Devin J. Swiner, PhD

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Professional Highlights

* Highly effective in collaborating with partner groups across Early Phase Development to enable drug product development
* Subject matter expert in mass spectrometry, including small molecule analysis in biological fluids and solid oral dosage forms
* Strong advocate for diversity, equity, inclusion, and justice; co-founded organizations externally (e.g., BlackInChem, 501 (c)(3)) and participated in DEIJ efforts within Merck (e.g., Rahway and Pharmaceutical Sciences D&I Teams); active member of NOBCChE (nationally and within the Northeast region)
* Strong commitment to talent recruiting and talent development efforts across Merck leading the Jackson State Recruitment Team

Education

**2021 PhD,** Analytical Chemistry, The Ohio State University, Columbus, OH

**2016 B.S,** Chemistry, University of Pittsburgh, Pittsburgh, PA

Professional Experience

**Senior Scientist**, Merck & Co., Inc, Rahway, NJ 2021- Present

*Small Molecule Analytical Research and Development (SMARD)*

* Represents SMARD on core teams, performing analytical characterization of new chemical entities including solubility, stability, and formulation development for preclinical species
* Performs innovative research in the fields of oral dosage forms for preclinical species, solid dispersions for solubility and bioavailability enhancement, and biorelevant fluids and dissolution methodology for preclinical species
* Co-leads a team of 15 scientists to drive departmental strategy and execution for the use of mass spectrometry across modalities to solve complex problems
* Leads a cross-functional team of scientists to design and implement recruitment strategies for Jackson State University students
* Active member of Rahway D&I team at Merck to increase retention of scientists of color in SMARD

**Graduate Researcher**, The Ohio State University, Columbus, OH 2016- 2021

***Advisor:*** *Dr. Abraham Badu-Tawiah*

* Developed and optimized an ionization source capable of analyzing and quantifying small molecules (e.g., cocaine, diazepam, fatty acids, metabolites, etc.) from various biological matrices with collaborators across Ohio State and Nationwide Children’s Hospital (Columbus, OH)
* Trained and mentored a team of junior scientists (high school, undergraduate, and graduate students) on the scientific method and chemical safety

**Intern,** Drug Enforcement Agency, Mid-Atlantic Laboratory, Largo, MDSU 2016

* Analyzed samples containing common drug adulterants to independently analyze via liquid chromatography- mass spectrometry (LC-MS), Fourier Transform- infrared spectroscopy (FT-IR), and capillary electrophoresis (CE)
* Generated daily reports discussing drug identification and research findings

**Undergraduate Researcher,** University of Pittsburgh, Pittsburgh, PA2014 to 2016

***Advisor:*** *Dr. Tara Meyer*

* Defined chemical properties for lactic and glycolic acid block co-polymers using various techniques such as Size Exclusion Chromatography, electrospinning, and mechanical testing for polymeric samples

Technical Skills

**Technical Skills**

* Solid oral dosage form development and characterization**:**
	+ HPLC/ UPLC (Waters and Agilent), Dissolution (USP I and II) and Disintegration, UV-Vis and Fluorescence, Water Activity, Content Uniformity
* Commercial mass spectrometers (Waters, Thermo Fisher, Agilent)
* Computer skills:
	+ Microsoft Office and SharePoint, Adobe Acrobat Professional, Empower (Waters Chromatography Software), ELN, Spotfire, EndNote, Zotero

Honors, Awards, and Fellowships

2021 Royal Society of Chemistry’s Inclusion and Diversity Prize

2020 Next Generation Innovator of the Year

2018 Susan M. Hartmann Mentorship and Leadership Award

2018 Encouraging Women into the Chemical Sciences Award

2017-2019 Conference Travel Grant (NOBCChE)

2016-2018 GAANN Fellowship

Selected Outreach and Service Activities

**#BlackinChem**, Co-Founder July 2020- 2021

* Planed, curated, advertised, and developed a global, community-based nonprofit (501 c3) to advocate for Black chemists at all stages of their careers
* Led a team of six (6) people in planning and executing professional development and social events
* Collaborated with several scientific organizations to obtain sponsorships
* Highlighted by several news outlets:
	+ **Nature Chemistry:** Pichon, A. Calling all Black chemists. Nat. Chem. 12, 977–979 (2020). <https://doi.org/10.1038/s41557-020-00571-4>
	+ **USA Today:** <https://www.usatoday.com/story/life/2020/08/04/blackinneuro-blackinchem-can-hashtags-help-black-scientists-build-community-spotlight-excellence/5541431002/>
	+ **Chemistry and Engineering News:** <https://cen.acs.org/content/cen/articles/98/i33/BlackinChem-breaks-down-barriers.html>
	+ **Forbes:** <https://www.forbes.com/sites/servicenow/2020/10/08/driving-innovation-with-simplicity/?sh=30339b79da42>

**Graduate Student Recruiter,** The Ohio State University AU 2017- Present

Department of Chemistry and Biochemistry

* Provided prospective students with information about the graduate chemistry programs along with experiences as a graduate student at the university at several national conferences
* Fostered relationships with prospective students interested in the chemistry program
* Held recruitment events for incoming chemistry graduate and post-baccalaureate students
* Participated in department-led orientation events for incoming students

**Breakfast of Science Champions** AU 2017- Present

***Event Summary:*** Yearly fall outreach event held by Ohio State University’s Department of Chemistry and Biochemistry to expose local middle school students to chemistry via experiments with several research groups.

* Coordinated with graduate and undergraduate students to execute chemistry experiments with middle school students
* Engaged with and taught students the fundamentals of the research lab’s chemistry experiment in an interactive format

Professional Affiliations

2021-Present, ***Professional Member***, National Organization for the Professional Advancement of Black Chemists and Chemical Engineers

2021-Present, ***Professional Member***, American Chemical Society

2021-Present, ***Professional Member***, American Association of Pharmaceutical Scientists

2019-2021, ***Chapter President,*** National Organization for the Professional Advancement of Black Chemists and Chemical Engineers, The Ohio State University

Publications and Patents

## Peer-Reviewed Journal Publications

**Swiner, D.J**., Osae, H., Durisek III, G.R., Badu-Tawiah, A. K. Reactive Thread Spray Mass Spectrometry for Localization of C=C Bonds in Free Fatty Acids: Applications for Obesity Diagnosis. Analytical Chemistry, **2022**, 94, 5 ,2358-2365. [10.1021/acs.analchem.1c03270](https://mydrive.merck.com/personal/swiner_merck_com/Documents/documents/Miscellaneous/CVs%20and%20Resumes/10.1021/acs.analchem.1c03270)

Jackson, S., Frey, B.S., Bates, M.N., **Swiner, D.J.,** Badu-Tawiah, A. K., Direct Differentiation of Whole Blood for Forensic Serology Analysis by Thread Spray Mass Spectrometry. Analyst, **2020**. <https://doi.org/10.1039/D0AN00857E>

**Swiner, D.J**., Durisek III, G.R., Osae, H., Badu-Tawiah, A. K. A Proof-of-Concept, Two-Tiered Approach for Ricin Detection Using Ambient Mass Spectrometry. RSC Adv., **2020**, 10, 17045-17049. [10.1039/D0RA03317K](file:///C%3A%5CUsers%5Cdswin%5CDocuments%5CResumes%20and%20CV%5C10.1039%5CD0RA03317K)

**Swiner, D. J.;** Jackson, S.; Burris, B. J.; Badu-Tawiah, A. K. Applications of Mass Spectrometry for Clinical Diagnostics: The Influence of Turnaround Time. Anal. Chem., **2020**, 92, 183-202.[doi.org/10.1021/acs.analchem.9b04901](file:///C%3A%5CUsers%5Cdswin%5CDocuments%5CResumes%20and%20CV%5Cdoi.org%5C10.1021%5Cacs.analchem.9b04901)

**Swiner, D. J**.; Jackson, S.; Durisek III, G. R.; Walsh, B. K.; Kouatli, Y.; Badu-Tawiah, A. K. Microsampling with Cotton Thread: Storage and Ultra-Sensitive Analysis by Thread Spray Mass Spectrometry. Anal. Chim. Act., **2019**, 1082, 98–105. [doi.org/10.1016/j.aca.2019.07.015](file:///C%3A%5CUsers%5Cdswin%5CDocuments%5CResumes%20and%20CV%5Cdoi.org%5C10.1016%5Cj.aca.2019.07.015)

Kulyk, D. S.; **Swiner, D. J.;** Sahraeian, T.; Wan, Q.; Badu-Tawiah, A. K. Reactive Olfaction Ambient Mass Spectrometry. Anal. Chem., **2019**, 10, 6790-6799. [doi.org/10.1021/acs.analchem.9b00857](file:///C%3A%5CUsers%5Cdswin%5CDocuments%5CResumes%20and%20CV%5Cdoi.org%5C10.1021%5Cacs.analchem.9b00857)

Jackson, S.; **Swiner, D. J**.; C. Capone, P.; Badu-Tawiah, A.K. Thread Spray Mass Spectrometry for Direct Analysis of Capsaicinoids in Pepper Products. Anal. Chim. Act., **2018**. doi: 10.1016/j.aca.2018.04.008

Washington, M.A..; **Swiner, D. J**.; Bell, K.R., Fedorchak, M.V., Little, S.R., Meyer, T.Y. The impact of monomer sequence and stereochemistry on the swelling and erosion of biodegradable poly(lactic-co-glycolic acid) matrices. Biomaterials, **2017**. doi: 10.1016/j.biomaterials.2016.11.037

## Patents

Badu-Tawiah, A.K.; **Swiner, D.** and Jackson, S. “Thread Spray Ambient Ionization” US Patent Application #62/827,395, Issued 04/01/2019

## Diversity and Inclusion-Related Publications

**Swiner, D.J.,** Jones, A., and Walker, A. Being #BlackinChem. Chemistry World, **August 7, 2020**. [https://www.chemistryworld.com/opinion/being-blackinchem/4012248.article#/](https://www.chemistryworld.com/opinion/being-blackinchem/4012248.article%23/)

Doumbia, B., Labastide, J.A, Reid, K., **Swiner, D.J.,** Taylor, A. M., and White, T. Turning isolation to inclusion. Chemistry and Engineering News, **2020**, 98, 34. <https://cen.acs.org/careers/diversity/Turning-isolation-inclusion/98/i34>

Selected Presentations and Invited Lectures

**Oral Presentations**

Swiner, D. J.; Jackson, S.; Durisek III, G. R.; Walsh, B. K.; Kouatli, Y.; Badu-Tawiah, A. K. “Microsampling with Cotton Threads via Ambient Mass Spectrometry,” National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) National Conference. (November 2019)

Swiner, D. J.; Jackson, S.; Durisek III, G. R.; Walsh, B. K.; Kouatli, Y.; Badu-Tawiah, A. K. “Hydrophobic Threads as Versatile Medium for Biofluid Sample Collection, Storage, and Direct Analysis by Mass Spectrometry,” National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) National Conference (September 2018).

**Poster Presentations**

Swiner, D.J., Osae, H., Durisek III, G.R., Badu-Tawiah, A. K “Quantification of Free Fatty Acid Isomers in Untreated Clinical Samples via Thread-based Atmospheric Pressure Chemical Ionization,” National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) National Conference (September 2020).

Swiner, D.J., Osae, H., Durisek III, G.R., Badu-Tawiah, A. K “Quantification of Free Fatty Acid Isomers in Untreated Clinical Samples via Thread-based Atmospheric Pressure Chemical Ionization,” American Society of Mass Spectrometry (ASMS) National Conference (June 2020).

Swiner, D. J.; Jackson, S.; Durisek III, G. R.; Walsh, B. K.; Kouatli, Y.; Badu-Tawiah, A. K. “Hydrophobic Threads as Versatile Medium for Biofluid Sample Collection, Storage, and Direct Analysis by Mass Spectrometry,” American Society of Mass Spectrometry (ASMS) National Conference (June 2018).

**Invited Oral Presentations**

Swiner, D.J. “The Road I Didn’t Know Existed: A Message from a Black Queer Woman”, Middle Atlantic Regional Meeting of the American Chemical Society (June 2022).

Swiner, D.J., Durisek III, G.R., Osae, H., Badu-Tawiah, A. K. “A proof-of-concept, two-tiered approach for ricin detection using ambient mass spectrometry”, Open Science, Virtual Oral Presentation (September 2020). <https://youtu.be/HBQwFEqS0-Q>

Swiner, D.J. “Devin, The Chemist: A Black Woman’s Journey through Chemistry”, Wittenberg University, Department of Chemistry (November 3, 2020).