research and Development Award (CRADA) "Production, Clinical and Functional Evaluation, and Commercial Development of Diagnostic Antibodies to the KAI1 Metastasis Gene Product," in collaboration with Centocor Diagnostics, Inc.
1995-1996	Cooperative Research and Development Award (CRADA): "Characterization of Senescence-Specific Transcription Factor Complexes" in collaboration Senatics/Gene Logic Inc.

Invited Presentations

June 2018	Gordon Research Conference on Drug Safety, Stonehill College, MA
May 2016	California Institute of Technology, Pasadena CA
May 2011	FDA National Center for Toxicological Research, Advisory Meeting, Little Rock AR
March 2011	Society of Toxicology Annual Meeting, Washington DC
March 2009	Annual Society of Toxicology Meeting, Baltimore, CA
May 2008	Applied Pharmaceutical Toxicology, Boston MA
August 2007	Series in Drug Development Lecture, Covance, Madison WI
March 2007	Colgate-Palmolive Award Lecture, Annual Society of Toxicology Meeting, Charlotte, NC
January 2007	ILSI-HESI Annual Meeting, Cancun Mexico
Dec 2006	The Ray Tennant Symposium, National Center for Toxicogenomics Research Consortium Annual Meeting, Chapel Hill, NC
July 2006	Japanese Society of Toxicology Annual Meeting, Nagoya Japan
June 2006	American Chemical Society, ProSpectives Conference, Washington DC
April 2006	University of California, Berkeley, Berkeley CA
October 2005	Southern California Society of Toxicology Regional Annual Meeting, Irvine CA
Sept 2005	Annual Environmental Mutagenesis Society Meeting, San Francisco CA
August 2005	IECM Satellite Conference: Toxicogenomics, Kauai HI
June 2005	Annual Drug Information Association Meeting, Washington DC
May 2005	University of California, Los Angeles CA (UCLA)
April 200:	FDA Science Forum, Washington DC
January 2005	ILSI-HESI Annual Meeting, New Orleans CA
Nov 2004	Annual American College of Toxicology Meeting: Palm Springs CA
August 2004	8th Congress of Clinical Pharmacology and Therapeutics, Brisbane Australia
March 2004	Annual Society of Toxicology Meeting, Baltimore MD
October 2003	PhRMA Genomics Working Group Meeting, Washington DC
Sept 2003	PhRMA/FDA Workshop on Functional Genomics, Washington DC
June 2003	Toxicogenomics Gordon Conference, Bates College, Lewiston ME
May 200:	FDA Pharmacology/Toxicology Retreat, Rockville, MD
October 2002	Chemogenomics Seminar, New Approaches to Toxicology and Drug Discovery, Redwood City, CA
April 2002	Annual Meeting, Environmental Mutagenesis Society (EMS), Anchorage AL
March 200:	University of North Carolina, Chapel Hill, NC
January 2002	International Life Sciences Institute Annual Meeting, Cancun, Mexico
Nov 2001	Annual North Carolina of the GEMS Society Meeting, Chapel Hill, NC
August 2001	Annual Animal Genomics Symposium, North Carolina State University Veterinary School, Research Triangle Park, NC

July 2001	The Sixteenth Annual Aspen Cancer Conference, Aspen CO
June 2001	National Cancer Institute, Bethesda MD
March 2001	Annual Meeting of the Society of Toxicology, Major Symposium; San Francisco, CA
Dec 2000	Keynote Address, American Veterinary College of Pathologists Annual Meeting, Amelia Island, FL
Nov 2000	International Business Conference Annual "Chips to Hits" Conference, Philadelphia, PA
October 2000	Vanderbilt University Molecular Toxicology Community Forum, "What the Genome Project Means to Me." Nashville, TN
July 2000	Air Force Research Laboratories, Biotechnology 2000 Strategic Planning Workshop, Dayton, OH
May 2000	GEMS 2000 Annual Spring Meeting "Gene Expression Systems in Toxicology Assessment and Drug Development," Chapel Hill, NC
April 2000	Health Effects Institute Annual Conference, "Exploring Exposure and Risk Issues," Atlanta, Georgia
January 2000	NIEHS Intramural Scientific Retreat, Pine Needles, NC
January 2000	NIEHS Extramural Scientific Retreat, Pine Needles, NC
Nov 1999	NIEHS Workshop on Partnership in the Development of Surrogate Biomarkers for Drug Safety and Chemical Risk Assessment, Research Triangle Park, NC
Sept 1999	Japan-United States Workshop on Gene Cloning Using The Techniques of Chromosomal and Artificial Chromosome Transfer, Kona/Kailua, HI
July 1999	FASEB Summer Research Conference on Molecular Gerontology, Copper Mountain, CO
March 1999	Chemical Industry Institute of Toxicology (CIIT) Annual Meeting, Public Session "Screening, Testing, and Molecular Science: Incorporating Science into Evaluating Chemical Hazards and Risks" Cary, NC
January 1999	"Applications of DNA Microarrays to Toxicology Workshop", US Environmental Protection Agency, Research Triangle Park, NC
June 1998	Scientific Director's Seminar Series, National Institute of Environmental Health Sciences, Research Triangle Park, NC
April 199:	US Environmental Protection Agency, Research Triangle Park, NC
February 1998	US-Japan Panel of Environmental Mutagenesis and Carcinogenesis, Maui, HI
July 1997	Pacific Northwest National Laboratory workshop on "Predicting Chemical Carcinogenicity," Battelle National Labs, Washington DC
June 1996	US Environmental Protection Agency, Research Triangle Park, NC
January 1996	Geron Corporation, Menlo Park, CA
Nov 1995	Geron Corporation-Samuel Goldstein Distinguished Publication Award Lecture, Gerontological Society of America Annual Meeting, Los Angeles, CA
March 1995	American Association of Cancer Research Annual Meeting, Toronto, Canada
Dec 1994	National Institute of Environmental Health Sciences, Cancer and Aging Group, Research Triangle Park, NC
Nov 1994	Triangle Cell Cycle Club Monthly Meeting, Duke/GLAXO sponsored, Duke University
August 1994	Laboratory of Environmental Mutagenesis and Carcinogenesis Program, National Institute of Environmental Health Sciences, Research Triangle Park, NC
May 1992	Special Conference on the "Role of Protein Phosphatases and Growth Control", National Institute of Environmental Health Sciences, Research Triangle Park, NC

Lectures in Academic or Society Continuing Education Courses

February 2018 Lecture on Career Path Challenge, Graduate Women in Science "Across the STEMverse" conference, University of Southern California, Los Angeles, CA

October 2014 Healthcare Business Women's Association Drug Development Conference, Thousand Oaks, CA

June 2008 Lecture on Pharmacogenetics and Adverse Drug Response, California Association of Toxicology Forensic Toxicologists Continuing Education Training, Ventura CA

March 2008 Lecture in Drug Development, UCLA Dept of Toxicology Outreach Course, Thousand Oaks CA

April 2002 Lecturer, Graduate course in Biochemical Toxicology, University of North Carolina

July 2001 Lecturer, NIEHS Summers of Discovery Seminar Series

April 2001 Lecturer, Graduate course in Biochemical Toxicology, University of North Carolina

March 2001 Lecturer, Continuing Education Course, Annual Meeting of Society of Toxicology, San Francisco, CA

Dec 2000 Lecturer, ILSI Workshop on Application of Microarrays, Amelia Island, FL

Nov 1999 Lecturer, British Society of Pathologists, Continuing Education Course, "Molecular Pathology for Toxicologic Pathologists", London, England

June 1999 Lecturer, Society of Toxicologic Pathologists Annual Symposium Continuing Education Course, "Molecular Pathology for Toxicologic Pathologists", Washington DC

April 1999 Lecturer, Graduate course in Biochemical Toxicology, University of North Carolina

March 1998 Lecturer, Graduate course in Biochemical Toxicology, University of North Carolina

March 1997 Lecturer, Graduate course in Biochemical Toxicology, University of North Carolina

October 1996 Lecturer, Graduate course in Chemical Carcinogenesis, North Carolina State University

March 1996 Lecturer, Graduate level Biochemical Toxicology course, University of North Carolina

February 1995 Lecturer, Graduate level Biochemical Toxicology course, University of North Carolina

Sept 1994 Lecturer, Postdoctoral fellow training series, Duke University Medical Center

Spring 1986 Teaching Assistant, Department of Biology, University of Pittsburgh

Meetings Organized/Chaired

April 2013 Applications of BioChips Amgen- MIT Joint Workshop, Boston MA

August 2011 Session Chair, International Symposium on Regulatory Science, NCTR/FDA, Little Rock AR

March 2011 Organizing Chair, Session Symposium Annual Meeting of Toxicology, Washington DC

October 2008 Organizing Chair HESI Case Study Workshop: Genomics Applications in Safety Studies, Washington DC

June 2007 Organizing Chair, Toxicogenomics Gordon Conference, New Hampshire

June 2005 Vice Chair Toxicogenomics Gordon Conference, New Hampshire

March 2003 Session Co-Chairperson, Annual Meeting of the Society of Toxicology, Salt Lake City, Utah

April 2002 Organizing Co-chair, Session Symposium Annual meeting of the Environmental Mutagen Society, Anchorage, Alaska

March 2001 Organized and Chaired National Center for Toxicogenomics Bioinformatics Workshop, North Carolina State University, Raleigh, NC

Dec 2000 Session Chair and Judging Panel, Critical Assessment of Microarray Data Analysis (CAMDA), Duke University, Durham NC

1999- 2002 Organizer, Monthly NIEHS Microarray Users Group Meeting, RTP NC

March 1997 Session Chairperson, AACR Special Conference on Basic and Clinical Research in Breast Cancer Keystone, CO

Publications

1. Koi, M., **Afshari, C.A.,** Annab, L., and Barrett, J. C.: Role of a tumor suppressor gene in the negative control of anchorage-independent growth of Syrian hamster cells. *Proc. Natl. Acad. Sci. USA* **86**: 8773-8777, 1989.
2. Barrett, J.C., Boyd, J.A., **Afshari, C.A.,** Annab, L.A., Hosoi, J., Montgomery, J.C., and Wiseman, R.W.: Tumor suppressor genes as negative regulators of cell growth. In *Current Communications in Molecular Biology: Recessive Oncogenes and Tumor Suppression*. New York, Cold Spring Harbor Laboratory, pp. 11-17, 1989.
3. Richter, K.H., **Afshari, C.A**., Annab, L.A., Burkhart, B.A., Owen, R.D., Boyd, J.A., and Barrett, J.C.: Downregulation of cdc2 in senescent human and hamster cells. *Cancer Res.* **51**: 6010- 6013, 1991.
4. Glasgow, W.C., **Afshari, C.A**., Barrett, J.C., and Eling, T.E.: Modulation of the epidermal growth factor mitogenic response by metabolites of linoleic and arachidonic acid in Syrian hamster embryo fibroblasts. *J. Biol. Chem.* **267**: 10771-10779, 1992.
5. **Afshari, C.A**., Kodama, S., Bivins, H.M., Willard, T.B., Fujiki, H. and Barrett, J.C.: Induction of neoplastic progression in Syrian hamster embryo cells treated with protein phosphatase inhibitors. *Cancer Res.* **53**: 1777-1782, 1993.
6. **Afshari, C.A**., and Barrett J.C.: Negative regulation of mitogen-stimulated, anchorage- independent cell growth by a tumor-suppressor gene. *Mol. Carcinog.* **7**: 249-256, 1993.
7. **Afshari, C.A**., Vojta, P., Annab, L.A., Futreal, P.A., Willard, T.B., and Barrett, J.C.: Investigation of the role of G1/S cell cycle mediators in cellular senescence. *Exp. Cell Res.* **209**: 231-237, 1993.
8. **Afshari, C.A.** and Barrett, J.C.: Cell Cycle Controls: Potential Targets for Chemical Carcinogens? *Environ. Health Perspect*.**101**: 9-14, 1993.
9. **Afshari, C.A**. and Barrett, J.C.: Disruption of G0/G1 arrest in quiescent and senescent cells treated with phosphatase inhibitors. *Cancer Res.* **54**: 2317-2321, 1994.
10. **Afshari, C.A.**, Bivins, H.M., and Barrett, J.C.: Utilization of a fos-lacZ plasmid to investigate the activation of c-fos during cellular senescence and okadaic acid-induced apoptosis. *J. Gerontol.* **49**:B263-B269, 1994.
11. Barrett, J.C. and **Afshari, C.A**.: Cellular senescence and the cell cycle. *The Cell Cycle: Regulators, Targets, and Clinical Applications*, Valerie Hu, ed., Plenum Press, New York, pp79-89, 1994.
12. **Afshari, C.A.,** Nichols, M.A., Xiong, Y., and Mudryj, M.: A role for a p21-E2F interaction during senescence arrest of normal human fibroblasts *Cell Growth and Differ*., **7**: 979-988, 1996.
13. **Afshari, C.A**., and Barrett, J.C. Molecular genetics of in vitro cellular senescence. *Cellular Aging and Cell Death,* N. Holbrook, G. Martin, eds, Plenum Press, New York, pp 109-121, 1996.
14. **Afshari, C.A.,** Rhodes, N., Paules, R.S. and Mudryj, M: Deregulation of specific E2F complexes by the v-mos oncogene *Oncogene*, **14**: 3029-3038, 1997.
15. Kouprina N., Annab, L., Graves, J., **Afshari, C.A**., Barrett, J.C., Resnick, M.A., and Larionov, V. Functional copies of a human gene can be directly isolated by TAR cloning with a small 3' end target sequence. *Proc. Natl. Acad. Sci. USA*., **95**:4469-4474, 1998.
16. Romagnolo, D., Annab, L.A., Thompson, T.E., Risinger, J.I., Terry, L.A., Barrett, J.C., **Afshari, C.A.**, Estrogen upregulation of BRCA1 expression with no effect on localization.*Mol*. *Carcinog* , **22**: 102-109, 1998.
17. Carman, T.A., **Afshari, C.A**., and Barrett, J.C. Cellular senescence in telomerase-expressing Syrian hamster embryo cells. *Exp. Cell Res*. **244**: 33-42, 1998.
18. Barrett, J.C. and **Afshari, C.A**. Cell transformation assays in predicting carcinogenic potential of chemicals and mechanistic studies of carcinogenesis. *Environ. Mutagen. Res*. **20**: 175-179, 1998.
19. Horikawa I., Cable, P.L., **Afshari, C.A**., and Barrett, J.C. Cloning and characterization of the promoter region of human telomerase reverse transcriptase (hTERT) gene. *Cancer Res*. **59**:826-830, 1999.
20. Devereux, T.R., Horikawa, I., Anna, C.H., Annab, L.A., **Afshari, C.A**., and Barrett, J.C. DNA methylation analysis of the promoter region of the human telomerase reverse transcriptase (hTERT) gene. *Cancer Res*. **59**:6087-6090, 1999.
21. **Afshari, C.A**., Nuwaysir, E.F., and Barrett, J.C. Application of cDNA microarray technology to toxicology and drug safety. *Cancer Res*., **59**: 4759-4760, 1999.
22. Nuwaysir, E.F., Bittner, M., Trent, J., Barrett, J.C. and **Afshari, C.A.** Microarrays and toxicology: the advent of toxicogenomics. *Mol.. Carcinog*. **24**:153-159, 1999.
24. Barrett, J.C., Horikawa, I., Oshimura, M., Kugoh, H., Shimizu, M., Carman, T., and **Afshari, C.A**. Genetic Basis for Replicative Cellular Senescence of Human Cells. In press In Bohr, V., Clark, B., Stevnsner, T., and Sveghaard,

A. (eds.). Alfred Benzon Symposium 44: Molecular Biology of Aging. Munksgaard, Copenhagen, pp45-60, 1999.

25. Annab, L.A., Kouprina, N., Solomon, G., Cable, P.L., Hill, D.E., Barrett, J.C., Larionov, V., and **Afshari, C.A**. Isolation of a functional copy of the human *BRCA1* gene by transformation-associated recombination in yeast. *Gene* **250**:201-208, 2000.
26. Annab, L.A., Terry, L., Cable P.L., Brady, J., Stampfer, M.R., Barrett, J.C., and **Afshari, C.A.** Establishment and characterization of a breast cell strain containing a BRCA1 185delAG mutation. *Gynec. Oncol*., **77**:121-128, 2000.
27. Annab, L.A., Hawkins, R.E., Solomon, G., Barrett. J.C., and **Afshari, C.A**. Increased cell survival by inhibition of BRCA1 using an antisense approach in an estrogen responsive ovarian carcinoma cell line. *Breast Cancer Res.* **2**:139-148, 2000.
28. Hamadeh, H., and **Afshari, C.A.** Toxicogenomics: The study of interactions between genes and the environment, *Biofutur*, **203**:40-43, 2000.
29. Colman, M.S., **Afshari, C.A**., and Barrett, J.C. Regulation of p53 stability and activity response to genotoxic stress. *Mutat. Res*., **462**:179-188, 2000.
30. Hamadeh, H., and **Afshari, C.A**. cDNA Microarray Chips: At the forefront of the new functional genomics era. *American Scientist*, **88(6)**: 508-515, 2000.
31. Shcherbakova, P.V., Hall, M.C., Lewis, M.S., Bennett, S.E., Martin, K.J., Bushel, P.R., **Afshari, C.A**., and Kunkel, T.A., Inactivation of DNA mismatch repair by increased expression of yeast MLH1, *Molec. Cell Biol*. **21**: 940-951, 2001.
32. Hardman, R.A., **Afshari, C.A**., and Barrett, J.C. Involvement of mammalian MLH1 in the apoptotic response to peroxide-induced oxidative stress. *Cancer Res*. 61: 1392-1397, 2001.
33. Bushel, P., Hamadeh, H., Bennett, L., Sieber, S., Martin, K., Nuwaysir, E.F., Johnson, K., Reynolds, K., Paules, R., and **Afshari, C.A**. MAPS: A Microarray Project System for gene expression experiment information and data validation. *Bioinformatics*, 17:564-565, 2001.
34. Zheng, L., Annab, L.A., **Afshari, C.A**. Lee, W-H, and Boyer, T.G. BRCA1 mediates ligand-independent transcriptional repression of the estrogen receptor. *Proc. Natl Acad. Sci*. *USA* 98:9587-9592, 2001.
35. Burchiel, S.W., Knall, C.M., Davis, J.W., Paules, R.S., Boggs, S.E., and **Afshari, C.A.** Analysis of genetic and epigenetic mechanisms of toxicity: potential roles of toxicogenomics and proteomics in toxicology. *Tox. Sci*. **59**:193-195, 2001.
36. Wolfinger, R.D., Gibson, G., Wolfinger, E.D., Bennett, L., Hamadeh, H., Bushel, P., **Afshari, C.A.**, and Paules, R.S., Assessing gene significance from cDNA microarray expression data via mixed models. *J. Comp. Biol*., **8**: 625-637, 2001.
37. Tahara, H., Ide, T., **Afshari, C**., and Barrett, J.C. Involvement of telomerase shortening and telomerase in cell aging and immortalization. Gann Monograph on Cancer Research 49: 1-17, 2001.
38. Snodgrass, H.R., Keller, G.M., Farr-Jones, S., **Afshari, C.A**., and Barrett, J.C. Stem cells as tools for drug discovery and toxicology*, Biotechnology International III, Special Issue*, edited by B.N. Alizadeh; p 237-246, 2001.
39. Lobenhofer, EK., Bushel, P., **Afshari, C.A**., and Hamadeh, H. Progress in the Application of DNA Microarrays. *Environ. Health Perspect*., 109:881-891, 2001.
40. Hamadeh, H. Bushel, P. Paules, R.S., and **Afshari, C.A.** Discovery in Toxicology: Mediation by Gene Expression Array Technology. *J. Biochem. Molec. Toxc*. **15**:231-242, 2001.
41. Hamadeh, H.K., Bushel, P., Tucker, C.J., Martin, K., Paules, R., **Afshari, C.A.**, Detection of Diluted Gene expression alterations using cDNA microarrays. *Biotechniques* 32:322-329, 2002.
42. Ueda, A., Hamadeh, H.K., Webb, H.K., Yamomoto, Y., Sueyoshi, T., **Afshari, C.A**., Lehmann, J., and Negishi, M. Diverse roles of the nuclear orphan receptor CAR in regulating hepatic genes in response to phenobarbital. *Mol. Pharm*. 61(1): 1-6, 2002.
43. Kerr, M.K, **Afshari, C.A**., Bennett, L., Bushel, P., Martinez J., Walker, N., and Churchill, G.A., Statistical analysis of a gene expression microarray experiment. *Statistica Sinica*, 12**:**203-217, 2002.
44. Oh, J.S., Kucab, J.E., Bushel, P., Martin, K., Bennett, L., Collins, J., DiAugustine, R.P., Barrett, J.C., **Afshari, C.A.,** and Dunn, S.E. Insulin-like growth factor-1 inscribes a gene expression profile for angiogenic factors and cancer progression in breast epithelial cells. *Neoplasia* **4**: 204-217, 2002.

45. Hamadeh, H.K., Bushel, P.R., Jayadev, S., Martin, K., DiSorbo, O., Sieber, S., Bennett, L., Tennant, R., Stoll, R., Barrett, J.C., Blanchard, K., Bushel, P., Paules, R., and **Afshari, C.A**. Gene expression analysis reveals chemical-specific profiles. *Tox. Sci*. **67**:219-231, 2002.
46. Hamadeh, H.K., Bushel, P.R., Jayadev, S., DiSorbo, O., Bennett, L., Li, L., Tennant, R., Stoll, R., Barrett, J.C., Paules, R.S., Blanchard, K., and **Afshari, C.A**. Prediction of compound signature using high density gene expression profiling. *Tox. Sci*., **67**:232-240, 2002.
47. Dasgupta, A., Darst, R.P., Martin, K.J., **Afshari, C.A**. and Auble, D.T. Mot1 activates and represses transcription by direct, ATPase-dependent mechanisms. *Proc. Natl. Acad. Sci*., 99:2666-2671, 2002.
48. Lobenhofer, E.K., Bennett, L.T., Cable, P.L, Li, L., Bushel, P.R., and **Afshari, C.A**. Regulation of DNA replication fork genes by 17beta-estradiol. *Mol. Endocrinol*, 16:1215-1229, 2002.
49. Houle, C.D., Ding, X-Y., Foley, J.F., **Afshari, C.A**., Barrett, J.C. and Davis, B.J. Loss of expression and altered localization of KAI1 and CD9 protein are associated with epithelial ovarian cancer progression. *Gynecol. Oncol*. 86:69-78, 2002.
50. Hamadeh, H.K., Knight, B., Haugen, A., Sieber, S.O., Amin, R.P., Bushel, P., Stoll, R., Blanchard, K., Jayadev, S., Tennant, R.W., Cunningham, M., **Afshari, CA**., and Paules, R.S. Methapyrilene Toxicity: Anchorage of Pathologic Observations to Gene Expression Alterations. *Toxicol. Pathol*., **30**:470-482, 2002.
51. Horikawa, I., Cable, P.L., Mazur, SJ, Appella, E., **Afshari, C.A**. and Barrett, J.C. Downstream E-box mediated regulation of the human telomerase reverse transcriptase (hTERT) gene transcription: Evidence for an endogenous mechanism of transcriptional repression. *Mol. Cell. Biol*., **13**:2585-2597, 2002.
52. Hamadeh, H.K., Li, L., Stoltz, J., Bushel, P., Stoll, R., Blanchard, K., Jayadev, S., and **Afshari, C.A**. Elucidation of Signal versus Effect in Toxicogenomic Studies. *Appl. Genomics and Proteomics* **1**:109-121, 2002.
53. Hamadeh, H.K., Trouba, K.J., Amin, R.P., **Afshari, C.A**. and Germolec, D. Cooperation of altered DNA repair and damage pathways in arsenite exposed keratinocytes. *Tox. Sci*., **69**:306-316, 2002.
54. Martinez, J., **Afshari, C.A**., Bushel, P.R., Masuda, A., Takahasi, T., and Walker, N.J. Differential toxicogenomics responses to 2,3,7,8-tetrachlorodibenzo-p-dioxin in malignant and nonmalignant human airway epithelial cells. Tox. Sci. **69**:(2):409-23 2002.
55. Bushel, P.R., Hamadeh, H., Bennett, L., Green, J., Abelson, A., Misener, S., **Afshari, C.A**., and Paules, R.S. Computational selection of distinct class- and subclass-specific gene expression signatures. *J. Biomed. Informatics* 35**(3)**:160-70 2002.
56. **Afshari, C.A.** Perspective: Microarray Technology -Seeing More Than Spots, *Endocrinology* 143:1983-1989, 2002.
57. Hamadeh, H.K., Amin, R.P., Paules, R.S., and **Afshari, C.A**. An overview of toxicogenomics. *Curr. Issues in Mol.Biol*., 4:45-56, 2002.
58. Amin, R.P., Hamadeh, H.K., Bushel, P.R., Bennett, L., **Afshari, C.A.,** and Paules, R.S. Genomic Interrogation of Mechanism(s) Underlying Cellular Responses to Toxicants. *Toxicology,* **181-182**:555-63, 2002.
59. Annab, L.A., Barrett, J.C., and **Afshari, C.A**. Functional Cancer Genomics-The Discovery of Human Cellular Senescence. *Applied Genomics and Proteomics*, 1:183-194, 2002.
60. Steenbergen, C., **Afshari, C.A.,** Petranka, J.G., Collins, J., Martin, K., Bennett, L., Haugen, A., Bushel, P., and Murphy, E. Alterations in Apoptotic Signaling in Human Idiopathic Cardiomyopathic Hearts in Failure. *Am J Physiol Heart Circ Physiol.* **284**:(1):H268-76. 2003.
61. Peddada, S.D., Lobenhofer, E.K., Li, L., **Afshari, C.A**., Weinberg, C.R., and Umbach, D.M. Gene selection and clustering for time-course and dose-response microarray experiments using order-restricted inference. *Bioinformatics*, **19(7)**:834-41 2003.
62. Bottone, F.G, Martinez, J.M., Collins, J.B., **Afshari, C.A**., and Eling, T.E. Gene modulation by the cyclooxygenase inhibitor, sulindac sulfide, in human colorectal carcinoma cells: possible link to apoptosis. *J. Biol. Chem*., **278**(28):25790-801. 2003
63. Johnson, C.D., Balagurunathan Y., Lu, K.P., Tadesse, M., Falahatpisheh, M.H., Carroll, R.J., Dougherty, E.R., **Afshari, C.A.**, and Ramos, K.S. Genomic profiles and predictive biological networks in oxidant-induced atherogenesis. *J. Cell Physiol*., **13(3)**:263-75 2003.
64. Hodges, L.C., Cook, J.D., Lobenhofer, E.K., Li, L., Bennett, L., Bushel, P.R., Aldaz, C.M., **Afshari, C.A.,** and Walker, C.L. Tamoxifen functions as a molecular agonist inducing cell cycle-associated genes in breast cancer cells. Mol Cancer Res. **1(4)**:300-11 2003.

65. Rhen, T., Grissom, S., **Afshari, C.A**., and Cidlowski, J.A. Dexamethasone blocks the rapid biological effects of 17beta-estradiol in the rat uterus without antagonizing its global genomic actions. *FASEB J.* **17**:(13):1849-70. 2003
66. Cable, P.L., Wilson, C.A., Calzone, F.J., Rauscher, F.J. 3rd, Scully, R., Livingston, D.M., Li L, Blackwell, C.B., Futreal, P.A., **Afshari, C.A.**, Novel consensus DNA-binding sequence for BRCA1 protein complexes. *Mol Carcinog*. **38**(2):85-96 2003.
67. Hewitt, S.C., Deroo, B.J., Hansen, K., Collins, J., Grissom, S., **Afshari, C.A.,** Korach, K.S., Estrogen receptor-dependent genomic responses in the uterus mirror the biphasic physiological response to estrogen. Mol Endocrinol. **17**:2070-83, 2003.
68. Murphy, E**., Afshari, C.A**., Petranka, J.G., and Steenbergen, C. DNA microarray gene profiling: A tool for the elucidation of cardioprotective genes. Van Eyk, Wiley Books, pg 97-110, 2003.
69. Hamadeh, H.K. and **Afshari, C.A**., editors, *Toxicogenomics: Principles and Applications*, Wiley Publishers. Foreword by C.A.Afshari and H.K. Hamadeh. 2004.
70. Amin, R.P., Vickers, A.E., Sistare, F., Thompson, K.L., Roman, R.J., Lawton, M., Kramer, J., Hamadeh, H.K., Collins, J., Grissom S., Bennett, L., Tucker, C.J., Wild, S., Kind, C., Oreffo, V., Davis, J.W., Curtiss, S., Naciff, J.M., Cunningham, M., Tennant, R., Stevens, J., Car, B., Bertram, T.A., and **Afshari, C.A.** Identification of putative gene based markers of renal toxicity, *Environmental Health Perspectives* **112:** 465-479, 2004.
71. Thompson, K., **Afshari, C.A**., Amin, R., Bertram, T.A., Car, B., Cunningham, M., Kind, C., Kramer, J., Lawton, M., Mirsky, M., Naciff, J., Oreffo, V., Pine, S.P., and Sistare, F.D. Identification of platform-independent gene expression markers of cisplatin nephrotoxicity. *Environmental Health Perspectives* **112**: 488-494, 2004.
72. Hamadeh, H.K., Jayadev, S., Gaillard, E.T., Huang, Q., Stoll, R., Blanchard, K., Chou, J. Tucker, C.J., Collins, J., Maronpot, R., Bushel, P., and **Afshari, C.A**. Integration of clinical and gene expression endpoints to explore furan-mediated hepatotoxicity. *Mutat. Res*., **549**: 169-183, 2004.
73. Crawford, Y., Gauthier, M., Joubel, A., Mantei, K., Kozakiewicz, K., **Afshari, C.A.**, and Tlsty, T.D. Histologically normal human mammary epithelia with silenced p16 (INK4a) overexpress COX-2, promoting a premalignant program. *Cancer Cell***, 5**:263-273, 2004.
74. Jansen, M.S., Nagel, S.C., Miranda, P.J., Lobenhofer, E.K., **Afshari, C.A.,** and McDonnell, D.P. Short-chain fatty acids enhance nuclear receptor activity through mitogen-activated protein kinase activation and histone deacetylase inhibition. *Proc. Natl. Acad. Sci. USA*, **101**: 7199-7204, 2004.
75. Lobenhofer, E.K., Cui, X., Bennett, L., Cable, P.L., Merrick, B.A., Churchill, G.A., and **Afshari, C.A.** Exploration of low-dose estrogen effects: identification of No Observed Transcriptional Effect Level (NOTEL) *Toxicol. Pathol:***32**: 482-492, 2004.
76. Haugen, A.C., Kelley, R., Collins, J.B., Tucker, C.J., Deng, C., **Afshari, C.A**., Brown, J.M., Ideker, T., and Van Houten B. Integrating phenotypic and expression profiles to map arsenic-response networks. Genome Biol., 5: 2004.
77. Kramer, J.A., Petit, S.D., Amin, R.P., Bertram, T.A., Car, B., Cunningham, M., Curtiss, S.W., Davis, J.W., Kind, C., Lawton, M., Naciff, J., Oreffo, V., Roman, R.J., Sistare, F.D., Stevens, J., Thompson, K., Vickers, A.E., Wild, S., and **Afshari, C.A.** Overview on the application of transcriptional profiling using selected nephrotoxicants for toxicology assessment, *Environmental Health Perspectives* **112**: 460-464, 2004.
78. Thukral, S.K., Nordone, P.J., Hu, R., Sullivan, L., Galambos, E., Fitzpatrick V.D., Healy, L., Bass, M.B., Cosenza, M.E., and **Afshari, C.A**. Prediction of nephrotoxicant action and identification of candidate toxicity-related biomarkers, *Toxicol Pathol*., **33**: 343-355, 2005.
79. Swartz, C.D., Afshari, C.A., Yu, L., Hall, K.E. and Dixon, D. Estrogen-induced changes in IGF-1, Myb family, and MAP kinase pathway genes in human uterine leiomyoma and normal uterine smooth muscle cell lines. *Mol Hum. Reprod*. **11**: 441-450, 2005.
80. Hamadeh, H., Bushel, P., Nuwaysir, E., Paules, R., Barrett, J.C. and **Afshari, C.A**. cDNA microarray technology: merging toxicology and genomics, In Pennie, W. and Kimber I. (eds.): *Comments on Toxicology* Boston, Gillette Company, In press.
81. Santen, R.J., Lobenhofer, E.K., **Afshari, C.A**., Bao, Y., and Song, R.X. Adaptation of estrogen-regulated genes in long-term estradiol deprived MCF-7 cells. Breast Cancer Res. And Treatment 94: 213-223, 2005.
82. Thompson, K.L., Rosenzweig, B.A., Pine, P.S., Retief, J., Turpaz, Y., **Afshari, C.A.,** Hamadeh, H.K., Damore, M.A., Boedigheimer, M., Blomme, E., Ciulionis, R., Waring, J., Fuscoe, J.C., Paules, R., Tucker, C.J., Fare, T., Coffey, E.M., He, Y., Collins, P.J., Jarnigan, K., Fujimoto, S., Gander, B., Kiser, G., Kaysser-Kranich, T., Sina, J., and

Sistare, F.D. Design of a universal reference material for rat expression microarrays from mixed tissue RNA. *Nucl. Acid Res.*, **33**:87, 2005.
83. **Afshari, C.A**. Toxicogenomics and Regulatory Science in "Toxicology and the Regulatory Process", S. Green, editor, Taylor and Francis Group, NY., pg 161-172, 2006.
84. Johnson, C.D., Balagurunathan, Y., Dougherty, E.R., **Afshari, C.A**., He, Q., and Ramos, K.S. Insight into redox-regulated gene networks in vascular cells. *Bioinformation* **10**:379-383, 2007.
85. Quackenbush, J., **Afshari, C.A**., Greer, L.E., Kulikowski, C.A., Orphanides, G., Sung, L.M., Wolfinger, R.D. and Ramos, K.S. National Research Council Report: *Validation of Toxicogenomic Technologies: A Workshop Summary*; The National Academies Press, 2007.
86. Christiani, D.C., **Afshari, C.A**., Balbus, J.M., Bus, J.S., Demple, B.F., Greer, L.E., Kardia, S.L.R., Leikauf, G.D., Liebler, D.C., Marchant, G.E., Quackenbush, J., Ramos, K.S., Rothstein, M.A., Stoll, R. E., Ulrich, R.G., and Zarbl, H. National Academy of Science, National Research Council Report: *Applications of Toxicogenomic Technologies to Predictive Toxicology*; The National Academies Press, 2007.
87. Mongan, T.D., Higgins, M., Pine, S. P., **Afshari, C.A**., and Hamadeh, H.K. Assessment of repeated execution of microarray experiments using mixed tissue RNA reference samples, *Biotechniques* **45**:283-292, 2008.
88. Holsapple, MP., **Afshari, CA**, Lehman-McKeeman LD. Vision for the Toxicity Testing in the 21st Century: promises and conundrums. *Tox Sci* **107**:307-308, 2009.
89. **Afshari, C** "Introduction to Toxicogenomics and Example Case Studies", in Bussiere, J. (ed.), Non-Clinical Testing for Toxicity of Pharmaceuticals: , The Biomedical & Life Sciences Collection, Henry Stewart Talks Ltd, London (online at http://www.hstalks.com/?t=BL0772250-Afshari), 2009.
90. Hamadeh, H.K., Todd, M., Healy, L., Meyer, J.T., Kwok, A.M., Higgins, M., and **Afshari, C.A.** Application of genomics for identification of systemic toxicity triggers associated with VEGF-R inhibitors. *Chem Res. Toxicol*. **23**: 1025-1033, 2010.
91. Mongan, MA, Dunn RT, Vonderfecht, S., Everds, N. Chen, G., Su, C., Higgins-Garn, M., Chen Y., **Afshari CA**, Williamson TL, Carlock, L., Dipalma, C. Moss, S., Bussiere, J., Qualls, C. He, YD., Hamadeh HK. A novel statistical algorithm for gene expression analysis helps differentiate pregnane X receptor-dependent and independent mechanisms of toxicity. *PLoSOne* **5**: 15595, 2010.
92. Morgan, RE, Trauner, M., van Staden, CJ, Lee PH, Ramachandran B., Eschenberg M., **Afshari, CA**, Qualls, CW Jr, Lightfoot-Dunn, R. Hamadeh HK. Interference with bile salt export pump function is a susceptibility factor for human liver injury in drug development. *Toxicol Sci* **118**: 485-500, 2010.
93. Pettit, S., des Etages, SA, Mylecraine L., Snyder, R., Fostel J., Dunn RT, Haymes, K., Duval M., Stevens J., **Afshari, C**., and Vickers A. Current and future applications of toxicogenomics: Results summary of a survey from the HESI Genomics State of the Science Subcommittee. *Environ. Health Perspect.* **118**: 992-997, 2010.
94. **Afshari, CA.,** Hamadeh, HK, Bushel PR The evolution of bioinformatics in toxicology: advancing toxicogenomics. *Toxicol. Sci.* **120**: S225-237., 2010.
95. Wisler, JA., **Afshari, C**., Fielden, M. Zimmerman, C., Taylor, C., Carnahan, J., and Vonderfecht, S. Raf inhibition causes extensive multiple tissue hyperplasia and urinary bladder neoplasia in the rat. *Toxicol. Pathol.* **39**: 809-822., 2011.
96. Morgan, RE., van Staden, CJ., Kalyanaraman, N., Kalanzi, J., Dunn, RT., **Afshari, CA**, and Hamadeh, HK. A multifactorial approach to hepatobiliary transporter assessment enables improved therapeutic compound development. Toxicol. Sci 136:250-263, 2013.
97. He Y.D., Karbowski C.M., Werner J., Everds N., Di Palma C., Chen Y., Higgins-Garn M., Tran S., **Afshari C.A**., Hamadeh H.K. Common handling procedures conducted in preclinical safety studies result in minimal hepatic gene expression changes in Sprague-Dawley rats. *PLoSONE*: 9, 2014.
98. Li N, Oquendo E, Capaldi RA, Robinson JP, He YD, Hamadeh HK, **Afshari CA**, Lightfoot-Dunn R, Narayanan PK. A systematic assessment of mitochondrial function identified novel signatures for drug-induced mitochondrial disruption in cells. *Toxicol. Sci.* **142**: 261-273, 2014.
99. Fielden, MR, Werner, J, Jamison, JA, Coppi, A, Hickman, D, Dunn, RT 2nd, Trueblood, E, Zhou, L, **Afshari, CA**, Lightfoot-Dunn, R. Retinal toxicity induced by a novel beta-secretase inhibitor in the Sprague-Dawley Rat. *Toxicol. Pathol.* **43**: 581-592, 2015.

100. Fan F, Hu R, Munzli A, Chen Y, Dunn RT 2nd, Weiki K, Strauch S, Schwandner R, **Afshari CA**, Hamadeh H, Nioi P. Utilization of human nuclear receptors as an early counter screen for off-target activity: a case study with a compendium of 615 known drugs. *Toxicol. Sci*. **145**: 283-295, 2015.
101. Taylor, S, Ominsky MS, Hu, R, Pacheco E, He YD, Brown DL, Aguiree, JI, Wronski TJ, Buntich S, Afshari CA, Pyrah I, Boyce RW. Time-dependent cellular and transcriptional changes in the osteoblast lineage associated with sclerostin antibody treatment in ovariectomized rats. *Bone* **84**:148-159, 2016.
102. Long, TJ, Cosgrove PA, Dunn RT 2nd, Stolz DB, Hamadeh H, Afshari C, McBride H, Griffith LG. Modeling and therapeutic antibody small molecule drug- drug interactions using a three-dimensional perfusable human liver coculture platform. *Drug Metabolism and Disposition*, **44**:1940-1948, 2016.