

VCU Department of Forensic Science Faculty, Graduate and Undergraduate
Presentations and Publications

2015-2016 Presentations

Ehrhardt, C.J. Forensic Analysis of Microbial Lipids; Fatty Acid Signatures for the Attribution of Bacillus Spores. Invited Talk. Edgewood Chemical and Biological Center. 9/1/15.

Stanciu, C.E., Kwon, Y.J., Bustamanete, E.E., Philpott, M.K., Dawson Cruz, T., Ehrhardt, C.J. Differentiation of Individual Cell Populations in a Touch Mixture Using Antibody Probes and Flow Cytometry. Poster Presentation. International Symposium Human Identification, Grapevine, TX. Accessible at F1000 Research 4:1371; doi 10.7490/f1000research.1111084.1

T Layne, ZE Zehner, SJ Seashols-Williams. Differential stability of nucleic acids in biological fluids compromised by environmental exposure. Poster, International Symposium on Human Identification Annual Meeting, October 2015.

Solomon AD, Hytinen ME, McClain AM, Miller MT, Dawson Cruz T. Improved Methods for Retrieval and Extraction of DNA from Tape-Lifted, Paper-Backed Stored Archived Latent Fingerprints. 26th International Symposium on Human Identification, Promega Corporation, Dallas, TX, October 2015

Gibson AK, Cox JO, Jackson K, Landers JP, Dawson Cruz T. A microchip module for differential extraction of sexual assault samples and improved IR-mediated STR amplification for a rotation-driven Microdevice. 26th International Symposium on Human Identification, Promega Corporation, Dallas, TX, October 2015

Stone, J. W., Peace, M. Analysis of a commercial marijuana e-cigarette formulation. Society of Forensic Toxicologists. Atlanta Georgia, October 2015.

Tyson R. Baird, Justin L. Poklis, Joseph W. Stone, Karen E. Butler, Carl E. Wolf, Nathaniel Smith, Joseph B. McGee Turner, Alphonse Poklis, and Michelle R. Peace. Characterization of Electronic Cigarette Refill Formulations and Dose Capture of Nicotine in Aerosol by DART-AccuTOFTM MS, HPLC-MS/MS, and GC-MS. Presentation. Society of Forensic Toxicologists Meeting, Atlanta, GA. October 2015.

Justin Poklis, Alphonse Poklis, Carl Wolf, Mary Mainland, Laura Hair, Kelly Devers, Leszek Chrostowski, Elise Arbefeville, Michele Merves, and Julia Pearson. Postmortem Concentrations of Morphine, Fentanyl, Norfentanyl, Acetyl Fentanyl and Noracetyl Fentanyl in Recent Heroin-Related Fatalities. Presentation. Society of Forensic Toxicologists Meeting, Atlanta, GA. October 2015.

**VCU Department of Forensic Science Faculty, Graduate and Undergraduate
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Karen E. Butler, Justin L. Poklis, Joseph B McGee Turner, **Alphonse Poklis** and **Michelle R. Peace**. Presumptive Analysis of Electronic Cigarette Aerosol Using Solid-Phase Microextraction for Analysis by Gas Chromatography Mass Spectrometry (SPME-GC-MS) and Direct Analysis in Real Time AccuTOFTM Mass Spectrometry (SPME-DART-MS). Presentation. Society of Forensic Toxicologists Meeting, Atlanta, GA. October 2015.

Courtney M. Wardwell, Justin L Poklis, Jason M. Wiebelhaus, Brittany L Mason, Laura E. Wise, and **Alphonse Poklis**. Disposition of the 5-HT_{2A} Agonist Designer Hallucinogen, 2-(4-chloro-2,5-dimethoxyphenyl)-N-[(2-methoxyphenyl)methyl]ethanamine (25C-NBOMe), in the Mouse. Presentation. Society of Forensic Toxicologists Meeting, Atlanta, GA. October 2015.

Lori L. McLean, *Katilyn N.L. Brooks*, Joseph B. McGee Turner, **Michelle R. Peace**. The Risk of Electronic Cigarettes to Public Health and Criminal Justice. Presentation. Society of Forensic Toxicologists Meeting, Atlanta, GA. October 2015.

Renata Nascimento, Carl E Wolf, and **Alphonse Poklis**. Evaluation of a Newly Formulated Enzyme Immunoassay for the Detection of Hydrocodone and Hydromorphone in Pain Management Compliance Testing. Presentation. Society of Forensic Toxicologists Meeting, Atlanta, GA. October 2015.

Sara K. Dempsey, Justin L. Poklis, Joseph K. Ritter, Carl E. Wolf and **Alphonse Poklis**. Identification of Fifteen Metabolites of the Designer Hallucinogen 25I-NBOMe in Human Urine. Presentation. Society of Forensic Toxicologists Meeting, Atlanta, GA. October 2015.

Alphonse Poklis, *Amanda J. Mohr*, Justin L. Poklis and Carl E. Wolf. Evaluation of NBOMe Derivatives, 25I-NBOMe, 25B-NBOMe, 25C-NBOMe and 25I-NBOH Refrigerated Stability in Four Types of Blood Collection Tubes Over a 72 Hour Period. Presentation. Society of Forensic Toxicologists Meeting, Atlanta, GA. October 2015.

Joseph W. Stone, Justin L. Poklis, Joseph B. McGee Turner, **Alphonse Poklis** and **Michelle R. Peace**. Analysis of a Marijuana E-Liquid for Use in Electronic Cigarettes Using Direct Analysis in Real Time- Mass Spectrometry, Gas Chromatography-Mass Spectrometry, and High Performance Liquid Chromatography Tandem Mass Spectrometry. Presentation. Society of Forensic Toxicologists Meeting, Atlanta, GA. October 2015.

Childrey, E.M., Stanciu, C.E., Ehrhardt, C.J. Quantitation of residual fatty acids in forensic microbiological samples using Direct Analysis in Real Time Mass Spectrometry (DART-MS). Poster Presentation. American Society for Microbiology Biodefense and Emerging Diseases Research Meeting. Crystal City, VA. February, 2016. Accessible at F1000Research 2016, 5:196. doi: 10.7490/f1000research.1111314.1

**VCU Department of Forensic Science Faculty, Graduate and Undergraduate
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Wang, C., *Stanciu, C.E.*, Yadavalli, V., **Ehrhardt, C.J.** The effect of growth temperature on the nanoscale surface properties of *Yersinia pestis*. Poster Presentation. American Society for Microbiology Biodefense and Emerging Diseases Research Meeting. Crystal City, VA. February, 2016.

Kemper Gibson. 3MT(R) Three Minute Thesis Competition. Presentation. Virginia Commonwealth University, Richmond, VA. February, 2016.

Michelle Peace, Justin Poklis. Workshop—Vaping: What you need to know about electronic cigarettes and why you should care. American Academy of Forensic Science 68th Annual Scientific Meeting. Las Vegas, Nevada February 2016.

Michelle Peace, *Joseph Stone, Karen Butler.* NIJ Symposium —Characterization and Abuse of Electronic Cigarettes: The Efficacy of “Personal Vaporizers” as an Illicit Drug Delivery System. American Academy of Forensic Science 68th Annual Scientific Meeting. Las Vegas, Nevada February 2016.

Haley Mulder, Ivy Blue IV, Michelle Peace, Joseph McGee Turner. Young Forensic Scientist Forum, Bring Your Own Poster —A Hitchhiker's Guide to the Coil: A Comparison of Kanthal A-1 and Nichrome Wires in the Electronic Cigarette World. American Academy of Forensic Science 68th Annual Scientific Meeting. Las Vegas, Nevada February 2016.

Shelle Butler, Justin Poklis, Joseph McGee Turner, **Alphonse Poklis, Michelle Peace.** Young Forensic Scientist Forum, Bring Your Own Poster —A Tale of Two Coils: Characterization of the Rebuildable Dripping Atomizer for Electronic Cigarettes. American Academy of Forensic Science 68th Annual Scientific Meeting. Las Vegas, Nevada February 2016.

Madison Hytinen, April Solomon, Marilyn T. Miller, Tracey Dawson Cruz . Young Forensic Scientist Forum, Bring Your Own Poster —Methods for Obtaining STR-Quality Touch DNA from a Non-Porous Surface after Latent Print Collection. American Academy of Forensic Science 68th Annual Scientific Meeting. Las Vegas, Nevada February 2016.

Emely Morales. Young Forensic Scientist Forum, Bring Your Own Poster —Evaluation of SPEX Freezer Mill 6970EFM for DNA extraction and improved STR analysis for bones and teeth samples. American Academy of Forensic Science 68th Annual Scientific Meeting. Las Vegas, Nevada February 2016.

Shane Woolf, Vanessa Sufrin; Baneshwar Singh; Tal Simmons. Poster —The Six Little Pigs: Estimation of Long-Term Postmortem Interval (PMI) Based on Bacterial Community Succession in Porcine Remains. American Academy of Forensic Science 68th Annual Scientific Meeting. Las Vegas, Nevada February 2016.

**VCU Department of Forensic Science Faculty, Graduate and Undergraduate
Presentations and Publications**

Rebecca Thielen. Poster—The Analysis and Classification of Tire Rubber Deposits Using Pyrolysis-Gas Chromatography/Mass Spectrometry (Py-GC/MS). American Academy of Forensic Science 68th Annual Scientific Meeting. Las Vegas, Nevada February 2016.

Melissa Johnson, Chinyere Williams, Jeffery Hackett, Nikolas Lemos. Poster—Analysis of Opioids in Urine Specimens by Solid Phase Extraction (SPE) and Ultra Performance Liquid Chromatography/Tandem Mass Spectrometry (UPLC/MS/MS). American Academy of Forensic Science 68th Annual Scientific Meeting. Las Vegas, Nevada February 2016.

Joey Stone, Justin Poklis, **Michelle Peace**, **Alphonse Poklis**. Poster—The Rapid Identification of Synthetic Hallucinogens 25I-NBOMe and 2C-B Using DART®-MS. American Academy of Forensic Science 68th Annual Scientific Meeting. Las Vegas, Nevada February 2016.

Heather Birks, Ashley Cochran, Tyler Williams, Glen Jackson. Fire Debris and Explosives—The Surprising Effect of Temperature on the Weathering of Gasoline. American Academy of Forensic Science 68th Annual Scientific Meeting. Las Vegas, Nevada February 2016.

Jena Baldaino, Danica Ommen, Joshua Dettman, Raleigh Parrott II, Jack Hietpas, JoAnn Buscaglia. Fire Debris and Explosive—Characterization of Aluminum (Al) Powders in Explosives Utilizing Particle Micromorphometry. American Academy of Forensic Science 68th Annual Scientific Meeting. Las Vegas, Nevada February 2016.

Shane Woolf, **Tal Simmons**, **Baneshwar Singh**. Poster—No Fly Zone: Decomposition in the Absence of Insects. American Academy of Forensic Science 68th Annual Scientific Meeting. Las Vegas, Nevada February 2016.

Sarah Seashols Williams, Christopher Angevine, *Nicole Auka*, Joseph Reiner. Poster—Single Molecule Forensic DNA Analysis with Laser-Induced Nanopore Heating. American Academy of Forensic Science 68th Annual Scientific Meeting. Las Vegas, Nevada February 2016.

Megan Jackson, Kelly Meiklejohn, Jack Hietpas, Libby Stern, James Robertson. Poster—From Fragment Isolation to DNA Amplification: A Detailed Protocol for Using Plant and Insect Material in Forensics. American Academy of Forensic Science 68th Annual Scientific Meeting. Las Vegas, Nevada February 2016.

Christopher Ehrhardt, *Cristina Stanciu*, Kate Philpott, *Ye Jin Kwon*, *Eduardo E. Bustamante*, **Tracey Dawson Cruz**. No More Mixtures—Differentiation of Individual Contributors in Contact Epidermal Cell Mixtures Using Fluorescently Labeled Antibody Probes, High Resolution Microscopy, and Flow Cytometry. American Academy of Forensic Science 68th Annual Scientific Meeting. Las Vegas, Nevada February 2016.

**VCU Department of Forensic Science Faculty, Graduate and Undergraduate
Presentations and Publications**

Nancy Stokes, Cristina Stanciu, Christopher Ehrhardt, Susan Greenspoon. No More Mixtures—Cell Separation of Multiple Contributor Samples to Facilitate DNA Mixture Analysis. American Academy of Forensic Science 68th Annual Scientific Meeting. Las Vegas, Nevada February 2016.

Cristina Stanciu, Ye Jin Kwon, Sarah Ingram, Christopher Ehrhardt. No More Mixtures—Separation of Compromised Blood Mixtures Using Fluorescence-Activated Cell Sorting (FACS) for Single-Source Short Tandem Repeat (STR) Profiling. American Academy of Forensic Science 68th Annual Scientific Meeting. Las Vegas, Nevada February 2016

April Solomon, Madison Hytinen, Aryn M. McClain, Marilyn Miller, Tracey Dawson Cruz. No More Mixtures—Optimized Methods for Collection and Extraction of DNA From Archived Latent Fingerprints. American Academy of Forensic Science 68th Annual Scientific Meeting. Las Vegas, Nevada February 2016.

Kemper Gibson, Jordan Cox, Kimberly Jackson, James Lander, Tracey Dawson Cruz. New Advanced in DNA Processing B111—Development of a Microfluidic Differential Extraction Module and Refinement of Infrared (IR) -Mediated Short Tandem Repeat (STR) Amplification for a Rotation-Driven Microdevice. American Academy of Forensic Science 68th Annual Scientific Meeting. Las Vegas, Nevada February 2016.

Baneshwar Singh, Vanessa Sufrin, Tawni Crippen, Jeffery Tomberlin, Aaron Tarone, Jennifer Pechal, Eric Benbow. Insect and DNA—The Utility of Soil Eukaryotes During Human Decomposition and Their Potential Forensic Applications. American Academy of Forensic Science 68th Annual Scientific Meeting. Las Vegas, Nevada February 2016.

Sharon E. Zeller, Baneshwar Singh, Kyle Williams, Sudhir Sinha, Gina Murphy, Hiromi Brown, Daniel Wescott, Tracey Dawson Cruz. Poster—Utility of InnoTyper™ 21 in Analysis of Degraded Human DNA Recovered From Maggot Crop Contents. American Academy of Forensic Science 68th Annual Scientific Meeting. Las Vegas, Nevada February 2016.

Carolyn Lewis, Jamie Gentry, Chelsea Calloway, Nerissa Peace, Ariana Alborno, Samantha Fleming, Christina Hayes Nash, Zendra Zehner, Sarah Seashols Williams . Advances in Biological Screening—Developmental Validation of microRNAs for Body Fluid Identification. American Academy of Forensic Science 68th Annual Scientific Meeting. Las Vegas, Nevada February 2016.

Tal Simmons, Colin Moffatt, Ozgur Bulut, Natnipoon Rattananrungruang, Amanda Roe, Donald Siwek. Decomposition, Accumulated Degree Days and Seasonality—Around the World in Accumulated Degree Days. American Academy of Forensic Science 68th Annual Scientific Meeting. Las Vegas, Nevada February 2016.

**VCU Department of Forensic Science Faculty, Graduate and Undergraduate
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Tiffany Layne, *Zendra Zehner*, **Sarah Seashols Williams**. Advances in Biological Screening—An Evaluation of the Differential Stability of Nucleic Acids in Biological Fluids Compromised by Environmental Exposure. American Academy of Forensic Science 68th Annual Scientific Meeting. Las Vegas, Nevada February 2016.

Ehrhardt, C.J. Optical differentiation of epithelial cell populations in contact cell mixtures using flow cytometry. Oral presentation. American Academy of Forensic Sciences, Las Vegas NV. Accessible at F1000Research 2016, 5:197. February, 2016. doi:10.7490/f1000research.1111315.1

Hytinen, M., *Solomon, A.*, **Miller M.T.**, **Dawson Cruz, T.** Methods for Obtaining STR-Quality Touch DNA from a Non-Porous Surface after Latent Print Collection. VCU Poster Symposium For Undergraduate Research and Creativity, April 2016

Kemper Gibson. 3MT(R) Three Minute Thesis Competition. Presentation. Charlotte, NC. Spring 2016.

Baldaino, J. Characterization of Aluminum Powders in Explosives Utilizing Particle Micromorphometry. Presentation. Mid Atlantic Association of Forensic Science Meeting, Richmond, VA. May 2016.

Cox, J. Optimization and Integration of Infrared-Mediated Fast PCR Module onto a Novel Forensic Microdevice. Presentation. Mid Atlantic Association of Forensic Science Meeting, Richmond, VA. May 2016.

Lewis, C. Developmental Validation of a miRNA Panel for the Identification of Six Forensically Relevant Body Fluids. Presentation. Mid Atlantic Association of Forensic Science Meeting, Richmond, VA. May 2016.

Gibson, K. A Microdevice Module for Antibody Mediated Separation of Sexual Assault Cells on a Centrifugal Platform. Presentation. Mid Atlantic Association of Forensic Science Meeting, Richmond, VA. May 2016.

Solomon, A. Optimizing Traditional Methods for Sampling Extraction and STR Typing from Archived Latent Fingerprints. Presentation. Mid Atlantic Association of Forensic Science Meeting, Richmond, VA. May 2016.

Stokes, N. Cell Separation of Multiple Contributor Samples to Facilitate DNA Mixture Analysis. Presentation. Mid Atlantic Association of Forensic Science Meeting, Richmond, VA. May 2016.

McNew, L. A Field Test for Nicotine in Refill Formulations for Electronic Cigarettes, Presentation. Mid Atlantic Association of Forensic Science Meeting, Richmond, VA. May 2016.

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Mulder, H. The Hitchhiker's Guide to the Coil: A Comparison of Kanthal A-1 and Nichrome Wires in the Electronic Cigarette World. Presentation. Mid Atlantic Association of Forensic Science Meeting, Richmond, VA. May 2016.

Butler, S. Turning Over a New Leaf: Characterization and Analysis of Kratom E-liquids. Presentation. Mid Atlantic Association of Forensic Science Meeting, Richmond, VA. May 2016.

Peace, M. Why We Should Care About that Vapor Cloud: Developing a Model to Study the Use of Electric Cigarettes. Presentation. Mid Atlantic Association of Forensic Science Meeting, Richmond, VA. May 2016.

Gibson, K. A Microdevice Module for Antibody Mediated Separation of Sexual Assault Cells on a Centrifugal Platform. Presentation. Mid Atlantic Association of Forensic Science Meeting, Richmond, VA. May 2016.

Jordan Cox, Tracey Dawson Cruz, Teresa K. Sikes, Yiwen Ouyang, James P. Landers. Prototype Development of a Forensic Microdevice using Infrared-Mediated Heating and a Rotation-Driven Platform. Gordon Research Conference-Forensic Analysis of DNA, Waterville Valley, NH. June 2016.

Kemper K. Gibson, Jordan Cox, Kimberly Jackson, James Landers PhD, Tracey Dawson Cruz PhD. A Sexual Assault Microdevice Module for Antibody-Mediated Differential Lysis and Extraction on a Centrifugal Platform. Gordon Research Conference-Forensic Analysis of DNA, Waterville Valley, NH. June 2016.

Tiffany R. Layne, ZE Zehner, S Seashols-Williams. Differential Stability of Nucleic Acids in biological fluids compromised by environmental exposure. Gordon Research Conference-Forensic Analysis of DNA, Waterville Valley, NH. June 2016.

April D. Solomon, Madison Hytinen, Aryn McClain, Dr. Marilyn T. Miller, Dr. Tracey Dawson Cruz. Improved Methods for Retrieval and Extraction of DNA from Tape-Lifted, Paper-Backed Stored Archived Latent Fingerprints. Gordon Research Conference-Forensic Analysis of DNA, Waterville Valley, NH. June 2016.

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2015-2016 Publications:

Winters, K., Evans, M. The Effects of Burning and Mold Growth on the Chemical Composition of Firelog Fuels. *The Journal of Forensic Science*, 2016. doi 10.1111/1556-4029.13080

Peace, M.R., Baird, T.R., Smith, N., Wolf, C. E., Poklis, J.L., Poklis, A. Concentration of Nicotine and Glycols in 27 Electronic Cigarette Formulations. *Journal of Analytical Toxicology* (2016) doi: 10.1093/jat/bkw037

Connon CC, LeFebvre AK, Benjamin RC. Validation of Alternative Capillary Electrophoresis Detection of STRs using POP-6 Polymer and a 22cm Array on a 3130xl Genetic Analyzer. *Forensic Science International: Genetics* 2016; 22C: 113-127.

Connon CC, LeFebvre AK, Benjamin RC. Validation of Low Volume, Fast PCR Amplification of STR Loci for DNA Reference Samples. *Journal of Forensic, Legal & Investigative Sciences* 2016; 2:008.

Connon CC, LeFebvre AK, Benjamin RC. Assessment of Four Polymerases for Low Volume, Fast PCR Amplification of STR Loci for DNA Reference Samples. *Journal of Forensic, Legal & Investigative Sciences* 2016; 2:009.

Harrison, K. and **Simmons, T.** In press *Forensic Archaeology and Anthropology*. In: *From Crime Scene to Court*, Ed. P.C. White. Chapter 7. Cambridge: Royal Society of Chemistry.

Simmons, T. In press PMI estimation: an overview of techniques (Chapter 10) in *Taphonomy of Human Remains: Forensic Analysis of the Dead and Depositional Environment* (Eds) E.M.J. Schotsmans and N. Márquez-Grant & S. Forbes (editors). Wiley-Blackwell

Simmons, T, Goodburn, B and Singhrao, S 2016 Decision Tree Analysis as a Supplementary Tool to Enhance Histomorphological Differentiation when Distinguishing Human from Non-human Cranial Bone in both Burnt and Unburnt States: A feasibility study. *Medicine, Science and the Law* 2016, Vol. 56(1) 36–45

Reber, S and **Simmons, T** 2015 Interpreting Injury Mechanisms of Blunt Force Trauma from Butterfly Fracture Formation. *Journal of Forensic Sciences* 60(6):1401-1411

Lynch-Aird, J, Moffatt, C and **Simmons, T** 2015 Decomposition Rate and Pattern in Hanging Pigs. *Journal of Forensic Sciences* 60(5):1155-1163.

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Alt, K, Benz, M, Vach, W, **Simmons, T** and Goring-Morris, N 2015 Insights into the social structure of the PPNB site of Kfar HaHoresh, Israel, based on dental remains. PLoS ONE 10(9):e0134528. doi:10.1371/journal.pone.0134528, 16 September 2015

Card, A, Cross, P, Moffatt, C and **Simmons, T** 2015 The Effect of Clothing on the Rate of Decomposition and Diptera Colonization on Sus scrofa Carcasses. Journal of Forensic Sciences 60(4):979-982.

Wang, Congzhou; Zolotarskaya, Olga; Nair, Sithara; **Ehrhardt, C.J.** 2016. Ohman, Dennis; Wynne, Kenneth; Yadavalli, Vamsi. Real time observation of antimicrobial polycation effects on Escherichia coli: adapting the carpet model for membrane disruption to quaternary copolyoxetanes. Langmuir. In press (Accepted 3/6/16). Manuscript ID 1a-2015-04247b.R2.

Wang, C. **Ehrhardt, C.J.**, Yadavalli, V. 2016. Nanoscale imaging and hydrophobicity mapping of the antimicrobial effect of copper on bacterial surfaces. Micron. In press (Accepted 5/12/16). Manuscript ID JMIC-D-16-00049R1.

Stanciu, C.E., Philpott, M.K., *Kwon, Y.J.*, *Bustamante, E.E.*, **Ehrhardt, C.J.** 2015. Optical characterization of epidermal cells and their relationship to DNA recovery from touch samples. F1000Research, 4: 1360. doi:10.12688/f1000research.7385.1.

Wang, C., *Stanciu, C.E.*, **Ehrhardt, C.J.**, Yadavalli, V. 2016. Evaluation of whole cell fixation methods for the analysis of nanoscale surface features of Yersinia pestis KIM. Journal of Microscopy. In press (Accepted 1/22/16).

Kwon, Y.J., *Stanciu, C.E.*, Philpott, M.K., **Ehrhardt, C.J.** 2016. Flow cytometry analysis of epithelial cell populations from touch samples using the BD Influx flow cytometry platform. F1000 Research. 5:390: doi: 10.12688/f1000research.8338.1.

Stanciu, C.E., *Kwon, Y.J.*, **Ehrhardt, C.J.** 2016. Forward-scatter and side-scatter dataset for epithelial cells from touch samples analyzed by flow cytometry. Data in Brief. 6: 416-418. doi:10.1016/j.dib.2015.12.027.