Birgit Schilling, Ph.D.
Buck Institute for Research on Aging, Novato, CA
Curriculum Vitae
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Current Employment: Assistant Professor, Buck Institute for Research on Aging
Director of the Mass Spectrometry Core, Buck Institute for Research on Aging
Adjunct Professor – University of Southern California

Research Experience and Interests

I am an Assistant Professor with an independent laboratory and the Director of the Mass Spectrometry Core at the Buck Institute for Research on Aging. Protein chemistry and modern mass spectrometric technologies to advance the field of Proteomics mainly in the context of Aging Research are of particular interest. I am directly involved in a large variety of research projects spanning neurodegenerative diseases, such as Alzheimer's disease, and also cancer, diabetes, mitochondrial damage, molecular mechanisms of aging, protein post-translational modifications, and bacterial pathogenesis.

My group has adopted several novel proteomic technologies with comprehensive and extremely sensitive quantification capabilities, and these are particularly applicable for the proposed project. We are using proteomic data-independent acquisitions (DIA), or SWATH, which allows us to accurately determine changes in relative protein expression level between multiple different conditions.

1. Collins BC, Hunter CL, Liu Y, Schilling B et al. and Aebersold R. Multi-laboratory assessment of reproducibility, qualitative and quantitative performance of SWATH-mass spectrometry. Nature Communications. 2017;8:291. PMCID: PMC5566333.

I have a long-standing scientific track-record to develop MS methodologies to quantitatively analyze complex samples. In addition, I have intensively used label-free protein quantification approaches (MS1 Filtering), as well as newer quantitative and highly comprehensive workflows, such as high-resolution data-independent acquisitions (DIA or SWATH Quantification), and parallel reaction monitoring (PRM or high resolution MRM). To date my work has resulted in over 106 peer-reviewed publications, including several manuscripts focusing on system suitability, reproducibility and reliability of MS measurements and relevance of QC. I have been involved in co-developing several bioinformatics workflows and algorithms, for mass spectrometric data processing and dissemination.

My own research interests are centered on biomarker discovery and translational proteomics, muscle atrophy, extracellular matrix, protein turnover, protein-drug interactions and development of novel MS workflows.

I have collaborated with many highly skilled collaborators here at the Buck Institute but also with researchers across the US and Canada, as a member of various program projects or consortia, such as the GeroScience Grant, the Nathan Shock Center of Excellence, the CPTAC network (Clinical Proteomics Technology Assessment for Cancer), R24 grants (Buck, UCSF, Harvard), or as partner in a recent world-wide 'Proteomics Cross Laboratory Study' (11 laboratories). In addition, I have been involved in co-developing several different bioinformatics workflows and algorithms for mass spectrometric data processing, specifically also for the 'Skyline Targeted Proteomics Environment' Software (University of Washington, Seattle – Michael MacCoss) for which I have been a Member of the Development Team for Skyline since 2010. I have extensive experience in global proteomics for comprehensive protein analysis. I have also focused on projects investigating posttranslational modifications, as well as investigating protein-protein interactions and more recently protein-drug interactions. In 2017, I was elected to the Board of Directors of the US Human Proteome – US HUPO society, a subgroup of FASEB, and in 2019, I was elected as member of the Executive Committee. I am actively engaged in US HUPO conference organization and the Award Committee and Mentoring activities for postdoctoral fellows. In summary, I am interested in applying highly sensitive modern mass spectrometric methods to the complex biological systems that challenge Biomedical Research and Proteomics. I have extensively published my work and am

actively attending international scientific conferences presenting my work or serving as session chair, as well as organizing and teaching workshops about quantitative proteomics.

Education

1986 – 1993 **Undergraduate – Chemistry**, University of Hamburg, Germany

Special interests: natural product chemistry, modern organic synthetic chemistry, mass spectrometry

1989 – 1990 **Undergraduate – Chemistry**, University of Southampton, Great Britain

Research projects with Prof. R.J. Whitby ("New Concepts in the Design of Chiral Transition Metal Complexes - effective Asymmetric Catalysts") and Dr. S. Ogden ("Matrix Isolation and Mass Spectrometric Studies on the Vaporisation of various Inorganic Metal Oxides and Sulfides").

1993 **Diploma (Master of Science), Natural Product Chemistry**, University of Hamburg, Germany

"Photochemical Reactions of Terpenoid Bark Beetle Pheromones and their Mass Spectrometric Analysis", Prof. W. Francke

1994 – 1997 **Ph.D. Thesis, Organic Synthetic Chemistry**, University of Clausthal, Germany

"New Chiral 2,2´-difunctionalized Binaphthyl Systems: Structures and Properties", Prof. D.E. Kaufmann

A. Positions and Honors

Academic and Professional Positions Held

1994-1997 Teaching Assistant / Graduate Student
Supervision and Teaching of Organic Chemistry Laboratory Course for Undergraduate Students
University of Clausthal, Germany

1998-1999 **Postdoctoral Research, Mass Spectrometry**
Structural Analysis of Neuropeptides and Cyclic Peptides,
University of California, San Francisco, CA, Prof. A.L. Burlingame

1999 –2000 **Postdoctoral Research, Mass Spectrometry**
Structural Analysis of Lipooligosaccharides and Carbohydrates, Chemical Engineering of Outer Membrane Recognition Structures of *Haemophilus* Bacteria, University of California, San Francisco, CA, Prof. B.W. Gibson

2000-2016 **Staff Research Scientist, Manager of the Mass Spectrometry Laboratory**
Buck Institute for Research on Aging, Novato, CA

2007-2008 **Part-time Lecturer (Faculty) at San Francisco State University (Spring 2007-Fall 2008)**
Course Biol 861: "Development in Biology: Biology of Aging and Age-Related Diseases"

2016-2018 **Research Associate Professor**
Buck Institute for Research on Aging, Novato, CA

2016-present **Director of the Mass Spectrometry Laboratory**
Buck Institute for Research on Aging, Novato, CA

2017-present **Adjunct Professor**
University of Southern California (USC), Los Angeles, CA

2018-present **Assistant Professor**
Buck Institute for Research on Aging, Novato, CA

Honors

1986	High School Award for best student of the year, and High School Award obtained from "Verband der Chemischen Industrie, VCI" (Association of Chemical Industry, Germany)
1989-1990	Academic Undergraduate Scholarship "Erasmus" (European Academic Exchange Program)
1989-1992	Academic Undergraduate Scholarship from "Studienstiftung des deutschen Volkes" ("German National Merit Foundation", top 1% of entire German student population)
1998-1999	German Research Foundation "Deutsche Forschungsgesellschaft" Postdoctoral Fellowship at UCSF
2017-2018	Pilot Study Award for Junior Faculty, Nathan Shock Center for Biology of Aging (UW Seattle) New proteomics workflows measuring protein turnover in age-dependent muscle atrophy.
2017-now	Member Board of Directors for 'US Human Proteome Society', US HUPO
2019-now	Member of the Executive Committee for 'US Human Proteome Society', US HUPO

Administrative Positions Held

2000-2003	Events Committee at the Buck Institute
2000-2004	Information Technology Advisory Committee (ITA) at the Buck Institute, committee to advise the Information System management on the needs of the laboratories and departments.
2000-2012	Emergency Response Team (ERT) at the Buck Institute, preparedness/drills for emergencies, completion of certified first aid course and CPR course.
2010-2013	Co-Chair of the Verification/Biomarker Working Group of Clinical Proteomics for Technology Assessment and Cancer
2003-present	Webmaster for Buck Institute Chemistry Core and Schilling Laboratory
2010-present	Member of the Development Team for the 'Skyline Targeted Proteomics Environment' Software (University of Washington, Seattle – Michael MacCoss)
2016-present	Buck Institute 'Institutional Biosafety Committee' (IBC)
2017-present	Faculty Advisor on the 'Buck Student Aging Symposium' Committee (BSAS)
2018-present	Faculty member of Buck Institute 'Conflict of Interest Committee' (COI)

Memberships in Scientific, Professional and Scholarly Societies

American Society for Mass Spectrometry (ASMS)
(US) Human Proteome (US HUPO and HUPO)
Australasian Proteomics Society (APS)
Bay Area Mass Spectrometry (BAMS) Discussion Group
Society for Neuroscience (SFN)

Journal Reviewing Experience

Activity as scientific journal reviewer for the following peer-reviewed journals:
Molecular Cellular Proteomics, Journal American Society of Mass Spectrometry, Journal Proteome Research, Proteomics, Journal of Proteomics, Clinical Chemistry, Analytical Chemistry, Stem Cells, Nature Protocols, Nature Communications, Nature Methods, Aging Cell, Mass Spectrometry Reviews, Lipids in Health and Disease, Clinical Proteomics, Trends in Analytical Chemistry, PLoS One, Chemical Science, Scientific Reports (Nature series), BBA - Proteins and Proteomics, British Journal of Cancer – Nature, Journal of Pathogens, Molecular Cell, BMC Biology.

Teaching Experience

1993	Teaching: "Biochemistry, Laboratory Supervision", University of Hamburg, Germany
1994-97	Teaching: "Organic Synthetic Chemistry, Laboratory Supervision", University of Clausthal, Germany

1996 Teaching: July 1996, daily lectures/laboratory chemistry course for talented students, "Deutsche SchuelerAkademie", bmb+f (Fed. Department for Education & Research), "Collegium Gaesdonck", Germany.

2000-present Training of Collaborators/Scientists at the Buck Institute to operate mass spectrometry instrumentation.

2007-2008 **Part-time lecturer (Faculty) at San Francisco State University** (Biology Department) (Course: BIOLOGY 861.02: Topics in Development: "Biology of Aging and Age-Related Diseases")

2010-present **Public Event Outreach to teach about Science**. Exhibitor for Buck Institute Open Houses, Participation in Science Fair Programs, e.g. Spacefest (Novato), Marinovators (College of Marin). Member of the 'North Bay Science Discovery Day' Association

2015-present Instructor for '**Skyline Targeted Proteomics Courses**' at the University of Washington Seattle, WA (April 2015, July 2016, July 2018). Organizer and Instructor for week-long 'Skyline Targeted Proteomics Course' held at the Buck Institute, CA (March 2016, February 2017, April 2018, March 2019). Instructor at Skyline workshop at the African Centre for Gene Technologies in Pretoria/Johannesburg and Cape Town in South Africa (December 2016, November 2019). Instructor for 'VII and IX Proteomics Workshop' from the Brazilian Biosciences National Laboratories in Campinas, Sao Paulo, Brazil (November 2016, November 2018). Instructor at Short Course US HUPO (Human Proteome) conference (March 2017, March 2018, March 2019) "Design and Analysis of Quantitative Proteomic Experiments: Introduction to Statistical Methods and Practical Examples using Skyline, R and MS Stats". Instructor at Short Course at ASMS (American Society for Mass Spectrometry) "Case Studies in Quantitative Proteomics" (June 2019)

2016 Practical, lab-based Course for USC graduate students held at the Buck Institute "Proteomics and Mass Spectrometry"

2017-present "**GERO 599 – Special Topics: Mass Spectrometry**" – Lecture Series (14 weeks) USC/Buck Institute, Spring Semester 2017; Fall Semester 2017, Spring 2019
"**GERO 601 - Geroscience**" Spring & Fall Semester 2018 (faculty talks)
"**GERO 603 - Ethics**" Fall Semester 2018 (selected lectures)

B. Completed Research Projects (1993-2000):

"Diploma Thesis" work, 1993 (with Prof. W. Francke, University of Hamburg, Germany)

Natural Product Chemistry: Photochemical reactions of terpenoid bark beetle pheromones yielded a large variety of biologically active compounds and provided insight into possible natural degradation reactions of these "insect communication substances". Mass spectrometric studies (GC-MS) of small molecules were performed to identify new active pheromones.

"Ph.D. Thesis" work, 1994-97 (with Prof. D.E. Kaufmann, University of Clausthal, Germany)

Modern Organic Synthesis of Chiral Compounds and Organometallic Catalysis: Novel axially chiral compounds were synthesized that can be used as efficient chiral catalysts (LEWIS acids) and ligands in modern organic synthesis and natural product synthesis. Chiral organometallic and organoboron compounds were synthesized and further reacted in Palladium-catalyzed coupling reactions to obtain complex molecular structures. Crystallographic studies revealed intermolecular interactions of potential biosensor molecules.

Postdoctoral work, 1998-99 (with Prof A.L. Burlingame, UCSF, San Francisco)

Structural Analysis of Neuropeptides: Modern mass spectrometric methods were used for structural elucidation of conotoxins isolated from venoms of predatory sea-snails (species *Conus*). These biologically active neuropeptides, that contain multiple disulfide bridges and are highly constraint, target receptors of the neuromuscular system. A novel neuropeptide from *Conus arenatus* was *de novo* sequenced using a

combination of mass spectrometry, chemical derivatization, and enzymatic digestion. Conotoxins can potentially be used as a new class of potent analgesics and for pain medication.

Structural Analysis of Cyclic Peptides: A sensitive mass spectrometric method was developed for structure elucidation of unknown cyclic peptides. A series of cyclic peptides were analyzed that were previously tested as substrates or inhibitors of $pp60^{c\text{-}src}$ (Src), a protein tyrosine kinase that is involved in signal transduction and growth regulation (Src exhibits elevated activity in specific cancers, and it is an attractive target for antitumor drug design). Mass spectrometric fragmentation pathways of these cyclic peptides were systematically investigated exploring and providing methods for *de novo* sequencing of cyclic peptides.

Postdoctoral work, 1999-2000 (with Prof B.W. Gibson, UCSF, San Francisco)

Mass Spectrometry of Glycoconjugates: Lipooligosaccharides (LOS) located in the outer membrane of pathogenic *Haemophilus ducreyi* bacteria were investigated using mass spectrometry. Bacterial glycolipids are considered to be a major virulence determinant and have been implicated in the adherence of *H. ducreyi* to human keratinocytes. I characterized unknown LOS gycoforms present in complex mixtures. Structurally interesting features were identified such as low abundant poly-lactosamine containing LOS and high molecular weight sialylated oligosaccharide units. Additional chemical derivatization, enzymatic digestions and chromatographic purifications were performed.

C. Contribution to Science, Research Interests and on-going Projects

Selected Current Projects:

1. Clinical Proteomics & Cancer Biomarker Discovery. Starting in 2006, I have been involved in clinically-relevant proteomic projects that targeted the identification of new biomarkers, specifically for breast cancer. The Buck Institute was part of a large NCI-supported initiative called Clinical Proteomics for the Assessment of Technology in Cancer (or CPTAC) that developed new methods for cancer biomarkers that included large-scale and highly multiplexed MRM-MS experiments, as well as those that targeted glycoproteins and phosphoproteins. I served as the co-chair for the 'CPTAC Biomarker Verification Group' for several years.

a. Zawadzka AM, **Schilling B**, Cusack MP, Sahu AK, Drake P, Fisher SJ, Benz CC, Gibson BW. Phosphoprotein Secretome of Tumor Cells as a Source of Candidates for Breast Cancer Biomarkers in Plasma. Mol Cell Proteomics. 2014; 13(4):1034-49. PMCID: PMC3977182.
b. Zawadzka AM, **Schilling B**, Held JM, Sahu AK, Cusack MP, Drake PM, Fisher SJ, Gibson BW. Variation and Quantification among a Target Set of Phosphopeptides in Human Plasma by Multiple Reaction Monitoring (MRM) and Swath MS2 Data-Independent Acquisition. Electrophoresis. 2014. PMCID: PMC4565165.
c. Drake PM, **Schilling B**, Niles RK, Prakobphol A, Li B, et al., Lectin chromatography/mass spectrometry discovery workflow identifies putative biomarkers of aggressive breast cancers. Journal of Proteome Research. 2012; 11(4):2508-20. PMCID: PMC3383053.
d. Addona TA, Abbatiello SE, Schilling B, Skates SJ, et al., Carr SA. Multi-site assessment of the precision and reproducibility of multiple reaction monitoring-based measurements of proteins in plasma. Nature Biotechnology. 2009; 27(7):633-41. PMCID: PMC2855883.

2. Biology of Aging. For several disease models that are investigated at the Buck, the research focuses on discovering molecular details of biological processes associated with aging and age-related diseases. Other aging models were investigated to gain insights into molecular aging mechanisms, including multiple vertebrate and invertebrate models, such as mouse*, C. elegans*, *Drosophila*, and yeast. We are using mass spectrometry to characterize protein post-translational modifications along with protein expression changes and interacting networks, as well as protein aggregation, a hallmark of many neurodegenerative diseases. More recently, we started investigating protein turnover in *C. elegans* as well as in *Drosophila* models, specifically analyzing protein turnover in long-lived mutants using stable isotope feeding strategies in combination with mass spectrometry. A recently published study in mice addressed aspects of skeletal muscle atrophy, specifically the discovery that the MAP kinase pathway plays a role in atrophy.

a. Wang L, Davis SS, Borch Jensen M, Rodriguez-Fernandez IA, Apaydin C, Juhasz G, Gibson BW, **Schilling B**, Ramanathan A, Ghaemmaghami S, Jasper H. JNK modifies neuronal metabolism to promote proteostasis and longevity. Aging Cell. 2019;18(3):e12849. doi: 10.1111/acel.12849. PMCID: PMC6516429.

b. Klang IM, **Schilling B**, Sorensen DJ, Sahu AK, Kapahi P, Andersen JK, Swoboda P, Killilea DW, Gibson BW, Lithgow GJ. Iron promotes protein insolubility and aging in *C. elegans*. Aging (Albany NY). 2014;6(11):975-91. PMCID: PMC4276790.
c. Mark KA, Dumas KJ, Bhaumik D, **Schilling B**, Davis S, Ronnen Oron T, Sorensen DJ, Lucanic M, Brem R, Melov S, Ramanathan A, Gibson BW, Lithgow GJ. Vitamin D Promotes Protein Homeostasis and Longevity via the Stress Response Pathway Genes SKN-1/Nrf2 and IRE-1/XBP-1. Cell Reports. 2016;17:1227-1237. PMCID: PMC5689451.
d. Bullard SA, Seo S, **Schilling B**, Dyle MC, Dierdorff JM, Ebert SM, DeLau AD, Gibson BW, Adams CM. Gadd45a Protein Promotes Skeletal Muscle Atrophy by Forming a Complex with the Protein Kinase MEKK4. J Biol Chem. 2016; 291(34):17496–17509. PMCID: PMC5016147.

3. Alzheimer's Disease and Neurodegenerative Diseases. Since joining the Buck in 2000, neurodegenerative disease has held my interest. This has included studies of diseases, such as Parkinson's, Alzheimer's, and Huntington's disease. In several of these disease-related studies we used mass spectrometry to characterize posttranslational modifications, protein oxidation or investigated protein expression changes and protein interaction networks. Spurring an interest in investigating Alzheimer's disease with several newer studies on-going expanding the portfolio of post-translational modifications of disease relevant proteins, such as tau in mouse models including analysis in specific brain areas. Several studies were focused on Parkinson's disease, mainly investigating potential protein damage in electron transport chain complexes that are known to be relevant during PD disease progression.

a. Danielson SR, Held J, **Schilling B**, Oo M, Gibson BW, Andersen JK. Preferentially Increased Nitration of α-Synuclein at Tyrosine-39 in a Cellular Oxidative Model of Parkinson's Disease. Anal Chem. 2009; 81(18):7823–7828. PMCID: PMC2748813.
b. Melov S, Adlard PA, Morten K, Johnson F, Golden TR, Hinerfeld D, **Schilling B**, Mavros C, Masters CL, Volitakis I, Li QX, Laughton K, Hubbard A, Cherny RA, Gibson B, Bush AI. Mitochondrial oxidative stress causes hyperphosphorylation of tau. PLoS One. 2007;2(6):e536. PMCID: PMC1888726.
c. Min SW, Chen X, Tracy TE, …, **Schilling B**, Cong X, Ellerby L, Gibson BW, Johnson J, Krogan N, Ponnusamy R, Zhou Y, Li Y, Shamloo M, Masliah E, King R, Finley D, Verdin E, Gan L. Critical Role of Acetylation in Tau-Mediated Neurodegeneration and Cognitive Deficits: Therapeutic Implications. Nature Medicine. 2015;21(10):1154-1162. PMCID: PMC4598295.
d. Tracy TE, Sohn PD, Minami SS, Wang C, Min SW, Li Y, Zhou Y, Le D, Lo I, Ponnusamy R, Cong X, **Schilling B**, Ellerby L, Huganir RL, Gan L. Acetylated Tau Obstructs KIBRA-Mediated Signaling in Synaptic Plasticity and Promotes Tauopathy-Related Memory Loss. Neuron. 2016;90(2): 245-260. PMCID: PMC4859346.

4. The Sirtuins, Metabolic Syndrome and Diabetes. In collaboration with Drs. Eric Verdin (Buck), Ronald Kahn (Joslin Diabetes Center, Harvard), and Christopher Newgard (Duke), we are studying the effects of the mitochondrial sirtuins (SIRT3 and SIRT5) in metabolic dysregulation and diabetes. Currently, our major focus is identifying mitochondrial substrates of SIRT3 and SIRT5, a mitochondrial lysine-deacetylase and desuccinylase/malonylase, respectively. Using affinity enrichment approaches combined with label-free data-independent acquisitions (DIA), and selected reaction monitoring (SRM)-MS proteomic approaches, we have examined changes in mitochondrial acylation profiles in liver and striatal muscle samples from wild type and SIRT3/5 knockout mice. We just extended our studies to examine the effects of a high-fat diet and sugars (glucose and fructose) in SIRT3 and SIRT5-dependent acylation states of 100's of proteins and cellular networks, and how the altered acylation status effects mitochondrial function, metabolism and bioenergetics. Recently, we have also performed related studies investigating the sirtuin SIRT1 and its role in regulation of the specific acetylation status of RORγt, a transcription factor involved in immune response.

a. Wang G, Meyer JG, Cai W, Softic S, Li ME, Verdin E, Newgard C, **Schilling B**, Kahn CR. Regulation of UCP1 and Mitochondrial Metabolism in Brown Adipose Tissue by Reversible Succinylation. Molecular Cell. 2019;74(4):844-857.e7. PMCID: PMC6525068.
b. Meyer JG, Softic S, Basisty N, Rardin MJ, Verdin E, Gibson BW, Ilkayeva O, Newgard CB, Kahn CR, **Schilling B**. Temporal dynamics of liver mitochondrial protein acetylation and succinylation and metabolites due to high fat diet and/or excess glucose or fructose. PLoS One. 2018;13(12):e0208973. doi: 10.1371/journal.pone.0208973. PMCID: PMC6306174.
c. Rardin MJ, Newman JC, Held JM, Cusack MP, Sorensen DJ, Li B, **Schilling B**, Mooney SD, Kahn CR, Verdin E, Gibson BW. Label-free quantitative proteomics of the lysine acetylome in mitochondria identifies

substrates of SIRT3 in metabolic pathways. Proc Natl Acad Sci U S A. 2013; 110(16):6601-6. PMCID: PMC3631688.

d. Lim HW, Kang SG, Ryu JK, **Schilling B**, Fei M, Lee IS, Kehasse A, Shirakawa K, Yokoyama M, Schnölzer M, Kasler HG, Kwon HS, Gibson BW, Sato H, Akassoglou K, Xiao C, Littman DR, Ott M, Verdin E. SIRT1 deacetylates RORγt and enhances Th17 cell generation. J Exp Med. 2015; 212(5):607-17. PMCID: PMC4451124.

5. Bacterial Lysine Acetylation and their Role in Regulating *E. coli* Central Metabolism. We have investigated lysine acetylation occurring in bacterial systems, specifically in *E. coli*. We found lysine acetylation to be highly regulated in *E. coli* central metabolism enzymes and transcription regulators potentially involved in virulence. We have investigated Lysine acetylation and the role of acetylphosphate, and identifying substrates for the deacetylase CobB. Interestingly, nutrient supplements, such as glucose additions, can greatly impact the bacterial acetylome and increase relative acetylation levels significantly. Over 2800 unique acetylation sites were identified from wildtype strains grown with glucose. Regulated acetylation substrates and sites are subjected to structural and functional analysis. We are exploring the role of acetylation in *E. coli*, and several critical regulators, such as RcsB and LRP– as well as over a dozen 'global regulators of virulence'.

a. Christensen DG, Meyer JG, Baumgartner JT, D'Souza AK, Nelson WC, Payne SH, Kuhn ML, **Schilling B**, Wolfe AJ. Identification of Novel Protein Lysine Acetyltransferases in Escherichia coli, mBio 2018; 9 (5), 01905-18. PMCID: PMC6199490.

b. Nakayasu ES, Burnet MC, Walukiewicz HE, Wilkins CS, Shukla AK, Brooks S, Plutz MJ, Lee BD, **Schilling B**, Wolfe AJ, Müller S, Kirby JR, Rao CV, Cort JR, Payne SH. Ancient Regulatory Role of Lysine Acetylation in Central Metabolism. mBio. 2017; 8(6). PMCID: PMC5705920.

c. **Schilling B**, Christensen D, Davis R, Sahu AK, Hu LI, Walker-Peddakotla A, Sorensen DJ, Zemaitatis B, Gibson BW, Wolfe AJ. Protein acetylation dynamics in response to carbon overflow in *Escherichia coli*, Molecular Microbiology, 2015; 98(5):847-863. PMCID: PMC4715485.

d. Kuhn ML, Zemaitaitis B, Hu LI, Sahu AK, Sorensen DJ, Minasov G, Lima BP, Scholle M, Mrksich M, Anderson WF, Gibson BW, **Schilling B**, Wolfe AJ. Structural, kinetic and proteomic characterization of acetyl phosphate-dependent bacterial protein acetylation. PLoS One. 2014; 9(4):e94816. PMCID: PMC3995681.

D. Publications

Complete List of Published Work in My NCBI Bibliography (106 citations):

http://www.ncbi.nlm.nih.gov/sites/myncbi/birgit.schilling.1/bibliograpahy/47181873/public/?sort=date&direction=descending

Published peer-reviewed publications

1) V. Kaiser, D.E. Kaufmann, **B. Schilling**, "Crystal structure of 2,2,7,7-tetramethyl-dinaphtho[2,1-c;1',2'-e]-1,2,7-oxadisilepin", *Z. Kristallogr. NCS* **1997**, *212*, 149-150.

2) **B. Schilling**, D.E. Kaufmann, V. Kaiser, "Crystal Structure of 2,2'-bis-(trimethylgermyl)-1,1'-binaphthyl", *Z. Kristallogr. NCS* **1997**, *212*, 146-148.

3) V. Kaiser, D.E. Kaufmann, **B. Schilling**, "Crystal structure of 2,2'-bis(trimethylsilyl)-1,1'-binaphthyl", *Z. Kristallogr. NCS* **1997**, *212*, 143-145.

4) **B. Schilling**, D.E. Kaufmann, V. Kaiser, "Synthesis and Structure of 2,2′ -Boryl-, Germyl-Silyl-, and Stannyl-Substituted 1,1′ -Binaphthyl Systems.", *Chem. Ber. / Recueil (Eur. J. Inorg. Chem.)* **1997**, *130*, 923-932.

5) **B. Schilling**, "New chiral 2,2'-bifunctionalized Binaphthyl-Systems: Structures and Properties" Ph.D. Thesis, University of Clausthal, Germany, **1997**.

6) **B. Schilling**, D.E. Kaufmann, "Suzuki Coupling of Chiral 1,1'-Binaphthyl Systems - New Synthetic Routes to Functionalize the 2- and 2,2´-Position" *Eur. J. Org. Chem.* **1998**, 701-709.

7) **B. Schilling**, W. Wang, J.S. McMurray, K.F. Medzihradszky, "Fragmentation and Sequencing of Cyclic Peptides by Matrix-Assisted Laser Desorption/Ionization Post-Source Decay Mass Spectrometry", *Rapid Commun. Mass Spectrom*. **1999**, *13*, 2174-2179.

8) M. Filiatrault, B.W. Gibson, **B. Schilling**, S. Sun, R.S. Munson Jr., A.A. Campagnari, "Construction and Characterization of *Haemophilus ducreyi* Lipooligosaccharide (LOS) Mutants Defective in Expression of a Heptosyltransferase III and β1-4 Glucosyltransferase: Identification of LOS Glycoforms Containing Lactosamine Repeats", *Infection and Immunity* **2000**, *68*, 3352-3361.

9) S. Sun, **B. Schilling**, L. Tarantino, M.V. Tullius, B.W. Gibson, R.S. Munson, Jr., "Cloning and Characterization of the Lipooligosaccharide Galactosyltransferase II Gene of *Haemophilus ducreyi*", *J. Bacteriol*. **2000**, *182*, 2292-2298.

10) **B. Schilling**, S. Goon, N.M. Samuels, S.P. Gaucher, J.A. Leary, C.R. Bertozzi, B.W. Gibson, "Biosynthesis of sialylated lipooligosaccharides in Haemophilus ducreyi is dependent on exogenous sialic acid and not mannosamine. Incorporation studies using N-acylmannosamine analogues, N-glycolylneuraminic acid, and 13C-labeled N-acetylneuraminic acid" *Biochemistry* **2001**, *40 (42)*, 12666-12677.

11) **B. Schilling**, B.W. Gibson, M. Filiatrault, A.A. Campagnari, "Characterization of lipooligosaccharides from *Haemophilus ducreyi* containing polylactosamine repeats", *J. Am. Soc. Mass Spectrom.* **2002**, *13 (6)*, 724-734.

12) R. Miller, **B. Schilling**, D.W. Burton, B. Gibson, R.H. Hastings, L.J. Deftos, V.H. Hook, "Amino-terminal PTHrP peptides in lung cancer cell lines identified by mass spectrometry." *J. of Bone and Mineral Research*, 2002, *17*, S286-S286.

13) S. Goon, **B. Schilling**, M.V. Tullius, B.W. Gibson, C. R. Bertozzi, "Metabolic Incorporation of Unnatural Sialic Acids into *Haemophilus ducreyi* Lipooligosaccharides", *Proceedings of the National Academy of Science* **2003**, *100 (6)*, 3089-3094.

14) **B. Schilling**, R. H. Row, B. W. Gibson**,** X. Guo, and M. M. Young. "MS2Assign: Automated Assignment and nomenclature of tandem mass spectra of chemically crosslinked peptides", *J. Am. Soc. Mass Spectrom.* **2003**, *14 (8)*, 834-850.

15) Z.A. Knight, **B. Schilling**, R.H. Row, B.W. Gibson, K.M. Shokat, "Phosphospecific Proteolysis: A Chemoenzymatic Approach for Mapping the Phosphoproteome", *Nature Biotechnology* **2003**, *21 (9)*, 1047-1054.

16) S. Yasothornsrikul, D. Greenbaum, K. F. Medzihradszky, T. Toneff, R. Bundey, R. Miller, **B. Schilling**, I. Petermann, J. Dehnert, A. Logvinova, P. Goldsmith, John Neveu, William S. Lane, B. Gibson, T. Reinheckel, C. Peters, M. Bogyo, V.Y. Hook, "Cathepsin L in Secretory Vesicles Functions as a Processing Enzyme for Production of the Enkephalin Peptide Neurotransmitter", *Proceedings of the National Academy of Science* **2003**, *100*, 9590-9595.

17) C.J. Collins, **B. Schilling**, M.M. Young, G. Dollinger, R.K. Guy, "Isotopically labeled Crosslinking Reagents: Resolution of Mass Degeneracy in the Identification of Crosslinked Peptides", *Bioorganic & Medicinal Chemistry Letters* **2003**, *13*, 4023-4026.

18) R.V. Rao, K. Poksay, S. Castro-Obregon, **B. Schilling**, R.H. Row, G. del Rio, B.W. Gibson, H.M. Ellerby, D.E. Bredesen, "Coupling endoplasmic reticulum stress to the cell death program: molecular components of an alternative apoptosome", *J. Biol. Chem.*, **2003**, *279 (1)*, 177-187.

19) K. Jin, X.O. Mao, B. Cottrell, **B. Schilling**, L. Xie, R.H. Row, Y. Sun, A. Peel, J. Childs, G. Gendeh, B.W. Gibson, D.A. Greenberg, "Proteomic and Immunochemical Characterization of a Role for Stathmin in Adult Neurogenesis", *FASEB J. (*The Federation of American Societies for Experimental Biology*)*, **2004**, *18*, 287-299.

20) **B. Schilling**, C.B. Yoo, C.J. Collins, B.W. Gibson, "Determining Cysteine Oxidation Status Using Differential Alkylation", *Int. J. Mass Spectrom.*, **2004**, *236 (1-3)*, 117-121.

21) I. Leduc, P. Richards, C. Davis, **B. Schilling**, C. Elkins, "A novel lectin, DltA, is required for expression of a full serum resistance phenotype in *Haemophilus ducreyi*" *Infect. Immun.* **2004** *72 (6)*, 3418-28.

22) N. J. Phillips, **B. Schilling**, M.K. McLendon, M.A. Apicella, B.W. Gibson, "A novel modification of the lipid A of *Francisella tularensis*", *Infect. Immun.*, **2004**, *72 (9)*, 5340-5348.

23) **B. Schilling**, S.M.M. Bharath, R.H. Row, J. Murray, M.P. Cusack, R.A. Capaldi, C.R. Freed, K.N. Prasad, J.K. Andersen, B.W. Gibson, "Rapid Purification and Mass Spectrometric Characterization of Mitochondrial NADH Dehydrogenase (Complex I) from Rodent Brain and a Dopaminergic Neuronal Cell Line" *Mol. Cell. Proteomics*, **2005**, *4*, 84-96.

24) **B. Schilling**, R. Aggeler, B. Schulenberg, J. Murray, R.H. Row, R.A. Capaldi, and B.W. Gibson, "Mass Spectrometric Identification of a Novel Phosphorylation Site in Subunit NDUFA10 of Bovine Mitochondrial Complex I" *FEBS Letters* **2005**, *579*, 2485-2490.

25) B.A. Cottrell, V. Galvan, S. Banwait, O. Gorostiza, C.R. Lombardo, T. Williams, **B. Schilling**, A. Peel, B.W. Gibson, E.H. Koo, C.D. Link, D.E. Bredesen, "A pilot proteomic study of amyloid precursor protein interactors in Alzheimer's disease" *Ann. Neurol.*, **2005**, *58 (2)*, 277-289.

26) **B. Schilling**, J. Murray, C.B. Yoo, R.H. Row, M.P. Cusack, R.A. Capaldi, B.W. Gibson, "Proteomic Analysis of Succinate Dehydrogenase and Ubiquinol-Cytochrome C Reductase (Complex II and III) Isolated by Immunoprecipitation from Bovine and Mouse Heart Mitochondria" *Biochim. Biophys. Acta - Molecular Basis of Disease*, **2006**, *1762 (2)*, 213-222.

27) P.A. Adlard, S. Melov, K. Morten, F. Johnson, T. Golden, D. Hinerfeld, **B. Schilling**, A. Tsatsanis, Q.-X. Li, K. Laughton, S.R. Doctrow, C.L. Masters, I. Volitakis, R.A. Cherny, B. Gibson, A.I. Bush, "P3-362 Mitochondrial oxidative stress modulates amyloid pathology and the hyperphosphorylation of tau", *Alzheimer's and Dementia*, **2006**, *2(3)*, Supplement 1, S481-S482.

28) **B. Schilling**, J. Gafni, C. Torcassi, X. Cong, R.H. Row, M.A. LaFevre-Bernt, M.P. Cusack, T. Ratovitski, R. Hirschhorn, C.A. Ross, B.W. Gibson, L.M. Ellerby, "Huntingtin Phosphorylation Sites Mapped by Mass Spectrometry: Modulation of Cleavage and Toxicity" *J. Biol. Chem*. **2006**, *281 (33)*, 23686-23697.

29) C.C. Benz, C. Atsriku, C. Yau, D. Britton, **B. Schilling**, B.W. Gibson, M.A. Baldwin, G.K. Scott, "Novel Pathways Associated with Quinone Induced Stress in Breast Cancer Cells" *Drug Metabolism Reviews*, **2006**, *38*, 601-613.

30) **B. Schilling**, M.K. McLendon, N.J. Phillips, M.A. Apicella, B.W. Gibson, "Characterization of Lipid A Acylation Patterns in *Francisella tularensis*, *Francisella novicida*, and *Francisella philomiragia* Using Multiple-Stage Mass Spectrometry and Matrix-Assisted Laser Desorption/Ionization on an Intermediate Vacuum Source Linear Ion Trap" *Anal. Chem.*, **2007**, *79(3)*, 1034-1042.

31) S. Melov, P.A. Adlard, K. Morten, F. Johnson, T.R. Golden, D. Hinerfeld, **B. Schilling**, C. Mavros, C.L. Masters, I. Volitakis, R.A. Cherny, B.W. Gibson, A.I. Bush, "Mitochondrial oxidative stress causes hyperphosphorylation of tau", *PLoS ONE*, **2007,** *2(6)*, e536.

32) M.K. McLendon, **B. Schilling**, Jason R. Hunt, M.A. Apicella, B.W. Gibson, "Identification of LpxL, a late Acyl Transferase of *Francisella tularensis*" *Inf. Immun.*, **2007**, *75*, 5518-5531.

33) J. Murray, **B. Schilling**, R.H. Row, C.B. Yoo, B.W. Gibson, M.F. Marusich, R.A. Capaldi, "Small Scale Immunopurification of Cytochrome *C* Oxidase for a high throughput, multiplexing analysis of enzyme activity, and amount." *Biotechnology and Applied Biochemistry*, **2007**, *48(4)*, 169-178.

34) X. Guo, P. Bandyopadhyay, **B. Schilling**, M.M. Young, N. Fujii, T. Aynechi, R.K. Guy, I.D. Kuntz, B.W. Gibson, "Partial Acetylation of Lysine Residues Improves Intra-Protein Cross-linking" *Anal. Chem.*, **2008**, *80(4)*, 951 -960.

35) D.J. Britton, G.K. Scott, **B. Schilling**, C. Atsriku, J. Held, M.A. Baldwin, B.W. Gibson, C.C. Benz, "Ligand Dependent/Independent Phosphorylation of Estrogen Receptor Serine 154 in Human Breast Cancer Cells Measured by Mass Spectrometry" *J. Am. Mass Spectrom. Soc*, **2008**, *19(5)*, 729-740.

36) C. Atsriku, D.J. Britton, J.M. Held, **B. Schilling**, G.K. Scott, B.W. Gibson, C.C. Benz, M.A. Baldwin, "Systematic mapping of novel posttranslational modifications in human estrogen receptor, with emphasis on phosphorylation", *Mol. Cell. Proteomics*, **2009***, 8(3),* 467–480.

37) T. Addona, S.E. Abbatiello, **B. Schilling**, S.J. Skates, D.R. Mani, D.M. Bunk, C.H. Spiegelman, L.J. Zimmerman, A.-J.L. Ham, H. Keshishian, S.C. Hall, S. Allen, R.K. Blackman, C.H. Borchers, C. Buck, H.L. Cardasis, M.P. Cusack, N.G. Dodder, B.W. Gibson, J.M. Held, T. Hiltke, A. Jackson, E.B. Johansen, C.R. Kinsinger, J. Li, M. Mesri, T.A. Neubert, R.K. Niles, T.C. Pulsipher, H. Rodriguez, P.A. Rudnick, D. Smith, D.L. Tabb, T.J. Tegeler, A.M. Variyath, L.J. Vega-Montoto, Å. Wahlander, S. Waldemarson, M. Wang, J.R. Whiteaker, L. Zhao, N.L. Anderson, S.J. Fisher, D.C. Liebler, A.G. Paulovich, F.E. Regnier, P. Tempst,

S.A. Carr, and The NCI Clinical Proteomic Technology Assessment for Cancer (CPTAC) Network, "Multi-site assessment of the precision and reproducibility of multiple reaction monitoring–based measurements of proteins in plasma", *Nature Biotechnology*, **2009**, *27*, 633 - 641.

38) Z.-Q. Ma, S. Dasari, M.C. Chambers, M.D. Litton, S.M. Sobecki, L.J. Zimmerman, P.J. Halvey, **B. Schilling**, P.M. Drake, B.W. Gibson, D.L. Tabb "IDPicker 2.0: Improved Protein Assembly with High Discrimination Peptide Identification Filtering", *J. Proteome Research*, **2009**, *8(8)*, 3872–3881.

39) S.R. Danielson, J. Held, **B. Schilling**, M. Oo, B.W. Gibson, J.K. Andersen "Preferentially Increased Nitration of α-Synuclein at Tyrosine-39 in a Cellular Oxidative Model of Parkinson's Disease", *Anal. Chem*., **2009**, *81(18)*, 7823–7828.

40) E. Johansen, **B. Schilling**, M. Lerch, R.K. Niles, H. Liu, B. Li, S. Allen, S.C. Hall, H.E. Witkowska, F.E. Regnier, B.W. Gibson, S.J. Fisher, P.M. Drake "A Lectin HPLC Method to Enrich Selectively-glycosylated Peptides from Complex Biological Samples" *Journal of Visualized Experiments (JoVe),* **2009**, 32, http://www.jove.com/index/Details.stp?ID=1398, doi: 10.3791/1398 (Video Article).

41) B.-Y. Lee, D. Jethwaney, **B. Schilling**, D.L. Clemens, B.W. Gibson, M.A. Horwitz, "The *Mycobacterium bovis* Bacille Calmette-Guérin Phagosome Proteome", *Mol. Cell. Proteomics*, **2010**, *9*, 32-53.

42) P.A. Rudnick, K.R. Clauser, L.E. Kilpatrick, D.V. Tchekhovskoi, P. Neta, N. Blonder, D.D. Billheimer, R.K. Blackman, D.M. Bunk, H.L. Cardasis, A.- J.L. Ham, J.D. Jaffe, C.R. Kinsinger, M. Mesri, T.A. Neubert, **B. Schilling**, D.L. Tabb, T.J. Tegeler, L. Vega-Montoto, A.M. Variyath, M. Wang, P. Wang, J.R. Whiteaker, L.J. Zimmerman, S.A. Carr, S.J. Fisher, B.W. Gibson, A.G. Paulovich, F.E. Regnier, H. Rodriguez, C. Spiegelman, P. Tempst, D.C. Liebler, S.E. Stein and the CPTAC Network, "Performance Metrics for Liquid Chromatography-Tandem Mass Spectrometry Systems in Proteomics Analyses", *Mol. Cell. Proteomics*, **2010**, *9*, 225-241.

43) A.G. Paulovich, D. Billheimer, A.-J.L. Ham, L.J. Vega-Montoto, P.A. Rudnick, D.L. Tabb, P. Wang, R.K. Blackman, D.M. Bunk, H.L. Cardasis, K.R. Clauser, C.R. Kinsinger, **B. Schilling**, T.J. Tegeler, A.M. Variyath, M. Wang, J.R. Whiteaker, L.J. Zimmerman, D. Fenyo, S.A. Carr, S.J. Fisher, B.W. Gibson, M. Mesri, T.A. Neubert, F.E. Regnier, H. Rodriguez, C. Spiegelman, S.E. Stein, P. Tempst, D.C. Liebler, "Interlaboratory Study Characterizing a Yeast Performance Standard for Benchmarking LC-MS Platform Performance", *Mol. Cell. Proteomics*, **2010**, *9*, 242-254.

44) D.L. Tabb, L. Vega-Montoto, P.A. Rudnick, A.M. Variyath, A.-J.L. Ham, D.M. Bunk, L.E. Kilpatrick, D.D. Billheimer, R.K. Blackman, H.L. Cardasis, S.A. Carr, K.R. Clauser, J.D. Jaffe, K.A. Kowalski, T.A. Neubert, F.E. Regnier, **B. Schilling**, T.J. Tegeler, M. Wang, P. Wang, J.R. Whiteaker, L.J. Zimmerman, S.J. Fisher, B.W. Gibson, C.R. Kinsinger, M. Mesri, H. Rodriguez, S.E. Stein, P. Tempst, A.G. Paulovich, D.C. Liebler, C. Spiegelman, "Repeatability and Reproducibility in Proteomic Identifications by Liquid Chromatography—Tandem Mass Spectrometry", *J. Proteome Research*, **2010**, 9 (2), 761–776.

45) J.M. Held, S.R. Danielson, J.B. Behring, C. Atsriku, D.J. Britton, R.L. Puckett, **B. Schilling**, J. Campisi, C.C. Benz, B.W. Gibson, "Quantifying Site-Specific Reversible and Irreversible Oxidation of Cysteines in Endogenous Proteins Using Differential Alkylation and Multiple Reaction Monitoring Mass Spectrometry", *Mol. Cell. Proteomics*, **2010**, 9, 1400-1410.

46) S. Sperandio, K.S. Poksay, **B. Schilling**, D. Crippen, B. Gibson, D. Bredesen "Identification of new modulators and protein alterations in non-apoptotic programmed cell death", *J. Cell. Biochem*., **2010**, 111 (6), 1401-1412.

47) P.M. Drake, **B. Schilling**, R.K. Niles, M. Braten, E. Johansen, H. Liu, M. Lerch, D.J. Sorensen, B Li, S. Allen, S.C. Hall, H.E. Witkowska, F.E. Regnier, B.W. Gibson, S.J. Fisher, "A lectin affinity workflow targeting glycosite-specific, cancer-related carbohydrate structures in trypsin-digested human plasma", *Anal. Biochem.*, **2011**, 408 (1), 71-85.

48) Z.-Q. Ma, M.C. Chambers, A.J.L. Ham, K.L. Cheek, C.W. Whitwell, H.-R. Aerni, **B. Schilling**, A.W. Miller, R.M. Caprioli, D.L. Tabb, "ScanRanker: Quality Assessment of Tandem Mass Spectra via Sequence Tagging." *Journal Proteome Research* **2011**, 10(7) 2896-904.

49) B. Li, J.M. Held, **B. Schilling**, S.R. Danielson, B.W. Gibson, "Confident identification of 3-nitrotyrosine modifications in mass spectral data across multiple mass spectrometry platforms", *Journal of Proteomics*, **2011**, 74(11), 2510-2521.

50) X. Cong, J.M. Held, F. DeGiacomo, A. Bonner, J.M. Chen, **B. Schilling**, G.A. Czerwieniec, B.W. Gibson, L.M. Ellerby, "Mass Spectrometric Identification of Novel Lysine Acetylation Sites in Huntingtin", *Molecular Cellular Proteomics*, **2011**, 10(10), M111 009829.

51) P.M. Drake, **B. Schilling**, R.K. Niles, A. Prakobphol, B. Li, K. Jung, W. Cho, M. Braten, H.D. Inerowicz, K. Williams, M. Albertolle, J.M. Held, D. Iacovides, D.J. Sorensen, O.L. Griffith, E. Johansen, A.M. Zawadzka, M.P. Cusack, S. Allen, M. Gormley, S.C. Hall, H.E. Witkowska, J.W. Gray, F. Regnier, B.W. Gibson, S.J. Fisher, "A lectin chromatography/mass spectrometry discovery workflow identifies putative biomarkers of aggressive breast cancers", *J. Proteome Res.*, **2012**, 11 (4), 2508–2520.

52) **B. Schilling**, M.J. Rardin, B.X. MacLean, A.M. Zawadzka, B.E. Frewen, M.P. Cusack, D.J. Sorensen, M.S. Bereman, E. Jing, C.C. Wu, E. Verdin, C. R. Kahn, M.J. MacCoss, B.W. Gibson, "Platform Independent and Label-free Quantitation of Proteomic Data using MS1 Extracted Ion Chromatograms in Skyline. Application to Protein Acetylation and Phosphorylation", *Mol. Cell. Proteomics*, **2012**, 11, 202-214.

53) P. Agrawal, Y.-T. Chen, **B. Schilling**, D. Chen, P.J. Kapahi, B.W. Gibson, R.E. Hughes, "Ubiquitin Specific Peptidase 9, X-linked (USP9X) Modulates the Activity of Mammalian Target of Rapamycin (mTOR)", *J. Biol. Chem.,* **2012**, 287(25), 21164-21175.

54) N.J. Phillips, C.T. Steichen, **B. Schilling**, D.M.B. Post, R.K. Niles, T.B. Bair, M.L. Falsetta, M.A. Apicella, B.W. Gibson, "Proteomic Analysis of *Neisseria gonorrhoeae* Biofilms Shows Shift to Anaerobic Respiration and Changes in Nutrient Transport and Outermembrane Proteins", *PLOS One*, **2012**, 7(6), e38303.

55) Z.-Q. Ma, K.O. Polzin, S. Dasari, M.C. Chambers, **B. Schilling**, B.W. Gibson, B.Q. Tran, R.M. Caprioli, L. Vega-Montoto, D.C. Liebler, D.L. Tabb, "QuaMeter: Multi-Vendor Performance Metrics for LC-MS/MS Proteomics Instrumentation", *Analytical Chemistry*, **2012**, 84 (14), 5845–5850.

56) J.M. Held, D.J. Britton, G.K. Scott, E. Lee, **B. Schilling**, M.A. Baldwin, B.W. Gibson, C.C. Benz, "Ligand Binding Promotes CDK-Dependent Phosphorylation of ER-Alpha on Hinge Serine 294 but Inhibits Ligand-Independent Phosphorylation of Serine 305", *Molecular Cancer Research*, **2012**, 10 (8), 1120-1132.

57) J.M. Held, **B. Schilling**, A.K. D'Souza, T. Srinivasan, J.B. Behring, D.J. Sorensen, C.C. Benz and B.W. Gibson "Label-free quantitation and mapping of the ErbB2 tumor receptor by multi-protease digestion with data-dependent (MS1) and data-independent (MS2) acquisitions" *International Journal of Proteomics*, **2013**, Article ID 791985, 11 pages, http://dx.doi.org/10.1155/2013/791985.

58) M.J. Rardin, J.C. Newman, J.M. Held, M.P. Cusack, D. Sorensen, B. Li, **B. Schilling**, S.D. Mooney, C.R. Kahn, E. Verdin, B.W. Gibson, "Label-free quantitative proteomics of the lysine acetylome in mitochondria identifies novel substrates of SIRT3 in metabolic pathways." *Proc Natl Acad Sci U S A*, **2013**, 110, 6601-6606.

59) S.E. Abbatiello, D. R. Mani, **B. Schilling**, B. MacLean, L.J. Zimmerman, X. Feng, M.P. Cusack, S.C. Hall, T. Addona, S. Allen, N. Dodder, M. Ghosh, J.M. Held, V. Hedrick, H.D. Inerowicz, A. Jackson, H. Keshishian, J.-W. Kim, J. Lyssand, C.P. Riley, P. Rudnick, P. Sadowski, K. Shaddox, D. Smith, D. Tomazela, A. Wahlander, S. Waldemarson, C.A. Whitwell, J. You, S. Zhang, C. Borchers, C. Buck, S.J. Fisher, B.W. Gibson, D. Liebler, M. MacCoss, T.A. Neubert, A. Paulovich, F. Regnier, N. Sedransk, S.J. Skates, P. Tempst, M. Wang, S.A. Carr, "Design, Implementation, and Multi-Site Evaluation of a System Suitability Protocol for the Quantitative Assessment of Instrument Performance in LC-MRM-MS.", *Mol. Cell. Proteomics*, **2013**, 12(9), 2623-2639.

60) **B. Schilling**, J. Hunt, B.W. Gibson, M.A. Apicella, "Site-specific acylation changes in the Lipid A of *Escherichia coli lpxL*- mutants grown at high temperatures", *Innate Immunity*, **2014**, 20(3), 269-282.

61) M.L. Kuhn, B. Zemaitaitis, L.I. Hu, A. Sahu, D. Sorensen, G. Minasov, B.P. Lima, M. Scholle, M. Mrksich, W.F. Anderson, B.W. Gibson, **B. Schilling**, A.J. Wolfe, "Structural, kinetic and proteomic characterization of acetyl phosphate-dependent bacterial protein acetylation", *PLOS One*, **2014**, 9(4): e94816.

62) A.M. Zawadzka, **B. Schilling**, M.P. Cusack, A.K. Sahu, P. Drake, S.J. Fisher, C.C. Benz, B.W. Gibson, "Phosphoprotein secretome of tumor cells as a source of candidates for breast cancer biomarkers in plasma", *Mol. Cell. Proteomics*, **2014**, 13(4):1034-49.

63) D. Broudy, T. Killeen, M. Choi, N. Shulman, D.R. Mani, S.E. Abbatiello, D. Mani, R. Ahmad, A.K. Sahu, **B. Schilling**, B.W. Gibson, S.A. Carr, O. Vitek, M.J. MacCoss, B. MacLean, "A framework for installable external tools in Skyline", *Bioinformatics*, **2014**, 30(17), 2521-2523.

64) K.A. Wilson-Edell, A. Kehasse, G.K. Scott, C. Yau, D.E. Rothschild, **B. Schilling**, B.S. Gabriel, M.A. Yevtushenko, I.M. Hanson, J.M. Held, B.W. Gibson, C.C Benz, "RPL24: a potential therapeutic target whose depletion or acetylation inhibits polysome assembly and cancer cell growth", Oncotarget, **2014**, 5(13), 5165-5176.

65) V. Sharma, J. Eckels, G.K. Taylor, N.J. Shulman, A.B. Stergachis, S.A. Joyner, P. Yan, J.R. Whiteaker, G.N. Halusa, **B. Schilling**, B.W. Gibson, C.M. Colangelo, A.G. Paulovich, S.A. Carr, J.D. Jaffe, M.J. MacCoss, B. MacLean, "Panorama: A Targeted Proteomics Knowledge Base", *J. Proteome Research*, **2014**, 13(9), 4205-4210.

66) A.M. Zawadzka, **B. Schilling**, J.M. Held, A.K. Sahu, M.P. Cusack, P.M. Drake, S.J. Fisher, B.W. Gibson, "Variation and quantification among a target set of phosphopeptides in human plasma by multiple reaction monitoring (MRM) and SWATH MS2 data-independent acquisition", *Electrophoresis*, **2014**, 35(24), 3487-3497.

67) I.M. Klang, **B. Schilling**, D.J. Sorensen, A.K. Sahu, P. Kapahi, J.K. Andersen, P. Swoboda, D.W. Killilea, B.W. Gibson, G.J. Lithgow, "Iron promotes protein insolubility and aging in *C. elegans*", *Aging*, **2014**, 6(11), 975-991.

68) A. AbouElfetouh, M.L. Kuhn, L.I. Hu, M. Scholle, D.J. Sorensen, A.K. Sahu, M. Mrksich, W.F. Anderson, B.W. Gibson, **B. Schilling**, A.J. Wolfe "The *E. coli* sirtuin CobB shows no preference for enzymatic and non-enzymatic lysine acetylation substrate sites", *Microbiology Open*, **2015**, 4(1), 66-83.

69) W.R. French, L.J. Zimmerman, **B. Schilling**, B.W. Gibson, C.A. Miller, R.R. Townsend, S.D. Sherrod, C.R. Goodwin, J.A. McLean, David L. Tabb "Wavelet-Based Peak Detection and a New Charge Inference Procedure for MS/MS Implemented in ProteoWizard msConvert", *J. Proteome Res.*, **2015**, 14(2), 1299-1307.

70) H.W. Lim, S.G. Kang, J.K. Ryu, **B. Schilling**, M. Fei, I.S. Lee, A. Kehasse, K. Shirakawa, M. Yokoyama, M. Schnölzer, H.G. Kasler, H.-S. Kwon, B.W. Gibson, H. Sato, K. Akassoglou, C. Xiao, D.R. Littman, M. Ott, E. Verdin, "SIRT1 deacetylates RORgt and enhances Th17 cell generation", *J. Experimental Medicine*, **2015**, 212(5):607-617.

71) S.E. Abbatiello, **B. Schilling**, D.R. Mani, L.J. Zimmerman, S.C. Hall, B. MacLean, M. Albertolle, S. Allen, M. Burgess, M.P. Cusack, M. Ghosh, V. Hedrick, J.M. Held, H.D. Inerowicz, A. Jackson, H. Keshishian, C.R. Kinsinger, J. Lyssand, L. Makowski, M. Mesri, H. Rodriguez, P. Rudnick, P. Sadowski, N. Sedransk, K. Shaddox, S.J. Skates, E. Kuhn, D. Smith, J.R. Whiteaker, C. Whitwell, S. Zhang, C.H. Borchers, S.J. Fisher, B.W. Gibson, D.C. Liebler, M.J. MacCoss, T.A. Neubert, A.G. Paulovich, F.E. Regnier, P. Tempst, S.A. Carr "Large-scale inter-laboratory study to develop, analytically validate and apply highly multiplexed, quantitative peptide assays to measure cancer-relevant proteins in plasma", *Mol. Cell. Proteomics*, **2015**, 14(9):2357-2374.

72) M.J. Rardin, **B. Schilling**, L.-Y. Cheng, B.X. MacLean, D.J. Sorensen, A. Sahu, M.J. MacCoss, O. Vitek, B.W. Gibson "MS1 Peptide Ion Intensity Chromatograms in MS2 (SWATH) Data Independent Acquisitions. Improving Post Acquisition Analysis of Proteomic Experiments." *Mol. Cell. Proteomics*, **2015**, 14(9):2405-2419.

73) R. O'Brien, F. DeGiacomo, J. Holcomb, A. Bonner, K. Zafar, A. Weiss, B. Lager, **B. Schilling**, B.W. Gibson, S. Chen, S. Kwak, L.M. Ellerby "Integration Independent Transgenic Huntington's Disease Fragment Mouse Models Reveal Distinct Neurodegeneration In Vivo", *J. Biol. Chem.*, **2015**, 290(31):19287-19306.

74) S.-W. Min, X. Chen, T.E. Tracy, P. Dongmin Sohn, C. Wang, K. Shirakawa, N. Devidze, S.S. Minami, B.-H. Lee, **B. Schilling**, X. Cong, L. Ellerby, B.W. Gibson, J. Johnson, N. Krogan, R. Ponnusamy, Y. Zhou, Y. Li, M. Shamloo, E. Masliah, R. King, D. Finley, E. Verdin, L. Gan, "Critical Role of Acetylation in Tau-Mediated Neurodegeneration and Cognitive Deficits: Therapeutic Implications", *Nature Medicine*, **2015**, 21(10):1154-1162.

75) **B. Schilling**, B. MacLean, J.M. Held, M.J. Rardin, D.J. Sorensen, T. Peters, A.J. Wolfe, C.L. Hunter, M.J. MacCoss, B.W. Gibson, "Multiplexed, scheduled high-resolution parallel reaction monitoring on a full scan QqTOF instrument with integrated data-dependent and targeted mass spectrometric workflows.", *Analytical Chemistry*, **2015**, 87(20):10222-10229.

76) **B. Schilling**, D. Christensen, R. Davis, A.K. Sahu, L.I. Hu, A. Walker-Peddakotla, D.J. Sorensen, B. Zemaitatis, B.W. Gibson, A.J. Wolfe "Protein acetylation dynamics in response to carbon overflow in *Escherichia coli*", *Molecular Microbiology*, **2015**, 98(5), 847-863.

77) T.E. Tracy, P.D. Sohn, S.S. Minami, C. Wang, S.-W. Min, Y. Li, Y. Zhou, D. Le, I. Lo, R. Ponnusamy, X. Cong, **B. Schilling**, L. Ellerby, R.L. Huganir, L. Gan "Acetylated Tau Obstructs KIBRA-Mediated Signaling in Synaptic Plasticity and Promotes Tauopathy-Related Memory Loss.", *Neuron*, **2016**, 90(2), 245-260.

78) S.A. Bullard, S. Seo, **B. Schilling**, M.C. Dyle, J.M. Dierdorff, S.M. Ebert, A.D. DeLau, B.W. Gibson, C.M. Adams "Gadd45a Promotes Skeletal Muscle Atrophy by Forming a Complex with the Protein Kinase MEKK4", *J. Biol. Chem*., **2016**, 291:17496-17509.

79) J.G. Meyer, A.K. D'Souza, D.J. Sorensen, M.J. Rardin, A.J. Wolfe, B.W. Gibson, **B. Schilling**, "Quantification of Lysine Acetylation and Succinylation Stoichiometry in Proteins Using Mass Spectrometric Data-Independent Acquisitions (SWATH)", *J. Amer. Soc. of Mass Spectrom*. **2016**, 27(11), 1758-1771.

80) A. Boominathan, S. Vanhoozer, N. Basisty, K. Powers, A.L. Crampton, X. Wang, N. Friedricks, **B. Schilling**, M.D. Brand, M.S. O'Connor "Stable nuclear expression of ATP8 and ATP6 genes rescues a mtDNA Complex V null mutant" *Nucleic Acids Research*, **2016**, 44, 9342-9357.

81) K.A. Mark, K.J. Dumas, D. Bhaumik, **B. Schilling**, S. Davis, T. Ronnen Oron, D.J. Sorensen, M. Lucanic, R. Brem, S. Melov, A. Ramanathan, B.W. Gibson, G.J. Lithgow "Vitamin D Promotes Protein Homeostasis and Longevity via the Stress Response Pathway Genes SKN-1/Nrf2 and IRE-1/XBP-1", *Cell Reports*, **2016**, 17, 1227-1237.

82) J.G. Meyer, **B. Schilling** "Clinical applications of quantitative proteomics using data-independent acquisition, including SRM and DIA/SWATH", *Expert Review of Proteomics*, **2017**, 14(5), 419-429.

83) E. Dogu, S. Mohammad-Taheri, S.E. Abbatiello, M. Bereman, B. MacLean, **B. Schilling**, O. Vitek "MSstatsQC: Longitudinal System Suitability Monitoring and Quality Control for Targeted Proteomic Experiments", *Mol. Cell. Proteomics*, **2017**, 16(7), 1335-1347.

84) J.G. Meyer, S. Mukkamalla, A.K. H. Steen, A.I. Nesvizhskii, B.W. Gibson, **Birgit Schilling** "PIQED: automated identification and quantification of protein modifications from DIA-MS data", *Nature Methods*, **2017**, 14(7),646-647.

85) B.C. Collins, C.L. Hunter, Y. Liu, **B. Schilling**, G. Rosenberger, S.L. Bader, D.W. Chan, B.W. Gibson, A.-C. Gingras, J.M. Held, M. Hirayama-Kurogi, G. Hou, C. Krisp, B. Larsen, L. Lin, S. Liu, M.P. Molloy, R.L. Moritz, S. Ohtsuki, R. Schlapbach, N. Selevsek, S.N. Thomas, S.-C. Tzeng, H. Zhang, R. Aebersold "Multi-laboratory assessment of reproducibility, qualitative and quantitative performance of SWATH-mass spectrometry", *Nature Communications*, **2017**, 8(1), 291.

86) D.M.B. Post, **B. Schilling**, L.M. Reinders, A.K. D'Souza, M. R. Ketterer, SJ. Kiel, A.T. Chande, M.A. Apicella, B.W. Gibson, "Identification and characterization of AckA-dependent protein acetylation in *Neisseria gonorrhoeae*" *PloS one.* **2017**, 12(6), e0179621.

87) D.M.B. Post, B.A. Slütter, **B. Schilling**, A.T. Chande, J.A. Rasmussen, B.D. Jones, A.K. D'Souza, L.M. Reinders, J.T. Harty, B.W. Gibson, M.A. Apicella "Characterization of Inner and Outer Membrane Proteins from *Francisella tularensis* Strains LVS and Schu S4 and Identification of Potential Subunit Vaccine Candidates", *MBio*, **2017**, 8(5).

88) E.S. Nakayasu, M.C. Burnet, C.S. Wilkins, A.K. Shukla, **B. Schilling**, A. J. Wolfe, S. Müller, J.R. Kirby, J.R. Cort, S.H. Payne "Ancient regulatory role of lysine acetylation in central metabolism", *MBio*, **2017**, 8(6).

89) R. Davis, A. Écija-Conesa, J. Gallego-Jara, T. de Diego, E.V. Filippova, G. Kuffel, W.F. Anderson, B.W. Gibson, **B. Schilling**, M. Canovas, A.J. Wolfe "An acetylatable lysine controls CRP function in *E. coli*", Molecular Microbiology, **2018**, 107(1), 116-131.

90) L. Wei, J.G. Meyer, **B. Schilling** "Quantification of Site-Specific Protein Lysine Acetylation and Succinylation Stoichiometry using Data-Independent Acquisitions (DIA) Mass Spectrometry" *J Vis Exp.*, **2018**, 134 (doi: 10.3791/57209.).

91) Y. Chong, N. Saviuk, B. Pie1, N. Basisty, R.K. Quinn, **B. Schilling**, N. Sonenberg, E. Cooper, A.P. Haghighi "Refinement of synapses without postsynaptic activity: Role for a 4E-BP dependent mechanism.", *Cell Reports*, **2018**, 23, 11-22.

92) N. Basisty, J.G. Meyer, **B. Schilling** "Protein Turnover in Aging and Longevity", *Proteomics*, **2018**, 18(5-6), e1700108.

93) V. Sharma, J. Eckels, **B. Schilling**, C. Ludwig, J.D. Jaffe, M.J. MacCoss, B. MacLean "Panorama Public: A public repository for quantitative data sets processed in Skyline", *Molecular Cellular Proteomics*, **2018**, 17(6):1239-1244.

94) N. Basisty, J.G Meyer, L. Wei, B.W. Gibson, **B. Schilling** "Simultaneous Quantification of the Acetylome and Succinylome by 'One-Pot' Affinity Enrichment.", *Proteomics*, **2018**, 18(17):e1800123.

95) U. Bruning, F. Morales-Rodriguez, J. Kalucka, J. Goveia, F. Taverna, K.C.S. Queiroz, C. Dubois, A.R. Cantelmo R. Chen, S. Loroch, E. Timmerman, V. Caixeta, K. Bloch, L.-C Conradi, L. Treps, A. Staes, K. Gevaert, A. Tee, M. Dewerchin, C.F. Semenkovich, F. Impens, **B. Schilling**, E. Verdin, J.V. Swinnen, J.L. Meier, A. Sickmann, B. Ghesquière, L. Schoonjans, X. Li, M. Mazzone, P. Carmeliet "Impairment of angiogenesis by fatty acid synthase inhibition involves mTOR malonylation", *Cell Metabolism*, **2018**, S1550-4131(18): 30462-30465.

96) D.G. Christensen, J.G. Meyer, J.T. Baumgartner, A.K. D'Souza, W.C. Nelson, S.H. Payne, M.L. Kuhn, **B. Schilling**, A.J. Wolfe "Identification of novel protein lysine acetyltransferases in *Escherichia coli*" *MBio*, **2018**, 9 (5), e01905-18.

97) N. Basisty, **B. Schilling**, P.S. Rabinovitch "Identifying ubiquitinated proteins and aggregates" Aging **2018**, 10(10), 2549-2550.

98) J.G. Meyer, S. Softic, N. Basisty, M.J. Rardin, E. Verdin, B.W. Gibson, O. Ilkayeva, C.B. Newgard, C.R. Kahn, **B. Schilling** "Multi-Omic Profiling Reveals the Opposing Forces of Excess Dietary Sugar and Fat on Liver Mitochondria Protein Acetylation and Succinylation", PLOS One, **2018**, 13, e0208973.

99) **B. Schilling**, N. Basisty, D.G. Christensen, D. Sorensen, J.S. Orr, A.J. Wolfe, C.V. Rao "Global lysine acetylation in *Escherichia coli* results from growth conditions that favor acetate fermentation" *J. Bacteriol.*, **2019**, 201(9). pii: e00768-18.

100) L. Wang, S.S. Davis, M. Borch Jensen, I. Rodriguez-Fernandez, G. Juhasz, B.W. Gibson, **B. Schilling**, A. Ramanathan, S. Ghaemmaghami, H. Jasper "JNK modifies neuronal metabolism to promote proteostasis and longevity", *Aging Cell*, **2019**, 74(4):844-857.e7.

101) **B. Schilling**, J.G. Meyer, L. Wei, M. Ott, E. Verdin "High-resolution Mass Spectrometry to Identify and Quantify Acetylation Protein Targets" *Methods Molecular Biology*, **2019**, 1983:3-16.

102) G. Wang, J.G. Meyer, W. Cai, S. Softic, M. Li, E. Verdin, C. Newgard, **B. Schilling**, C.R. Kahn "Regulation of UCP1 and Mitochondrial Metabolism in Brown Adipose Tissue by Reversible Succinylation" *Molecular Cell*, **2019**, 74(4):844-857.e7.

103) D.G. Christensen, J.T. Baumgartner, X. Xie, K.M. Jew, N. Basisty, **B. Schilling**, M.L. Kuhn, A.J. Wolfe, "Mechanisms, Detection, and Relevance of Protein Acetylation in Prokaryotes", *MBio*, **2019**, 10:e02708-18. https://doi.org/10.1128/mBio.02708-18.

104) S. Liu, **B. Schilling**, C. Wiley, C. Limbad, A. Zawadzka, J. Beck, M. Demaria, R. Artwood, F. Alimirah, S.R. Danielson, P.-Y. Desprez, S. Mooney, B.W. Gibson, J. Campisi, P. Kapahi "SILAC analysis reveals a role of the senescence-associated secretory phenotype in hemostasis", *Cell Reports*, **2019**, in revision.

105) S. Softic, J.G. Meyer, G.-X. Wang, M.K. Gupta, H.P.M.M. Lauritzen, S. Fujisaka, D. Serra, L. Herrero, J. Willoughby, K. Fitzgerald, O. Ilkayeva, C.B. Newgard, B.W. Gibson, **B. Schilling**, D.E. Cohen, C.R. Kahn "Dietary Sugars Alter Fatty Acid Oxidation and Mitochondrial Function in Part Via Hyperacetylation of Mitochondrial Proteins in Liver", *Cell Metabolism*, **2019**, in revision.

106) J.G. Meyer, T. Garcia, **B. Schilling**, B.W. Gibson, D.A. Lamba, "Proteome and Secretome Dynamics of Human Retinal Pigmented Epithelium in Response to Acute and Chronic ROS" *Scientific Reports*, **2019**, submitted, posted at bioRxiv; doi: https://doi.org/10.1101/529271.

107) C. He, J.G. Meyer, B. Patel, S.A. Hoose, C. Robbins, M. Biekaran, M. Vilela, Y. Ortiz, R. Kaiser, L. Caflisch, H. Kondow, S.C.T. Meza, S.K. Tsuchiyama, J.-P. Pellois, **B. Schilling**, M. Polymenis, B.K. Kennedy, "mTOR Inhibition by Clinically-Approved Drug Gemfibrozil is Conserved in Yeast, Nematodes, and Humans", *Cell*, **2019**, submitted.

108) K. Peasley, T. Chiba, K. Cargill, K.V. Maringer, S.S. Bharathi, E. Mukherjee, Y. Zhang, A Holtz, N. Basisty, **B. Schilling**, E.S. Goetzman, S. Sims-Lucas, "Sirtuin 5 regulates proximal tubule fatty acid oxidation to protect against acute kidney injury", *Journal of the American Society of Nephrology*, **2019**, submitted.

109) N. Basisty, A. Kale, O. Jeon, C. Kuehnemann, T. Payne, C. Rao, A. Holtz, S. Shah, L. Ferrucci, J. Campisi, **B. Schilling** "A Proteomic Atlas of Senescence-Associated Secretomes for Aging Biomarker Development", *Cell* **2019**, submitted.

110) N. Basisty, A. Holtz, **B. Schilling** "Accumulation of 'Old Proteins' during Aging and the critical need for Protein Turnover Measurements in Aging and Longevity Studies", *Proteomics* **2019**, submitted.

111) A.E. Robinson, R.J. Holewinski, A. Binek, V. Venkatraman, S.J. Parker, N. Basisty, X. Xie, P.J. Lund, J.M. Mato, B.A. Garcia, B. Schilling, S.C. Lu, J.E. Van Eyk "A Simultaneous Methylome and Proteome Quantitative Workflow for Complex Samples", *Nature Communications* **2019**, submitted.

Chapters in Books

112) G. Bir, C. Ernst, U.M. Gross, C. Rehwinkel, **B. Schilling**, S. Thormeier, V. Kaiser, D.E. Kaufmann, "Synthesis and Application of Chiral Organoboranes" in *Advances in Boron Chemistry*, The Royal Society of Chemistry, Cambridge, England **1997**, pp. 193-200.

113) **B. Schilling**, D.E. Kaufmann, "Haloborates" in *Science of Synthesis: Volume 6: Boron Compounds; Houben-Weyl: Methods of Molecular Transformations*, Georg Thieme Verlag, Stuttgart, New York, **2004**, pp. 247-256.

114) P. Drake, **B. Schilling**, B.W. Gibson, S. Fisher "Elucidation of N-Glycosites within Human Plasma Glycoproteins for Cancer Biomarker Discovery" in *Methods in Molecular Biology - Mass Spectrometry of Glycoproteins: Methods and Protocols*, Humana Press, New York, NY, **2013**, Vol 951, 307-322.

115) **B. Schilling**, B.X. MacLean, A. D'Souza, M.J. Rardin, N.J. Shulman, M.J. MacCoss, B.W. Gibson, "MS1 Label-free Quantification Using Ion Intensity Chromatograms in Skyline (Research and Clinical Applications)", in *Quantitative Proteomics* (series "Advances in Mass Spectrometry"), RSC Book, **2014**, 154-174.

116) **B. Schilling**, B.X. MacLean, J.M. Held, B.W. Gibson, "Informatics Solutions for Selected Reaction Monitoring", in *Proteome Informatics* (series "Protein Quantitation"), RSC Book, **2016**, 178-196.

117) **B. Schilling**, B.W. Gibson, C.L. Hunter, "Generation of High Quality SWATH Acquisition Data for Label-free Quantitative Proteomics Studies using TripleTOF® Mass Spectrometers", in *Methods in Molecular Biology*, Springer, **2017**, 1550:223-233.

118) D.G. Christensen, X. Xie, N. Basisty, J. Byrnes, S. McSweeny, **B. Schilling**, A.J. Wolfe, "Post-translational Protein Acylation: An Elegant Mechanism for Bacteria to Dynamically Regulate Metabolic Functions", Book Chapter: Regulatory Potential of Post-Translational Modifications in Bacteria, 2nd Edition Frontiers in Microbiology, **2019**, in press.

E. Oral Presentations and Invited Lectures at Professional Meetings

1994 B. Schilling, D.E. Kaufmann, "Synthesis of chiral Bis(organoboranes): Novel Catalysts in asymmetric Synthesis", *Borchemiker-Tagung (conference in boron chemistry)*, Stuttgart-Hohenheim, Germany, **1994**.

1995 B. Schilling, D.E. Kaufmann, "Chiral di-Boryl substituted Catalysts in asymmetric Synthesis", Borchemiker-Tagung (conference in boron chemistry), Clausthal-Zellerfeld, Germany, **1995**.

2000 B. Schilling, M. Filiatrault, A.A. Campagnari, B.W. Gibson, "Characterization of Polylactosamine containing Lipooligosaccharides from Glycosyltransferase Knockout Mutants from *Haemophilus*

ducreyi", *48th Annual ASMS Conference on Mass Spectrometry & Allied Topics*, Long Beach, California, USA, June 11-15, **2000**.

B. Schilling, S. Goon, S.P. Gaucher, N.M. Samuels, J.A. Leary, C.R. Bertozzi, B.W. Gibson, "Metabolic Engineering of Cell Surface Glycoforms of *Haemophilus ducreyi* - Biosynthetic Pathways and Mass Spectrometric Analysis", *International Carbohydrate Symposium 2000*, Hamburg, Germany, August 27 - September 1, **2000**.

2002 B. Schilling, C.J. Collins, M.M. Young, X. Guo, I.D. Kuntz, A.D. Leavitt, K.R. Guy, B.W. Gibson, "Chemical Cross-linking Strategies to Determine Protein Conformation Using a Combinatorial Set of Cross-linking Reagents", *50th Annual ASMS Conference on Mass Spectrometry & Allied Topics*, Orlando, Fl, June 2-6, **2002**.

B.Schilling, M.M. Young, R.H. Row, M. Medzihradszky, C.J. Collins, X. Guo, I.D. Kuntz, K.R. Guy, B.W. Gibson, "Chemical Cross-linking Strategies to Determine Protein Conformation Using High-Throughput LC-MS Technology: Combinatorial Cross-linking Reagents and Development of Novel Analysis Software", *Bioanalysis Seminar – Using Nano LC, LC/MS, and BioLC in Proteomics and Biopharmaceutical Applications*, South San Francisco, CA, December 6, **2002**.

2004 B. Schilling, J. Murray, R.H. Row, B. Srinivas, J.K. Andersen, R.A. Capaldi, B.W. Gibson, "One-step immunopurification of mitochondrial electron transport chain Complex I (from rodent disease model), and Complexes IV and III (bovine tissue)", *52nd Annual ASMS Conference on Mass Spectrometry & Allied Topics*, Nashville, Tennessee, May 23-27, **2004**.

2005 B. Schilling, J. Murray, B. Srinivas, C.B. Yoo, M.P. Cusack, R.A. Capaldi, J.K. Andersen, B.W. Gibson, "Mitochondrial Proteomics and Neurodegenerative Disease", *Proteome Society Meeting*, Palo Alto, CA, June 28, **2005**.

2008 B. Schilling, S. Bharath, R. Riley, S.R. Danielson, J.M. Held, J.K. Andersen, B.W. Gibson, "Proteomic Analysis of Oxidative Damage to Mitochondrial Complex I in Parkinson's Disease" *Conference for Post Translational Modifications: Detection and Physiological Evaluation* (The American Society for Biochemistry and Molecular Biology), Granlibakken, Lake Tahoe, CA, October 23-26, **2008**.

2012 B. Schilling, "Label-free quantitative workflows targeting posttranslational modifications using the new AB SCIEX TripleTOF 5600 platform." AB SCIEX Seminar series "Advanced Proteomic Workflows with the NEW TripleTOF™ 5600 LC-MS-MS System", *Symposia at Fred Hutchinson Cancer Research Center, Seattle, WA, and Pacific Northwest National Laboratories, Richland, WA*, February 14-15, **2012**.

B. Schilling, "Platform Independent and Label-free Quantitation of Protein Acetylation and Phosphorylation using MS1 Extracted Ion Chromatograms in Skyline", *Skyline Workshop at 60th Annual ASMS Conference on Mass Spectrometry & Allied Topics*, Vancouver, CAN, May 20, **2012**.

2013 B. Schilling, L. Hu, A.K. D'Souza, M.L. Kuhn, D.J. Sorensen, B. Zemaitaitis, B. Lima, M. Scholle, M. Mrksich, W. F. Anderson, A.J. Wolfe, B.W. Gibson, "Quantification of Lysine Acetylation in *Escherichia coli* Using Label-Free Proteomics: Assessing the Role of Acetyl-CoA and Acetyl-Phosphate", *61st Annual ASMS Conference on Mass Spectrometry & Allied Topics*, Minneapolis, MN, June 8-13, **2013**.

2016 Birgit Schilling "Quantification Strategies for Proteins Containing Posttranslational Modifications - different workflow strategies using Skyline, including data-dependent and data-independent acquisitions." *Open House Mass Spectrometry Symposium*, Corvalis, OR, September 21, 2016.

Birgit Schilling "Quantification Strategies for Proteins containing Posttranslational Modifications" *VII Proteomics Workshop, Brazilian Biosciences National Laboratory (LNBio) at the Brazilian Center for Research in Energy and Materials (CNPEM) Campus in Campinas-SP*, Brazil, November 8-9, 2016.

Birgit Schilling "Quantification Strategies for Proteins containing Posttranslational Modifications" *Council for Scientific and Industrial Research (CSIR),* Pretoria, South Africa, December 5, 2016.

2017 Birgit Schilling "Novel Workflows in Mass Spectrometry for Research on Aging and Diseases" *Research Seminar USC*, University of Southern California (USC), Los Angeles, CA, January 26, 2017.

Birgit Schilling "Quantification Strategies for Proteins containing Posttranslational Modifications" *Waters Symposium at UCSF*, San Francisco, CA, February 23, 2017.

Birgit Schilling "Quantification Strategies for Proteins containing Posttranslational Modifications – different workflow strategies using data-independent acquisitions, DIA." *Proteomics Short Course, University of California Davis*, Davis, CA, August 7-11, 2017.

Birgit Schilling "Quantification Strategies for Differential Protein Expression in Different Disease Models" *Research Seminar Loyola*, Loyola University Chicago, Maywood, Il, December 11, 2017.

2018 Birgit Schilling "TripleTOF 6600 – data-independent workflows Parallel Reaction Monitoring", *SCIEX users meeting at US HUPO* conference (Human Proteome), Minneapolis, MN, March 13, 2018.

Birgit Schilling "Proteomics Application for Aging and Sarcopenia", *3rd Buck Student Aging Symposium (BSAS)*, Buck Institute, Novato, April 4, 2018.

Birgit Schilling "Quantitative performance of data-independent acquisitions (DIA) in multi-laboratory studies and applications in individual laboratories" *Association of Biomolecular Research Facilities (ABRF)*, Myrtle Beach, SC, April 22-25, 2018.

Birgit Schilling "Automated identification and quantification of protein modifications from DIA-MS data" *Association of Biomolecular Research Facilities (ABRF)*, Myrtle Beach, SC, April 22-25, 2018.

Birgit Schilling "New Mass Spectrometry Strategies for Sarcopenia Research" *Research Seminar*, University of Iowa, Iowa City, IA, May 23, 2018.

Birgit Schilling "Advanced Mass Spec Solutions for the 'Omics Core Lab'" *SCIEX 2018 Breakfast Seminar at ASMS*, American Society for Mass Spectrometry conference, San Diego, CA, June 6, 2018

F. Posters and Papers at Professional Meetings

1997

B. Schilling, D.E. Kaufmann, "Suzuki Coupling of 1,1´-Binaphthyl Systems", 9th IUPAC Symposium on Organometallic Chemistry Directed Towards Organic Chemistry (OMCOS 9), Göttingen, Germany, July 20-25, 1997.

Schilling, D.E. Kaufmann, "New Chiral 2,2´-Bisfunctionalized Borylated 1,1´-Binaphthyl Systems", European Conference on Boron Chemistry 1997 (EUROBORON 97), Girona, Spain, September 20-24, 1997.

W. Francke, B. Schilling, F.C. Schröder, and G. Gries, "Recent Results in the Chemistry of Bark Beetle Pheromones", International Society of Chemical Ecology, 14th Annual Meeting (ISCE), Vancouver, Canada, July 12-16, 1997.

1999

B. Schilling, W. Wang, J.S. McMurray, K.F. Medzihradszky, "Fragmentation and Sequencing of Cyclic Peptides by MALDI-PSD Mass Spectrometry", 47th ASMS conference, Dallas, TX, USA, June 13-17, 1999.

B. Schilling, K.F. Medzihradszky, J.S. McMurray, W. Wang, "Fragmentation and Sequencing of Cyclic Peptides by MALDI-PSD Mass Spectrometry", 16th American Peptide Symposium, Minneapolis, Minnesota, USA, June 26 to Juli 1, 1999.

B. Schilling, W. Melaugh, R.S. Munson, Jr., A.A. Campagnari, B.W. Gibson, "Characterization and Identification of Lipooligosaccharide Structures from *Haemophilus ducreyi* mutants by MALDI-PSD Mass Spectrometry", Annual Conference of the Society for Glycobiology, San Francisco, CA, October 31 to November 2, 1999.

N.K. Scheffler, B. Schilling, W. Melaugh, E. Hansen, R.S. Munson, Jr., A.A. Campaganari, B.W. Gibson, "Investigation of the Interplay Between Carbohydrate Synthesis and Protein Expression in *Haemophilus ducreyi*", Annual Conference of the Society for Glycobiology, San Francsico, CA October 31- November 2, 1999.

B. Schilling, M. Filiatrault, A.A. Campagnari, B.W. Gibson, “Characterization of Polylactosamine containing Lipooligosaccharides from Glycosyltransferase Knockout Mutants Structures from *Haemophilus ducreyi*”, Department of Pharmaceutical Chemistry Retreat, Asilomar, CA Dec. 5-7, 1999.

N.J. Phillips, B. Schilling, N.K. Scheffler, S.P. Gaucher, M. Cancilla, J.A Leary, B.W. Gibson, “MS/MS and Beyond: Analyisis of Haemophilus influenzae Lipooligosaccharides by Ion-Trap Mass Specterometry”, Department of Pharmaceutical Chemistry Retreat, Asilomar CA, Dec. 5-7, 1999.

2000

S.P. Gaucher, B. Schilling, N.M. Samuels, B.W. Gibson, J.A. Leary, “Investigation of the Sialic Acid Biosynthesis Pathway in *Haemophilus* Using Isotope Labeling and FT-ICR MS”, 48th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Long Beach, California, USA, June 11-15, 2000.

2001

B.W. Gibson, B. Schilling, N.Tang, C.J. Collins, R.K. Guy, A.D. Leavitt, G. Dollinger, M.M. Young, I.D. Kuntz, “Low-Resolution Protein Structures by Mass Spectrometry”, American Chemical Society National Meeting, San Diego, CA April 2-3, 2001.

B. Schilling, S. Goon, S.P. Gaucher, N.M. Samuels, J.A Leary, C.R. Bertozzi, B.W. Gibson, “Utilizing the Sialic Acid Pathway for Metabolic Engineering of Cell Surface Glycoforms in Haemophilus ducreyi”, 49th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Chicago, Il, May, 27-31, 2001

C.J. Collins, B. Schilling, B.W. Gibson, R.K. Guy, “New Chemical Crosslinkers for a Novel Method to Determine Low Resolution Protein Structure. Poster Presentation”, 37th National Organic Symposium, Bozeman, MT, June 10-14, 2001.

K.F. Medzihradszky, S. Yasothornsrikul, D. Greenbaum, M. Bogyo, B. Schilling, B.W. Gibson, R. Miller, R. Bundey, P. Goldsmith, V.Y. Hook, “Mass spectrometry identifies the prohormone thiol protease as cathepsin L: potential role in proenkephalin processing”, Fifth International Symposium on Mass Spectrometry in the Health and Life Sciences, San Francisco, CA, August, 26-30, 2001.

S. Sperandio, K. Poksay, B. Schilling, V. Stoka, B.A. Cottrell, B.W. Gibson, D.E. Bredesen, “A Proteomic Approach to the Characterization of non-apoptotic Programmed Cell Death”, Society for Neuroscience's 31st Annual Meeting, San Diego, CA, November 10 - 15, 2001.

2002

X. Guo, B. Schilling, M.M. Young, M. Medzihradszky, I.D. Kuntz, R.K. Guy, B.W. Gibson, “Using Homobifunctional Crosslinking Reagents with Normal and N-15 Labeled Proteins for the Determination of Protein Tertiary Structure and Protein-Protein Interactions”, 50th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Orlando, Fl, June 2-6, 2002.

S. Allen, S. Luchansky, B. Schilling, N.J. Phillips, S. Goon, A. Zaleski, C.R. Bertozzi, M.A. Apicella, B.W. Gibson, “Sialylation of Haemophilus Lipooligosaccharides: Sialic Acid Acceptor Sites and New Reactive Chemistries”, 50th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Orlando, Fl, June 2-6, 2002.

R. Miller, B. Schilling, D. W. Burton, B. Gibson, R. H. Hastings, L. J. Deftos, V. H. Hook, “Amino-Terminal PTHrP Peptides in Lung Cancer Cell Lines Identified by Mass Spectrometry”, The American Society for Bone and Mineral Research (ASBMR) 24th Annual Meeting, San Antonio, Tx, September 20-24, 2002.

S. Bharath, B. Schilling, B.W. Gibson, J.K. Andersen, “Assessing the role of Thiol Oxidation of Mitochondrial Complex I during Glutathione depletion-mediated Oxidative Stress in dopaminergic cells as a model for Parkinson Disease”, Society for Neuroscience's 32nd Annual Meeting, Orlando, Fl, November 2-7, 2002.

2003

R.V. Rao, K. Poksay, B. Schilling, R.H. Row, B.W. Gibson, D.E. Bredesen, H.M. Ellerby, “Coupling Endoplasmic Reticulum Stress to the Cell Death Program”, Keystone Symposia - Molecular Mechanisms of Apoptosis, Banff, Canada, February 8-13, 2003.

B. Schilling, S. Bharath, R.H. Row, J.K. Andersen, B.W. Gibson, “Determination of Glutathione depletion-dependent Thiol Oxidation of Mitochondrial Complex I Upon Oxidative Stress using Stable Isotope Alkylating Reagents”, 51th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Montreal, Canada, June 8-12, 2003.

Z.A. Knight, B. Schilling, R.H. Row, B.W. Gibson, K.M. Shokat, “Mapping of the Phosphoproteome - A Chemoenzymatic Approach for Rapid Phosphorylation Site Identification using Phosphospecific Proteolysis and Mass Spectrometry”, 51th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Montreal, Canada, June 8-12, 2003.

D.M.B. Post, D. Zhang, J.P. Weiss, B. Schilling, B.W. Gibson, “Protein characterization of the membrane blebs from *Neisseria meningitidis* serogroup B”, 51th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Montreal, Canada, June 8-12, 2003.

B.A. Cottrell, C.L. Lombardo, T.W. Williams, B. Schilling, R.H. Row, V. Galvan, E.H. Koo, B.W. Gibson, D.E. Bredesen, “The Amyloid Precursor Protein in Alzheimer's Disease: A Proteomic Study”, 51th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Montreal, Canada, June 8-12, 2003.

B. Schilling, J.E. Young, R.H. Row, G. Gendeh, C.A. Ross, B.W. Gibson, L.M. Ellerby, “Mass spectrometric analysis of differentially expressed proteins investigating Dentatorubral and Pallidoluysian Atrophy (DRPLA) transgenic mice”, Society for Neuroscience's 33rd Annual Meeting, New Orleans, LA, November 8-12, 2003.

L.M. Ellerby, J. Gafni, E. Hermel, B. Schilling, R.H Row, A. Logvinova, C.L. Wellington, R. Siman, B.W. Gibson, M.R. Hayden, “The role of Calpain in Huntington’s Disease”, Society for Neuroscience's 33rd Annual Meeting, New Orleans, LA, November 8-12, 2003.

Y. Sun, K. Jin, X.O. Mao, L. Xie, B. Cottrell, B. Schilling, R.H. Row, A. Peel, G. Gendeh, J. Childs, B.W. Gibson, D.A. Greenberg, “Stathmin and the Migration of Newborn Neurons in Adult Brain”, Society for Neuroscience's 33rd Annual Meeting, New Orleans, LA, November 8-12, 2003.

2004

N.J. Phillips, B. Schilling, M.K. McLendon, M.A. Apicella, B.W. Gibson, “Modification of the lipid A of *Francisella tularensis* with galactosamine-1-phosphate”, USSD Glyco-Symposium, San Diego, CA, February 19-22, 2004.

B.W. Gibson, B. Schilling, R.H. Row, “Chemoenzymatic Phosphorylation Site Identification”, 52nd Annual ASMS Conference on Mass Spectrometry & Allied Topics, Nashville, TN, May 23-27, 2004.

T. Ratovitski, M. Nakamura, R.R. Hirschhorn, Y. Tanaka, Y. Liang, C. Torcassi, J. Gafni, B. Schilling, A. Sawa, B.W. Gibson, L.M. Ellerby, C.A. Ross, “Inducible PC-12 HD cell model expressing full-length huntingtin: Identification of an N-terminal fragment of mutant huntingtin”, Hereditary Disease Foundation Meeting [HD 2004: Changes, Advances and Good News (CAG)n], Cambridge, Massachusetts, August 12-15, 2004.

B. Schilling, C. Torcassi, M. LaFevre-Bernt, J. Gafni, R.H. Row, M. Nakamura, R.R. Hirschhorn, T. Ratovitski, C.A. Ross, B.W. Gibson, L.M. Ellerby, “Mass spectrometric characterization of immunoprecipitated full-length huntingtin: Post-translational modifications and interacting proteins”, Society for Neuroscience's 34rd Annual Meeting, San Diego, CA, October 23-27, 2004.

C. Torcassi, B. Schilling, M. Nakamura, R.R. Hirschhorn, T. Ratovitski, Y. Liang, A. Sawa, B.W. Gibson, C.A. Ross, L.M. Ellerby, “Proteomic analysis of an inducible PC-12 Huntington’s disease cell model”, Society for Neuroscience's 34rd Annual Meeting, San Diego, CA, October 23-27, 2004.

M. Nakamura, T. Ratovitski, R.R. Hirschhorn, Y. Tanaka, Y. Liang, C. Torcassi, J. Gafni, B. Schilling, A. Sawa, B.W. Gibson, L.M. Ellerby, C.A. Ross, “Inducible PC-12 HD cell model expressing full-length huntingtin: Identification of an N-terminal fragment of mutant huntingtin”, Society for Neuroscience's 34rd Annual Meeting, San Diego, CA, October 23-27, 2004.

L.M. Ellerby, B. Schilling, C. Torcassi, M. LaFevre-Bernt, J. Gafni, R. Row, M. Nakamura, R. Hirschhorn, T. Ratovitski, B. Gibson, C. Ross, “Mass spectrometric characterization of immunoprecipitated full-length

huntingtin: Post-translational modifications", American Society for Cell Biology 44th Annual Meeting, Washington, DC, Dec 4-8, 2004.

2005

B. Schilling, J. Murray, B. Srinivas, D. Jethwaney, C.B. Yoo, M.P. Cusack, J.K. Andersen, R.A. Capaldi, B.W. Gibson, "Investigation of cysteine oxidation of NADH:ubiquinone oxidoreductase (Complex I) proteins using stable isotope reagents", 53rd Annual ASMS Conference on Mass Spectrometry & Allied Topics, San Antonio, TX, June 5-9, 2005.

J. Gafni, B. Schilling, C. Torcassi, C.A. Ross, B.W. Gibson, L.M. Ellerby, "Phosphorylation of huntingtin at the calpain cleavage site of huntingtin modulates proteolysis and toxicity", Society for Neuroscience's 35rd Annual Meeting, Washington, DC, November 12-16, 2005.

S.R. Danielson, B. Schilling, C. Yoo, B.W. Gibson, J.K. Andersen, "Decreased activity of mitochondrial Complex I due to oxidation of specific cysteine residues", Society for Neuroscience's 35rd Annual Meeting, Washington, DC, November 12-16, 2005.

2006

B. Schilling, M.K. McLendon, N.J. Phillips, M.A. Apicella, B.W. Gibson, "Identification of Acylation Patterns and Novel Modifications in Lipid A species from *Francisella* using a Vacuum-MALDI LTQ Linear Ion Trap.", 54th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Seattle, WA, May 28 – June 1, 2006.

B.W. Gibson, B. Schilling, X. Cong, C. Torcassi, M.P. Cusack, C.A. Ross, L.M. Ellerby, "Identification of Novel Phosphorylation Sites in Huntingtin Protein using combined vacuum-MALDI LTQ™ Linear Ion Trap and Q-TOF Platforms.", 54th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Seattle, WA, May 28 – June 1, 2006.

C. Atsriku, D. Britton, G.K. Scott, B.W. Gibson, M.A. Baldwin, B. Schilling, C.C. Benz, "Quantitation of Cysteine Oxidation within Redox Sensitive Zinc Finger Domain of Estrogen Receptor by Stable Isotope and Immuno-Affinity Techniques.", 54th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Seattle, WA, May 28 – June 1, 2006.

2007

B. Schilling, A. Miller, J.P. Miller, E.A. Gaman, L.M. Ellerby, B.W. Gibson, R.E. Hughes, "Aging and the Insolubleome: Identifying SDS-insoluble proteins from brains of aging and neurodegenerative disease mouse models by mass spectrometry." 55th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Indianapolis, IN, June 3-7, 2007.

D. Britton, C. Atsriku, S. Allen, M. Baldwin, C.C. Benz, C. Berger, M.P. Cusack, B.W. Gibson, J. Held, B. Schilling, G. Scott, "Assessing the Phosphorylation and Lysine-Acetylation Status of Estrogen Receptor alpha isolated from Human Breast Cancer Cells." 55th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Indianapolis, IN, June 3-7, 2007.

S.R. Danielson, B. Schilling, R.R. Riley, B.W. Gibson, J.K. Andersen, "Determination of cysteine redox status of NADH Dehydrogenase in a Parkinson's Disease mouse model using a miniaturized cICAT approach." 55th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Indianapolis, IN, June 3-7, 2007.

X. Cong, B. Schilling, J. Gafni, C. Torcassi, B.W. Gibson, L.M. Ellerby "Investigation on the Role of Huntingtin Phosphorylation in the Pathogenesis of Huntington's Disease." 55th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Indianapolis, IN, June 3-7, 2007.

D. Britton, G. Scott, B. Schilling, J. Held, C. Atsriku, M. Baldwin, B. Gibson, C.C. Benz. "Induction of a Novel Estrogen Receptor (ERa) Phospho-serine (S154) in Human Breast Cancer Cells Identified by Mass Spectrometry." 30th Annual San Antonio Breast Cancer Symposium (SABCS), San Antonio, TX, December 13-16, 2007.

D. Britton, C. Atsriku, G. Scott, J. Held, M. Baldwin, B. Schilling, B.W. Gibson, C.C. Benz. "Uncovering Novel Post-translational Modifications in Human Breast Cancer Estrogen Receptor." California Breast Cancer Research Program Symposium, Los Angeles, CA, September 7-9, 2007.

2008

B. Schilling, B. Li, F. Regnier, S. Fisher, B.W. Gibson, "CPTAC – Clinical Proteomic Technology Assessment for Cancer. Posttranslational Modifications and Discovering Glycoprotein Biomarkers in Plasma" USSD Glyco-Symposium, San Diego, CA, February 7-8, 2008.

D. Britton, J. Held, G.K. Scott, B. Schilling, C. Atsriku, M.A. Baldwin, B.W. Gibson, C.C. Benz, "Ligand-dependent induction of phospho-serine 294 in the hinge region of estrogen receptor (ERa) within human breast cancer cells." Amer. Assoc. Cancer Res., 49: abstract #5458, 2008, San Diego, CA, April 12-16, 2008.

B. Schilling, M.A. Apicella, B.W. Gibson, "Identification of Significant Acylation Pattern Changes in Lipid A species from Escherichia coli lpxL- mutants grown at high temperatures." 56th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Denver, CO, June 1-5, 2008, abstract # 747.

N. Phillips, D.M.B. Post, B. Schilling, C. Steichen, M. Ketterer, J. Johnston, M. Falsetta, M. Apicella, B.W. Gibson, "Utilization of SILAC labeling for Comparative Analyses of Protein Expression in Planktonic versus Biofilm-grown Bacteria." 56th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Denver, CO, June 1-5, 2008, abstract # 839.

B. Li, B. Schilling, J. Held, E. Gaman, B.W. Gibson, "The Development and Evaluation of Protein Standards for the Analysis of Tyrosine Nitration and 4-Hydroxynonenal Modifications in Human Plasma." 56th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Denver, CO, June 1-5, 2008, abstract # 1263.

E.A. Gaman, P. Rodrigues, A.W. Miller, S. Alavez, J.P. Miller, B. Schilling, L.M. Ellerby, G.J. Lithgow, R.E. Hughes, B.W. Gibson, "Aging, Disease and the Insolubleome: Identification of SDS-insoluble proteins in disease and aging models from multiple organisms by mass spectrometry." 56th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Denver, CO, June 1-5, 2008, abstract # 2056.

C. Atsriku, D. Britton, J. Held, B. Schilling, C. Berger, G. Scott, C. Benz, B.W. Gibson, M. Baldwin, "Towards comprehensive sequence mapping and identification of novel post-translational modifications in human estrogen receptor by tandem mass spectrometry." 56th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Denver, CO, June 1-5, 2008, abstract # 192.

X. Cong, B. Schilling, L. Ellerby, B.W. Gibson, "Lysine Acetylation in Huntingtin and its Role in the Pathogenesis of Huntington's Disease." 56th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Denver, CO, June 1-5, 2008, abstract # 876.

S. Robinson, A. Prakobphol, S. Allen, N. Phillips, B. Schilling, B. Gibson, S.J. Fisher, P. Drake, "Structural characterization of sulfated glycans from high molecular weight salivary mucins using rapid, robust methods of sample preparation and analysis." 56th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Denver, CO, June 1-5, 2008, abstract # 2198.

Clinical Proteomic Technologies Assessment for Cancer (CPTAC) Consortium "Performance and optimization of LC-MS/MS platforms for proteomic analyses: an interlaboratory study." 56th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Denver, CO, June 1-5, 2008, abstract # 1469.

T. Addona, S.C. Hall, S.J. Skates, D. Bunk and the NCI-Clinical Proteomic Technologies Assessment for Cancer (CPTAC) Verification Studies Working Group: (in alphabetical order: S. Allen, R.K. Blackman, C.H. Borchers, M.P. Cusack, N. Dodder, S. Fisher, B.W. Gibson, A. Jackson, J.M. Held, E. Johansen, H. Keshishian, C. Kinsinger, D.C. Liebler, A.G. Paulovich, F. Reignier, H. Rodriguez, P. Rudnick, B. Schilling, D. Smith, C. Spiegelman, D. Tabb, T. Tegeler, P. Tempst, A.M. Variyath, L. Vega-Montoto, M. Wang, J.R. Whiteaker, L. Zimmerman and S.A. Carr) "Reproducibility of MRM-based Assays for Quantitative Verification of Candidate Protein Biomarkers in Plasma: an Interlaboratory Study." 56th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Denver, CO, June 1-5, 2008, abstract # 2400.

B. Schilling, S.M.M. Bharath, S.R. Danielson1, J.M. Held, J.K. Andersen, B.W. Gibson, "Proteomic Assessment of Oxidative Damage of Human NADH Dehydrogenase in Parkinson's Disease", Human Proteome (HUPO) 7th World Congress, Amsterdam, Netherlands, August 16-20, 2008.

Clinical Proteomic Technologies Assessment for Cancer (CPTAC) Consortium "Interlaboratory Study of Performance of LC-MS/MS Platforms for Proteomic Analyses", Human Proteome (HUPO) 7th World Congress, Amsterdam, Netherlands, August 16-20, 2008.

Clinical Proteomic Technologies Assessment for Cancer (CPTAC) Consortium "Verification of Candidate Protein Biomarkers: Reproducibility of MRM-based Assays", Human Proteome (HUPO) 7th World Congress, Amsterdam, Netherlands, August 16-20, 2008.

S. Robinson, A. Prakobphol, S. Allen, N. Phillips, B. Schilling, B. Gibson, S.J. Fisher, P. Drake, "Structural characterization of sulfated glycans from high molecular weight salivary mucins using rapid, robust methods of sample preparation and analysis." Conference for Post Translational Modifications: Detection and Physiological Evaluation (The American Society for Biochemistry and Molecular Biology), Granlibakken, Lake Tahoe, CA, October 23-26, 2008.

S.C. Hall, T. Addona, S. Abbatiello, D. Bunk, B. Schilling, S.J. Skates, C. Spiegelman, L. Zimmerman, "Verification of Candidate Protein Biomarkers: Reproducibility of MRM-Based Assays", National Cancer Institute's Clinical Proteomic Technologies for Cancer (CPTC), 2nd Annual Meeting, Cambridge, Massachusetts, October 28-29, 2008.

2009

S.C. Hall, T. Addona, S. Abbatiello, D. Bunk, H. Keshishian, B. Schilling, S.J. Skates, C. Spiegelman, L. Zimmerman, S.A. Carr, The CPTAC Network, "Reproducibility of Protein MRM-Based Assays: Towards Verification of Candidate Biomarkers in Human Plasma", 13th annual meeting of the Association of Biomolecular Resource Facilities (ABRF), "ABRF 2009: Application and Optimization of Existing and Emerging Biotechnologies." Memphis, TN, February 7-10, 2009.

P.M Drake, M.T. Lerch, E.B. Johansen, R.K. Niles, B. Schilling, H. Liu, B. Li, S. Allen, S.C. Hall, H.E. Witkowska, F.E. Regnier, B.W. Gibson, S.J. Fisher, "A lectin affinity-based biomarker discovery protocol targeting cancer-specific glycopeptides in human plasma", US HUPO Annual Conference (Integrative Proteomics for the Future), San Diego, California, February 22-25, 2009.

S.C. Hall, T. Addona, S.E. Abbatiello, S.J. Skates, D.M. Bunk, B. Schilling, C.H. Spiegelman, L.J. Zimmerman, A.-J. Ham, H. Keshishian, S. Allen, N.L. Anderson, R.K. Blackman, C.H. Borchers, C. Buck, H.L. Cardisis, M.P. Cusack, N.G. Dodder, B.W. Gibson, J.M. Held, T. Hiltke, A. Jackson, E.B. Johansen, C.R. Kinsinger, J. Li, D.R. Mani, M. Mesri, T.A. Neubert, R.K. Niles, A.G. Paulovich, T.C. Pulsipher, H. Rodriguez, P.A. Rudnick, D. Smith, D.L. Tabb, T.J. Tegeler, A.M. Variyath, L.J. Vega-Montoto, A. Wahlander, S. Waldemarson, M. Wang, J.R. Whiteaker, S.J. Fisher, D.C. Liebler, F.E. Regnier, P. Tempst, S.A. Carr, "Reproducibility of Protein MRM-Based Assays: Towards Verification of Candidate Biomarkers in Human Plasma", US HUPO Annual Conference (Integrative Proteomics for the Future), San Diego, California, February 22-25, 2009.

D.C. Liebler, A.G. Paulovich, D.L. Tabb, P.A. Rudnick, K.R. Clauser, D.D. Billheimer, R.K. Blackman, A.L. Ham, H. L. Cardasis, J.D. Jaffe, D.M. Bunk, M. Mesri, C.R. Kinsinger, T.A. Neubert, T.G. Tegeler, B. Schilling, A.M. Variyath, L. Vega-Montoto, P. Wang, M. Wang, J.R. Whiteaker, L.J. Zimmerman, S.A. Carr, B.W. Gibson, S.J. Fisher, F.E. Regnier, H. Rodriguez, C. Spiegelman, P. Tempst, S.E. Stein "Performance and Optimization of LC-MS/MS Platforms for Proteomic Analyses: Interlaboratory Studies", US HUPO Annual Conference (Integrative Proteomics for the Future), San Diego, California, February 22-25, 2009.

B. Schilling, A. Miller, Q. Gibson; R. Beavis, R. E. Hughes, B.W. Gibson, "Mass Spectrometric Proteome Analysis of the Tardigrade *Hypsibius dujardini*, a New Model Organism for Aging Research" 57th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Philadelphia, PA, May 31 - June 4, 2009.

T. Addona, S.E. Abbatiello, B. Schilling, S.J. Skates, D.R. Mani, D.M. Bunk, C.H. Spiegelman, L.J. Zimmerman, A.-J.L. Ham, H. Keshishian, S.C. Hall, S.A. Carr, The NCI Clinical Proteomic Technology Assessment for Cancer (CPTAC) Network, "Quantitative Human Plasma Protein Biomarker Verification by

Multiple Reaction Monitoring: A Multi-site Study of Precision and Reproducibility" 57th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Philadelphia, PA, May 31 - June 4, 2009.

P.M. Drake; E. Johansen; R.Niles; M. Lerch; H. Liu; B. Li; S. Allen; K. Jung; S.C. Hall; B. Schilling; H.E. Witkowska; S. Fisher; F. Regnier; B.W. Gibson, "A Lectin Affinity-based Biomarker Discovery Workflow Targeting Cancer-specific Glycopeptides in Human Plasma" 57th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Philadelphia, PA, May 31 - June 4, 2009.

B. Li; B. Schilling; J.M. Held; B.W. Gibson, "Characterization and Performance of a Multicomponent Protein Mixture for the Analysis of Tyrosine Nitration Using Several Mass Spectrometry Platforms" 57th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Philadelphia, PA, May 31 - June 4, 2009.

S.R. Danielson; J. Held; M. Oo; B. Schilling; B.W. Gibson; J.K. Andersen, "Increased a-synuclein 3-nitrotyrosine levels at tyrosine 39 in a Parkinson's disease model" 57th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Philadelphia, PA, May 31 - June 4, 2009.

G.A. Czerwieniec; J.M. Held; S.W. Choi; B. Schilling; S. Melov; B.W. Gibson "Validation of Protein Quantification Strategies for Complex Samples: Comparison of iTRAQ and Multiple Reaction Monitoring (MRM) Quantitation Schemes " 57th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Philadelphia, PA, May 31 - June 4, 2009.

S.J Skates; T. Addona; S.E. Abbatiello; B. Schilling; D.R. Mani; D.M. Bunk; C.H. Spiegelman; L. Zimmerman; A-J.L. Ham; H. Keshishian; S.C. Hall; S.A. Carr; CPTAC Network, "Statistical Analysis of Calibration Curves on log-log scale from Multiple Reaction Monitoring Assays for Measuring Proteins Spiked into Human Plasma." 57th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Philadelphia, PA, May 31 - June 4, 2009.

P. Agrawal, Y.-T. Chen, B. Schilling, L. Reinders, D. Chen, P. Kapahi, B.W. Gibson, R.E. Hughes, "Novel mTOR Interacting Proteins and Their Roles in mTOR Signaling and Aging." FASEB Summer Research Conferences – Protein Kinases & Protein Phosphorylation, Snowmass, CO, July 26 - 31, 2009.

P.M. Drake, E.B. Johansen, R.K. Niles, M. Lerch, H. Liu, B. Li, A. Zawadzka, S. Allen, K. Jung, S.C. Hall, B. Schilling, H.E. Witkowska, L. Makowski, F. Regnier, S.J. Fisher, B.W. Gibson, "Affinity-based Biomarker Discovery Workflows Targeting Cancer-specific Posttranslationally Modified Proteins in Human Plasma." Clinical Proteomic Technologies for Cancer (CPTC) 2009 Annual Meeting: Advancing Protein Science for Personalized Medicine. Bethesda, MD, October 5-7, 2009.

A.M. Zawadzka, B. Li, P.M. Drake, M. Braten, B. Schilling, L. Makowski, L. Dieckman, S.J. Fisher, B.W. Gibson, "Developing a Mass Spectrometry-based Workflow Targeting the Plasma Phosphoproteome for Cancer Biomarker Discovery." Clinical Proteomic Technologies for Cancer (CPTC) 2009 Annual Meeting: Advancing Protein Science for Personalized Medicine. Bethesda, MD, October 5-7, 2009.

P.M. Drake, M. Lerch, E.B. Johansen, R.K. Niles, B. Schilling, H. Liu, B. Li, S. Allen, S.C. Hall, H.E. Witkowska, F. Regnier, B.W. Gibson, S.J. Fisher, "A Lectin Affinity-based Biomarker Discovery Protocol Targeting Cancer-specific Glycopeptides in Human Plasma." Clinical Proteomic Technologies for Cancer (CPTC) 2009 Annual Meeting: Advancing Protein Science for Personalized Medicine. Bethesda, MD, October 5-7, 2009.

S.C. Hall, T.A. Addona, S.E. Abbatiello, B. Schilling, S.J. Skates, D.R. Mani, D.M. Bunk, C.H. Spiegelman, L.J. Zimmerman, A.-J. Ham, H. Keshishian, S. Allen, R.K. Blackman, C.H. Borchers, C. Buck, H.L. Cardasis, M.P. Cusack, N.G. Dodder, B.W. Gibson, J.M. Held, T. Hiltke, A. Jackson, E.B. Johansen, C.R. Kinsinger, J. Li, M. Mesri, T.A. Neubert, R.K. Niles, T.C. Pulsipher, D. Ransohoff, H. Rodriguez, P.A. Rudnick, D. Smith, D.L. Tabb, T.J. Tegeler, A.M. Variyath, L.J. Vega-Montoto, Å. Wahlander, S. Waldemarson, M. Wang, J. R. Whiteaker, L. Zhao, N. L. Anderson, S.J. Fisher, D.C. Liebler, A.G. Paulovich, F.E. Regnier, P. Tempst, S.A. Carr, "A Multi-Site Assessment of the Precision and Reproducibility of Multiple Reaction Monitoring Assays Designed for Protein Quantitation in Human Plasma: Towards a Robust Tool for Verification of Biomarker Candidates" Clinical Proteomic Technologies for Cancer (CPTC) 2009 Annual Meeting: Advancing Protein Science for Personalized Medicine. Bethesda, MD, October 5-7, 2009.

2010

P. Drake, B. Schilling, R. Niles, M. Braten, E. Johansen, H. Liu, M. Lerch, D. Sorensen, B. Li, D. Iacovides, S. Allen, S. Hall, H.E. Witkowska, J. Gray, B. Gibson, S.J. Fisher, "A lectin affinity-based biomarker discovery strategy targeting cancer-specific glycoproteins in human plasma." US HUPO Annual Conference (Proteomics --from Bench to Clinic), Denver, Colorado, March 7-10, 2010.

B. Schilling, A.W. Miller, D.J. Sorensen, U. Evani, A. Wu, Q. Gibson, S.D. Mooney, T. Gaasterland, R.E. Hughes, B.W. Gibson, "Mass Spectrometric Proteome Analysis of the Tardigrade *Hypsibius dujardini*, a New Model Organism for Aging Research", 1st Bay Area Aging Club Meeting, Gladstone Institutes, San Francisco, CA, April 9th, 2010.

B. Schilling, P.M. Drake, R.K. Niles, M. Braten, D.J. Sorensen, E. Johansen, J.M. Held, D. Iacovides, S.C. Hall, H.E. Witkowska, J.W. Gray, B.W. Gibson, S.J. Fisher, "A Lectin Affinity-Based Biomarker Discovery Strategy Targeting Cancer-specific Glycoproteins in Human Plasma", 58th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Salt Lake City, UT, May 23-27, 2010.

B. MacLean, D.M. Tomazela, S.E. Abbatiello, B. Schilling, N. Shulman, M. Chambers, D.L. Tabb, B.W. Gibson, S.A. Carr, D.C. Liebler, M.J. MacCoss, The NCI Clinical Proteomic Technology Assessment for Cancer (CPTAC) Network, "Skyline Targeted Proteomics Environment: Sharing SRM/MRM Method Creation and Results Analysis across Laboratories and Instrument Platforms", 58th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Salt Lake City, UT, May 23-27, 2010.

A.M. Zawadzka, B. Li, P.M. Drake, M. Braten, B. Schilling, L. Dieckman, L. Makowski, S.J. Fisher, B.W. Gibson, "Developing a Mass Spectrometry-based Workflow Targeting the Plasma Phosphoproteome for Cancer Biomarker Discovery", 58th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Salt Lake City, UT, May 23-27, 2010.

S.E. Abbatiello, B. Schilling, D.R. Mani, X. Feng, L. Zimmerman, B. MacLean, M.P. Cusack, T. Addona, N. Sedransk, M.J. MacCoss, S.C. Hall, S.A. Carr, CPTAC Network, "Development and application of a system suitability standard and protocol to assess data quality in LC-MRM-MS across multiple MS platforms", 58th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Salt Lake City, UT, May 23-27, 2010.

B. Schilling, P.M. Drake, R.K. Niles, M. Braten, B. Li, K. Jung, W. Cho, J.M. Held, E. Johansen, S. Allen, D.J. Sorensen, D. Iacovides, S.C. Hall, H.E Witkowska, J.W. Gray, F. Regnier, S.J. Fisher, B.W. Gibson, "A CPTAC Interlaboratory Lectin Affinity-Based Biomarker Study Targeting Cancer-specific Glycoproteins", Clinical Proteomic Technologies for Cancer (CPTC) 2010 Annual Meeting: Establishing the Standards in Clinical Proteomics. Bethesda, MD, September 8-9, 2010.

S. Hall, S. Abbatiello, B. Schilling, D.R. Mani, X. Feng, L. Zimmerman, B. MacLean, T. Addona, N. Sedransk, M. MacCoss, S. Carr, CPTAC Verification Studies Working Group, "Development and Implementation of a System Suitability Standard Protocol to Assess Data Quality in LC-MRM-MS Across Multiple MS Platforms", Clinical Proteomic Technologies for Cancer (CPTC) 2010 Annual Meeting: Establishing the Standards in Clinical Proteomics. Bethesda, MD, September 8-9, 2010.

S. Allen, M. Braten, W. Cho, M. Cusack, L. Dieckman, P.M. Drake, S.C. Hall, J. Held, D. Iacovides, E.B. Johansen, A. Johnson, K. Jung, H. Liu, B. Li, R.K. Niles, B. Schilling, K. Williams, H.E. Witkowska, A. Zawadzka, L. Makowski, J.W. Gray, F. Regnier, S.J. Fisher, B.W. Gibson, "Inter-laboratory CPTAC Studies Targeting Posttranslationally Modified Proteins in Human Plasma Using Affinity Enrichment Strategies", Clinical Proteomic Technologies for Cancer (CPTC) 2010 Annual Meeting: Establishing the Standards in Clinical Proteomics. Bethesda, MD, September 8-9, 2010.

2011

B. Schilling, M.P. Cusack, A.W. Miller, D.J. Sorensen, A. Wu, Q. Gibson, U. Evani; S.D. Mooney, T. Gaasterland, B.W. Gibson, R.E. Hughes, "Mass Spectrometric Proteome Analysis of the Tardigrade *Hypsibius dujardini*, a New Model Organism for Aging Research", Geroscience Meeting, Buck Institute, Novato, CA, February 24-25, 2011.

P. Agrawal, Y.-T. Chen, B. Schilling, L. Reinders, D. Chen, P.J. Kapahi, B.W. Gibson, R.E. Hughes "Analyzing the Roles of mTOR Interacting Proteins in mTOR Signaling and Aging", Geroscience Meeting, Buck Institute, Novato, CA, February 24-25, 2011.

R. Riley, J. Held, B. Schilling, J. Flynn, S. Melov, J. Andersen, B. Gibson, "Developing an MRM-based Assay to Measure Cardiolipin Oxidation", Geroscience Meeting, Buck Institute, Novato, CA, February 24-25, 2011.

Z.-Q. Ma, M.C. Chambers, A.-J.L. Ham, K.L. Cheek, C.W. Whitwell, H.-R. Aerni, B. Schilling, A.W. Miller, R.M. Caprioli, D.L. Tabb, "ScanRanker: Quality Assessment of Tandem Mass Spectra via Sequence Tagging", RECOMB Satellite Conference on Computational Proteomics 2011. La Jolla, CA, March 11-13, 2011.

B. Schilling, P.M. Drake, R. Niles, B. Li, J. Held, M. Braten, M. Albertolle, K. Jung, W. Cho, H.D. Inerowicz, K. Williams, E. Johansen, S. Allen, D.J. Sorensen, D. Iacovides, S.C. Hall, H. E. Witkowska, J. Gray, F. Regnier, S. Fisher, B.W. Gibson, "A CPTAC multisite Lectin-based Analysis of Glycopeptide Biomarker Candidates utilizing Cancer Cell Lines, and Plasma Samples from Patients and Controls." 59th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Denver, CO, June 5 - 9, 2011.

S.E. Abbatiello, B. Schilling, B. MacLean, P. Sadowski, A.M. Jackson, M. Ghosh, H. Keshishian, T. Addona, J. Whiteaker, S. Allen, M. Burgess, N. Sedransk, D.R. Mani, S.C. Hall, S.A. Carr, CPTAC Network, "Meeting the Design, Development and Implementation Challenges of >100-Plex Quantitative Assays for Proteins in Plasma: A Large-Scale, NCI-CPTAC Interlaboratory Study", 59th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Denver, CO, June 5 - 9, 2011.

M.J. Rardin, B. Schilling, E. Jing, J. Held, B. MacLean, M. Hirschey, R.C. Kahn, E. Verdin, B.W. Gibson, "Development Development of Methods for Quantitation of Acetylated Peptides in SIRT3-/- mice." 59th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Denver, CO, June 5 - 9, 2011.

A.M. Zawadzka, J. Held, B. Schilling, P.M. Drake, S.J. Fisher, B.W. Gibson, "Developing a Mass Spectrometry-based Workflow to Quantify Plasma Phosphopeptides", 59th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Denver, CO, June 5 - 9, 2011.

B. Li, J. Held, B. Schilling, S. Danielson, B.W. Gibson, "Confident Identification of 3-Nitrotyrosine Modifications Using an Experimentally Defined Set of Criteria", 59th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Denver, CO, June 5 - 9, 2011.

B. MacLean, M.S. Bereman, A.-J.L. Ham, B. Schilling, J.W. Thompson, L.G. Dubois, J.M. Held, M.P. Cusack, T. Bock, B. Wollscheid, A. Moseley, B.W. Gibson, D.C. Liebler, M.J. MacCoss, "Skyline: Targeted Proteomics with Extracted Ion Chromatograms from Full-Scan Mass Spectra", 59th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Denver, CO, June 5 - 9, 2011.

J. Markell, S.E. Abbatiello, C. Whitwell, L. Zimmerman, P. Rudnick, S. Stein, B. Schilling, S.C. Hall, S.A. Carr, "Investigation of denaturants on digestion efficiency and reproducibility: What are the "best" digestion conditions?", 59th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Denver, CO, June 5 - 9, 2011.

2012

B. Schilling, M.J. Rardin, B.X. MacLean, A.M. Zawadzka, B.E. Frewen, M.P. Cusack, D.J. Sorensen, M.S. Bereman, E. Jing, C.C. Wu, E. Verdin, C.R. Kahn, M.J. MacCoss, B.W. Gibson, "Platform Independent and Label-free Quantitation of Protein Acetylation and Phosphorylation using MS1 Extracted Ion Chromatograms in Skyline.", US HUPO 2012, San Francisco, CA, March 4-7, 2012.

B. Schilling, P.M. Drake, R. Niles, B. Li, J. Held, M. Braten, M. Albertolle, K. Jung, W. Cho, H.D. Inerowicz, K. Williams, E. Johansen, S. Allen, D.J. Sorensen, D. Iacovides, S.C. Hall, H. E. Witkowska, J. Gray, F. Regnier, S. Fisher, B.W. Gibson, "A CPTAC multisite Lectin-based Analysis of Glycopeptide Biomarker Candidates utilizing Cancer Cell Lines, and Plasma Samples from Patients and Controls." 15th Annual San Diego Glycobiology Symposium, San Diego, CA, March 16-17, 2012.

G.K. Scott, J. Held, D.J. Britton, E. Lee, B. Schilling, M. Baldwin, B.W. Gibson, C.C. Benz, "ERα phosphorylation patterns at hinge domain Ser294 and Ser305 differentiate ligand-dependent from ligand-independent receptor activation", American Association for Cancer Research (AACR) Annual Meeting, Chicago, Il, March 31-April 4, 2012.

B. Schilling, M. Rardin, C. Hunter, A. Zawadzka, S.R. Danielson, M.P. Cusack, Dylan J. Sorensen, S.L. Seymour, B.W. Gibson, "Quantitation of Proteomic Data Using Skyline MS1 Filtering and MS/MSALL with SWATH™ Acquisitions in a Single Experiment.", 60th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Vancouver, CAN, May 20-24, 2012.

M. Rardin, B. Schilling, M. Cusack, D. Sorensen, B. MacLean, M.J. MacCoss, C.R. Kahn, E. Verdin, B.W. Gibson, "Quantitation of the Mitochondrial Lysine Acetylome in SIRT3 Knockout Animals using MS1 Filtering in Skyline.", 60th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Vancouver, CAN, May 20-24, 2012.

S.E. Abbatiello, B. Schilling, L. Zimmerman, D. R. Mani, B. MacLean, C.A. Whitwell, S.C. Hall, CPTAC Consortium, S.A. Carr, "A Multi-Site Evaluation of Highly-Multiplexed SID-MRM-MS: Stress-Testing the System.", 60th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Vancouver, CAN, May 20-24, 2012.

R. O'Brien, F. DeGiacomo, J. Holcomb, B. Schilling, S.R. Danielson, D. Howland, S. Kwak, B.W. Gibson, L. Ellerby, "Fragment models of Huntington's Disease: Insights into the interactome of Huntingtin fragments during aging in mouse models.", 60th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Vancouver, CAN, May 20-24, 2012.

S.R. Danielson, B. Yates, B. Schilling, R.E. Hughes, B.W. Gibson, "SILAC strategy to identify modulators or huntingtin turnover.", 60th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Vancouver, CAN, May 20-24, 2012.

2013

A.J. Wolfe, B. Schilling, B. Zemaitaitis, L. Hu, B. Lima, B. Gibson, "Acetyl phosphate is a potent regulator of bacterial protein acetylation." BLAST XII Meeting Hilton Tuscon East Tuscon, AZ, January 20-25, 2013.

A.J. Wolfe, B. Zemaitaitis, B. Schilling, M. Kuhn, L. Hu, B. Lima, M. Scholle, M. Mrksich, W. Anderson, B. Gibson, "Acetyl phosphate is a potent regulator of bacterial protein acetylation." Annual Conference of the Association for General and Applied Microbiology (VAAM), Bremen, Germany, March 10-13, 2013.

A.K. D'Souza, B. Schilling, J. Chytrowski, B. MacLean, D. Broudy, N.J. Shulman, M.J. MacCoss, B.W. Gibson, "MS1Probe – Implementation of a Statistical Tool for MS1-based Quantitation in Skyline for High Throughput Quantitative Analysis." 61st Annual ASMS Conference on Mass Spectrometry & Allied Topics, Minneapolis, MN, June 8-13, **2013**.

A.M. Zawadzka, B. Schilling, M.P. Cusack, C. Benz, B.W. Gibson, "Proteomic Profiling of Breast Cancer Cell Line Secretome for Basal-type Specific Tumor Biomarker Discovery Using Skyline MS1 Filtering" 61st Annual ASMS Conference on Mass Spectrometry & Allied Topics, Minneapolis, MN, June 8-13, **2013**.

J. Held, T. Srinivasan, A. D'Souza, B. Schilling, G. Scott, C. Benz, B. Gibson, "Defining novel redox-regulated targets of growth factor signaling using differential alkylation, thiopropyl sepharose enrichment, and label-fee quantitative proteomics ", 61st Annual ASMS Conference on Mass Spectrometry & Allied Topics, Minneapolis, MN, June 8-13, **2013**.

K. Mark, D. Bhaumik, M. Price, B. Schilling, B. Gibson, M. Holick, G. Lithgow, "Vitamin D3 slows aging in *C. elegans*." 19th International *C. elegans* meeting, Genetics Society of America Conferences, Los Angeles, CA, June 26-30, **2013** (abstract 292C).

A. Wolfe, B. Zemaitaitis, B. Schilling, M. Kuhn, L. Hu, B. Lima, M. Scholle, M. Mrksich, W. Anderson, B. Gibson, "Acetyl phosphate regulates bacterial protein acetylation", 5th Congress of European Microbiologists (FEMS 2013), Leipzig, Germany, July 21-25, **2013**.

A.J. Wolfe, B. Schilling, M. Kuhn, A. AbouElfetouh, L. Hu, B. Lima, B. Zemaitaitis, M. Scholle, D. Sorensen, A. D'Souza, M. Mrksich, W. Anderson, B. Gibson, "Acetyl phosphate-dependent acetylation of bacterial proteins", 2013 Molecular Genetics of Bacteria and Phages Meeting, Madison, WI, August 6-10, **2013**.

2014

Y. Boss, K. Tamura, D. R. Mani, M. Choi, N. Shulman, V. Sharma, T. Killeen, D. Mani, R. Ahmad, D. Broudy, S. Abbatiello, B. Schilling, B. Gibson, A.K. Sahu, S.A. Carr, O. Vitek, M. MacCoss, B. MacLean, "Skyline Tool Store: A framework for installable external tools in Skyline", US HUPO for the 10th Annual Conference, Seattle, WS, April 6-9, **2014**.

V. Sharma, J. Eckels, G.K. Taylor, N.J. Shulman, A.B. Stergachis, S.A. Joyner, P. Yan, J.R. Whiteaker, G.N. Halusa, B. Schilling, B.W. Gibson, C.M. Colangelo, A.G. Paulovich, S.A. Carr, J.D. Jaffe, M.J. MacCoss, B. MacLean, "Collaborative targeted proteomics with Panorama and Skyline", US HUPO for the 10th Annual Conference, Seattle, WS, April 6-9, **2014**.

B. Schilling, R. Ng, J. Holcomb, S. W. Choi, A. Picca, S. Katzman, D.J. Sorensen, S.R. Danielson, L.M. Ellerby, A.A. Gerencser, Martin D. Brand, B.W. Gibson, "Isolated synaptosomes from cortex and striatum of Huntington disease mice show selective loss of synaptosome-specific proteins but no bioenergetics deficit.", 62nd Annual ASMS Conference on Mass Spectrometry & Allied Topics, Baltimore, MD, June 15-19, **2014**.

A. Hudson, C. Hunter, B. Schilling, S. Seymour; E. Johansen, B. Gibson, "Exploring Impact of Dynamic Accumulation for Improving MS/MS Quality of QqTOF Data.", 62nd Annual ASMS Conference on Mass Spectrometry & Allied Topics, Baltimore, MD, June 15-19, **2014**.

R. Davis, B. Schilling, D.J. Sorensen, A.K. Sahu, B.W. Gibson, A.J. Wolfe, "Nε-Lysine Acetylation Modulates CRP via AR2-Dependent, but not AR1-Dependent, Transcription", 2014 Molecular Genetics of Bacteria and Phages Meeting, Madison, WI, August 5-9, **2014**.

R. O'Brien, F. DeGiacomo, J. Holcomb, A. Bonner, K. Zafar, A. Weiss, B. Schilling, B.W. Gibson, S. Chen, S. Kwak, L.M. Ellerby, "Integration Independent Transgenic Huntington's Disease Fragment Mouse Models Reveal Distinct Neurodegeneration *In Vivo*", Hereditary Disease Foundation Meeting, Cambridge, MA, August 6-10, **2014**.

2015

B. Schilling, K.D. Dunn, D. Christensen, B. Zemaitaitis, A.K. Sahu, B.W. Gibson, C.V. Rao, A.J. Wolfe, "The Systems Biology of Protein Acetylation in Fuel-Producing Microorganisms", Department of Energy Meeting, Washington DC, February 22-24, **2015**.

B. Schilling; D. Christensen; D.J. Sorensen; A.K. Sahu; R.t Davis; L.I. Hu; A. Walker-Peddakotla; B. Zemaitatis; A.J. Wolfe; B.W. Gibson, "Bacterial protein acetylation in response to carbon overflow: quantifying changes in acetylation status of Escherichia coli metabolic networks by label-free proteomics", 63rd Annual ASMS Conference on Mass Spectrometry & Allied Topics, St. Louis, MO, May 31 –June 4, **2015**.

C. Hunter; B. Collins; Y. Liu; S. Thomas; D. Chan; H. Zhang; S. Bader; R. Moritz; B. Schilling; B. Gibson; C. Krisp; M. Molloy; G. Hou; L. Lin; S. Liu; M. Hirayama; S. Ohtsuki; N. Selevsek; R. Schlapbach; S.-C. Tzeng; J. Held; B. Larsen; A.-C. Gingras; R. Aebersold, "Multi laboratory reproducibility and performance of SWATH™ acquisition for proteomic analyses", 63rd Annual ASMS Conference on Mass Spectrometry & Allied Topics, St. Louis, MO, May 31 –June 4, **2015**.

V. Sharma; J. Eckels; B. Schilling; J. D. Jaffe; M. J. MacCoss; B. MacLean, "Panorama Public: A public repository for Skyline documents", 63rd Annual ASMS Conference on Mass Spectrometry & Allied Topics, St. Louis, MO, May 31 –June 4, **2015**.

M. Rardin; B. Schilling; L.-Y. Cheng; B. MacLean; D. Sorensen; A. Sahu; M.J. MacCoss; O. Vitek; B. Gibson, "MS1 Peptide Ion Intensity Chromatograms in MS2 (SWATH) Data Independent Acquisitions. Improving Post Acquisition Analysis of Proteomic Experiments.", 63rd Annual ASMS Conference on Mass Spectrometry & Allied Topics, St. Louis, MO, May 31 –June 4, **2015**.

M. Brand, S. Choi, L. Ellerby, A. Gerencser, B. Gibson, B. Schilling, "Proteomic Analysis of Synaptosomes Isolated from a Huntington Mouse Model: A Cautionary Tale", HUPO Vancouver, 14th Human Proteome Organization World Congress, Vancouver, CAN, September 27-30, **2015**.

R. Aebersold, S. Bader, D. Chan, B. Collins, B. Gibson, A.-C. Gingras, J. Held, M. Hiroyama, G. Hou, C. Hunter, C. Krisp, B. Larsen, S. Liu, Y. Liu, M. Molloy, R. Moritz, S. Ohtsuki, B. Schilling, R. Schlapbach, N. Selevsek, S. Thomas, S.-C. Tzeng, H. Zhang, "Multi-Site Assessment of Quantitative and Qualitative Performance of SWATH Mass Spectrometry", HUPO Vancouver, 14th Human Proteome Organization World Congress, Vancouver, CAN, September 27-30, **2015**.

Alexandria D'Souza, Birgit Schilling, Brendan MacLean, Daniel Broudy, Nicholas J. Shulman, Michael J. MacCoss, Bradford W. Gibson "MS1Probe – Implementation of a Statistical Tool for MS1-based Quantitation in Skyline for High Throughput Quantitative Analysis." 13th Annual Rocky Mountain Bioinformatics Conference, Snowmass Village, CO, December 10 - 12, **2015**.

2016

B. Schilling, D. Christensen, K.D. Dunn, D.J. Sorensen, A.K. Sahu, C.V. Rao, A.J. Wolfe, B.W. Gibson "Dynamic Remodeling of Protein Acetylation in Fuel-Producing E. coli with Different Carbon Sources" 2016 Genomic Sciences Program Annual PI Meeting (Department of Energy), Tysons, VA, March 6-9, **2016**.

G. Scott, K. Frazier, S. Malik, M. Alejo, B. Schilling, C. Benz "Class-selective histone deacetylase inhibitors differentially promote translation-dependent HER2 transcript decay in HER2-positive breast cancer cells." American Association for Cancer Research, New Orleans, LA, April 16-20, **2016**.

J. Meyer, N. Basisty, S. Softic, B. Schilling, K.C. Ronald, B. Gibson "Altered Lysine Acylation of Mitochondrial Proteins in Response to Macronutrient Stresses in the Mouse Liver" 45th Annual Conference of the American Aging Association, Seattle, WA, June 1-5, **2016**.

B. Schilling, D. Christensen, J.G. Meyer, A.K. D'Souza, D.J. Sorensen, N. Shulman, B. MacLean, C.V. Rao, A.J. Wolfe, B.W. Gibson "Dynamic Remodeling of Protein Acetylation in E. coli in Response to Different Carbon Sources" 64th Annual ASMS Conference on Mass Spectrometry & Allied Topics, San Antonio, TX, June 5-9, **2016**.

J.G. Meyer, B. Schilling, B.W. Gibson "Computational workflows to improve DIA data analysis without reference libraries for quantitative proteomics and PTM analysis" 64th Annual ASMS Conference on Mass Spectrometry & Allied Topics, San Antonio, TX, June 5-9, **2016**.

A.K. D'Souza, B. Schilling, B.W. Gibson "DIAprobe – Implementation of a Statistical Tool for Data Independent Acquisition in Skyline for SWATH Analysis" 64th Annual ASMS Conference on Mass Spectrometry & Allied Topics, San Antonio, TX, June 5-9, **2016**.

N. Shulman, C. Henderson, B. Schilling, W. Thompson, C. Shuford, A. Hoofnagle, M. MacCoss, B. MacLean "New calibration and absolute quantification features in Skyline" 64th Annual ASMS Conference on Mass Spectrometry & Allied Topics, San Antonio, TX, June 5-9, **2016**.

J. Meyer, N. Basisty, S. Softic, B. Schilling, K.C. Ronald, B. Gibson "Altered Lysine Acylation of Mitochondrial Proteins in Response to Macronutrient Stresses in the Mouse Liver" 64th Annual ASMS Conference on Mass Spectrometry & Allied Topics, San Antonio, TX, June 5-9, **2016**.

J.G. Meyer, T. Garcia, B. Schilling, A. Ramanathan, D. A. Lamba, B.W. Gibson "Proteomic analysis of chronic oxidative stress in Retinal Pigment Epithelium cells derived from pluripotent stem cells" International Society for Stem Cell Research ISSCR 2016, San Francisco, CA, June 22-25, **2016**.

D. Christensen, B. Schilling, J.S. Orr, C.V. Rao, B.W. Gibson, A.J. Wolfe "Acetyl Phosphate-Dependent Acetylation Is a Consequence of Acetate Fermentation" 2016 Molecular Genetics of Bacteria and Phages Meeting, Madison, WI, August 8-12, **2016**.

N. Basisty, J. Meyer, S. Softic, B. Schilling, K.C. Ronald, B. Gibson "Acylation of Mitochondrial Proteins in Response to Macronutrient Stresses in the Mouse Liver" RB 2016 Rejuvenation Biotechnology - a SENS Research Foundation Conference, Buck Institute, Novato, CA, August 16-17, **2016**.

J.G. Meyer, T. Garcia, B. Schilling, A. Ramanathan, D. A. Lamba, B.W. Gibson "Proteomic analysis of chronic oxidative stress in Retinal Pigment Epithelium cells derived from pluripotent stem cells" RB 2016 Rejuvenation Biotechnology - a SENS Research Foundation Conference, Buck Institute, Novato, CA, August 16-17, **2016**.

2017

D. Christensen, K.D. Dunn, A.K. D'Souza, C.V. Rao, B.W. Gibson, A.J. Wolfe, B. Schilling "Protein Acylomes in Fuel-Producing *E. coli* – Changes in Posttranslational Modifications with Different Carbon Sources" 2017 Genomic Sciences Program Annual PI Meeting (Department of Energy), Arlington, VA, February 5-8, **2017**.

J.G. Meyer, T.Y. Garcia, B. Schilling, A. Ramanathan, D. Lamba, B. Gibson "Proteomic and metabolic characterization of oxidative stress responses using a stem-cell derived multi-tissue disease model of Age-related Macular Degeneration" US HUPO, 13th Annual Conference – Precision Proteomics for Discovery and Health, San Diego, CA, March 19-22, **2017**.

N. Basisty, J. Campisi, B. Gibson, B. Schilling "Characterization of Cell-Surface, Exosomal, and Secreted Proteins of Senescent Human Fibroblasts by DIA/SWATH" US HUPO, 13th Annual Conference – Precision Proteomics for Discovery and Health, San Diego, CA, March 19-22, **2017**.

J.G. Meyer, T. Garcia, B. Gibson, D. Lamba, B. Schilling "Proteomic exploration of age-related macular degeneration using stem cell-derived tissue models." The 14TH Bay Area Aging Club Meeting, Buck Institute, Novato, CA, March 30, **2017**.

N. Basisty, J. Campisi, B. Gibson, B. Schilling "Characterization of cell-surface, exosomal, and secreted proteins of senescent human fibroblasts by DIA/SWATH" The 14th Bay Area Aging Club Meeting, Buck Institute, Novato, CA, March 30, **2017**.

T. Zee, S. Damodar, A.D'Souza, B.W. Gibson, M. Stoller, P. Kapahi, B. Schilling "3D Imaging and Quantitative Proteomic Characterization of Bladder Stones and their Matrix Investigating a Cystinuria Mouse Model" 65th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Indianapolis, Indiana, IN, June 4-8, **2017**.

N. Basisty, J. Campisi, B.W. Gibson, B. Schilling "Comprehensive, Unbiased Proteomic Profiling of the Cell-Surface, Exosomal, and Secreted Proteomes of Senescent Cells" 65th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Indianapolis, Indiana, IN, June 4-8, **2017**.

J.G. Meyer, N. Basisty, S. Softic, G. Wang, B. Schilling, C. Newgard, C.R. Kahn, B.W. Gibson "Changes in Mitochondrial Proteins, Metabolites, and Protein Acylation in Response to Macronutrient Stresses in the Mouse Liver" 65th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Indianapolis, Indiana, IN, June 4-8, **2017**.

E. Dogu, S. Mohammad-Taheri, S.E. Abbatiello, M. Bereman, B. MacLean, B. Schilling, O. Vitek "MSstatsQC: Longitudinal system suitability monitoring and quality control for targeted proteomic experiments" 65th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Indianapolis, Indiana, IN, June 4-8, **2017**.

B. Schilling, D. Bhaumik, K.J. Dumas, R.K. Quinn, G.J. Lithgow "Investigating protein homeostasis in different *C. elegans* and *C. briggsae* strains using mass spectrometry." The 21st IAGG World Congress of Gerontology and Geriatrics, San Francisco, CA, July 23-27, **2017**.

J.G. Meyer, S. Softic, N. Basisty, G.X. Wang, S. Mukkamalla, H. Steen, A.I. Nesvizhskii, C.B. Newgard, C.R. Kahn, B.W. Gibson, B. Schilling "Library-Free DIA for PTM Identification and Quantification using PIQED: Application to Multiple Diet-Induced Acylation Changes in Mouse Liver Mitochondrial Proteins", FASEB Science Research Conferences - Reversible acetylation in health and disease, Big Sky, MT, August 6-11, **2017**.

J.G. Meyer, S. Softic, N. Basisty, G.X. Wang, S. Mukkamalla, H. Steen, A.I. Nesvizhskii, C.B. Newgard, C.R. Kahn, B.W. Gibson, B. Schilling "Library-Free DIA for PTM Identification and Quantification using PIQED: Application to Multiple Diet-Induced Acylation Changes in Mouse Liver Mitochondrial Proteins"

Twelfth International Symposium on Mass Spectrometry in the Health and Life Sciences: Molecular and Cellular Proteomics, San Francisco, CA, August 20-24, **2017**.

N. Basisty, B.W. Gibson, J. Campisi, B. Schilling "Comprehensive, Unbiased Proteomic Profiling of the Cell-Surface, Exosomal, and Secreted Proteomes of Senescent Cells" 16th Human Proteome Organisation World Congress (HUPO), Dublin, Ireland, September 17-21, **2017**.

J.G. Meyer, S. Softic, N. Basisty, G.X. Wang, S. Mukkamalla, H. Steen, A.I. Nesvizhskii, C.B. Newgard, C.R. Kahn, B.W. Gibson, B. Schilling "Library-Free DIA for PTM Identification and Quantification using PIQED: Application to Multiple Diet-Induced Acylation Changes in Mouse Liver Mitochondrial Proteins" Bay Area Aging Meeting, Stanford, CA, November, **2017**.

N. Basisty, B.W. Gibson, J. Campisi, B. Schilling "Comprehensive, Unbiased Proteomic Profiling of the Cell-Surface, Exosomal, and Secreted Proteomes of Senescent Cells" Bay Area Aging Meeting, Stanford, CA, November, **2017**.

2018

N. Basisty, J.G. Meyer, L. Wei, B.W. Gibson, B. Schilling "Quantification of Multiple Post-Translational Modifications by 'One-Pot' Affinity Enrichment - Applications in *E. coli*" 2018 Genomic Sciences Program Annual Principal Investigator (PI) Meeting, DOE, Tysons, VA, February 25-28, **2018**.

P. Gut, J.G. Meyer, S. Matilainen, C. Carrico, B. Schilling, A. Suomalainen, E. Verdin "Human Succinyl-CoA Ligase Deficiency Causes Widespread Protein Hyper-Succinylation in Patient-Derived Fibroblasts and Myotubes", 14th Annual Conference, US HUPO – Technology Accelerating Discovery, Minneapolis, MN, March 11-14, **2018**.

G.K. Scott, Lei Wei, Mariah Alejo, Jacob Rose, Taekyu Kang, Birgit Schilling, Christopher C. Benz "Knockdown of p300 histone acetylase stimulates the rapid and selective decay of ERBB2 mRNA as induced by class-1 histone deacetylase (HDAC) inhibitors." American Association for Cancer Research (AACR), April 14-18, **2018**.

L. Wei, J.G. Meyer, C. Carrico, R. Zhang, E. Verdin, B. Schilling "Quantification of Site-specific Protein Lysine Acetylation and Succinylation Stoichiometry Using Data-independent Acquisition Mass Spectrometry" Bay Area Aging Meeting (BAAM), UC Berkeley, CA, May 17, **2018**.

J. Meyer, S. Softic, N. Basisty, M. Rardin, E. Verdin, B.W. Gibson, O. Ilkayeva, C. Newgard, C.R. Kahn, B. Schilling "PTM Identification and Quantification using Exclusively DIA (PIQED) Reveals Dichotomous Mitochondrial Protein Acylation from Excess Dietary Sugar and Fat", 66th Annual ASMS Conference on Mass Spectrometry & Allied Topics, San Diego, CA, June 3-7, **2018**.

N. Basisty, T. Payne, J. Campisi, B. Schilling "Development of Secreted Biomarkers of Cellular Senescence and Surface Markers for Senescent Cell-Targeted Therapies", 66th Annual ASMS Conference on Mass Spectrometry & Allied Topics, San Diego, CA, June 3-7, **2018**.

N. Shulman, N. Basisty, B. Schilling, B. MacLean "Protein turnover experiments using Skyline", 66th Annual ASMS Conference on Mass Spectrometry & Allied Topics, San Diego, CA, June 3-7, **2018**.

E.S. Nakayasu, M.C. Burnet, H.E. Walukiewicz, A.K. Shukla, S. Brooks, M.J. Plutz, B.D. Lee, B. Schilling, A.J. Wolfe, S. Mueller, J.R. Kirby, C.V. Rao, J.R. Cort, S. Payne "Ancient regulatory role of lysine acetylation revealed by phyloproteomics", 66th Annual ASMS Conference on Mass Spectrometry & Allied Topics, San Diego, CA, June 3-7, **2018**.

S. Guha , A. Chui, K. Pareja, A. Lim, B. Schilling, P. Kapahi "Glycation conditions aggravate amyloid-β and tau associated pathologies in *C. elegans* Alzheimer's disease model", Postdoctoral Fellow Symposium, Buck Institute, September 21. **2018**.

N. Basisty, A. Kale, T. Payne, C. Kuehnemann, H. Kasler, E. Verdin, J. Campisi, B. Schilling "Development of Secreted and Cell-Surface Biomarkers of Cellular Senescence" Cell Symposium: Aging and Metabolism, Sitges, Spain, September 23-25, **2018**.

C. Kuehnemann, N. Basisty, C. Wiley, B. Schilling, J. Campisi "Cellular Senescence; A Driver Of The Pro-aging Side Effects Of Antiretroviral Therapies" Human Proteome: HUPO 2018 World Congress, Orlando, FL, September 30 - October 3, **2018**.

X. Xie, N. Basisty, M. Stokes, C. Hunter, K. Lee, B. Schilling "Posttranslational Modifications and Data-Independent Acquisitions – Challenges and Opportunities" Human Proteome: HUPO 2018 World Congress, Orlando, FL, September 30 - October 3, **2018**.

N. Basisty, A. Kale, H. Kasler, E. Verdin, J. Campisi, B. Schilling "Identification and Quantification of Biomarkers for Senescent Cells Using Mass Spectrometry" Human Proteome: HUPO 2018 World Congress, Orlando, FL, September 30 - October 3, **2018**.

2019

B. Schilling, H. Kasler, A. Holtz, E. Verdin, J. Campisi, N. Basisty "Proteomic Profiling of the Cell Surface of Senescent Cells" Lorne Conference - Proteomics, Australia, February 7-10, **2019**.

N. Basisty, A. Kale, O. Jeon, C.D. Wiley, S. Liu, C. Kuehnemann, A. Holtz, J. Anderson, P. Kapahi, L. Ferrucci, J. Campisi, B. Schilling "The Role of Senescence in Aging and Age-related Diseases – Proteomics as Tool to Decipher Mechanisms" US HUPO, Washington, DC, March 3 - 6, **2019**.

K. Peasley, A. Holtz, N. Basisty, T. Chiba, B. Schilling, S Sims-Lucas, E Goetzman "Ischemic Stress to Kidneys from SIRT5 Mice is mitigated by Succinylation Response" US HUPO, Washington, DC, March 3 - 6, **2019**.

X Xie, D Bhaumik, K Dumas, M Chamoli, A Holtz, S Angeli, R Sivapatham, J Andersen, G Lithgow, B Schilling "Characterization of Changes in the Insolublome with Aging and Age-related Diseases" US HUPO, Washington, DC, March 3 - 6, **2019**.

N Basisty, A Kale, O Jeon, C Kuehnemann, T Payne, C Rao, A Holtz, S Shah, L Ferrucci, J Campisi, B Schilling "SASP Atlas: A Comprehensive and Unbiased Proteomic Database of the Senescence Associated Secretory Phenotype" US HUPO, Washington, DC, March 3 - 6, **2019**.

B Schilling "Implementation and application of data-independent acquisition workflows in a mass spectrometry facility" ABRF 2019 Annual Meeting, San Antonio, TX, March 23-26, **2019**.

G.K. Scott, J. Rose, L. Wei, B. Schilling, C. Benz "The potent catalytic p300HAT inhibitor A485 induces rapid decay and reduction in breast cancer ERBB2 mRNA expression" AACR 2019, Atlanta, GA, March 29-April 3, **2019**.

N. Basisty, A. Kale, O. Jeon, C. Kuehnemann, T. Payne, C. Rao, A. Holtz, S. Shah, J. Campisi, B. Schilling "A Proteomic Atlas of the Senescence Associated Secretory Phenotype for Development of Human Aging and Senescence Biomarkers" 48th Annual Meeting of the American Aging Association, Translating Aging Research, Burlingame, CA, May 30-June 2, **2019**.

X. Xie, M. Chamoli, D. Bhaumik, K. Dumas, R. Sivapatham, S. Angeli, A. Holtz, J. Andersen, B. Schilling, G. Lithgow "Characterization of the Insolublome in Aging and Age-related Diseases using Mass Spectrometry with Data-Independent Acquisitions (DIA/SWATH)", 67th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Atlanta, GA, June 2-6, **2019**.

K. Peasley, A.N. Holtz, N. Basisty, T. Chiba, B. Schilling, S. Sims-Lucas, E. Goetzman "Ischemic Stress to Kidneys from SIRT5 Mice is mitigated by Succinylation Response", 67th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Atlanta, GA, June 2-6, **2019**.

N. Basisty, A. Kale, O. Jeon, C. Kuehnemann, T. Payne, C. Rao, A. Holtz, S. Shah, J. Campisi, B. Schilling "SASP Atlas: A Database of Senescent Cell Secretomes" 67th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Atlanta, GA, June 2-6, **2019**.

H. Rost, B. Schilling "Data Independent Acquisition: Expanding the Scope of DIA Strategies for Quantitative Mass Spectrometry - Workshop" 67th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Atlanta, GA, June 2-6, **2019**.

B. Schilling "Data-Independent Acquisition – a tutorial lecture" 67th Annual ASMS Conference on Mass Spectrometry & Allied Topics, Atlanta, GA, June 2-6, **2019**.

Birgit Schilling "Applications of DIA for PTM research and specific DIA workflows." 13th International Symposium on Mass Spectrometry in the Health and Life Sciences: Molecular and Cellular Proteomics, San Francisco, CA, August 18 - 22, **2019**.

N. Basisty, A. Kale, O. Jeon, C.D. Wiley, S. Liu, C. Kuehnemann, A. Holtz, J. Andersen, P. Kapahi, L. Ferrucci, J. Campisi, B. Schilling, "Proteomic Tools to Decipher Mechanisms of Senescence in Aging and Age-related Diseases" 18th International HUPO 2019 Congress, Adelaide, Australia, September 15-19, **2019**.

G. Skills - Instrumentation

My scientific work involves a variety of Protein Chemistry techniques, in particular developing workflows for mass spectrometric protein analysis and proteomics experiments. I am experienced with many types of mass spectrometric instruments covering different ionization techniques, such as matrix-assisted laser desorption/ionization mass spectrometry, electrospray ionization mass spectrometry, and have worked with many different instrument types, such as hybrid quadrupole time-of-flight mass spectrometers, triple quadrupole linear ion trap instruments, linear ion traps and several others as detailed below. I am experienced in protein chemistry and various types of chromatographic separation, in particular nano-HPLC. All projects involve close collaboration with expert scientists in the field of biology. Additional collaborations with instrument vendors are also ongoing.

Mass Spectrometric Instrumentation:

6600 Triple TOF; quadrupole orthogonal time-of-flight instrument (AB Sciex, Concord, Ontario, CA)
5600 Triple TOF; quadrupole orthogonal time-of-flight instrument (AB Sciex, Concord, Ontario, CA)
QTRAP 5500, triple quadrupole linear ion trap (AB Sciex, Concord, Ontario, CA)
vMALDI LTQ, linear ion trap (Thermo Fisher, San Jose, CA)
4000 QTRAP, triple quadrupole linear ion trap (AB Sciex, Concord, Ontario, CA)
Velos LTQ ETD, dual pressure linear ion trap (Thermo Fisher, San Jose, CA)
QSTAR Elite; quadrupole orthogonal time-of-flight instrument (AB Sciex, Concord, Ontario, CA)
QSTAR Pulsar i; quadrupole orthogonal time-of-flight instrument (AB Sciex, Concord, Ontario, CA)
Voyager DESTR plus (Applied Biosystems, Framingham, MA)
XCT ion trap (Agilent, San Jose, CA)
Mariner Electrospray TOF (Applied Biosystems, Framingham, MA)
Quadrupole Ion Trap (LCQ, Finnigan MAT, San Jose, CA)
API 300 (Applied Biosystems, Framingham, MA)
Autospec SE orthogonal acceleration TOF (Micromass, Manchester, U.K.)

Other Instrumentation (i.e., Chromatography):

Nano-HPLC chromatography [Ultimate (LC Packings/Dionex), Paradigm 2D LC-MS (Michrom), Agilent 1100 (Agilent), Eksigent nano 2D system], GC-MS, NMR, FT-IR, protein expression and purification.

BioInformatics:

Licensed Protein Database Search Engines - use and maintenance: such as Mascot (Matrix Science), Radars (ProFound/Sonar, Proteometrics), Global Proteome Machine (GPM, Ron Beavis), TurboSequest – Bioworks 3.2 (Thermo), Protein Pilot 5.0 (Sciex), Skyline (U. Washington, M. MacCoss), Spectronaut Pulsar (Biognosys).