CURRICULUM VITAE
Kirsten C. Fertuck, Ph.D
September, 2017

EDUCATION

Hon.B.Sc. in Toxicology & Environment, 1998, University of Toronto (High Distinction)
Ph.D in Biochemistry & Molecular Biology; dual degree in Environmental Toxicology, 2003, Michigan State University

EMPLOYMENT HISTORY

Dana-Farber Cancer Institute, Department of Medical Oncology: Postdoctoral Fellow, 2003-2009
Boston College, Biology Department: Adjunct Professor, 2010-2013
Bentley University, Department of Natural & Applied Sciences: Adjunct Professor, 2012-2014
Tufts University, Department of Biology: Adjunct Professor, 2013
Northeastern University, Department of Biology: Adjunct Professor, 2013; Assistant Teaching Professor, 2014-present

PUBLICATIONS

Refereed Articles

Wang, C., J.A. Mayer, A. Mazumdar, **K.C. Fertuck**, H. Kim, M. Brown and P.H. Brown. 2011. Estrogen induces c-myc gene expression via an upstream enhancer activated by the estrogen receptor and the AP-1 transcription factor. *Mol. Endocrinol.* 25(9):1527-38.

Carroll, J.C., C.A. Meyer, J. Song, W. Li, T.R. Geistlinger, J. Eeckhoute, A.S. Brodsky, E.K. Keeton, **K.C. Fertuck**, G.F. Hall, Q. Wang, S. Bekiranov, V. Sementchenko, E.A. Fox, P.A. Silver, T.R. Gingeras, X. S. Liu and M. Brown. 2006. Genome-wide analysis of estrogen receptor binding sites. *Nat. Genet.* 38(11): 1289-97.

Huang, Y.W., J.B. Matthews, **K.C. Fertuck** and T.R. Zacharewski. 2005. Use of *Xenopus laevis* as a model for investigating *in vitro* and *in vivo* endocrine disruption in amphibians. *Environ. Toxicol. Chem.* 24(8): 2002-9.

Boverhof, D.R., **K.C. Fertuck**, L.D. Burgoon, J.E. Eckel, C. Gennings and T.R. Zacharewski. 2004. Temporal- and dose-dependent hepatic gene expression changes in immature ovariectomized mice following exposure to ethynyl estradiol. *Carcinogenesis.* 25(7): 1277-91.

Fertuck, K.C., J.E. Eckel, C. Gennings and T.R. Zacharewski. 2003. Identification of temporal patterns of gene expression in the uteri of immature, ovariectomized mice following exposure to ethynyl estradiol. *Physiol. Genom.* 15(2): 127-41.

Matthews, J.B., **K.C. Fertuck**, T. Celius, Y.W. Huang, C.J. Fong and T.R. Zacharewski. 2002. Ability of structurally diverse natural products and synthetic chemicals to induce gene expression mediated by estrogen receptors from various species. *J. Steroid Biochem. Mol. Biol.* 82(2): 181-94.

Goodin, M.G., **K.C. Fertuck**, T.R. Zacharewski and R.J. Rosengren. 2002. Estrogen receptor-mediated actions of polyphenolic catechins *in vivo* and *in vitro*. *Toxicol. Sci.* 69(2): 354-61.

Fertuck, K.C., H. Sikka, J.B. Matthews and T.R. Zacharewski. 2001. Interaction of PAH-related compounds with the alpha and beta isoforms of the estrogen receptor. *Toxicol. Lett*. 121(3): 167-77.

Fertuck, K.C., J.B. Matthews and T.R. Zacharewski. 2001. Hydroxylated benzo[a]pyrene metabolites are responsible for *in vitro* estrogen receptor-mediated gene expression induced by benzo[a]pyrene, but do not elicit uterotrophic effects *in vivo*. *Toxicol. Sci.* 59(2): 231-40.

Diamond, M.L., S.E. Gingrich, **K.C. Fertuck**, B.E. McCarry, G.A. Stern, B. Billeck, B. Grift, D. Brooker and T.D. Yager. 2000. Evidence for organic film on an impervious urban surface: characterization and potential teratogenic effects. *Environ. Sci. Technol.* 34(14): 2900-08.

Sweezy, N., S. Tchepichev, S. Gagnon, **K.C. Fertuck**, and H. O'Brodovich. 1998. Female gender hormones regulate mRNA levels and function of the rat lung epithelial Na channel. *Am. J. Physiol.* 274(*Cell Physiol*. 43): C379-86.

Non-refereed Articles

Fertuck, K.C. 2003. Temporal responses to estrogen in the uterus. Report from a SCOPE/IUPAC project: Implicaction of Endocrine Active Substances for Humans and Wildlife (J. Miyamoto and J. Burger, editors). *Pure Appl. Chem.* 75(11-12): 2415-18.

Fielden, M.R., J.B. Matthews, **K.C. Fertuck**, R.G. Halgren and T.R. Zacharewski. 2002. *In silico* approaches to mechanistic toxicology: an introduction to bioinformatics for toxicologists. *Crit. Rev. Toxicol*. 32(2): 67-112.

Books

Fertuck, K.C. 2003. In vitro and in vivo evaluation of the receptor binding and estrogenic effects of polycyclic aromatic hydrocarbons. Ph.D thesis, *Michigan State University*. p.1-181.

Rhodes, C., **K. Fertuck**, D. Josephy, and R.E. Koeppe, II. 2015. Student Companion to Accompany Biochemistry. 8th ed. *W.H. Freeman*. p.1-716.

Fertuck, K. 2016. Biochemistry Laboratory Manual, to accompany BIOL 3612. *Academx Publishing Services.* p.1-139.

Book Chapters

Zacharewski, T.R., **K.C. Fertuck**, M.R. Fielden, and J.B. Matthews. 2002. Mechanistically-based assays for the identification and characterization of endocrine disruptors. In *Comprehensive Toxicology XIV: Cellular and Molecular Toxicology* (Volume Editors: J.P. Vanden Heuvel, W.F. Greenlee, G.H. Perdew, W. Mattes; Editors-in-Chief: I.G. Sipes, C.A. McQueen, A.J. Gandolfi). Elsevier Science, Amsterdam, The Netherlands, p.559-82.

Online Educational Materials

Created 1,335 online questions in 2015 as requested by W.H. Freeman publishers in support of the newest (8th) edition of their textbook Biochemistry by J.M. Berg, J.L. Tymoczko, L. Stryer, and G.J. Gatto, Jr. Project involved coverage of 19 of the textbook's 36 chapters.

Platform Presentations

Coactivation by AIB1 contributes to long-range association between proximal and distal estrogen receptor binding sites in breast cancer cells. Speaker, *Steroid Receptors & Coregulators* symposium session. ENDO 2006, Endocrine Society, Boston, MA, June 27, 2006.

Coactivation by AIB1 contributes to long-range association between proximal and distal estrogen receptor binding sites in breast cancer cells. Speaker, *Cell Biology and Signaling* symposium session. Dana-Farber/Harvard Cancer Center Breast Cancer Symposium, Boston, MA, Apr. 7, 2006.

Coactivation by AIB1 contributes to long-range association between proximal and distal estrogen receptor binding sites in breast cancer cells. Speaker, *Hot Topics: Steroid Receptors and Disease* symposium session. Nuclear Receptors: Steroid Sisters Keystone Symposium, Banff, AB, March 19, 2006.

Actions and targets of AIB1, a coactivator implicated in cell proliferation and cancer. Speaker, *Molecular Targets for Cancer Therapy*. Sass Foundation for Medical Research, Mallorca, Spain, Oct. 13, 2005.

Use of rodents to model human uterine responses to estrogen. Speaker, *Genomics Seminar Series*. Environmental Protection Agency, Seattle, WA, May 21, 2003.

Use of an empirical Bayes screening approach and Gene Ontology annotations to filter and interpret microarray data from the uteri of estrogen-treated mice. Speaker, *Characterization of Toxicant Signatures Using Gene Expression Microarrays* symposium session. Society of Toxicology, Salt Lake City, UT, March 10, 2003.

Temporal responses to estrogen in the uterus. Speaker, *Toxicogenomics as a rational approach to endocrine disruptor research* workshop session. SCOPE/IUPAC International Symposium on Endocrine Active Substances, Yokohama, Japan, Nov. 21, 2002.

Complementary *in vitro* and *in vivo* rodent assays. Speaker/Panelist, *Screening and Testing Assays* symposium session. Endocrine Disruptors Workshop, Research Triangle Park, NC, Oct. 29, 2002.

Analysis considerations in Affymetrix GeneChip experiments. Speaker, *Bioinformatics Seminar Series.* Michigan State University, Oct. 11, 2002.

Identification and assessment of endocrine disrupting chemicals. Speaker/Panelist, *Environmental Estrogens and Women's Health* symposium session. American Association for the Advancement of Science, Boston, MA, Feb. 15, 2002.

PREVIOUS FELLOWSHIPS, GRANTS, AND AWARDS

Research Fellowships

Ontario Graduate Scholarship (1998-2000; declined)

Chemical Food Safety Graduate Fellowship (1998-2001)

Society of Toxicology Graduate Student Fellowship (2001-2002)

Sass Foundation Postdoctoral Fellowship (2004-2006)

Champion Investigator Award Postdoctoral Fellowship (2006-2008)

Terri Brodeur Breast Cancer Foundation Postdoctoral Fellowship (2008-2010)

Other Honors and Awards

Martin L. Wills Scholarship, Heart and Stroke Foundation of Ontario (1994)

Sidney and Lucille Silver Scholarship, Faculty of Arts and Science, University of Toronto (1997)

Frances L. Allen Scholarship, Faculty of Arts and Science, University of Toronto (1997)

University of Toronto Women's Association Scholarship, New College (1997)

Biochemistry Faculty Fellowship, Michigan State University (1998)

Graduate Student Research Grants, Sigma Xi Michigan State University Chapter (2000, 2001)

Outstanding Graduate Student Award, Sigma Xi Michigan State University Chapter (2002)

TEACHING AND ADVISING

Outside of Northeastern University

Boston College (2010-2013): taught Introductory Molecular and Cellular Biology four times, Genetics twice, Environmental Biology four times, and Plant Biology twice. Served as advisor to the biology and biochemistry majors in 2012-2013.

Bentley University (2012-2014): taught Green Biology: Botanical and Ecological Connections four times.

Tufts University (2013): taught Genetics once.

At Northeastern University

BIOC 1000, Introduction to Biochemistry at NU. Introduce new students to resources available to them within their major and the greater academic community to prepare them for success within their degree program.

Fall 2014 (22 students)
Fall 2015 (30 students)
Fall 2016 (16 students)

BIOL 2299, Inquiries in Biological Sciences. Examine the primary published literature in the instructor's background field (environmental toxicology) as a means to develop critical thinking skills and build fluency with key biological concepts.

Spring 2015 (30 students; completely new design)

Spring 2017 (11 students)

BIOL 2323 (renumbered to BIOL 3611), Biochemistry. Leverage prerequisite knowledge from genetics and organic chemistry to develop advanced knowledge of macromolecular building blocks, the relationship between structure and function, enzyme kinetics, and the process and regulation of metabolism.

Spring 2014 (50 students)
Summer 1 2014 (37 students)
Summer 2 2014 (30 students)
Fall 2014 (130 students)
Spring 2015 (127 students; course release to redesign the instruction of the course to go with much larger enrollment)
Summer 1 2015 (43 students)
Summer 2 2015 (32 students)
Fall 2015 (77 students)
Spring 2016 (129 students; course release to redesign corequisite lab, BIOL 3612)
Summer 1 2016 (61 students)
Summer 2 2016 (36 students; piloted newly-redesigned corequisite lab)
Fall 2016 (151 students)
Spring 2017 (156 students)
Summer 1 2017 (63 students)
Summer 2 2017 (34 students)

BIOL 3407 (renumbered 3507), Molecular Cell Biology. Use functional knowledge gained in biochemistry prerequisite course in order to gain a more advanced understanding of cellular architecture, signaling, division, and growth control.

Summer 2 2013 (21 students; taught as an adjunct professor).

SERVICE AND PROFESSIONAL DEVELOPMENT

Service to Northeastern University

Departmental Service

Biochemistry Program Assessment Director 2017–present
Biochemistry Program Steering Committee, 2014–present
Biology Curriculum Committee, 2014–present
Advisor to Biochemistry Club, 2014–present (club received Phoenix Award for Organizational Excellence from NU's Center for Student Involvement for 2014-2015)
Advisor to NU Chapter of American Society for Biochemistry and Molecular Biology, 2015–present (Chapter received the Outstanding Chapter Award for 2015-2016)
Capstone consultant for BIOL 4701 Biology Capstone thesis projects (8 students in 2015, 3 students in 2016, 1 student to date in 2017)

College Service

Judge, Co-op poster competition, 2015-present
Non-Tenure Track Faculty Committee, 2016–present

University Service

Regularly write supportive reference letters for students from many colleges within the University (primarily College of Science and the Bouve College of Health Sciences) applying to medical school, dental school, veterinary school, and other postgraduate opportunities. Received the Golden Pen Award in 2016 from the PreHealth Program in recognition of substantial contributions in this area.

Service to the Discipline/Profession

American Society for Biochemistry and Molecular Biology (ASBMB) Education Fellow, providing rubric validation and volunteer long-answer grading of questions for the annual ASBMB Certification Exam for undergraduates, 2015–present.
ASBMB workshop participant, designing activities and assessments for distribution and use by the biochemistry and molecular biology community. 2014 (Simmons College), 2015 (Montclair State University), and 2016 (Marymount Manhattan College).
ASBMB Annual Meeting Undergraduate Poster Session Judge, 2015 (San Diego) and 2016 (Chicago).

Service to the Community/Public

Judge, Massachusetts State Science & Engineering Fair, 2014-2017
Judge, Kennedy Academy for Health Sciences science fair, 2016-2017

PROFESSIONAL DEVELOPMENT

Evidence-Based Teaching Fellow, Center for Advancing Teaching and Learning (CATLR), Northeastern University, 2016-2017.
Attendee, Conference for Advancing Evidence-Based Teaching. Organized by CATLR, Northeastern University, 2015, 2016, 2017.
Attendee, Excellence in Teaching Day. Organized by the Center for Teaching Excellence, Boston College, each year 2011-2017.
Attendee, American Society for Biochemistry and Molecular Biology (ASBMB) Annual Meeting. 2014 (Boston), 2015 (San Diego), and 2016 (Chicago).
Participant, Re-envisioning Lectures to Deepen Learning (online, 4 wks). By CATLR, Northeastern University. 2016.

Participant, The Art of Science Communication (online, 7 wks; weekly facilitated discussions by Skype). By ASBMB. 2016.

Participant, Introduction to Evidence-Based Undergraduate STEM Teaching (online, 7 wks; weekly facilitated discussions at MIT). By Vanderbilt University, 2014.

Howard Hughes Medical Institute and National Academies Summer Institute on Undergraduate Education in Biology, University of Wisconsin-Madison. Part of a three-person teaching team representing Boston College. 2010.