



Exponent®
Engineering & Scientific Consulting

Daniel Hu, Ph.D.

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Professional Profile

Dr. Daniel Hu is a bioanalytical chemist with a background in high-resolution mass spectrometry, liquid chromatography, discovery proteomics, molecular biology, bioinformatics, and biochemistry. His research expertise is in the study of disease pathogenesis and the development of fit-for-purpose bioanalytical techniques to better monitor infection and understand biological pathways.

At Exponent, Dr. Hu specializes in regulatory and scientific support for the registration of pesticides regulated under the US Environmental Protection Agency's (EPA's) Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) as well as regulatory support for state level pesticide and plant protection product issues.

During his postdoctoral fellowship, Dr. Hu focused on applying his bioanalytical doctoral background in an industrial regulatory setting, which included focus on analytical support for pesticides. He provided analytical support to quick-turnaround requests for FIFRA and European Food Safety Authority submissions and developed novel workflows and proteomic capabilities using existing LC-MS/MS instrumentation while maintaining compliance in a Good Laboratory Practices (GLP)-regulated environment. This expertise grants him unique insight and awareness of client needs for support on pesticides and plant protection product regulatory chemistry issues.

During his doctoral studies, Dr. Hu developed a specialty in laboratory safety and chemical hygiene policy in an academic setting. His leadership role in the Department of Chemistry & Biochemistry Laboratory Safety Officers (LSO) Program was recognized by the American Chemical Society (ACS). Dr. Hu was one of five leaders selected to develop and host an inaugural Safety Summit in Washington, D.C., which brought together stakeholders across academia, industry, and chemical hygiene professionals to develop policy recommendations.

Academic Credentials & Professional Honors

Ph.D., Analytical Chemistry, University of Notre Dame, 2025

B.A., Chemistry, Pepperdine University, 2019

Hu DD. Graduate Student Professional Development Award (GSPDA). American Society for Mass Spectrometry 72nd Conference on Mass Spectrometry & Allied Topics, Anaheim, CA, 2024.

Hu DD. Grant for Development of Graduate/Postdoc Students in Safety. American Chemical Society Division of Chemical Health and Safety (DCHAS), New Orleans, LA, 2024.

Hu DD. Enrichment Award. 8th Annual Chicago Mass Spec Day, Chicago, IL, 2023.

Hu DD. Conference Presentation Grant (CPG). American Society for Mass Spectrometry 71st Conference on Mass Spectrometry & Allied Topics, Houston, TX, 2023.

Hu DD. Solving the Jigsaw Puzzle with No Edge Pieces: Protein N-terminal Modifications. 3-Minute Thesis (3MT) competition 3rd place winner. Spring 2022 Industry Advisory Board (IAB) Meeting. West Lafayette, IN, 2022.

Hu DD. Graduate School Professional Development Award (GSPDA). American Society for Mass Spectrometry 70th Conference on Mass Spectrometry & Allied Topics, Minneapolis, MN, 2022.

Hu DD. ASMS Student Travel Stipend Award. American Society for Mass Spectrometry 70th Conference on Mass Spectrometry & Allied Topics, Minneapolis, MN, 2022.

Academic Appointments

Co-Chair, Department of Chemistry & Biochemistry IMPACT Lecture Series, University of Notre Dame, 2022-2023.

Member, College of Science Council, University of Notre Dame, 2022-2023.

Steering Committee Member, ACS Presidential Safety Summit, American Chemical Society, 2022-2023.

Prior Experience

Postdoctoral Research Scientist, Corteva Agriscience, Indianapolis, Indiana, 2024-2026.

PhD Candidate, University of Notre Dame, South Bend, Indiana, 2019-2025.

Research Assistant, Pepperdine University, Malibu, California, 2017-2019.

Professional Affiliations

American Chemical Society (ACS)

ACS Division of Chemical Health and Safety (CHAS)

American Society for Mass Spectrometry (ASMS)

Publications

Wang Z, Liu Y, Yang J, Hilliard TS, Safavi-Sohi R, **Hu DD**, Harper EI, Dominique G, Wang W, Johnson J, Asem M, Milosevich W, Carlson JF, Bai Y, Miao J, Zhang Z, Champion MM, Stack MS. [Protein tyrosine phosphatase 4A1 \(PTP4A1\) regulates early events in colorectal cancer intraperitoneal dissemination in the aged male host](#). Aging and Cancer 2025; 6(4):93–105.

Reynolds TS, **Hu DD**, Weaver SD, Ronck EC, Mishra SJ, Champion MM, Blagg BSJ. [Proteomic analysis of Hsp90 \$\beta\$ -selective inhibitors against triple-negative breast cancer to gain a mechanistic insight](#). Molecular & Cellular Proteomics 2025; 24(9):101043.

Mousseau CB, **Hu DD**, Schultz SR, Champion MM. [Quenching trypsin is unnecessary in filter-based bottom-up proteomics](#). Journal of the American Society for Mass Spectrometry 2024; 35:2028–2031.

Avila-Cobian LF, De Benedetti S, Hoshino H, Nguyen VT, El-Araby AM, Sader S, **Hu DD**, Cole SL, Kim C, Fisher JF, Champion MM, Mobashery S. [Lytic transglycosylase Slt of Pseudomonas aeruginosa as a](#)

[periplasmic hub protein](#). Protein Science 2024; 33.

Hu DD, Donaghy CM, Oronova A, Sur A, Robinson EEA, Wiley ER, Gibson NJ, Mutchek S, Bresnahan BL, Shadman H, Cuomo AE, Dyer CL, Aleksich M, Hensley MS. [Empowering student laboratory safety officer programs to strengthen academic safety culture](#). ACS Chemical Health & Safety 2024; 31:291–299.

Hu DD, Weaver SD, Collars OA, Champion PA, Champion MM. [N-terminal proteomics of *Mycobacterium marinum* using bottom-up label-free quantitative analysis in data-dependent acquisition mode on a timsTOF Pro mass spectrometer](#). Microbiology Resource Announcements 2024; 13.

Hu DD*, Jones BS*, Nicholson KR, Cronin RM, Weaver SD, Champion MM, Champion PA. [The loss of the PDIM/PGL virulence lipids causes differential secretion of ESX-1 substrates in *Mycobacterium marinum*](#). mSphere 2024; 9.

Avila-Cobian LF, Hoshino H, Horsman ME, Nguyen VT, Qian Y, Feltzer R, Kim C, **Hu DD**, Champion MM, Fisher JF, Mobashery S. [Amber-codon suppression for spatial localization and in vivo photoaffinity capture of the interactome of the *Pseudomonas aeruginosa* rare lipoprotein A lytic transglycosylase](#). Protein Science 2023; 32.

Collars OA, Jones BS, **Hu DD**, Weaver SD, Sherman TA, Champion MM, Champion PA. [An N-acetyltransferase required for ESAT-6 N-terminal acetylation and virulence in *Mycobacterium marinum*](#). mBio 2023; 14.

Martin JA, Bader TK, Bruch QJ, McCulley CM, Zinn SR, Anderson CB, Applegate LC, Aviles-Martin CJ, Bresnahan BL, Cool NI, DeYoung JL, Donaghy C, Douglas L, Harris CM, **Hu DD**, Murphy SE, Nyansa MMS, Patil A, Starr HE, Strasser JW, Troiano JL. [The COVID-19 pandemic as a stress test for laboratory safety teams](#). ACS Chemical Health & Safety 2022; 29:350–361.

Saelens JW, Sweeney MI, Viswanathan G, Xet-Mull AM, Jurcic Smith KL, Sisk DM, **Hu DD**, Cronin RM, Hughes EJ, Brewer WJ, Coers J, Champion MM, Champion PA, Lowe CB, Smith CM, Lee S, Stout JE, Tobin DM. [An ancestral mycobacterial effector promotes dissemination of infection](#). Cell 2022; 185:4507–4525.e18.

Mousseau CB, Pierre CA, **Hu DD**, Champion MM. [Miniprep assisted proteomics \(MAP\) for rapid proteomics sample preparation](#). Analytical Methods 2022.

Presentations

Hu DD, Bas-Concepcion J, Knierman M, Brown JC, Gilbert JR. Microdroplet reaction controlled through electrospray ionization source conditions. Poster presentation. 73rd Conference on Mass Spectrometry & Allied Topics, Baltimore, MD, 2025.

Hu DD. Laboratory Safety Teams (LSTs): a grassroots movement for graduate students to tackle lab safety from the bottom up. Oral Presentation, American Chemical Society Spring Conference, New Orleans, LA, 2024.

Hu DD, Aleksich M. Engagement of graduate students: laboratory safety within CHAS. Invited Talk, American Chemical Society Leadership Institute, Atlanta, GA, 2024.

Hu DD, Bresnahan B, Chung A, Donaghy C, Nyansa M. 2023 American Chemical Society Presidential Safety Summit, Washington, DC, 2023.

Hu DD, Chung AB, Nyansa M. Student-led lab safety teams (lsts) – strengthening academic lab safety from the bottom-up. Invited Talk, University of California Center for Laboratory Safety (UCCLS) Workshop, Los Angeles, CA, 2023.

Hu DD, Collars OA, Champion PA, Champion MM. PASEF-DDA and one pot preparation of proteins for enrichment-free detection and quantitation of protein termini from pathogenic Mycobacteria. Oral presentation, the 8th Annual Chicago Mass Spec Day, Chicago, IL, 2023.

Hu DD, Collars OA, Champion PA, Champion MM. PASEF-DDA and one pot preparation of proteins for enrichment-free detection and quantitation of protein termini from pathogenic Mycobacteria. Poster presentation, 71st Conference on Mass Spectrometry & Allied Topics, Houston, TX, 2023.

Hu DD, Collars OA, Champion PA, Champion MM. An adaptable method for quantifying protein N-terminal acetylation from pathogenic Mycobacteria. Poster presentation. 28th Midwest Microbial Pathogenesis Conference, Madison, WI, 2022.

Hu DD, Collars OA, Champion PA, Champion MM. Proteo-Genetic Discovery of ESX-1-associated acetyltransferases in pathogenic mycobacterium. Lightning Talk and Poster presentation, the 7th Annual Chicago Mass Spec Day, Chicago, IL, 2022.

Hu DD, Collars OA, Champion PA, Champion MM. Proteo-genetic discovery of ESX-1-associated acetyltransferases in pathogenic mycobacterium. Oral presentation, American Society for Mass Spectrometry 70th Conference on Mass Spectrometry & Allied Topics, Minneapolis, MN, 2022.

Hu DD, Nicholson KR, Champion PA, Champion MM. Acetylation dynamics in mycobacterium tuberculosis revealed using trapped ion-mobility spectrometry-mass spectrometry. Poster presentation, 2021 Biochemistry IBMS Retreat, Notre Dame, IN, 2021.

Hu DD, Nicholson KR, Champion PA, Champion MM. Acetylation dynamics in mycobacterium tuberculosis revealed using trapped ion-mobility spectrometry-mass spectrometry. Poster presentation, Turkey Run Analytical Chemistry Conference, Marshall, IN, 2021.

Additional Education & Training

Rescue Diver, PADI, 2015

Peer Reviews

Reviewer for Microbiology Resource Announcements