Ryan T. Kelly – Curriculum Vitae Updated 9/2024

Contact Information
Brigham Young University
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Provo, UT 84602
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Education
Ph.D. Chemistry, Brigham Young University, 2005 (Prof. Adam T. Woolley, advisor)
Dissertation title: "Polymer Microchips for Capillary Electrophoresis and Electric Field Gradient Focusing of Biomolecules"

B.S. Biochemistry, Brigham Young University, 2001

Professional Experience

2023–	Professor, Department of Chemistry and Biochemistry, Brigham Young University, Provo, UT
2020–	CEO and co-founder, MicrOmics Technologies, LLC, Spanish Fork, UT
2018–2023	Associate Professor, Department of Chemistry and Biochemistry, Brigham Young University, Provo, UT
2017–2018	Chief Technologist, EMSL, Pacific Northwest National Laboratory, Richland, WA. Primary responsibility for capability investments and technology development efforts for the US Department of Energy national scientific user facility
2017–2018	Technical Group Manager, Scientific and Computing Operations, EMSL, Pacific Northwest National Laboratory, Richland, WA. Managed a group of 45 scientists, engineers and IT professionals within EMSL
2014–2017	Capability Lead and Line Manager, Instrument Development and Microfabrication Laboratories, EMSL, Pacific Northwest National Laboratory, Richland, WA
2010–2018	Senior Research Scientist IV, EMSL, Pacific Northwest National Laboratory, Richland, WA
2007–2010	Senior Research Scientist III, Biological Sciences Division, Pacific Northwest National Laboratory, Richland, WA
2005–2007	Postdoctoral Researcher, Pacific Northwest National Laboratory, Richland, WA

Courses Taught
Chem 106 – General Chemistry II (2019, 2020, 2021, 2022 Summer, 2022 Fall, 2024)
Chem 629R – Analytical Separations (2019, 2021, 2024)
Chem 629R – Mass Spectrometry (2020, 2023)
Chem 692R – Current Topics (2020, 2021, 2022, 2023, 2024)
Chem 297R, Chem 497R and Chem 498R – Mentored Undergraduate Research (2019–2024)

Selected Awards and Fellowships

2023	University Award for Early Career Scholarship, Brigham Young University (Eligibility: All faculty who have been at the university at least 3 years but less then 10 and hold the rank of Assistant or Associate Professor)

2023	Award for Early Career Scholarship, College of Physical and Mathematical Sciences, Brigham Young University (Eligibility: same as for corresponding University-level award)
2020	Key Contributor Award, from Battelle for licensing of nanoPOTS technology to Biogen and Bristol Myers Squibb
2020	HTC Innovation Award, sponsored by LCGC Europe and presented at HTC-16, Ghent, Belgium
2019	Georges Guiochon Faculty Fellowship, presented at HPLC 2019, Milan, Italy
2017	Capability Development Award: NanoPOTS, Earth and Biological Sciences Directorate, PNNL
2017	Key Contributor Award, from Battelle for licensing of US Patents 7,491,341, 7,671,344 and 8,173,960 to Bruker
2016	Key Contributor Award, from Battelle for licensing of US Patents 7,671,344 and 8,173,960 to Bayspec, Inc.
2016	Key Contributor Award, from Battelle for licensing of US Patents 7,491,341, 7,671,344 and 8,173,960 to Ardara Technologies
2015	R&D 100 Award for "Subambient Pressure Ionization with Nanoelectrospray (SPIN) Source", R&D Magazine
2013	Exceptional Contribution Program (ECP) Award, PNNL
2012	Federal Laboratory Consortium Award for Excellence in Technology Transfer
2009	R&D 100 Award for "Ultrasensitive Electrospray Ionization Mass Spectrometry Source and Interface", R&D Magazine
2005	Outstanding Graduating Ph.D. Student Award, BYU Department of Chemistry and Biochemistry

Selected Professional Activities

- Early Career Board Member for the journal *Analytical Chemistry,* 1/2022 to present
- Affiliate Faculty, Simmons Center for Cancer Research, BYU, 2018 to present
- Panelist, NRC Research Associateship Programs, National Academies of Science, 2016 to present
- Editorial Board Member, *Scientific Reports,* Nature Publishing Group, 2015 to 2020.
- Reviewer for NIH, DOE, NSF and various international funding agencies and private foundations
- Reviewer for *Nature, Nature Methods, Nature Communications, Proceedings of the National Academy of Sciences of the United States of America, Angewandte Chemie, Chemical Science, Advanced Science, Analytical Chemistry, Lab on a Chip, Molecular and Cellular Proteomics, PLOS Biology, Analytical Chimica Acta, Journal of Visualized Experiments, Royal Society of Chemistry: Chemical Biology, Science Bulletin, Analytical and Bioanalytical Chemistry, Journal of Proteome Research, Science China Chemistry, Current Opinion in Chemical Biology, Analyst, Electrophoresis, Biomicrofluidics, Analytical Methods, International Journal of Mass Spectrometry, Scientific Reports, PLOS One, RSC Advances, Journal of Chromatography A, Microfluidics & Nanofluidics, Micromachines, Sensors, Sensors and Actuators B: Chemical, Review of Scientific Instruments, Talanta, Cancer Biomarkers* and *ACS Nano.*
- Elected councilor and chair of awards committee, American Electrophoresis Society,

2014 to 2017

Professional Meeting Organization

- Co-organizer and host of the 1st International Symposium on Single Cell Mass Spectrometry, Provo, UT, October 2023.
- Co-organizer of the ASMS Asilomar Conference, Pacific Grove, CA, October 2022. Topic: Single-Cell Mass Spectrometry.
- Co-chair and co-organizer ASMS Evening Workshop on Single-Cell Proteomics, Minneapolis, MN, June 2022.
- Organizer and host of US HUPO Evening Workshop on Single-Cell Proteomics, Charleston, SC, March 2022.
- Moderator and panelist for webinar hosted by US HUPO on the topic of The Future of Proteomics, January 2022.
- Cohost of the ASMS Evening Workshop on Single-Cell Proteomics: From Sample Preparation to Data Analysis, Philadelphia, PA, November 2021.
- Organizing Committee Member, 37th International Symposium on Microscale Separations and Bioanalysis (virtual), July 2021.
- Organizer and Chair of the "Advancements in miniaturized sample preparation techniques" session at the 37th International Symposium on Microscale Separations and Bioanalysis (virtual), July 2021.
- Chair of "Highlight Talks + Special Presentations" session, ASMS Asilomar 2019, Pacific Grove, CA, October 2019.
- Chair of "Proteomics – 1" session, HPLC 2019, Milan, Italy, June 2019.
- Organizer and chair of "Top Down Protein Analysis" session, ASMS 2019, Atlanta, GA, June 2019.
- Chair of "New approaches for analyzing single cells" session, 27th Molecular Med Tri-Con Symposium, San Francisco, CA, March 2019.
- Organizer and chair of "Spatially resolved molecular analyses of biological systems" symposium, Pittcon 2018, Orlando, FL, March 2018.
- Organizer and chair of "Microfluidics for Chemical and Biochemical Analyses" Symposium, NORM Regional ACS Meeting, Corvallis, OR, June 2017
- Organizer and chair of the "Label-free detection for microfluidic bioanalyses" symposium, Pittcon 2017, Chicago, IL, March 2017.
- Organizer of American Electrophoresis Society Symposium at SciX 2016, Minneapolis, MN, September 2016. (Responsible for 6 sessions)
- Organizer and Chair of "Emerging Platforms for Lab-on-a-Chip Analyses" Symposium, Pittcon 2016, Atlanta, GA, March 2016.
- Co-organizer of American Electrophoresis Society Symposium at SciX 2015, Providence, RI, October 2015. (Responsible for 6 sessions)
- Organizer and Chair or "AES Mid-Career Award Session Honoring Professor Adam Woolley", SciX, Providence, RI, October 2015.
- Session Chair – LC/MS – 'Omics and Others, Pittcon, New Orleans, LA, 2015
- Co-Chair of the "Biotechnology" session at the 2011 CMOS Emerging Technologies Meeting, Whistler, B.C., Canada, June 2011.
- Presider of the "Integrated Function Microchips" session at Pittcon 2010, Orlando, FL, March 2010.

- Presider of the "General Analytical II" session at the 63rd Northwest / 22nd Rocky Mountain Regional ACS meeting, Park City, UT, June 2008.
- Chair and organizer of the "Mass Spectrometry for Bioanalysis" symposium at the 2007 Federation of Analytical Chemistry and Spectroscopy Societies (FACSS) meeting held in Memphis, TN, October 2007.

Media Coverage

https://www.genomeweb.com/proteomics-protein-research/single-cell-proteomics-contending-declining-throughput-rising-costs

https://www.technologynetworks.com/analysis/blog/accelerating-single-cell-research-with-powerful-dispensing-380129

https://www.technologynetworks.com/proteomics/articles/trends-and-advancements-in-proteomics-377815

https://www.nature.com/articles/s41592-023-01781-7

https://www.nature.com/articles/d41586-021-02530-6

https://cen.acs.org/biological-chemistry/proteomics/single-cell-proteomics-mass-spec/99/i40?ref=search_results

https://business.utah.gov/news/micromics-technologies-wins-400000-contract-with-national-cancer-institute/

https://www.cellenion.com/scienion-and-cellenion-exclusively-license-pnnl-developed-tech-and-partner-to-accelerate-sample-processing-for-mass-spectrometry/

http://www.chromatographyonline.com/2020-htc-innovation-award-0

https://www.nature.com/webcasts/event/one-cell-at-a-time-single-cell-proteomics-becomes-a-reality/

https://www.genomeweb.com/proteomics-protein-research/pnnl-team-devises-high-throughput-single-cell-proteomics-workflow

https://www.scientificamerican.com/article/molecular-microscope-lets-scientists-peer-inside-single-cells/

https://www.technologynetworks.com/proteomics/articles/through-the-art-of-proteomics-scientists-paint-a-portrait-of-the-mouse-uterus-329812

https://phys.org/news/2020-01-body-speck.html

https://www.genomeweb.com/proteomics-protein-research/pnnl-team-develops-single-cell-proteomics-workflow

https://www.bioanalysis-zone.com/2018/11/21/nanopots-technology-developed-monitor-cancer-blood-sampling/

https://www.ksl.com/article/46434784/new-research-shows-cancer-treatment-might-not-have-to-involve-invasive-biopsies

https://www.redaccionmedica.com/secciones/hematologia-y-hemoterapia/una-nueva-tecnologia-para-mejorar-las-biopsias-liquidas-en-cancer-7027

https://www.geekwire.com/2018/scientists-use-tiny-tricks-pull-protein-data-single-human-cells/

https://www.sciencedaily.com/releases/2018/06/180618222440.htm

https://science.energy.gov/ber/highlights/2018/ber-2018-11-d/

Publications

Link to profile in Google Scholar:
https://scholar.google.com/citations?hl=en&user=99XltEIAAAAJ&view_op=list_works&sortby=pubdate

1. Lin, H.-J. L.; Webber, K. G. I.; Nwosu, A. J.; Kelly, R. T.* Review and practical guide for getting started with single-cell proteomics. *Proteomics.* **2024,** in press.
2. Webber, K. G. I.; Huang, S.; Lin, H.-J. L.; Hunter, T. L.; Tsang, J.; Jayatunge, D.; Andersen, J. L.; Lelly, R. T.* Gradient-Elution Nanoflow Liquid Chromatography without a Binary Pump: Smoothed Step Gradients Enable Reproducible, Sensitive, and Low-Cost Separations for Single-Cell Proteomics. *Mol. Cell. Proteomics.* **2024,** submitted.
3. Xie, X.; Truong, T.; Huang, S.; Johnston, S. M.; Hovanski, S.; Robinson, A.; Webber, K.; Lin, H.-J. L.; Mun, D.-G.; Pandey, A.; **Kelly, R. T.*** Multicolumn Nanoflow Liquid Chromatography with Accelerated Offline Gradient Generation for Robust and Sensitive Single-Cell Proteome Profiling. *Anal. Chem.* **2024,** 96, 10534–10542.
4. Peters-Clarke, T. M.; Liang, Y.; Mertz, K. L.; Lee, K. W.; Westphall, M. S.; **Kelly, R. T.**; Coon, J. J. Boosting the Sensitivity of Quantitative Single-Cell Proteomics with Activated Ion-Tandem Mass Tags (AI-TMT). *J. Proteome Res.* **2024,** DOI: 10.1021/acs.jproteome.4c00076.
5. Truong, T., Sanchez-Avila, X., Webber, K.G.I., Johnston, S.M., Kelly, R.T. (2024). Efficient and Sensitive Sample Preparation, Separations, and Data Acquisition for Label-Free Single-Cell Proteomics. In: Vegvari, A., Teppo, J., Zubarev, R.A. (eds) Mass Spectrometry Based Single Cell Proteomics. Methods in Molecular Biology, vol 2817. Humana, New York, NY. https://doi.org/10.1007/978-1-0716-3934-4_7
6. Webber, K. G. I.; Huang, S.; Truong, T.; Heninger, J. L.; Ivanov, A.; Kelly, R. T. Open-tubular trap columns: towards simple and robust liquid chromatography separations for single-cell proteomics, **2024,** *Molecular Omics,* **2024,** *20,* 184-191 (featured on cover).
7. Truong, T.; **Kelly, R. T.*** What's new in single-cell proteomics. *Current Opinion in Biotechnology,* **2024,** *86,* 103077.

8. Guise, A. J.; Misal, S. A.; Carson, R.; Chu, J.-H.; Boekweg, H.; Van Der Watt, D.; Welsh, N. C.; Truong, T.; Liang, Y.; Xu, S.; Benedetto, G.; Gagnon, J.; Payne, S. H.; Plowey, E. D.*; **Kelly, R. T.*** TDP-43-stratified single-cell proteomic profiling of postmortem human spinal motor neurons reveals protein dynamics in amyotrophic lateral sclerosis. *Cell Reports,* **2024,** *43,* 113636.
9. Sanchez-Avila, X.; Truong, T.; Xie, X.; Webber, K. G. I.; Johnston, S. M.; Lin, H.-J. L.; Axtell, N. B.; Puig-Sanvicens, V.; **Kelly, R. T.*** Easy and accessible workflow for label-free single-cell proteomics. *J. Am. Soc. Mass Spectrom.,* **2023,** *34,* 2374–2380.
10. Mun, D. G.; Bhat, F. A.; Ding, H.; Madden, B. J.; Natesampillai, S.; Badley, A. D.; Johnson, K. L.; **Kelly, R. T.**; Pandey, A. Optimizing single cell proteomics on a trapped ion mobility spectrometry for label-free experiments. *Analyst,* **2023,** *146,* 3466–3475.
11. Johnston, S.M.; Webber, K.G.I.; Xie, X.; Truong, T.; Nydegger, A.; Lin, H.-S.; Nwosu, A.; Zhu, Y.; **Kelly, R. T.*** Rapid, one-step sample processing for label-free single-cell proteomics. *J. Am. Soc. Mass Spectrom.,* **2023,** *34,* 1701–1707.
12. Truong, T.; Webber, K. G. I.; Johnston, S. M.; Boekweg, H.; Lindgren, C. M.; Liang, Y.; Nydegger, A.; Xie, X.; Tsang, T.-M.; Jayatunge, D. A. D. N.; Andersen, J. L.; Payne, S. H.; **Kelly, R. T.*** Data-Dependent Acquisition with Precursor Coisolation Improves Proteome Coverage and Measurement Throughput for Label-Free Single-Cell Proteomics, *Angew. Chemie Int. Ed.* **2023,** *62,* e202303415.
13. Liang, Y.; Truong, T.; Saxton, A. J.; Van Ry, P. M.; **Kelly, R. T.*** HyperSCP: Combining Isotopic and Isobaric Labeling for Higher Throughput Single-Cell Proteomics, *Anal. Chem.,* **2023,** 95, 8020–8027.
14. Eshghi, A.; Xie, X.; Hardie, D.; Chen, M. X.; Curtis, K.; Izaguirre, F.; Newman, R.; Zhu, Y.; **Kelly, R. T.**; Goodlett, D. R. Sample preparation methods for single cell targeted proteomics. *J. Proteome Res.,* **2023,** *22,* 1589–1602.
15. Gatto, L.; Aebersold, R.; Cox, J.; Demichev, V.; Derks, J.; Emmott, E., Franks, A. M.; Ivanov, A.; **Kelly, R. T.**; Khoury, L.; Leduc, A.; MacCoss, M.; Nemes, P.; Perlman, D.; Petelski, A.; Rose, C.; Schoof, E.; Van Eyk, J.; Vanderaa, C.; Yates, J.; Slavov, N. Initial recommendations for performing, benchmarking and reporting single-cell proteomics experiments. *Nature Methods,* **2023,** *20,* 375–386.
16. **Kelly, R. T.*** Let's get small: miniaturizing separations for single-cell analysis. *LCGC North America,* **2022,** *40,* 372–374 (perspective).
17. Nwosu, A. J.; Misal, S. A.; Truong, T.; Carson, R. G.; Webber, K. G. I.; Axtell, N. B.; Liang, Y.; Johnston, S. M.; Virgin, K. L.; Smith, E. G.; Thomas, G. V.; Morgan, T. K.; Price, J. C.; **Kelly, R. T.*** In-depth mass spectrometry-based proteomics of formalin-fixed, paraffin embedded tissues with a spatial resolution of 50–200 μm. *J. Proteome Res.,* **2022,** 21 (9), 2237-2245.
18. Kwon, Y.; Piehowski, P. D.; Zhao, R.; Sontag, R. L.; Moore, R. J.; Burnum-Johnson, K. E.; Smith, R. D.; Qian, W.; **Kelly, R. T.**; Zhu, Y. Hanging-droplet sample preparation improves sensitivity of spatial proteomics. *Lab Chip,* **2022,** *22,* 2869–2877.
19. Burnum-Johnson, K. E.; Conrads, T. P.; Drake, R. R.; Herr, A. E.; Iyengar, R.; **Kelly, R. T.**; Lundberg, E.; MacCoss, M. J.; Naba, A.; Nolan, G. P.; Pevzner, P. A.; Rodland, K. D.; Sechi, S.; Slavov, N.; Spraggins, J. N.; Van Eyk, J. E.; Vidal, M.; Vogel, C.; Walt, D. R.; Kelleher, N. E. New views of old proteins: clarifying the enigmatic proteome, *Mol. Cell. Proteomics,* **2022,** *21,* 100254.
20. Webber, K. G. I.; Truong, T.; Johnston, S. M.; Zapata, S. E.; Liang, Y; Davis, J. M.; Buttars, A. D.; Jones, H. E.; Mahoney, A. C.; Carson, R. H.; Nwosu, A. J.; Heninger, J. L.; Nordin, G. P.; Zhu, Y.; **Kelly, R. T.*** Label-Free Profiling of up to 200 Single-Cell Proteomes per Day

Using a Dual-Column Nanoflow Liquid Chromatography Platform. *Anal. Chem.* **2022,** *94,* 6017–6025.

21. Woo, J.; Clair, G. C.; Feng, S.; Williams, S. M.; Tsai, C.-F.; Moore, R. J.; Chrisler, W. B.; Smith, R. D.; **Kelly, R. T.**; Pasa-Tolic, L.; Ansong, C.; Zhu, Y. Three-dimensional feature matching improves coverage for single-cell proteomics based on ion mobility filtering, *Cell Systems.* **2022,** *13,* 426-434.E4.
22. Pace, C.; Simmons, J.; **Kelly, R. T.**; Muddiman, D. C. Multimodal Mass Spectrometry Imaging of Rat Brain using IR-MALDESI and nanoPOTS-LC-MS/MS, *J. Proteome Res.* **2022,** *21,* 713–720.
23. Misal, S.A., **Kelly, R.T.*** (2022). Single-Cell Proteome Profiling of Neuronal Cells. In: Sweedler, J.V., Eberwine, J., Fraser, S.E. (eds) Single Cell 'Omics of Neuronal Cells. Neuromethods, vol 184. Humana, New York, NY. (book chapter).
24. Boekweg, H.; Van Der Watt, D.; Truong, T.; Johnston, S. M.; Guise, A.; Plowey, E.; **Kelly, R. T.**; Payne, S. H. Features of peptide fragmentation spectra in single cell proteomics, *J. Proteome Res.* **2022,** *18,* 182–188.
25. Alfaro, J.; Bohlander, P.; Dai, M.; Filius, M.; Howard, C. J.; van Kooten, X.; Ohayon, S.; Pomorski, A.; Schmid, S.; Aksimentiev, A.; Anslyn, E. V.; Bedran, G.; Chan, C.; Chinappi, M.; Coyaud, E.; Dekker, C.; Dittmar, G.; Drachman, N.; Eelkema, R.; Goodlett, D.; Hentz, S.; Kalathiya, U.; Kelleher, N. L.; **Kelly, R. T.**; Kelman, Z.; Kim, S. H.; Kuster, B.; Larrea, D. R.; Lindsey, S.; Maglia, G.; Marcotte, E. M.; Marino, J.; Masselon, C.; Mayer, M.; Samaras, P.; Sarthak, K.; Sepiashvili, L.; Stein, D.; Wanunu, M.; Wilhelm, M.; Yin, P.; Meller, A.; Joo, C. The emerging landscape of single-molecule protein sequencing technologies, *Nature Methods,* **2021,** *18,* 604-617. https://www.nature.com/articles/s41592-021-01143-1
26. Liang, Y.; Acor, H.; McCown, M. A.; Nwosu, A. J.; Boekweg, H.; Axtell, N. B.; Truong, T.; Cong, Y.; Payne, S. H.; **Kelly, R. T.*** Fully automated sample processing and analysis workflow for low-input proteome profiling, *Anal. Chem.,* **2021,** *93,* 1658-1666.
27. Balasubramanian, V.; Purvine, S.; Liang, Y; **Kelly, R. T.**; Pasa-Tolic, L.; Chrisler, W.; Blumwald, E.; Stewart, C. N.; Zhu, Y.; Ahkami, A. Cell-type-specific Proteomics Analysis of Small Number of Plant Cells by Integrating Laser Capture Microdissection with a Nanodroplet Sample Processing Platform, *Current Protocols*, **2021,** *1,* e153. https://currentprotocols.onlinelibrary.wiley.com/doi/abs/10.1002/cpz1.153
28. Liang, Y.; Truong, T.; Zhu, Y.; **Kelly, R. T.*** *In-Depth Mass Spectrometry-Based Single-Cell and Nanoscale Proteomics*, in Leukemia Stem Cells: Methods and Protocols from Methods in Molecular Biology Series vol. 2125, Sanches-Garcia, I. and Cobaleda, C. Eds. SpringerNature: New York, 2021; pp. 159-179 (book chapter). https://link.springer.com/protocol/10.1007/978-1-0716-0810-4_10
29. Motamedchaboki, K.; Cong, Y.; Liang, Y.; Huguet, R.; Shen, Y.; Sun, X; Foster, G.; Lopez-Ferrer, D.; Huhmer, A. F.; Zhu, Y.; **Kelly, R. T.*** Ultra-sensitive LC-MS workflow for in-depth label-free analysis of single mammalian cells with nanodroplet sample processing, **2021,** Thermo Scientific Technical Note 65725. (Technical note). https://assets.thermofisher.com/TFS-Assets/CMD/Technical-Notes/tn-65725-lc-ms-single-mammalian-cells-nanodroplet-tn65725-en.pdf
30. Weke, K.; Singh, A. Uwugiaren, N.; Alfaro, J. A.; Wang, T.; Hupp, T. R.; Goodlett, D. R.; **Kelly, R. T.**; Zhu, Y.; Dapic, I. MicroPOTS analysis of small number of Barrett's oesophageal cells identifies proteomic changes after physiologic and radiation stress, *J. Proteome. Res.*, **2021,** *20,* 2195–2205. https://pubs.acs.org/doi/10.1021/acs.jproteome.0c00629

31. Boekweg, H.; Guise, A. J.; Plowey, E. D.; **Kelly, R. T.**; Payne, S. H. Calculating sample size requirements for temporal dynamics in single cell proteomics, *Molecular & Cellular Proteomics,* **2021,** *20,* 100085. https://www.sciencedirect.com/science/article/pii/S153594762100058X
32. Councill, E. E. A. W.; Axtell, N. B.; Truong, T.; Liang, Y.; Aposhian, A. L.; Webber, K. G. I.; Zhu, Y.; Cong, Y.; Carson, R. H.; **Kelly, R. T.*** Adapting a Low-Cost Commercial Platform for Low-Volume Liquid Handling, *SLAS Technol.,* **2021,** *26,* 311-319. https://journals.sagepub.com/doi/full/10.1177/2472630320973591
33. Cong, Y.; Motamedchaboki, K.; Misal, S. A.; Liang, Y.; Guise, A. J.; Truong, T.; Huguet, R.; Plowey, E. D.; Zhu, Y.; Lopez-Ferrer, D.; **Kelly, R. T.*** Ultrasensitive single-cell proteomics workflow identifies >1000 protein groups per mammalian cell, *Chem. Sci.,* **2021,** *12,* 1001-1006. https://pubs.rsc.org/en/content/articlelanding/2021/sc/d0sc03636f
34. **Kelly, R. T.*** Single-cell proteomics: progress and prospects, *Mol. Cell. Proteomics,* **2020,** *19,* 1739-1748. https://www.mcponline.org/article/S1535-9476(20)35153-7/fulltext
35. Islam, M.; Chen, B.; Spraggins, J. M.; **Kelly, R. T.**; Lao, K. S. Use of Single Cell -Omics Technologies to Study the Gastrointestinal Tract and Diseases, From Single Cell Identities to Patient Features, *Gastroenterology,* **2020,** *159,* 453–466. https://www.sciencedirect.com/science/article/pii/S0016508520306569?via%3Dihub
36. Williams, S. M.; Liyu, A. V.; Tsai, C.-F.; Moore, R. J.; Orton, D. J.; Chrisler, W. B.; Gaffrey, M. J.; Liu, T.; Smith, R. D.; **Kelly, R. T.**; Pasa-Tolic, L.; Zhu, Y. Automated coupling of nanodroplet sample preparation with liquid chromatography-mass spectrometry for high throughput single-cell proteomics, *Anal. Chem.,* **2020,** *92,* 10588-10596. https://pubs.acs.org/doi/full/10.1021/acs.analchem.0c01551
37. Xiang, P.; Zhu, Y.; Yang, Y.; Zhao, Z.; Williams, S. M.; Moore, R. J.; **Kelly, R. T.**; Smith, R. D.; Liu, S. Picoflow Liquid Chromatography-Mass Spectrometry for Ultrasensitive Bottom-up Proteomics Using a 2-µm-i.d. Open Tubular Column, *Anal. Chem.,* **2020,** *92,* 4711-4715. https://pubs.acs.org/doi/10.1021/acs.analchem.9b05639
38. Cong, Y.; Liang, Y.; Motamedchaboki, K.; Huguet, R.; Truong, T.; Zhao, R.; Shen, Y.; Lopez-Ferrer, D.; Zhu, Y.; **Kelly, R. T.*** Improved Single Cell Proteome Coverage Using Narrow-Bore Packed NanoLC Columns and Ultrasensitive Mass Spectrometry, *Anal. Chem.;* **2020,** *92,* 2665-2671. https://pubs.acs.org/doi/10.1021/acs.analchem.9b04631
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41. Yang, X.; Parashar, R.; Sund, N. L.; Plymale, A. E.; Scheibe, T. D.; Hu. D.; **Kelly, R. T.** On Modeling Ensemble Transport of Metal Reducing Motile Bacteria, *Sci. Rep.,* **2019,** 9, 14638. https://www.nature.com/articles/s41598-019-51271-0
42. Dou, M.; Clair, G.; Tsai, C.-F.; Xu, K.; Chrisler, W. B.; Sontag, R. L.; Zhao, R.; Moore, R. J.; Liu, T.; Pasa-Tolic, L.; Smith, R. D.; Shi, T.; Adkins, J. N.; Qian, W.-J.; **Kelly, R. T.**; Ansong, C.; Zhu, Y. High-Throughput Single Cell Proteomics Enabled by Multiplex Isobaric Labeling in a Nanodroplet Sample Preparation Platform. *Anal. Chem.* **2019,** *91,* 13119–13127. https://pubs.acs.org/doi/full/10.1021/acs.analchem.9b03349

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Patents

1. High throughput liquid chromotography using low flowrate, US20230266281A1.
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12. Kelly, R. T.; Page, J. S.; Tang, K.; Smith, R. D. Method of Making Tapered Capillary Tips with Constant Inner Diameters, US 7,491,342 B2 (Issued 02/17/2009).

Selected Presentations

1. **Ryan T. Kelly.** Improved Sample Preparation, Separations and Data Acquisition for Label-Free Single-Cell Proteomics. Presented online for Technology Networks Webinar Series, September 2023 (invited).
2. **Ryan T. Kelly.** Improved Sample Preparation, Separations and Data Acquisition for Label-Free Single-Cell Proteomics. Presented at Rocky Mountain Labs, Hamilton, MT, November 2023 (invited).
3. **Ryan T. Kelly.** Improving Sample Preparation, Separations and Data Acquisition for Single-Cell Proteomics. Presented at the Mayo Clinic, Rochester, NY, October 2023 (invited).
4. **Ryan T. Kelly.** Improved Sample Preparation, Separations and Data Acquisition for Label-Free Single-Cell Proteomics. Presented at Cornell University, Ithaca, NY, August 2023 (invited).
5. **Ryan T. Kelly.** Improved Sample Preparation, Separations and Data Acquisition for Label-Free Single-Cell Proteomics. Presented at European Single Cell Proteomics conference, Vienna, Austria, August 2023 (invited).
6. **Ryan T. Kelly.** Achieving Higher Measurement Throughput with TMT-Based Single-Cell Proteomics. Presented online at Thermo Fisher's TMT user meeting, September 2023 (Invited).
7. **Ryan T. Kelly.** Towards In-depth and label-free proteome profiling of hundreds of single cells. Presented at the IMAT PI meeting, Chicago, IL, December 2023 (Poster).
8. **Ryan T. Kelly.** Improved Preparation, Separations and Data Acquisition for Single-Cell Proteomics. Presented online at Janeira na Madeira, January 2023 (invited).

9. **Ryan T. Kelly.** Recent Progress in Spatial and Single-Cell Proteomics. Presented at the German Mass Spectrometry Society annual conference (DGMS), Dortmund, Germany May 2023 (invited).
10. **Ryan T. Kelly.** Increasing Sensitivity, Throughput and Accessibility for Single-Cell Proteomics. Presented at Single-Cell Proteomics Annual Conference, Boston, MA, June 2023 (invited).
11. **Ryan T. Kelly.** Recent Progress in Spatial and Single-Cell Proteomics. Presented at the University of Montreal, Montreal, Canada, May 2023 (invited).
12. **Ryan T. Kelly,** Xiaofeng Xie, Thy Truong, S. Madisyn Johnston, Kei G. I. Webber. NanoLC Platform for Single-Cell/Low-Input Proteome Profiling with 100% Duty Cycle. Presented at the ASMS annual conference, Houston, TX, June 2023 (poster).
13. **Ryan T. Kelly.** Recent Progress in Spatial and Single-Cell Proteomics. Presented at an evening workshop at the ASMS annual conference, Houston, TX, June 2023 (invited).
14. **Ryan T. Kelly.** Multicolumn LC combined with wide-window acquisition for rapid and in depth single cell proteomics. Presented at the ACS annual conference. Indianapolis, IN, March 2023 (invited).
15. **Ryan T. Kelly.** Recent Progress in Spatial and Single-Cell Proteomics. Presented at Iowa State University, Ames, IA, April 2023 (invited)
16. **Ryan T. Kelly.** Nanodroplet Processing for Single-Cell Proteomics. Presented at Pittcon, March 2023 (invited).
17. **Ryan T. Kelly.** Recent Progress in Spatial and Single-Cell Proteomics. Presented online to the US Food and Drug Administration, February 2023 (invited).
18. S. Madisyn Johnston, Xiaofeng Xie, Thy Truong, Kei G. I. Webber, Yiran Liang, Samuel H. Payne and **Ryan T. Kelly**. Online Enrichment of Low-Abundance Protein Biomarkers for Targeted LC-MS. Presented at the American Society for Mass Spectrometry annual conference, Houston, TX, June 2023 (poster).
19. Xiaofeng Xie, Thy Truong, Kei G. I. Webber, Yiran Liang, S. Madisyn Johnston, Samuel H. Payne and **Ryan T. Kelly**. Open Platform for Automated Backup, Processing and Visualization of MS-based Omics Data. Presented at the American Society for Mass Spectrometry annual conference, Houston, TX, June 2023 (poster).
20. Thy Truong, Ximena Sanchez-Avila, S. Madisyn Johnston, Xiaofeng Xie, Kei G. I. Webber, Nathaniel B. Axtell and **Ryan T. Kelly.** Data-Dependent Acquisition with Precursor Coisolation Improves Proteome Coverage and Measurement Throughput for Label-Free Single-Cell Proteomics. Presented at the American Society for Mass Spectrometry annual conference, Houston, TX, June 2023 (poster).
21. Ximena Sanchez-Avila, S. Madisyn Johnston, Xiaofeng Xie, Thy Truong, Kei G. I. Webber, Nathaniel B. Axtell and **Ryan T. Kelly.** Label-free single-cell proteomics made easy. Presented at the American Society for Mass Spectrometry annual conference, Houston, TX, June 2023 (poster).
22. Siqi Huang, Kei G.I. Webber, Thy Truong, Xiaofeng Xie and **Ryan T. Kelly.** A Novel Design for Cheap Robust Pre-Formed Step Gradient LC System. Presented at the American Society for Mass Spectrometry annual conference, Houston, TX, June 2023 (poster).
23. Kei G. I. Webber, Siqi Huang, Thy Truong and **Ryan T. Kelly.** Open Tubular Solid Phase Extraction Columns Enable Simpler and More Robust Nanoflow Liquid Chromatography for Single-Cell Proteomics. Presented at the American Society for Mass Spectrometry annual conference, Houston, TX, June 2023 (oral).

24. Abigail Robinson and **Ryan T. Kelly.** Single-cell host-pathogen interaction proteomics. Presented at the American Chemical Society annual conference, Indianapolis, IN, March 2023 (poster).
25. **Ryan T. Kelly.** Recent Advances in Single-Cell and Spatial Proteomics. Presented at the International Human Proteome Organization annual conference, Cancun, Mexico, December 2022 (invited).
26. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Kei Webber, Andikan Nwosu, S. Madisyn Johnston, Fletcher Smith and Jacob Heninger. Recent Progress and Next Steps for Single-Cell Proteomics. Presented at the Thermo Fisher-sponsored lunch seminar at the International Human Proteome Organization annual conference, Cancun, Mexico, December 2022 (invited).
27. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Xiaofeng Xie, Madi Johnston and Siqi Huang. Advanced separations and data acquisitions strategies for in-depth single-cell proteomics, Presented at Thermo Fisher User Meeting, Bethesda, MD, November 2022 (Invited).
28. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Xiaofeng Xie, Madi Johnston and Siqi Huang. Exploring Wide-Window Acquisition for Fast and In-Depth Single-Cell Proteomics. Presented at the ASMS Asilomar annual meeting, Pacific Grove, CA, October 2022 (invited).
29. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Xiaofeng Xie, Madi Johnston and Siqi Huang. Exploring Wide-Window Acquisition for Fast and In-Depth Single-Cell Proteomics. Presented at Thermo Fisher, San Jose , CA, October 2022 (invited).
30. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Xiaofeng Xie, Madi Johnston and Siqi Huang. Exploring Ion Mobility and Other Approaches for Single-Cell Proteomics. Presented at the Regional Meeting for the American Chemical Society, Las Vegas, NV, October 2022 (invited).
31. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Xiaofeng Xie, Madi Johnston and Siqi Huang. Increasing the coverage, throughput and accessibility of single-cell proteomics. Presented at the 14th International Symposium on Mass Spectrometry in the Health and Life Sciences. Cambridge, MA, August 2022 (opening plenary).
32. Yiran Liang, Thy Truong and Ryan T. Kelly. Recent advances in spatial and single-cell proteome profiling. Presented at the Markets and Markets 3rd Annual Conference on Single-Cell Analysis. Boston, MA, June 2022 (invited).
33. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Xiaofeng Xie, Madi Johnston and Siqi Huang. Miniaturized LC Separations for Single-Cell Proteomics. Presented at the 50th International Symposium on High Performance Liquid Phase Separations and Related Techniques. San Diego, CA, June 2022 (keynote).
34. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Xiaofeng Xie, Madi Johnston and Siqi Huang. Analytical Advances for Single-Cell Proteomics. Presented at the 5th Annual Conference on Single-Cell Proteomics. Boston, MA, June 2022 (invited)
35. Trenton M. Peters-Clarke, Kenneth W. Lee, Keaton L. Mertz, Yiran Liang, Michael S. Westphall, Ryan T. Kelly and Joshua J. Coon. Infrared Photoactivation Boosts Reporter Ion Yield in Quantitative Single-Cell Proteomics. Presented at the ASMS 70th Conference on Mass Spectrometry and Allied Topics. Minneapolis, MN, June 2022 (poster).
36. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Xiaofeng Xie, Madi Johnston and Siqi Huang. Separations for Single-Cell Proteomics. Presented at the ASMS 70th Conference on Mass Spectrometry and Allied Topics. Minneapolis, MN, June 2022 (invited).

37. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Xiaofeng Xie, Madi Johnston and Siqi Huang. Recent Advances in Single-Cell Proteomics. Presented at the Thermo Fisher-sponsored Breakfast Workshop at the ASMS 70th Conference on Mass Spectrometry and Allied Topics. Minneapolis, MN, June 2022 (invited).
38. Xiaofeng Xie, Thy Truong, Yiran Liang, Madi Johnston, Kei Webber, Hailey Jones, Ryan T. Kelly. Accelerated Liquid Chromatography Gradient Generation with Constant-Pressure Elution Improves Sensitivity and Throughput for Single-Cell Proteomics. Presented at the ASMS 70th Conference on Mass Spectrometry and Allied Topics. Minneapolis, MN, June 2022 (oral).
39. Thy Truong, Xiaofeng Xie, Yiran Liang, S. Madisyn Johnston, Ryan T. Kelly. Increasing Coverage for Single-Cell Proteomics using 20 µm i.d. NanoLC Columns and Broadband DDA. Presented at the ASMS 70th Conference on Mass Spectrometry and Allied Topics. Minneapolis, MN, June 2022 (poster).
40. Yiran Liang, Thy Truong, and Ryan T. Kelly. Ultrahigh throughput single-cell proteomics using 32-plex analyses. Presented at the ASMS 70th Conference on Mass Spectrometry and Allied Topics. Minneapolis, MN, June 2022 (poster).
41. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Xiaofeng Xie, Madi Johnston and Siqi Huang. Recent Advances in Single-Cell and Spatial Proteomics. Presented at the Johns Hopkins University School of Medicine Mass Spectrometry Day Symposium. Baltimore, MD, June 2022 (keynote).
42. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Xiaofeng Xie, Madi Johnston and Siqi Huang. Recent Advances in Single-Cell and Spatial Proteomics. Presented at Next-Generation Protein Analysis and Detection (4th edition). Ghent, Belgium, May 2022 (plenary).
43. **Ryan T. Kelly**. Recent Advances in Single-Cell and Spatial Proteomics. Presented virtually at Glaxo Smith Kline. May 2022 (invited)
44. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Kei Webber, Andikan Nwosu, S. Madisyn Johnston, Fletcher Smith and Jacob Heninger. Combining microfluidics with ultrasensitive LC/MS for single-cell proteomics. Rocky Mountain Section Annual Spring Meeting of the American Association for Clinical Chemistry, Salt Lake City, UT, March 2022 (invited).
45. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Kei Webber, Andikan Nwosu, S. Madisyn Johnston, Fletcher Smith and Jacob Heninger. Improving Sensitivity and Throughput for Single-Cell Proteomics. Presented at US HUPO, Charleston, SC, March 2022 (invited).
46. Kei G. I. Webber, Thy Truong, S. Madisyn Johnston, Sebastian E. Zapata, Yiran Liang, Jacob M. Davis, Alexander D. Buttars, Fletcher B. Smith, Hailey E. Jones, Arianna C. Mahoney, Richard H. Carson, Andikan J. Nwosu, Jacob L. Heninger, Andrey V. Liyu, Gregory P. Nordin, Ying Zhu, and Ryan T. Kelly. Multiplexed nanoLC System Produces a Label-Free Single-Cell Proteome Every 15 Minutes. Presented at US HUPO, Charleston, SC, March 2022 (poster).
47. Nathaniel Axtell, Xiaofeng Xie, Yiran Liang, Thy Truong, Andikan Nwosu, Lei Zhao, Jeffrey Whiteaker, Amanda Paulovich, Ryan T. Kelly. Reducing Sample Input Requirements for Parallel Reaction Monitoring of Affinity-Enriched Trace Biomarkers. Presented at US HUPO, Charleston, SC, March 2022 (poster).
48. **Ryan T. Kelly**, Javier Alfaro, Jennie Lill, Michael MacCoss, Miguel Ossandon, Magnus Palmblad and Chris Rose. The Future of Proteomics. Webinar hosted by US HUPO. Panel discussion moderated by Ryan Kelly, January 2022 (invited).
49. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Kei Webber, Andikan Nwosu, S. Madisyn Johnston, Fletcher Smith and Jacob Heninger. 1D and 2D separations for In-Depth

Single-Cell and Nanoscale Proteomics. Presented virtually at Pacifichem, December 2021 (invited).

50. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Kei Webber, Andikan Nwosu, S. Madisyn Johnston, Fletcher Smith and Jacob Heninger. Microfluidic nanodroplet sample processing platform for in-depth single-cell proteome profiling. Presented virtually at Pacifichem, December 2021 (invited).
51. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Kei Webber, Andikan Nwosu, S. Madisyn Johnston, Fletcher Smith and Jacob Heninger. Recent advances in high-throughput single-cell and spatial proteomics. Presented virtually at Front Line Genomics: Single cell and Spatial Omics ONLINE - Advanced single-cell technologies and optimising the workflow, December 2021 (Invited).
52. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Kei Webber, Andikan Nwosu, S. Madisyn Johnston, Fletcher Smith and Jacob Heninger. Single Cell Proteomics – Practical Considerations to Unlocking the Proteome One Cell at a Time. Presented at the 2nd annual Markets and Markets Virtual Conference on Single-Cell Analysis, November 2021 (Keynote).
53. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Kei Webber, Andikan Nwosu, S. Madisyn Johnston. Thermo-sponsored dinner workshop on single-cell proteomics, Presented at the 69th ASMS Annual Conference. Philadelphia, PA, November, 2021 (invited).
54. Kei Webber, Sebastian Zapata, Jacob Davis, Thy Truong, Fletcher Smith, Alex Buttars, Yiran Liang, Madi Johnston, Andikan Nwosu, Arianna Mahoney, Ximena Sanchez-Avila, Alejandro Brozalez, Richard Carson, Hailey Jones, Greg Nordin, Ying Zhu, Ryan Kelly. KATANA: A Label-Free Single-Cell Proteome Every 15 Minutes, Presented at the 69th ASMS Annual Conference. Philadelphia, PA, November, 2021 (poster).
55. Madi Johnston, Kei Webber, Yiran Liang, Richard Carson, Thy Truong, Andikan Nwosu, Xiaofeng Xie, Ryan Kelly. Optimization of Substrates for Single-Cell Proteomic Analyses Using NanoPOTS. Presented at the 69th ASMS Annual Conference. Philadelphia, PA, November, 2021 (poster).
56. Andikan Jones Nwosu, Santosh Misal, Thy Truong, Yiran Liang, Nathaniel Axtell, Richard Carson, Kei Webber, Ryan Kelly. In-depth Proteome profiling of formalin-fixed, paraffin-embedded tissues with high spatial resolution. Presented at the 69th ASMS Annual Conference. Philadelphia, PA, November, 2021 (poster).
57. Crystal L Pace, Jared Simmons, Ryan T. Kelly, Peggi M. Angel, Richard R. Drake, David C. Muddiman. Multimodal Mass Spectrometry Imaging using IR-MALDESI and nanoPOTS: From Neurotransmitters to Metabolites to Glycans to Proteins. Presented at the 69th ASMS Annual Conference. Philadelphia, PA, November, 2021 (poster).
58. Yiran Liang, Thy Truong, Ximena Sanchez-Avila, Ryan Kelly. Exploring reporter ion background noise in multiplexed single-cell proteomics. Presented at the 69th ASMS Annual Conference. Philadelphia, PA, November, 2021 (poster).
59. Azad Eshghi, Xiaofeng Xie, Darryl Hardie, Michael X. Chen, Rachael Newman, Kelly Curtis, Ying Zhu, Ryan T. Kelly, David R Goodlett, Isotope dilution quantitative single cell PRM using autoPOTS. Presented at the 69th ASMS Annual Conference. Philadelphia, PA, November, 2021 (poster).
60. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Kei Webber, Andikan Nwosu, S. Madisyn Johnston, Fletcher Smith and Jacob Heninger. Ultra-Low-Flow Liquid Chromatography for Single-Cell Analysis. Presented at Separation Science: The State of the Art. Virtual Symposium sponsored by LCGC. October, 2021 (invited).

61. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Kei Webber, Andikan Nwosu, S. Madisyn Johnston, Fletcher Smith and Jacob Heninger. Single-Cell Proteomics: Recent Advances and Promising New Directions. Presented online at the National Institute of Aging AD/ADRD Single Cell Proteomics Think Tank Meeting, September 2021 (invited).
62. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Kei Webber, Andikan Nwosu, S. Madisyn Johnston, Fletcher Smith and Jacob Heninger. Digging Deeper into the Single Cell Proteome. Presented online at the 4th Annual Conference on Single-Cell Proteomics. Boston, MA, August 2021 (invited).
63. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Kei Webber, Andikan Nwosu, S. Madisyn Johnston, Fletcher Smith and Jacob Heninger. Single Cell Proteomics: Progress and Prospects. Presented online to ThermoFisher, July 2021 (invited).
64. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Kei Webber, Andikan Nwosu, S. Madisyn Johnston, Fletcher Smith and Jacob Heninger. Improved nanoLC separations for single-cell proteomics, Presented at the 37th International Symposium on Microscale Separations and Bioanalysis (virtual), July 2021 (invited).
65. Kei Webber, Sebastian Zapata, Jacob Davis, Thy Truong, Fletcher Smith, Alex Buttars, Madi Johnston, Richard Carson, Ying Zhu, Greg Nordin, Ryan Kelly. Multiplexed nano-LC System for High-throughput Single-cell Proteomics, Presented at the 37th International Symposium on Microscale Separations and Bioanalysis (virtual), July 2021 (poster).
66. **Ryan T. Kelly**, Nathaniel Axtell, Yiran Liang, Andikan Nwosu, Thy Truong, Kei Webber, Sebastian Zapata and Ying Zhu. Recent advances in proteome profiling of single cells. Presented online at the AO Human Proteome Organization Annual Meeting, July 2021 (invited).
67. Azad Eshgi, Ryan T. Kelly, David R. Goodlett. From MHC Peptide Sequencing to Single Cells back to Edman Chemistry. Presented online at the AO Human Proteome Organization Annual Meeting, July 2021.
68. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Kei Webber, Andikan Nwosu, S. Madisyn Johnston, Fletcher Smith and Jacob Heninger. In-depth measurement of protein expression in single cells, Presented online at the University of Groningen, June 2021 (invited).
69. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Kei Webber, Andikan Nwosu, S. Madisyn Johnston, Fletcher Smith and Jacob Heninger. Recent Improvements to Sample Processing and Analysis for Single-Cell Proteomics, Presented online at the European Single Cell Proteomics Conference, April 2021 (invited)
70. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Kei Webber, Andikan Nwosu, S. Madisyn Johnston, Fletcher Smith and Jacob Heninger. In-depth and high-spatial-resolution proteome profiling of plant tissues. Presented online at the Plant Cell Atlas Spatial Proteomics Workshop, April 2021, (keynote speaker).
71. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Kei Webber, Andikan Nwosu, S. Madisyn Johnston, Fletcher Smith and Jacob Heninger. Single Cell Proteomics: Unlocking The Proteome One Cell at a Time. Presented online at the US Human Proteome Organization Annual Meeting, March 2021 (invited).
72. Yiran Liang, Hayden Acor, Michaela A. McCown, Andikan J. Nwosu, Hannah Boekweg, Nathaniel B. Axtell, Thy Truong, Yongzheng Cong, Samuel H. Payne, Ryan T. Kelly. Fully automated sample processing and analysis workflow for low-input label-free proteome profiling. Presented online at the US Human Proteome Organization Annual Meeting, March 2021 (poster).

73. Santosh A. Misal, Amanda J. Guise, Thy Truong, Yiran Liang, Samuel H. Payne, Edward D. Plowey, Ryan T. Kelly, In-depth proteome analysis of single-motor neurons from ALS and healthy human spinal tissues by nanoPOTS proteomic workflow. Presented online at the US Human Proteome Organization Annual Meeting, March 2021 (poster).
74. Richard H. Carson, Thy Truong, Yiran Liang, Ryan T. Kelly, Increased Single-Cell Proteome Coverage Using NanoPOTS and Data Independent Acquisition, Presented online at the US Human Proteome Organization Annual Meeting, March 2021 (poster).
75. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Kei Webber, Andikan Nwosu, S. Madisyn Johnston, Fletcher Smith and Jacob Heninger. Single Cell Proteomics: Technologies and Applications. Presented online at the London Proteomics Discussion Group, March 2021 (invited).
76. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Kei Webber, Andikan Nwosu, S. Madisyn Johnston, Fletcher Smith and Jacob Heninger. In-depth proteome mapping of tissues with single-cell resolution. Presented online at the Association for Biomedical Research Facilities Annual Meeting, March 2021 (invited).
77. **Ryan T. Kelly**, Yiran Liang, Thy Truong, Kei Webber, Andikan Nwosu, S. Madisyn Johnston, Fletcher Smith and Jacob Heninger. Single Cell Proteomics. Presented virtually at the University of Victoria, February 2021 (invited).
78. **Ryan T. Kelly** et al. Single Cell Proteomics – Practical Considerations to Unlocking The Proteome One Cell at a Time. Presented at the MarketsandMarkets Virtual Conference on Single-Cell Analysis, November 2020 (invited).
79. Ryan T. Kelly. Using Mass Spectrometry to Determine the Molecular Makeup of Single Cells. Department Seminar. BYU Department of Chemistry and Biochemistry, November 2020.
80. **Ryan T. Kelly**, Ying Zhu, Yiran Liang, Yongzheng Cong, Khatereh Motamedchaboki, Thy Truong, Enoch Councill, Santosh Misal, Daniel Lopez-Ferrer, Amanda Guise and Edward Plowey. Single Cell Proteomics – Practical Considerations to Unlocking The Proteome One Cell at a Time. Presented online at the Annual Meeting for the North American Vascular Biology Organization, October 2020 (invited).
81. **Ryan T. Kelly**, Ying Zhu, Yiran Liang, Yongzheng Cong, Khatereh Motamedchaboki, Thy Truong, Enoch Councill, Santosh Misal, Daniel Lopez-Ferrer, Amanda Guise and Edward Plowey. Single Cell Proteomics: Technologies and Applications. Presented online at the Association for Biomedical Research Foundation workshop on Single Cell 'Omics Technologies and Applications. October 2020 (invited).
82. **Ryan T. Kelly**, Ying Zhu, Yiran Liang, Yongzheng Cong, Khatereh Motamedchaboki, Thy Truong, Enoch Councill, Santosh Misal, Daniel Lopez-Ferrer, Amanda Guise and Edward Plowey. Digging deeper into the proteome of single cells. Presented online at EMSL Integration: Visualizing the Proteome. October 2020 (invited).
83. Yiran Liang, Hayden Acor, Michaela A. McCown, Andikan J. Nwosu, Hannah Boekweg, Nathaniel B. Axtell, Thy Truong, Yongzheng Cong, Samuel H. Payne, Ryan T. Kelly. Fully automated sample processing and analysis workflow for low-input label-free proteome profiling. Poster presented online at the 19th Human Proteome World Congress. October 2020.
84. Andikan J Nwosu, Yiran Liang, Thy Truong, Richard Carson, George Thomas and Ryan T. Kelly. Spatially Resolved Proteome Profiling of FFPE Tissues. Poster presented online at the 19th Human Proteome World Congress. October 2020.
85. Santosh A. Misal, Yongzheng Cong, Amanda J. Guise, Khatereh Motamedchaboki, Yiran Liang, Thy Truong, Romain Huguet, Daniel Lopez-Ferrer, Edward D. Plowey, Ying Zhu,

Edward D. Plowey, Ryan T. Kelly In-depth single-cell proteome profiling of neuronal subtypes from human spinal tissue. Poster presented online at the 19th Human Proteome World Congress. October 2020.

86. **Ryan T. Kelly**, Ying Zhu, Yiran Liang, Yongzheng Cong, Khatereh Motamedchaboki, Thy Truong, Enoch Councill, Santosh Misal, Daniel Lopez-Ferrer, Amanda Guise and Edward Plowey. Nanodroplet sample preparation enables in-depth single cell proteomics. Presented at Virtual Keystone Symposium: Proteomics in Cell Biology and Disease, September 2020 (invited).
87. Ryan T. Kelly, Ying Zhu, Yiran Liang, Yongzheng Cong, Khatereh Motamedchaboki, Thy Truong, Enoch Councill, Maowei Dou, Romain Huguet, Paul D. Piehowski, Wei-Jun Qian, Richard D. Smith, Daniel Lopez-Ferrer, Charles Ansong and Kristin E. Burnum-Johnson. Using Mass Spectrometry to Determine the Molecular Makeup of Single Cells. Presented virtually at Southern Utah University, September 2020.
88. **Ryan T. Kelly**, Ying Zhu, Yiran Liang, Yongzheng Cong, Khatereh Motamedchaboki, Thy Truong, Enoch Councill, Santosh Misal, Daniel Lopez-Ferrer, Amanda Guise and Edward Plowey . Going Deeper with Label-Free Single-Cell Proteomics. Presented online at 4th Annual Conference on Single-Cell Proteomics. August 2020 (invited).
89. **Ryan T. Kelly** Proteomics in high definition: in-depth tissue mapping with single-cell resolution. Webinar presented to AstraZeneca Pathology Grand Rounds Lecture Series, August 2020 (invited).
90. **Ryan T. Kelly** and Khatereh Motamedchaboki. Pushing the Limits of Proteomics. Webinar presented at ASMS 2020, June 2020 (invited).
91. Santosh A. Misal, Yongzheng Cong, Amanda Guise, Edward Plowey, Ryan T. Kelly Improved proteome coverage for single neurons by combining nanoPOTS with chemical labeling mass spectrometry. Presented online at ASMS, June 2020.
92. Yongzheng Cong, Khatereh Motamedchaboki, Santosh Misal, Yiran Liang, Amanda J. Guise, Thy Truong, Yufeng Shen, Romain Huguet, Daniel Lopez-Ferrer, Edward D. Plowey, Ying Zhu, and Ryan T. Kelly. Single-cell proteomic analysis combining nanoPOTS, nanoLC and FAIMSpro increases coverage to >1000 proteins/cell. Presented online at ASMS, June 2020 (poster).
93. Azad Eshghi, Darryl Hardie, Ying Zhu, Ryan T Kelly, David R Goodlett Single cell HbA1C measurement using isotope dilution mass spectrometry to determine erythrocyte age. Presented online at ASMS, June 2020 (poster).
94. Jongmin Woo, Geremy C. Clair, Chia-Feng Tsai, Sarah M. Williams, Ronald J. Moore, William B. Chrisler, Tao Liu, Richard D. Smith, Ryan T. Kelly, Ljiljana Pasa-Tolic, Charles Ansong, Ying Zhu. High-field asymmetric waveform ion mobility spectrometry improves the depth and throughput of single-cell proteomics. Presented online at ASMS, June 2020 (poster).
95. Yiran Liang, Hayden Acor, Michaela A. McCown, Andikan J. Nwosu, Hannah Boekweg, Nathaniel B. Axtell, Thy Truong, Yongzheng Cong, Samuel H. Payne, Ryan T. Kelly. Automated preparation of nanoscale and single cell proteomic samples by adapting low-cost liquid handling platforms for nanoliter pipetting. Presented online at presented ASMS, June 2020 (poster).
96. **Ryan T. Kelly**, Ying Zhu, Yiran Liang, Yongzheng Cong, Khatereh Motamedchaboki, Thy Truong, Enoch Councill, Maowei Dou, Romain Huguet, Paul D. Piehowski, Wei-Jun Qian, Richard D. Smith, Daniel Lopez-Ferrer, Charles Ansong and Kristin E. Burnum-Johnson. One Cell at a Time: Single-Cell Proteomics Becomes a Reality. Webinar presented at Thermo Fisher-sponsored vLC-MS meeting, May 2020 (invited).

97. **Ryan T. Kelly**, Ying Zhu, Yiran Liang, Yongzheng Cong, Khatereh Motamedchaboki, Thy Truong, Enoch Councill, Maowei Dou, Romain Huguet, Paul D. Piehowski, Wei-Jun Qian, Richard D. Smith, Daniel Lopez-Ferrer, Charles Ansong and Kristin E. Burnum-Johnson. In-depth, High-resolution Proteome Profiling of Tissues using Microfluidic Sample Preparation and Ultrasensitive LC-MS. Presented at the Pittcon 2020, Chicago, IL, Mar. 2020 (invited).
98. **Ryan T. Kelly**, Ying Zhu, Yiran Liang, Yongzheng Cong, Khatereh Motamedchaboki, Thy Truong, Enoch Councill, Maowei Dou, Aran Paulus, Paul D. Piehowski, Rui Zhao, Wei-Jun Qian, Richard D. Smith, Daniel Lopez-Ferrer, Kristin E. Burnum-Johnson and Charles Ansong. One Cell at a Time: Sample Processing and Analysis Platform for In-Depth Single Cell Proteomics. Presented at the 30th Hot Spring Harbor International Symposium, Fukuoka, Japan, Feb. 2020 (invited).
99. **Ryan T. Kelly**, Ying Zhu, Yiran Liang, Yongzheng Cong, Khatereh Motamedchaboki, Thy Truong, Enoch Councill, Maowei Dou, Aran Paulus, Paul D. Piehowski, Rui Zhao, Wei-Jun Qian, Richard D. Smith, Daniel Lopez-Ferrer, Kristin E. Burnum-Johnson and Charles Ansong. 1D and 2D Separations for In-Depth Single-Cell and Nanoscale Proteomics. Presented at HTC-16, Ghent, Belgium, Jan. 2020 (plenary).
100. **Ryan T. Kelly**, Ying Zhu, Yiran Liang, Yongzheng Cong, Khatereh Motamedchaboki, Thy Truong, Enoch Councill, Maowei Dou, Aran Paulus, Paul D. Piehowski, Rui Zhao, Wei-Jun Qian, Richard D. Smith, Daniel Lopez-Ferrer, Kristin E. Burnum-Johnson and Charles Ansong. One Cell at a Time: Single-Cell Proteomics Becomes a Reality. Presented as a Nature Webcast: www.nature.com/webcasts/event/one-cell-at-a-time-single-cell-proteomics-becomes-a-reality/ Dec. 2019. (Invited, Sponsored by ThermoFisher).
101. **Ryan T. Kelly**, Ying Zhu, Yiran Liang, Yongzheng Cong, Khatereh Motamedchaboki, Thy Truong, Enoch Councill, Maowei Dou, Aran Paulus, Paul D. Piehowski, Rui Zhao, Wei-Jun Qian, Richard D. Smith, Daniel Lopez-Ferrer, Kristin E. Burnum-Johnson and Charles Ansong. Nanodroplet sample processing and ultrasensitive LC-MS for single-cell proteomics. Presented at METRIC Fall 2019 Mass Spectrometry Symposium, Raleigh, NC, Nov. 2019 (invited).
102. **Ryan T. Kelly**, Ying Zhu, Yiran Liang, Yongzheng Cong, Khatereh Motamedchaboki, Thy Truong, Enoch Councill, Maowei Dou, Aran Paulus, Paul D. Piehowski, Rui Zhao, Wei-Jun Qian, Richard D. Smith, Daniel Lopez-Ferrer, Kristin E. Burnum-Johnson and Charles Ansong. Mapping Protein Expression Across Tissues with "High Spatial Resolution". Presented at ASMS Asilomar, Pacific Grove, CA, October 2019 (invited).
103. **Ryan T. Kelly**, Ying Zhu, Yiran Liang, Yongzheng Cong, Khatereh Motamedchaboki, Thy Truong, Enoch Councill, Maowei Dou, Aran Paulus, Paul D. Piehowski, Rui Zhao, Wei-Jun Qian, Richard D. Smith, Daniel Lopez-Ferrer, Kristin E. Burnum-Johnson and Charles Ansong. In-depth proteome profiling of single mammalian cells using microfluidic sample preparation and ultrasensitive LC-MS. Presented at the First European Single Cell Proteomics Conference, Vienna, Austria, August 2019 (invited).
104. **Ryan T. Kelly**, Yongzheng Cong, Enoch Councill, Maowei Dou, Khatereh Motamedchaboki, Yiran Liang, Thy Truong, Yufeng Shen, Romain Huguet, Daniel Lopez-Ferrer and Ying Zhu. Combining laser microdissection with nanoPOTS sample preparation for high-resolution profiling of protein expression across tissues. Presented at the Land o' Lakes Bioanalytical Conference, Madison WI, July 2019 (invited).

105. **Ryan T. Kelly**, Yongzheng Cong, Enoch Councill, Maowei Dou, Khatereh Motamedchaboki, Yiran Liang, Thy Truong, Yufeng Shen, Romain Huguet, Daniel Lopez-Ferrer and Ying Zhu. In-Depth Proteome Profiling of Single Mammalian Cells by Nanodroplet Sample Processing and Ultrasensitive LC-MS. Presented at the University of Wisconsin at Madison, July 2019 (invited).
106. **Ryan T. Kelly**, Yongzheng Cong, Maowei Dou, Khatereh Motamedchaboki, Yiran Liang, Thy Truong, Yufeng Shen, Romain Huguet, Daniel Lopez-Ferrer and Ying Zhu In-Depth Proteome Profiling of Single Mammalian Cells Using Microfluidic Sample Preparation and Ultrasensitive LC-MS. Presented at HPLC 2019, Milan, Italy, June 2019 (invited).
107. Yongzheng Cong, Maowei Dou, Khatereh Motamedchaboki, Yiran Liang, Thy Truong, Yufeng Shen, Romain Huguet, Daniel Lopez-Ferrer, Ying Zhu, Ryan T. Kelly. In-Depth Single Cell Proteomics Using Nanodroplet Sample Processing, Ultra-Low-Flow NanoLC and Next-Generation Tribrid MS. Presented at ASMS 2019, Atlanta, GA, June 2019 (oral).
108. Maowei Dou, Geremy Clair, Khatereh Motamed, Chia-Feng Tsai, Kerui Xu, William B. Chrisler, Ryan L. Sontag, Rui Zhao, Ronald J. Moore, Tao Liu, Daniel Lopez-Ferrer, Wei-Jun Qian, Richard D. Smith, Tujin Shi, Charles Ansong, Ryan T. Kelly, Ying Zhu. High-Throughput Single Cell Proteomics Enabled by Multiplexed Isobaric Labeling in a Nanodroplet Sample Processing Platform. Presented at ASMS 2019, Atlanta, GA, June 2019 (poster).
109. Yiran Liang, Jennifer Podolak, Yongzheng Cong, Khatereh Motamedchaboki, Daniel Lopez-Ferrer, George V. Thomas, Ying Zhu, Ryan T. Kelly. Proteome Profiling of Single Spiked Circulating Tumor Cells Isolated from Whole Blood. Presented at ASMS 2019, Atlanta, GA, June 2019 (poster).
110. Ryan T. Kelly. Single Cell Proteomics Enabled by Microfluidic Nanodroplet Sample Processing and Ultrasensitive NanoLC-MS. Presented at the International Symposium on Capillary Chromatography, Fort Worth, TX, May 2019 (oral).
111. **Ryan T. Kelly**. In-Depth Proteome Profiling of Single Mammalian Cells by Nanodroplet Sample Processing and Ultrasensitive LC-MS, Presented at ThermoFisher, San Jose, CA, May 2019 (invited).
112. **Ryan T. Kelly**, Ying Zhu, Maowei Dou, Yiran Liang, Yongzheng Cong, Paul Piehowski, Kristin Burnum-Johnson, Richard D. Smith, Charles Ansong and Wei-Jun Qian. In-Depth Proteome Profiling of Single Mammalian Cells by Nanodroplet Sample Processing and Ultrasensitive LC-MS. Presented at the American Chemical Society National Meeting, Orlando, FL, April 2019 (invited)
113. **Ryan T. Kelly**, Ying Zhu, Maowei Dou, Yiran Liang, Yongzheng Cong, Paul Piehowski, Kristin Burnum-Johnson, Charles Ansong and Wei-Jun Qian. Single Cell Proteome Mapping of Tissue Heterogeneity using nanoPOTS and Ultrasensitive LC-MS. Presented at Molecular Med Tri-Con, San Francisco, CA, March 2019 (invited).
114. **Ryan T. Kelly**, Ying Zhu, Maowei Dou, Yiran Liang, Yongzheng Cong, Paul Piehowski, Kristin Burnum-Johnson, Charles Ansong and Wei-Jun Qian. Mass Spectrometry-Based Proteomic Analysis of Single Mammalian Cells. Presented at the Association of Biomolecular Research Facilities Annual Meeting, San Antonio, TX, March 2019 (invited).
115. **Ryan T. Kelly**, Ying Zhu, Maowei Dou, Yiran Liang, Paul Piehowski, Kristin Burnum Johnson, Richard D. Smith, Charles Ansong, Wei-Jun Qian. In-Depth Proteome

Profiling of Single Cells using Nanodroplet Sample Processing and Ultrasensitive LC-MS. Presented at Ningbo University, Ningbo, China, December 2018 (invited).

116. **Ryan T. Kelly**, Ying Zhu, Maowei Dou, Yiran Liang, Paul Piehowski, Kristin Burnum Johnson, Richard D. Smith, Charles Ansong, Wei-Jun Qian. In-Depth Proteome Profiling of Single Cells using Nanodroplet Sample Processing and Ultrasensitive LC-MS. Presented at Dalian Institute for Chemical Physics, Dalian, China, December 2018 (invited).
117. **Kelly, R. T.** In-Depth Proteome Mapping of the Tumor Microenvironment with Single-Cell Resolution. Presented at the 19th Annual Innovative Molecular Analysis Technologies Principal Investigators Meeting, Washington, D.C., November 2018 (invited).
118. Kelly, R. T. Using Mass Spectrometry to Gain a Molecular-Level Understanding of Living Systems. Presented at Dixie State University, October 2018.
119. Kelly, R. T. Using Mass Spectrometry to Gain a Molecular-Level Understanding of Living Systems. Presented at Southern Utah University, October 2018.
120. Kelly, R. T. Using Mass Spectrometry to Gain a Molecular-Level Understanding of Living Systems. Presented at Weber State University, Ogden, UT September 2018.
121. **Kelly, R. T.**; Zhu, Y.; Dou, M.; Piehowski, P. D.; Burnum-Johnson, K. E.; Liang, Y.; Qian, W.-J.; Smith, R. D.; Zhao, R.; Shen, Y.; Moore, R. J.; Clair, G.; Ansong, C. In-Depth Proteome Profiling of Single Islets and Single Cells. Presented at the Islet Biology Workshop at Vanderbilt, Nashville, TN, September 2018 (invited).
122. Dou, M.; Zhu, Y.; Liyu, A.; Liang, Y.; Chen, J.; Piehowski, P. D.; Xu, K.; Zhao, R. J.; Atkinson, M. A.; Mathews, C. E.; Qian, W.-J. and Kelly, R. T. Nanowell-Mediated Two-Dimensional Liquid Chromatography Enables Deep Proteome Profiling of <1000 Mammalian Cells. Presented at Cascadia Proteomics Conference, Seattle, WA, July, 2018.
123. Kelly, R. T.; Zhu, Y.; Dou, M.; Xu, K.; Liang, Y.; Piehowski, P. D.; Zhao, R.; Moore, R. J.; Qian, W.-J. Microfluidic Nanodroplet Sample Processing Coupled to Ultrasensitive LC-MS Enables In-Depth Proteome Analysis of Single Cells. Presented at Canadian Society for Chemistry, Edmonton, Canada, May, 2018 (invited).
124. Zhu, Y.; Dou, M.; Liyu, A.; Liang, Y.; Chen, J.; Piehowski, P. D.; Xu, K.; Zhao, R. J.; Atkinson, M. A.; Mathews, C. E.; Qian, W.-J. and Kelly, R. T. Dou, M.; Single Cell Proteome Mapping of Tissue Heterogeneity Enabled by Microfluidic Nanoliter Sample Processing and Ultrasensitive LC-MS. Presented at Single Cell Proteomics Conference, Boston, MA, May, 2018 (oral).
125. Ryan Kelly, Ying Zhu, Maowei Dou, Paul Piehowski, Kristin Burnum-Johnson, Yiran Liang, Wei-Jun Qian, Dick Smith, Rui Zhao, Yufeng Shen, Ron Moore, Geremy Clair, Charles Ansong. Microfluidic Nanodroplet Sample Processing Coupled to Ultrasensitive LC-MS Enables Single Cell Proteomics and High Resolution Proteome Mapping. Presented at ASMS, San Diego, CA, May, 2018 (oral).
126. Xu, Kerui; Zhu, Y.; Liang, Y.; Dou, M.; Piehowski, P. D.; Zhao, R.; Moore, R. J.; Schwarz, K. C.; Kelly, R. T. Droplet-Based Benchtop Sample Processing Workflow Enables In-Depth Proteome Profiling of <100 Mammalian Cells, Presented at ASMS, San Diego, CA, May, 2018 (poster)
127. Dou, M.; Zhu, Y.; Liyu, A.; Liang, Y.; Chen, J.; Piehowski, P. D.; Xu, K.; Zhao, R. J.; Atkinson, M. A.; Mathews, C. E.; Qian, W.-J. and Kelly, R. T. Nanowell-Mediated Two-Dimensional Liquid Chromatography Enables Deep Proteome Profiling of <1000 Mammalian Cells. Presented at ASMS, San Diego, CA, May, 2018 (poster).

128. Liang, Y.; Zhu, Y.; Hixson, K. K.; Dou, M.; Xu, K.; Chu, R. K.; Chrisler, W. B.; Zhao, R. J. and Kelly, R. T. Microfluidic Nanoliter Sample Preparation Enables Spatially-resolved Proteome Profiling of <200 Plant Cells. Presented at ASMS, San Diego, CA, May, 2018 (poster).
129. Zhu, Y.; Dou, M.; Liyu, A.; Liang, Y.; Chen, J.; Piehowski, P. D.; Xu, K.; Zhao, R. J.; Atkinson, M. A.; Mathews, C. E.; Qian, W.-J. and Kelly, R. T. Dou, M.; In-Depth Quantification of Protein Expression in Single Mammalian Cells by Nanodroplet Sample Processing and Ultrasensitive LC-MS. Presented at ASMS, San Diego, CA, May, 2018 (poster).
130. Kelly, R. T.; Zhu, Y.; Dou, M.; Liang, Y.; Xu, K.; Piehowski, P. D.; Zhao, R.; Shen, Y.; Qian, W.-J.; Smith, R. D. Nanodroplet Processing and Ultrasensitive LC/MS for In-Depth Proteome Mapping of Tissues with High Spatial Resolution, Presented at Pittcon, Orlando, FL, February, 2018 (invited)
131. Kelly, R. T.; Sears, R. C.; Zhu, Y.; Joly, M. M.; Rodland, K. D.; Sheppard, B.; Liang, Y.; Dou, M.; Piehowski, P. D.; Moore, R. J.; Smith, R. D.; Qian, W.-J. Mapping Microheterogeneity in Pancreatic Ductal Adenocarcinoma Through In-Depth Proteomics Approaching Single-Cell Resolution, Presented at Joint OHSU-PNNL Precision Medicine Innovation Collaboratory launch event, Portland, OR, February, 2018 (invited).
132. Kelly, R. T.; Zhu, Y.; Piehowski, P. D.; Zhao, R.; Shen, Y.; Qian, W.-J.; Smith, R. D. Nanoliter Sample Processing Coupled to Ultrasensitive LC-MS for Deep Proteome Analysis of 1-100 Cells, Presented at HPLC Conference, Jeju, South Korea, November, 2017 (invited).
133. Kelly, R. T.; Zhu, Y.; Piehowski, P. D.; Zhao, R.; Shen, Y.; Qian, W.-J.; Smith, R. D. Small and Simple Things: Extending Mass Spectrometry-Based Proteomic Analyses to Single Cells, Presented at Brigham Young University Department of Chemistry and Biochemistry, Provo, UT, November, 2017 (invited).
134. Kelly, R. T.; Zhu, Y.; Piehowski, P. D.; Zhao, R.; Shen, Y. Moore, R. J.; Chen, J.; Matthews, C. E.; Qian, W.-J.; Smith, R. D. NanoPOTS: Nanowell-Based Sample Preparation Enables Deep Proteome Profiling of Single Human Islets and Single Cells, Presented at MicroTAS Conference, Savannah, GA, October, 2017 (oral).
135. Kelly, R. T.; Zhu, Y.; Piehowski, P. D.; Zhao, R.; Shen, Y.; Qian, W.-J.; Smith, R. D. No Ion Left Behind: Extending Mass Spectrometry-Based Proteomics to the Single Cell Level. Presented at WSU Chemistry Department, Pullman, WA, August, 2017 (Invited).
136. Kelly, R. T.; Zhu, Y.; Piehowski, P. D.; Zhao, R.; Shen, Y.; Qian, W.-J.; Smith, R. D. NanoPOTS: Nanowell-Based Preparation in One-Pot for Trace Samples. Presented at Center for Process Analytical Chemistry Summer Institute, Cle Elum, WA, July, 2017 (Invited).
137. Kelly, R. T.; Zhu, Y.; Piehowski, P. D.; Zhao, R.; Shen, Y.; Qian, W.-J.; Smith, R. D. Microfluidic Sample Preparation Combined with Ultrasensitive NanoLC-MS for Deep Proteome Analysis of 10–140 Cells. Presented at the 33rd International Symposium on Microscale Separations and Bioanalysis, Noordwijkerjout, Netherlands, March, 2017 (oral).
138. Kelly, R. T.; Zhu, Y.; Piehowski, P. D.; Zhao, R.; Qian, W.-J.; Smith, R. D.; Tang, K.; Cong, Y. Microfluidics Coupled to ESI-MS for Ultrasensitive Bioanalysis. Presented at Pittcon Conference & Expo 2017, Chicago, IL, March, 2017 (invited).
139. Kelly, R. T.; Zhu, Y.; Wojcik, R.; Qian, W.-J.; Smith, R. D. Nanowell-Based Sample Preparation Combined with Ultrasensitive Capillary Electrophoresis/Mass Spectrometry for Single Cell Analysis and Integrated Top-Down/Bottom-Up Proteomics. Presented at

the AES Electrophoresis Society Annual Meeting, San Francisco, CA, November, 2016 (oral).

140. Kelly, R. T.; Geng, T.; Smallwood, C. R.; Bredeweg, E. L.; Plymale, A. E.; Baker, S. E.; Evans, J. E. Versatile Microfluidic Platform for the Growth and Visualization of Single Cells. Presented at the AIChE Annual Meeting, San Francisco, CA, November, 2016 (oral).
141. Kelly, R. T.; Zhu, Y.; Tang, K.; Smith, R. D. No Ion Left Behind: Improving the Sensitivity of Mass Spectrometry Based Proteomics from Sample to Signal, Departmental Seminar presented at the University of Washington, Seattle, WA, November, 2016 (invited).
142. Kelly, R. T.; Geng, T.; Zhu, Y.; Smallwood, C. R.; Bredeweg, E. L.; Baker, S. E.; Evans, J. E. Channel and Nanowell-Based Microfluidic Platforms for Bioimaging. Presented at IEEE Nanomed, Macau, China, November, 2016 (invited).
143. Kelly, R. T.; Zhu, Y.; Zhao, R.; Piehowski, P.; Qian, W.-J.; Smith, R. D. Nanowell-Based Sample Preparation and Analysis Platform for Deep Proteome Analysis of Small Cell Populations. Presented at ASMS Asilomar Conference, Pacific Grove, CA, October, 2016 (oral).
144. Kelly, R. T.; Zhu, Y.; Zhao, R.; Piehowski, P.; Qian, W.-J.; Smith, R. D. Nanowell Sample Processing Coupled with Ultrasensitive LC-MS towards Single Cell Analysis. Presented at SciX 2016, Minneapolis, MN, September, 2016 (oral).
145. Wojcik, R.; Webb, I. K.; Hopkins, D. F.; Prost, S. A.; Norheim, R. V.; Orton, D. J.; Garimella, V. B. S. Deng, L.; Hamid, A. M.; Kelly, R. T.; Ibrahim, Y.; Baker, E. S.; Smith, R. D. CZE-nanoESI-SLIM-IMS-MS Platform for Comprehensive, Ultrasensitive Proteome Analyses, Presented at ASMS 2016, San Antonio, TX, June, 2016 (poster).
146. Kelly, R. T.; Cong, Y.; Katipamula, S.; Tang, K. Electrokinetic Sample Preconcentration and Hydrodynamic Sample Injection for Capillary Electrophoresis, Presented at Pittcon 2016, Atlanta, GA, March 2016 (invited).
147. Kelly, R. T.; Cong, Y.; Geng, T.; Jambovane, S.; Katipamula, S.; Prost, S.; Russcher, M. Microfluidic platforms with integrated microvalves for biochemical analyses, Presented at Pittcon 2016, Atlanta, GA, March 2016 (invited).
148. Cong Y.; Katipamula, S.; Trader, C. D.; Orton, D. J.; Geng, T.; Baker, E. S.; Kelly, R. T. Mass Spectrometry-Based Monitoring of Millisecond Protein-Ligand Binding Dynamics Using Automated Microfluidics, Presented at Pittcon 2016, Atlanta, GA, March 2016 (poster).
149. Kelly, R. T.; Cong, Y.; Geng, T.; Katipamula, S. New strategies for preconcentration, CE injection, and ionization for mass spectrometry-coupled microfluidic analyses. Presented at 2015 AES Electrophoresis Society General Meeting, Salt Lake City, UT, November 2015 (oral).
150. Kelly, R. T; Cong, Y.; Katipamula, S.; Geng, T.; Trader, C.; Baker, E. S.; Orton, D. Microfluidic sample preparation, separation and delivery for ultrasensitive MS-based bioanalyses. Presented at Beijing Conference and Exhibition on Instrumental Analysis, Beijing, China, October 2015 (keynote lecture).
151. Kelly, R. T.; Cong, Y.; Geng, T.; Katipamula, S.; Jambovane, S.; Baker, E. S.; Tang, K. Microfluidic sample preparation, separation and delivery for ultrasensitive MS-based bioanalyses. Presented at SciX 2015, Providence, RI, September 2015 (invited).
152. Kelly, R. T.; Cong, Y.; Tang, K.; Wang, C. New injection strategies for high performance CE separations in microchips and capillaries. Presented at Pittcon 2015, New Orleans, LA, March 2015 (invited).

153. Kelly, R. T.; Baker, E. S.; Jambovane, S.; Ghosh, T. Microfluidics with Mass Spectrometry for Solution-Based, Label-Free Determination of Protein-Ligand Binding Affinity and Kinetics. To be presented at CECE2014, Brno, Czech Republic, October 2014 (invited).
154. Kelly, R. T.; Cong, Y.; Tang, K. Advanced Coupling of Microfluidics with Mass Spectrometry. To be presented at SciX 2014, Reno-Tahoe, NV, September 2014 (invited).
155. Kelly, R. T.; Wang, Chenchen; Lee, C. S.; Smith, R. D.; Tang, K. Hybrid Microchip/Capillary Electrophoresis Mass Spectrometry Platform for Rapid and Ultrasensitive Bioanalysis, Presented at the 62nd American Society for Mass Spectrometry Conference, Baltimore, MD, June 2014 (oral).
156. Kelly, R. T.; Wang, C.; Tang, K. Rausch, S. Pneumatic Microvalve-Based Hydrodynamic Sample Injection for High Throughput, Quantitative Zone Electrophoresis in Microchips and Capillaries, Presented at Microscale Bioseparations 2014, Pécs, Hungary, May 2014 (oral).
157. Kelly, R. T.; Sheen, A. M.; Hallfors, N. G.; Rausch, S. J. Droplet-Based Microfluidic Sample Preparation for Mass Spectrometric Analysis of Single Cells, Presented at Pittcon 2014, Chicago, IL, March 2014 (oral).
158. Kelly, R. T.; Sheen, A. M.; Jambovane, S.; Hallfors, N. G. Automated Biological Sample Preparation and Analysis, Presented at Joint NCI/NIBIB Conference on Point of Care Technologies, Bethesda, MD, January 2014 (poster).
159. Kelly, R. T. Careers at the National Laboratories, Presented at the Biomedical Engineering Society Meeting, Seattle, WA, September 2013 (invited).
160. Kelly, R. T. and Perry, M. The Future of Microfluidics in Biomedical Diagnostic Devices, Presented at the Becton Dickinson Microfluidics Summit, Raleigh, NC, June 2012 (invited).
161. Kelly, R. T. Microfluidic Approaches for Small Volume Sample Preparation and Analysis, Presented at Merck & Co., Rahway, NJ, April 2012 (invited).
162. Kelly, R. T. Proteomic Sample Preparation and MS Analysis Using a Droplet-Based Microfluidic Platform, Presented at Pittcon 2012, Orlando, FL, March 2012 (oral).
163. Kelly, R. T. Droplet Based Microfluidics: Reactions and Analyses at the Picoliter Scale, Presented at the CMOS Emerging Technologies Workshop, Whistler, B.C., Canada, June 2011 (invited).
164. Kelly, R. T.; Sun, X.; Agrawal, N.; Tang, K.; Smith, R. D. Coupling Microfluidics with Mass Spectrometry for Trace Biological Analyses, Presented at the CMOS Emerging Technologies Workshop, Whistler, B.C., Canada, May 2010 (invited).
165. Kelly, R. T.; Sun, X.; Agrawal, N.; Page, J. S.; Tang, K.; Smith, R. D. Coupling Microfluidics with Mass Spectrometry for Sample-Limited Biochemical Analysis, Presented at Pittcon 2010, Orlando, FL, March 2010 (oral).
166. Kelly, R. T.; Page, J. S.; Tang, K.; Smith, R. D. Towards Single-Cell Proteomics Using Droplet-Based Microfluidics Coupled to nanoESI-MS. Presented at the 33rd International Symposium on Capillary Chromatography and Electrophoresis, Portland, OR, May 2009 (oral).
167. Kelly, R. T.; Page, J. S.; Marginean, I.; Tang, K.; Smith, R. D. Advances in ESI Source Technology for Improving the Sensitivity, Stability and Quantitation of LC-MS Analyses. Presented at the 63rd Northwest / 22nd Rocky Mountain Regional ACS Meeting, Park City, UT, June 2008 (oral).
168. Tang, K.; Baker, E. S.; Livesay, E. A.; Orton, D. J.; Danielson, W. F.; Prior, D. C.; Mayampurath, A. M.; Kelly, R. T.; Page, J. S.; Smith, R. D. A high throughput LC-IMS-MS

platform for sensitive and quantitative proteomics analysis. Presented at the 56th American Society for Mass Spectrometry Conference, Denver, CO, June 2008 (oral).

169. Page, J. S.; Tang, K.; Kelly, R. T.; Smith, R. D. A new ionization source for mass spectrometry: Subambient pressure ionization with nanoelectrospray (SPIN). Presented at the 56th American Society for Mass Spectrometry Conference, Denver, CO, June 2008 (poster).
170. Liu, T.; Kaleta, D. T.; Robinson, R.; Qian, W.; Kelly, R. T.; Tang, J. S.; Brewer, H. M.; Camp, D. G.; Smith, R. D. A High Sensitivity Analytical Platform for Targeted Quantitative Proteomics Using Multiple Reaction Monitoring. Presented at the 56th American Society for Mass Spectrometry Conference, Denver, CO, June 2008 (poster).
171. Kelly, R. T.; Tang, K.; Irimia, D.; Toner, M.; Smith, R. D. Elastomeric Microchip Electrospray Emitters for Stable Cone-Jet Mode Operation in the Nano-Flow Regime. Presented at the 56th American Society for Mass Spectrometry Conference, Denver, CO, June 2008 (poster).
172. Kelly, R. T.; Page, J. S.; Tang, K.; Smith, R. D. Multi-Nanoelectrospray Emitters for Improving Sensitivity and Quantitation in Proteomics Analysis. Presented at FACSS 2007, Memphis, TN, October 2007 (oral).
173. Kelly, R. T.; Luo, Q.; Page, J. S.; Moore, R. J.; Tang, K.; Smith, R. D. Chemically Etched Open Tubular and Silica Monolithic Electrospray Emitters. Presented at the 54th American Society for Mass Spectrometry Conference, Seattle, WA, May 2006 (poster).
174. Kelly, R. T. Phase-Changing Sacrificial Materials for Polymer Microchip Fabrication, Presented at the 28th International Symposium on Capillary Chromatography and Electrophoresis, Las Vegas, NV, May 2005 (oral).
175. Kelly, R. T.; Lee, M. L.; Woolley, A. T. Phase-Changing Sacrificial Materials for Creating Solvent-Bonded Capillary Electrophoresis and Electric Field Gradient Focusing Microchips. Presented at Pittcon 2005, Orlando, FL, March 2005 (poster).
176. Kelly, R. T.; Humble, P. H.; Lee, M. L.; Woolley, A. T. Development of High-Performance Electric Field Gradient Focusing for Protein Analysis. Presented at FACSS 2004, Portland, OR, October 2004 (poster).
177. Kelly, R. T.; Humble, P. H.; Lee, M. L.; Woolley, A. T. Miniaturized Electric Field Gradient Focusing Devices for Protein Separation and Concentration. Presented at 59th Northwest / 18th Rocky Mountain Regional ACS Meeting, Logan, UT, June 2004 (poster).
178. Kelly, R. T.; Humble, P. H.; Lee, M. L.; Woolley, A. T. Development of Miniaturized Electromobility Focusing for Protein Separation and Concentration. Presented at Pittcon 2004, Chicago, IL, March 2004 (poster).
179. Kelly, R. T.; Woolley, A. T. Water-Based Thermal Bonding of Polymeric Substrates for Microfluidic Device Fabrication. Presented at the 26th International Symposium on Capillary Chromatography and Electrophoresis, Las Vegas, NV, May 2003 (poster).

Externally Funded Research Support.

Current:

NIH NIGMS R35 GM153179 Kelly (PI)
09/01/24-07/31/29
$1,984,543
Mass Spectrometry-Based Biochemical Analysis of Single Cells Beyond the Global Proteome

NIH NCI 75N91023C00027 Kelly (PI)
08/25/23-08/24/25
$2,000,000
Integrated Platform and Consumables for Robust, Sensitive and High-Throughput Single-Cell Proteomics

NIH NCI R01 CA279074 Kelly (PI)
08/01/23-07/31/26
$1,621,328
Advanced Sample Preparation, Separation and Multiplexed Analysis for In-Depth Proteome Profiling of >1000 Single Cells Per Day

NIH NCI R01 CA279074 Kelly (PI)
08/01/23-07/31/26
$1,621,328
Advanced Sample Preparation, Separation and Multiplexed Analysis for In-Depth Proteome Profiling of >1000 Single Cells Per Day

NIH NCI U01 CA271410 Pandey (PI)
8/1/22-7/31/27
$5.70M ($479,765 to Kelly)
Mayo Clinic Center for Translational Proteomics

NIH NCI R21 CA272326 Kelly (PI)
09/01/22–08/31/25
$542,523
In-depth and label-free proteome profiling of hundreds of single cells per day
The goal of this project is to develop an analytical platform capable of quantifying >2,000 proteins from a single cell every 5 minutes.

NIH NIA R01AG066874 Price (PI)
05/15/20-02/28/25
$2.96M ($150,000 to Kelly)
Biochemical Consequences of Regiospecific Metabolic Bias in the Brain

Completed

NIH NIGMS R01 GM138931 Kelly (PI)
09/05/20-08/31/24
$1,322,100
Fully automated and ultra-high-throughput platform for in-depth single-cell proteomics
The goal of this project is to increase the throughput, coverage and automation for single cell proteome profiling.

NIH NIGMS R01 GM138931-04S1 Kelly (PI)
09/01/23-08/31/24
$250,000

Administrative supplement for instrumentation for R01 GM138931

Sponsored research agreement with Thermo Fisher Scientific Kelly (PI)
03/30/21-03/29/23
$100,000
Optimization of the Next Generation Analytical Proteomics Platform For Limited Samples (low protein amounts) to Single Cells
This collaborative research agreement has several aims related to commercialization of instrumentation for low-input proteomics.

NIH NCI R01 R01CA235575 Paulovich (PI)
07/01/2019-06/30/2024
$3.54M ($96,612 to Kelly)
Clinical translation of a NexGen platform for quantifying protein networks in human biospecimens
The goal of this project is to reduce sample input requirements for immuno-MRM analyses.

NIH NCI 75N91021C00015 Kelly (PI)
09/13/21-6/12/22
$455,000
Integrated Platform for In-Depth Single-Cell Proteomics
SBIR Phase I contract to commercialize a platform for preparing and analyzing protein expression within single mammalian cells.

Sponsored research Agreement with Biogen, Inc. Kelly (PI)
03/01/19-12/31/21
$560,890
Leveraging nanoPOTS for Neuronal Proteomics in Human Motor Neuron Diseases
The goal of this project is to leverage nanoPOTS for single-and pooled-cell proteomics profiling of human neurons for greater understanding of disease biology and to support human target validation and candidate biomarker discovery.

Sponsored Research Agreement with Bristol-Myers Squibb Kelly (PI)
7/01/19-06/30/21
$250,000
The goal of this process is to apply single-cell and spatially resolved proteomics to proprietary biological systems and treatments relevant to cancer.

Partnership for Clean Competition – Subcontract with Univ. Victoria Goodlett (PI)
08/01/20-07/31/21
$30,000 to Kelly
NanoPOTS and isotope dilution mass spectrometry to determine erythrocyte age

NIH NCI R33 CA225248 (Beau Biden Cancer Moonshot Initiative) Kelly (PI)
09/30/18-08/31/21
$1,744,991 ($1,069,572 transferred to BYU)
In-Depth Proteome Mapping of the Tumor Microenvironment with Single-Cell Resolution

The goal of this project is to integrate and validate emerging technologies including nanodroplet sample preparation and ultrahigh-performance liquid chromatography-mass spectrometry to construct in-depth, spatially resolved proteome maps of tumors with single-cell resolution, which will greatly accelerate cancer research.

Georges Guiochon Faculty Fellowship Kelly (PI)
7/01/19-06/30/20
$15,000
Research grant from HPLC Inc. awarded in conjunction with fellowship

NIH NIBIB R21 EB020976 Kelly (PI)
10/01/16-08/31/19
$400,444
High-throughput multidimensional bioseparations for next-generation proteomics
The goal of this project is to develop hybrid LC-CE separations with total analyte utilization for ultrahigh peak capacity proteomic separations

NIH NIGMS Smith (PI)
06/01/2018-05/31/2023 (Role terminated upon transfer to BYU)
A Research Resource for Ultra-sensitive High Throughput Proteomics
Automated processing and manipulation of small samples for high throughput and ultrasensitive functional proteomics measurements.
Role: Project Lead for Technical Research and Development Project 1 (TR&D 1)

DOE Office of Biological and Environmental Research 66382 Evans (PI)
08/01/14-07/31/18
$500,000 to Kelly
Novel in-situ multimodal imaging platforms to advance bioenergy research
The goal of this project is to develop a unified systems biology and chemical imaging approach with an analytical framework for enhancing bioengineering efforts by placing chemical data within a spatial and temporal whole-biosystem context.
Role: Co-PI

DOE Office of Biological and Environmental Research Geffen (PI)
03/05/09-03/05/18
MOSAIC FSFA—Metabolic and Spatial Interactions in Communities
The goal of this project is to understanding interactions between microbes and their extracellular environments, and how these associations contribute to functional stability and robustness
Role: Concept project lead

DOE BER (DE-FOA-0001650) Role: Coinvestigator
10/01/17-09/30/22
SyPro Poplar: Integrated Omics, Bioinformatics, Synthetic Biology and Genetic Engineering Platform for Improving Poplar Biomass Production in a Changing Climate

Open Call LDRD Piehowski (PI)
Role: Coinvestigator

10/01/16-09/30/18
Combining Online Nano-Proteomics with Nanowell Sample Handling to Create a Mass Spectrometry Imaging Platform with Deep Proteome Coverage

EMSL Research and Capability Development Kelly (PI)
10/01/15-09/30/17
Single-bacterium transcriptomics using droplet microfluidics
The goal of this project is to develop microfluidic sample preparation methods for RNAseq in single bacteria

DOE Laboratory Directed Research and Development (Open Call) Kelly (PI)
10/01/13-09/30/16
Platform for large-scale determination of protein-ligand binding
The goal of this project was to combine microfluidics with ion mobility spectrometry/mass spectrometry to determine equilibrium binding, kinetic rate constants and structural changes in noncovalent protein/ligand interactions.

DOE Laboratory Directed Research and Development (Technology Investment Program) Kelly (PI) 10/01/13-09/30/15
Hybrid microchip/capillary electrophoresis platform for rapid, ultrasensitive bioanalysis
The goal of this project was to develop a rapid, ultrasensitive, and quantitative chemical analysis platform based on CE coupled with electrospray ionization mass spectrometry using a novel microfluidic sample injector.

DOE Laboratory Directed Research and Development (EMSL Seed) Kelly (PI)
10/01/12-09/30/14
Platform for high-throughput determination of enzyme kinetic parameters for hemicellulose saccharification
The goal of this project was to develop and evaluate a new versatile, sensitive, high-throughput and label-free platform for determining enzyme kinetic parameters.

DOE EMSL Research and Capability Development Kelly (PI)
10/01/11-09/30/14
Single-cell analysis using microfluidics coupled to ultrasensitive mass spectrometry
The goal of this project was to improve the sensitivity of the mass spectrometer and develop microfluidic sample preparation methods to extend proteomics to the single cell level.

Mentoring

Postdoctoral Fellows

Raphaela de Oliveira	2024–present	
Chao Wang	2024–present	
Sofani Gebreyesus	2024–present	
Lavender Lin	2022–present	
Kei Webber	2023–2024	Law student at Brigham Young University
Xiaofeng Xie	2021–2023	Chief Technology Officer at MicrOmics Technologies
Richard Carson	2019–2022	Senior Analytical Chemist at Abterra Biosciences
Santosh Misal	2019–2021	Senior Scientist at NIH
Tom Jacroux	2016–2019	Scientist at Intel

Maowei Dou	2016–2019	Senior Scientist at ThermoFisher
Ying Zhu	2016–2018	Principal Scientist at Genentech
Kerui Xu	2016–2018	Data Scientist at Amazon
Sachin Jambovane	2013–2017	
Tao Geng	2014–2016	
Yongzheng Cong	2014–2019	Senior Scientist at Regeneron
Tridib Ghosh	2014–2015	
Andreas Vasdekis	2012–2014	Associate Professor of Physics at University of Idaho
Nitin Agrawal	2010–2012	Associate Professor at Children's National Hospital
Xuefei Sun	2009–2012	Senior Scientist at ThermoFisher

Ph.D. Students Supervised as Committee Chair

Tyler Kurtz	2024–present	
Gabriel Smith	2024–present	
Sachini Moratuwage	2022–present	
Ximena Sanchez	2022–present	
Siqi Huang	2021–present	
Madisyn Johnston	2020–present	
Nathaniel Axtell	2019–present	
Kei Webber	2019–2023	Law Student at Brigham Young University
Thy Truong	2018–2023	Head of Consumables, MicrOmics Technologies
Andikan Nwosu	2018–2024	Postdoctoral fellow at Pacific Northwest National Laboratory
Yiran Liang	2018–2022	Senior Scientist at Genentech

Ph.D. Students Supervised at Committee Member

Yesman Akuoko	2019–present
Rebecca Burlett	2020–present
Wai-Ning Chan	2018–present
Yen-Jou Chang	2021–present
Wenhan Cheng	2020–present
Russell Denton	2017–present
Christina Egbert	2017–2022
Elaura Gustafson	2017–present
Tina Heravi	2017–2022
Jacob Nielsen	2019–present
Joshua Pinder	2021–present
Dallin Tyger	2021–present
Radhya Gamage	2018–present
Anna Nielsen	2016–2020
Hannah Boekweg	2020–present (Dept. of Biology)
Jonard Valdoz	2017–2022
Richard Carson	2015–2019

Post-Masters

Yiran Liang	2017–2018	PhD Candidate at Brigham Young University
Nicholas Hallfors	2013–2014	PhD candidate at Khalifa University, UAE

Ryan Rivers	2011–2012	Applications Engineer at UC Berkeley Nanofabrication Facility
Rahul Sanghavi	2010–2011	Vice President for marketing at Unfors Raysafe, Mumbai, India

Undergraduate

Alissia Nydegger	2022–present
Parker Hutchings	2022–present
Shule Thoreson	2022–present
Yhann Masbernat	2022–present
Alejandro Brozalez	2021–present
Ariana Mahoney	2021–present
Jacob Heninger	2021–present
Hailey Jones	2021–present
Ethan Smith	2021–present
Fletcher Smith	2020–present
Timothy Skaggs	2021–2021
Seth White	2020–2021
Jacob Davis	2020–2021
Sebastian Zapata	2020–2021
Ximena Sanchez Avila	2020–2021
Dallin Ringer	2019
Samuel Squires	2019–2021
Adam Aposhian	2019
Michaela McCown	2019–2020
Hayden Acor	2019–2020
Peyton Bishop	2018–2021
Enoch Councill	2018–2020
Nathaniel Axtell	2018
Kennedy Corrigan	2016
Gabriel Lepe	2016
Isis Carrillo	2016
Tony Truong	2013

High School

Kenny You	2017–2018
Laura Sheen	2016–2017
Cameron Trader	2015–2017
Shanta Katipamula	2014–2016
Brandon Kelly	2013–2014
Allison Sheen	2012–2015
Emily Leist	2011–2013
Sarah Rausch	2010–2015