

Department of Chemistry

Jonathan Ashby

Education/Research Experience

Ford Foundation Postdoctoral Fellow – 09/2015-08/2016, University of California, Davis, CA
NIH T32 Postdoctoral Fellow – 09/2014-08/2015, University of California, Davis, CA

Doctorate in Chemistry (Analytical) - 06/2014, University of California, Riverside, CA

Bachelor of Science in Chemistry - 06/2009, Trinity College, Hartford, CT

Teaching Experience

Bertha Phillips Rodger Assistant Professor of Chemistry, 08/2018 - current

MHC Fellow and Lecturer, Mount Holyoke College, South Hadley, MA, 08/2016 – 07/2018

Instructor of record for general chemistry (CHEM 101, CHEM 150), quantitative analysis (CHEM 223) and forensic chemistry (CHEM 321).

Teaching Assistant, University of California, Riverside, CA, 09/2009-06/2011, 09/2012-12/2012

Taught laboratory courses in general chemistry (CHEM 1A), introductory organic chemistry (CHEM 112A, 112C), and instrumental analysis (CHEM 125).

Supplemental Instruction Leader, Trinity College, 9/2007-12/2008

Utilized group-based learning to enhance student knowledge of material covered in lecture. Wrote mock exams and designed interactive review sessions.

Grants Awarded

2020 – Pittcon Undergraduate Analytical Research Program Award (\$9995), Society for Analytical Chemists of Pittsburgh

Project Title: Selection of structure-switching aptamers for usage in electrochemical biosensors

2020 – Pittsburgh Conference National Memorial Conference Grant (\$9665), Society for Analytical Chemists of Pittsburgh

Project Title: Electrochemical equipment for water quality measurements in interdisciplinary science courses.

2017-2018 – Faculty Research Support Grant (\$1800), Mount Holyoke College

Project Title: Mass spectrometry access and research supplies for protein-protein binding research

Fellowships Awarded

2016-2018 – Consortium for Faculty Diversity Fellowship, Mount Holyoke College
2016 – University of California President's Postdoctoral Fellowship (Fellowship offered, declined due to prior commitments)
2015-2016 – National Research Council Ford Foundation Postdoctoral Fellowship
2014-2015 – National Institutes of Health T32 Postdoctoral Training Fellowship (UC Davis, Oncogenic Signaling & Chromosome Biology)
2011-2014 – NSF Graduate Research Fellowship

Peer-Reviewed Publications

(*Co-first author, *Italics indicates undergraduate researcher*)

Cao, Sheng; Rodgers, JohnPatrick; Yeo, Jongchan, Anderson-Steele, Brittany; **Ashby, Jonathan**; David, Sheila. 2'-fluorinated hydantoins as chemical biology tools for base excision repair glycosylases. *ACS Chem. Biol.* **2020**, *15*, 915-924.

Yuen, Philip; Green, Sydnee; **Ashby, Jonathan**; Lay, Kori; Santra, Abishek; Chen, Xi; Horvath, Martin; David, Sheila. Targeting base excision repair glycosylases with DNA containing transition state mimics prepared via click chemistry. *ACS Chem. Biol.* **2019**, *14*, 27-36.

Fong, Miranda; Zhou, Weiying; Liu, Liang; Alonaga, Aileen; Chandra, Manasa; **Ashby, Jonathan**; Chow, Amy; O'Connor, Sean; Li, Sasha; Chin, Andrew; Somlo, George; Palomares, Melanie; Li, Zhuo; Tremblay, Jacob; Tsuyada, Akihiro; Sun, Guoqiang; Reid, Michael; Wu, Xiwei; Swiderski, Piotr; Ren, Xiubao; Shi, Yanhong; Kong, Mei; Zhong, Wenwan; Chen, Yuan; Wang, Shizen Emily. Breast-cancer-secreted miR-122 reprograms glucose metabolism in premetastatic niche to promote metathesis. *Nat. Cell Bio.* **2015**, *17*, 183-194

Ashby, Jonathan; Ligans, Erik; Tamsi, Michael; Zhong, Wenwan. High-throughput profiling of nanoparticle-protein interactions by fluorescamine labeling. *Anal. Chem.* **2015**, *87*, 2213-2219.

Ashby, Jonathan*; Flack, Kenneth*; Jimenez, Luis; Duan, Yaokai; *Kareem-Khatib, Abdel*; Somlo, George; Wang, Shizen Emily; Cui, Xinpeng; Zhong, Wenwan. Distribution profiling of circulating microRNAs in serum. *Anal. Chem.*, **2014**, *86*, 9343–9349.

Ashby, Jonathan; Pan, Songquin; Zhong, Wenwan. Size and surface functionalization of iron oxide nanoparticles influence the composition and dynamic nature of their protein corona. *ACS Appl. Mater. Interfaces*, **2014**, *6*, 15412–15419.

Ashby, Jonathan*; Schachermeyer, Samantha*; Duan, Yaokai; Jimenez, Luis; Zhong, Wenwan. Probing and quantifying DNA-protein interactions with asymmetrical flow field-flow fractionation. *J. Chrom. A.* **2014**, *1358*, 217-224.

Ashby, Jonathan; Schachermeyer, Samantha; Pan, Songquin; Zhong, Wenwan. Dissociation-based screening of nanoparticle-protein interactions via flow-field flow fractionation. *Anal. Chem.* **2013**, *85*, 7494-7501.

Young, Michael; *Liew, Erika*; **Ashby, Jonathan**; *McCoy, Kelsi*; Hooley, Richard. Spin state modulation of iron spin crossover complexes via hydrogen-bonding self-assembly. *Chem. Commun*, **2013**, *49*, 6331-6333.

Schachermeyer, Samantha; **Ashby, Jonathan**; Zhong, Wenwan. Aptamer-protein binding detected by asymmetric flow field flow fractionation. *J. Chrom. A.* **2013**, 1295, 107-13.

Schachermeyer, Samantha; **Ashby, Jonathan**; Kwon, MinJung; Zhong, Wenwan. Impact of carrier fluid composition on recovery of nanoparticles and proteins in flow field flow fractionation. *J. Chrom. A.* **2012**, 1264, 72-79.

Schachermeyer, Samantha*; **Ashby, Jonathan***; Zhong, Wenwan. Advancements in field flow fractionation for the analysis of biomolecules: instrument design, miniaturization, and hyphenation. *Anal. Bioanal. Chem.*, **2012**, 404, 1151-1158.

Lectures and Papers Delivered

Ashby, Jonathan. Flow field-flow fractionation based isolation of nucleic acid complexes. Amherst College. March 2018. Invited talk.

Ashby, Jonathan; Ligans, Erik; Tamsi, Michael; Zhong, Wenwan. Fluorescamine-based screening of protein-protein interactions. Academic Employment Initiative, American Chemical Society Fall meeting. August 2017. Poster.

Ashby, Jonathan. Probing the effects of nanoparticle physical properties on the nano-bio corona. Trinity College. February 2017. Invited talk.

Ashby, Jonathan; Cao, Sheng; Yeo, Jongchan; Conklin, Jonathan; David, Sheila. Affinity purification-mass spectrometry of NEIL1's isoforms from breast cancer cells. Conference of Ford Fellows. September 2015. Washington, DC. Poster.

Ashby, Jonathan; David, Sheila. Affinity purification-mass spectrometry of DNA glycosylases. T32 OSCB Spring Retreat, May 2015. Davis, CA. Talk.

Ashby, Jonathan; David, Sheila. Affinity purification-mass spectrometry of DNA glycosylases. UC Davis Postdoctoral Symposium, May 2015. Davis, CA. Talk.

Ashby, Jonathan; David, Sheila. Affinity purification of NEIL1 isoforms in breast cancer cell lines. Pittsburgh Conference. March 2015. New Orleans, LA. Talk.

Ashby, Jonathan; Zhong, Wenwan. Fluorescamine-based screening of nanoparticle-protein interactions for determining variability in nanoparticle physical parameters. NOBCChE AM41, September 2014. New Orleans, LA. Talk.

Zhong, Wenwan; **Ashby, Jonathan (presenter)**; Zeng, Shang. Using analytical tools to assess binding between nanomaterials and proteins. ACS 248th National Meeting, August 2014. San Francisco, CA. Talk.

Ashby, Jonathan; Ligans, Erik; Zhong, Wenwan. Fluorescamine-based screening of nanoparticle-protein interactions. 95th Annual AAAS Pacific Division Meeting, June 2014. Riverside, CA. Poster.

Ashby, Jonathan; Ligans, Erik; Zhong, Wenwan. Fluorescamine-based screening of nanoparticle-protein interactions. Pittsburgh Conference, March 2014. Chicago, IL. Poster.

Professional Organizations and Activities

2012 – Current: National Organization for the Advancement of Black Chemists and Chemical Engineers (NOBCChE)

2014-Current: NOBCChE National Meeting Planning Committee (NPC):

2020: NOBCChE NPC Past Chair (2020 Annual Meeting)

2019: NOBCChE NPC Chair (2019 Annual Meeting)

2015, 2016: NOBCChE Student Programs Subcommittee Chair

2014: NOBCChE Student Programs Subcommittee Member

2009 – Current: American Chemical Society

2019-Current: Reviewer, ACS Connecticut Valley Section Summer Undergraduate Research Fellowship applications

Institutional Service

Mount Holyoke College:

2020: Member, COVID-19 Testing Emergency Response Team

2018 – Current: Faculty co-advisor, STEMPOC

2018 – Current: Faculty advisor, MHC Chemistry and Biochemistry Club

2016 – Current: Member, Chemistry Instrumentation Working Group

University of California, Davis:

2015-2016: Member, UC Davis Graduate Council

2015-2016: Member, UC Davis Diversity and Inclusion Planning Committee

Graduate Students, Professional Students and Postdocs Working Group

2015-2016: Chair, UC Davis Postdoctoral Scholars Association

2014-2015: Secretary, UC Davis Postdoctoral Scholars Association

Professional Development

05/2019 – National Science Foundation Spring Grants Workshop, Los Angeles, CA

04/2018 – Being Human in STEM workshop. Co-hosted by Amherst College, Brown University and Yale University. New Haven, CT

08/2017 – Postdoc to Faculty Workshop. American Chemical Society. Washington, DC.

08/2017 – Cottrell Scholars Collaborative: New Faculty Workshop. American Chemical Society. Washington, DC

03/2017 – Introduction to Process-Oriented Guided-Inquiry Learning (POGIL). Springfield Technical Community College. Springfield, MA.

07/2016 – Junior Faculty and Postdoctoral Fellows Career Development Workshop. Minority Affairs Committee, American Society for Cell Biology. Chapel Hill, NC.

08/2015 – SciPhD Bootcamp: Core Professional Skills – Excelling in Team-based Organization. SciPhD. Berkeley, CA.