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EXECUTIVE SUMMARY

Early-career clinical and translational cancer researcher with an established commitment to innovative academic research, extensive experience in clinical trial management, and growing proficiency in industry consulting.

EDUCATION:

Graduate

Ph.D. Biomedical Sciences August 2014
Concentration in Genetics & Developmental Biology,
University of Connecticut Health Center, Farmington, CT

Graduate Assistant – Doctoral program in Biochemistry/Biophysics May 2009 – May 2010
Rensselaer Polytechnic Institute, Troy, NY
Transferred to the University of Connecticut following the departure of my research advisor for another institution.

Undergraduate

B.S. Biochemistry/Biophysics May 2009
Rensselaer Polytechnic Institute, Troy, NY

PROFESSIONAL CERTIFICATIONS:

Certificate in Applied Biostatistics, Harvard University, Boston, MA May 2015

RESEARCH EXPERIENCE:

Research Fellow – Massachusetts General Hospital/Harvard Medical School, Boston, MA September 2014 – Present
Clinical and Translational Epidemiology Unit & Division of Gastroenterology

As a postdoctoral research fellow, my main responsibility has been to oversee and directly manage the operations “ASPIRED: ASpirin Intervention for the REDuction of colorectal cancer risk” clinical trial, within the Clinical and Translational Epidemiology Unit at MGH. ASPIRED (Clinicaltrials.gov registration: NCT02394769) is a multi-arm, placebo-controlled, double-blind trial aimed at examining the effects of daily aspirin use on established and promising blood, stool, urine, saliva and tissue biomarkers of colorectal cancer risk for use in precision chemoprevention strategies. Second, I am examining the role of environmental and lifestyle factors (e.g. smoking and aspirin use) in colorectal carcinogenesis. Specifically, I am expanding these analyses into the field of molecular pathological epidemiology in order to connect these risk determinants with the molecular mechanisms underlying colorectal cancer. Third, I am overseeing the site operations of a Phase I clinical trial sponsored by Lumicell, Inc. (NCT02584244) testing the feasibility of a fluorescent imaging system for detection of gastrointestinal (esophageal, pancreatic, colorectal) cancers.

Graduate Assistant – University of Connecticut Health Center, Farmington, CT May 2010 – August 2014
Dissertation Title: “*Proximal aberrant crypt foci as surrogate markers of colorectal cancer risk*”

My dissertation focused on the role of human aberrant crypt foci (ACF), the earliest precancerous lesions of the colon, as surrogate markers of cancer risk. Specifically, the thesis addressed the presence of ACF in the proximal colon and whether they may contribute to interval colon cancers. The diminutive nature of these lesions has necessitated the use and innovation of novel approaches to address hypotheses directed at cancer initiation. At the bench, I developed a novel technique to perform nanoproteomic analyses and a sensitive, high-throughput somatic mutation screen for use on microdissected ACF to identify early initiating mutations and downstream signaling consequences related to oncogenesis. To accomplish this, I fostered industry relationships to develop these assays with Sequenom Inc. and ProteinSimple. In addition to molecular characterization, this work included epidemiology driven statistical analysis of colon cancer risk factors within the ACF human clinical trial. Furthermore, I led the extension of these analyses to a large colorectal cancer-screening cohort consisting of 3,000 consecutive colonoscopies that I had compiled. In the clinic, I managed a multidisciplinary team of administrators, clinicians, and regulatory personnel to ensure the successful completion of our clinical trial. These results have had direct clinical significance at UCHC and have provided the gastroenterology team with new measures for personalized colon cancer risk assessments.

RESEARCH EXPERIENCE (continued):

Graduate Assistant – Rensselaer Polytechnic Institute, Troy, NY May 2009 – May 2010

Undergraduate Research Project – Rensselaer Polytechnic Institute, Troy, NY September 2006 – May 2009
Thesis title: "Enzyme catalysis of organic acid and vinyl ester thioesterification with N-acetylcysteamine"

Research Intern, Plant Genome Research Project – Cornell University, Ithaca, NY June-August 2004 & 2006

CONSULTING EXPERIENCE:

Research Analyst Intern – LambdaVision, Inc., Farmington, CT December 2013 – June 2014

Research Analyst – Connecticut Center for Entrepreneurship and Innovation, E. Hartford, CT January 2013 – May 2013

ADDITIONAL EXPERIENCE:

Research Mentor/Lecturer – College Fellowship Program/Cutting Edge Summer Research Institute 2011 – 2014
School of Medicine and Dental Medicine, University of Connecticut Health Center, Farmington, CT

Graduate Teaching Assistant – Rensselaer Polytechnic Institute, Troy, NY August 2009 – May 2010

PUBLICATIONS:

Drew, David A., Lochhead P, Abu-Ali G, Chan AT, Huttenhower C, Izard J. "Fecal microbiome in epidemiologic studies – Letter" *Cancer, Epidemiology, Biomarkers and Prevention*. Mar 2016. PMID: [26961995](#)

Drew, David A., Cao Y, Chan AT. "Aspirin and colorectal cancer: the promise of precision chemoprevention" *Nature Rev Cancer*. Mar 2016; 16(3):173-86. PMID: [26868177](#)

Drew, David A., Goh G, Mo A, Grady JJ, Forouhar F, Egan G, Swede H, Rosenberg DW, Stevens RG, Devers TJ. "Colorectal polyp prevention by daily aspirin use is abrogated among active smokers." *Cancer Causes and Control*. Jan 2016; 27(1):93-103. First published online: Oct 2015 PMID: [26510933](#)

Drew, David A., Devers TJ, O'Brien MJ, Horelik NA, Levine J, Rosenberg DW. "HD Chromoendoscopy Coupled with DNA Mass Spectrometry Profiling Identifies Somatic Mutations in Microdissected Human Proximal Aberrant Crypt Foci", *Rapid Impact, Molecular Cancer Research*. June 2014; 12(6):823-9. PMID: [24651453](#) *Selected for Cover and Issue "Highlights"*.

Hahn, Maria A, Li AX, Wu X, Yang R, **Drew DA**, Rosenberg DW, Pfeifer GP. "Loss of the polycomb mark from bivalent promoters leads to activation of cancer-promoting genes in colorectal tumors" *Cancer Research*. July 2014; 74(13):3617-29. PMID: [24786786](#)

Drew, David A., Devers TJ, Horelik NA, Yang S, O'Brien MJ, Wu R, Rosenberg DW. "Nanoproteomic analysis of extracellular receptor kinase-1/2 post-translational activation in microdissected human hyperplastic colon lesions." *Proteomics*, May 2013; 13(9): 1428-36. PMID: [23467982](#)

Menoret, Antoine, **Drew DA**, Miyamoto S, Nakanishi M, Vella AT, Rosenberg DW. "Differential proteomics identifies PDIA3 as a novel chemoprevention target in human colon cancer cells." *Molecular Carcinogenesis, Special Issue: Mechanisms and Targets for Prevention and Treatment of Colorectal Cancer*. Feb 2014; 53(S1), E11-E22. First published online: Dec 2012 PMID: [23255428](#)

Complete list of published work in MyBibliography:

<http://www.ncbi.nlm.nih.gov/sites/myncbi/david.drew.1/bibliography/49019369/public/?sort=date&direction=ascending>

PUBLICATIONS IN PROCESS:

Drew, David A., Mo A, Goh G, Hanley MP, Horelik N, Anderson J, Brenner B, Levine J, Stevens RG, Grady JG, Devers TJ, Rosenberg DW. "Proximal aberrant crypt foci as a marker of the colonic mucosa at risk." *Final Preparation*.

Drew, David A.,* Nishihara R,* Lochhead P,* Kuchiba A,* Qian ZR, Mima K, Nosho K, Wu K, Wang M, Spiegelman D, Giovannucci EL,[†] Fuchs CS,[†] Ogino S,[†] Chan AT.[†] (*authors contributed equally; [†]co-senior authors) "A prospective study of smoking habit and synchronous colorectal cancer" *Final Preparation*.

Cao Yin, Nishihara R, Qian ZR, Song M, Mima K, Inamura K, Nowak JA, **Drew DA**, Lochhead P, Nosho K, Morikawa T, Zhang X, Wu K, Wang M, Garrett WS, Giovannucci EL,* Fuchs CS,* Chan AT,* Ogino S.* (*co-senior authors) "Aspirin use and risk of colorectal cancer according to tumor immunity status. *Under review, N Engl J Med*.

ABSTRACTS/INVITED PRESENTATIONS (*presenter underlined*):

- Drew, David A.**, Nishihara R,* Lochhead P,* Kuchiba A,* Qian ZR, Mima K, Nosho K, Wu K, Wang M, Spiegelman D, Giovannucci EL,[†] Fuchs CS,[†] Ogino S,[†] Chan AT.[†] "A prospective study of smoking habit and risk of synchronous colorectal cancers" *Invited podium presentation*, *Proceedings of the American Association for Cancer Research, AACR Annual Meeting* (New Orleans, L.A.), April 2016. *Selected for the 2016 Molecular Epidemiology Working Group Scholar-in-Training Award.*
- Brown, Gordon T.**, Mehta RS, **Drew DA**, Clish CB, Fuchs C, Wolpin BM, Chan AT. "A Prospective Study of Regular Aspirin Use and Plasma Metabolomic Profile: Implications for Chemoprevention." *Abstract/Poster Digestive Disease Week* (Washington, D.C.), May 2015.
- Swede, Helen**, Sharafi M, Wu R, Duffy VB, Rosenberg DW, **Drew DA**, Devers T, Stevens RG. "Modified Dietary Inflammatory Index and Increased Number of Colonic Aberrant Crypt Foci." *Abstract/Poster Proceedings of the American Association for Cancer Research, AACR Annual Meeting* (Philadelphia, P.A.), April 2015.
- Drew, David A.** "Tales from the aberrant crypt: unlocking the prognostic potential of diminutive colon lesions" **2013 Lepow Recipient Presentation**. *31st Annual Graduate Student Research Day* (Farmington, CT), June 2014.
- Drew, David A.**, Devers TJ, **Rosenberg DW**. "Unlocking the prognostic significance of microdissected proximal lesions from the human colon." *Invited podium presentation, International Symposium on Microgenomics 2014*, First Symposium on Microgenomics in France and Europe (Paris, France), May 2014.
- Drew, David A.**, Hanley MP, Mo A, Goh G, Horelik NA, Devers TJ, Levine J, Stevens RG, Grady JJ, Rosenberg DW. "Proximal human aberrant crypt foci as surrogate markers of colorectal cancer risk." *Abstract/Poster, Proceedings of the American Association for Cancer Research, AACR Annual Meeting* (San Diego, C.A.), April 2014. *Selected for the 2014 AACR-GlaxoSmithKline Outstanding Clinical Scholar Award.*
- Miyamoto, Shingo**, **Drew DA**, Rosenberg DW. "Oncogenic activation of RAS and RAF induce distinct ERK activation in the colon." *Abstract/Poster, Proceedings of the American Association for Cancer Research, AACR Annual Meeting* (San Diego, C.A.), April 2014.
- Drew, David A.**, Devers TJ, Rajan TV, Rosenberg DW. "Proximal ACF as a surrogate marker of colorectal cancer risk" *Abstract/Poster, Cancer Biology Training Consortium, CABTRAC Annual Retreat* (Wrightsville Beach, N.C.), October 2013.
- Drew, David A.**, Devers TJ, Horelik NA, Yang S, O'Brien MJ, Wu R, Rosenberg DW. "Nanoproteomic analysis of extracellular receptor kinase-1/2 post-translational activation in microdissected human hyperplastic aberrant crypt foci." *Abstract/Poster, Proceedings of the American Association for Cancer Research, AACR Annual Meeting* (Washington, D.C.), April 2013.
- Drew, David A.** and Thomas J. Devers. "Genesis: ACF, Colon Cancer and Beyond" *Invited research speaker*, University of Connecticut Medical Grand Rounds (Farmington, C.T.), March 2013.
- Drew, David A.** "Analysis of ERK activation in microdissected human precancerous lesions" *Invited podium presentation*, NanoPro Users Conference (Washington, D.C.), October 2011.

OTHER EXPERIENCE AND PROFESSIONAL MEMBERSHIPS:

- 2012- Associate Member, American Association for Cancer Research (AACR)
- 2014- Student, American Society of Clinical Oncology (ASCO)
- 2014/2015 Harvard University Center for AIDS Research Workshop on Metagenomics, Boston, MA
- 2015 Selected Participant, AACR Integrative Molecular Epidemiology Workshop, Boston, MA
- 2015 - Member, AACR Molecular Epidemiology Working Group

AWARDS & ACCOMPLISHMENTS

- 2016 AACR Molecular Epidemiology Working Group Scholar-in-Training Award
- 2014 AACR- GlaxoSmithKline Outstanding Clinical Scholar Award
- 2014 Selected for cover and "Highlights" section of *Molecular Cancer Research's* June issue
- 2013 The Lepow Fellowship, awarded to the most outstanding Ph.D. in biomedical science student
- 2011-2012 Treasurer, UConn Health Center Graduate Student Organization
- 2009 Lambda Chi Alpha "Kalepa Ta Kala" Award, awarded to the most accomplished graduating senior
- 2005-2009 President, Rensselaer Class of 2009, elected to four consecutive annual terms
- 2008 The Frederick M. Nussbaum '30 Award, for outstanding volunteerism to the R.P.I. and Troy community
- 2005-2009 Rensselaer Medal, for excellence in science and mathematics.