Josue Baeza, PhD

Postdoctoral Fellow

University of Pennsylvania
817-980-7281
baeza@pennmedicine.upenn.edu
baezaj
baezaj83
baezaj

Summary

Johnson Foundation (JF) Fellow at the University of Pennsylvania developing an independent research program using mass spectrometry. My research is aimed at understanding biological mechanisms of protein homeostasis with a major focus on the study of aging.

Education

2011–2017 **Ph.D.**, *University of Wisconsin-Madison*, Madison, WI.
- **Mechanisms of mitochondrial protein acetylation**
- PI: John M. Denu

2008–2010 **B.S.**, *University of Texas Permian Basin*, Odessa, TX.
- **Purification of the human T-cell leukemia virus**
- PI: Tracie M. Gibson

Research Experience

2017–2021 **Vice Provost Postdoctoral Fellow**, *Benjamin A. Garcia*, University of Pennsylvania.
- Investigating the cross talk between protein turnover and epigenetics
- Quantifying histone post-translational modifications in health and disease
- Developing mass spectrometry-based proteomics technologies
- Developing computational tools for mass spectrometry

2011–2017 **Graduate Research Assistant**, *John M. Denu*, University of Wisconsin-Madison.
- Thesis aimed at understanding the mechanisms of mitochondrial protein acetylation
- Developed a mass spectrometry-based method to quantify lysine acetylation stoichiometry
- Coupled in vitro biochemistry methods with high resolution mass spectrometry technologies
- Determined second order rate constants for non-enzymatic acetylation

2011 **INRO Postbaccalaureate Research Fellow**, *Shyam Kottilil*, National Institute of Allergy and Infectious Diseases.
- Determining genetic diversity of HCV genes in response to therapy

2010 **INRO Summer Internship Research Fellow**, *Shyam Kottilil*, National Institute of Allergy and Infectious Diseases.
- Determined cytokine gene expression in HIV/HCV coinfection cell system

2008–2010 **Undergraduate Research Assistant**, *Tracie M. Gibson*, University of Texas Permian Basin.
- Applied biochemical techniques to purify the human T-cell leukemia virus (HTLV)

Awards and Honors

Jan 2021 Rising Stars in Proteomics and Metabolomics: 40 under 40. Journal of Proteome Research

Jun 2019 ASMS Postdoctoral Career Development Award. American Society for Mass Spectrometry

May 2018 May Institute Computation and Statistics for Mass Spectrometry and Proteomics. May Institute

Apr 2017 UPenn Vice Provost Postdoctoral Fellowship for Academic Diversity. University of Pennsylvania

Jan 2015 AAAS/Science Program for Excellence in Science. University of Wisconsin-Madison

Jun 2014 Journal of Biological Chemistry (JBC) Author Profile. Journal of Biological Chemistry

Jun 2014 Dept of Biological Chemistry Travel Award. University of Wisconsin-Madison

Jun 2012 National Science Foundation (NSF) Graduate Research Fellowship (GRFP). National Science Foundation

Jan 2012 Honorable Mention – The Why Files Cool Science Image http://tinyurl.com/NeuroFlare. University of Wisconsin-Madison

Aug 2011 Molecular Biosciences Training Grant (NIH T32). University of Wisconsin-Madison

Aug 2011 Science and Medicine Graduate Research Scholars Fellowship (SciMed GRS). University of Wisconsin-Madison

Apr 2010 Xi Zeta Chapter Gamma Sigma Epsilon Chemistry Honor Society. University of Texas Permian Basin

Feb 2010 National Institute of Allergy and Infectious Diseases (NIAID) Intramural Research Opportunities (INRO). National Institute of Allergy and Infectious Diseases

Jun 2009 University of Texas Louis Stokes Alliance for Minority Participation (UT-LSAMP) Summer Research Academy. University of Texas Permian Basin

Teaching

2019 **Epigenetics**, *University of Pennsylvania*, Philadelphia, PA.
- Guest Lecturer
- Mass spectrometry analysis of histone proteins

2019 **Intro to R workshops**, *University of Pennsylvania*, Philadelphia, PA.
- Intro to R: Data wrangling and visualization
- Ongoing workshops teaching basic R

2017–2019 **Introduction ot Mass Spectrometry Based Proteomics**, *UPenn Epigenetics Institute*, Philadelphia, PA.
- Annual workshops organized by UPenn Epigenetics Institute
- Teaching fundamentals of mass spectrometry

2017–2019 **Applied Proteomics**, *UPenn Epigenetics Institute*, Philadelphia, PA.
- Second series of workshops hosted by the Epigenetics Institute
- overview of quantitative mass spectrometry
- Experimental design and statistics

2014 **Introduction to Human Biochemistry (TA)**, *University of Wisconsin-Madison*, Madison, WI.
- organized tutoring sessions for pre-medical undergraduate students

2013 **Human Biochemistry (TA)**, *University of Wisconsin-Madison*, Madison, WI.
- organized tutoring sessions for pre-medical undergraduate students

2009 **General Biology (TA)**, *University of Texas Permian Basin*, Odessa, TX.
- Biol 1307
- Teaching assistant for freshman biology students

2009 **General Chemistry (TA)**, *University of Texas Permian Basin*, Odessa, TX.
- Chem 1312
- Teaching assistant for freshman chemistry students

2008 **Chemistry (TA)**, *Odessa College*, Odessa, TX.
- Teaching assistant for chemistry students

2008 **Advancement Via Individual Determination**, *Odessa High School*, Odessa, TX.
- AVID tutor for high school students

Publications

2021 **Improved SILAC quantification with data independent acquisition to investigate bortezomib-induced protein degradation**, *Lindsay K Pino, Josue Baeza, Richard Lauman, Birgit Schilling, Benjamin A Garcia*, Journal of Proteome Research.

2021 **Sex-specific effects of in vitro fertilization on adult metabolic phenotypes and hepatic transcriptomic and proteomic pathways in mouse.**, *Marisa S Bartolomei, Laren Narapareddy, Richard M Schultz, Benjamin A Garcia, Eric Rhon-Calderon, Lisa A Vrooman, Duy Nguyen, Josue Baeza, Yemin Lan*, The FASEB Journal.

2020 **Revealing dynamic protein acetylation across subcellular compartments**, *Josue Baeza, Alexis J Lawton, Jing Fan, Michael J Smallegan, Ian Lienert, Tejas Gandhi, Oliver M Bernhardt, Lukas Reiter, John M Denu*, Journal of Proteome Research.

2020 **Self-acetylation at the active site of phosphoenolpyruvate carboxykinase (PCK1) controls enzyme activity**, *Pedro Latorre-Muro, Josue Baeza, Ramon Hurtado-Guerrero, Thomas Hicks, Ignacio Delso, Cristina Hernández-Ruiz, Adrian Velazquez-Campoy, Alexis J Lawton, Jesus Angulo, John M Denu, Jose A Carrodeguas*, Journal of Biological Chemistry, jbc. RA.

2019 **The E3 ligase adaptor molecule SPOP regulates fetal hemoglobin levels in adult erythroid cells**, *Xianjiang Lan, Eugene Khandros, Peng Huang, Scott A Peslak, Saurabh K Bhardwaj, Jeremy D Grevet, Osheiza Abdulmalik, Hongxin Wang, Cheryl A Keller, Belinda Giardine, Josue Baeza, Emily R Duffner, Osama El Demerdash, Xiaoli S Wu, Christopher R Vakoc, Benjamin A Garcia, Ross C Hardison, Junwei Shi, Gerd A Blobel*, Blood advances.

2019 **Deep profiling and custom databases improve detection of proteoforms generated by alternative splicing**, *Laura M Agosto, Matthew R Gazzara, Caleb M Radens, Simone Sidoli, Josue Baeza, Benjamin A Garcia, Kristen W Lynch*, Genome research.

2019 **Site-Specific Lysine Acetylation Stoichiometry Across Subcellular Compartments**, *Anastasia J Lindahl, Alexis J Lawton, Josue Baeza, James A Dowell, John M Denu*, Protein Acetylation.

2018 **Dynamic acetylation of phosphoenolpyruvate carboxykinase toggles enzyme activity between gluconeogenic and anaplerotic reactions**, *Pedro Latorre-Muro, Josue Baeza, Eric A Armstrong, Ramon Hurtado-Guerrero, Francisco Corzana, Lindsay E Wu, David A Sinclair, Pascual Lopez-Buesa, Jose A Carrodeguas, John M Denu*, Molecular cell.

2018 **Quantifying dynamic protein acetylation using quantitative stoichiometry**, *Josue Baeza, Alexis J Lawton, Jing Fan, Michael J Smallegan, Ian Lienert, Tejas Gandhi, Oliver M Bernhardt, Lukas Reiter, John M Denu*, bioRxiv.

2016 **Mechanisms and dynamics of protein acetylation in mitochondria**, *Josue Baeza, Michael J Smallegan, John M Denu*, Trends in biochemical sciences.

2016 **Investigating histone acetylation stoichiometry and turnover rate**, *J Fan, J Baeza, JM Denu*, Methods in enzymology.

2015 **Site-specific reactivity of nonenzymatic lysine acetylation**, *Josue Baeza, Michael J Smallegan, John M Denu*, ACS chemical biology.

2014 **Stoichiometry of site-specific lysine acetylation in an entire proteome**, *Josue Baeza, James A Dowell, Michael J Smallegan, Jing Fan, Daniel Amador-Noguez, Zia Khan, John M Denu*, Journal of Biological Chemistry.

2013 **Activation of the protein deacetylase SIRT6 by long-chain fatty acids and widespread deacylation by mammalian sirtuins**, *Jessica L Feldman, Josue Baeza, John M Denu*, Journal of Biological Chemistry.

2012 **Rapid identification of ESKAPE bacterial strains using an autonomous microfluidic device**, *Jack Y Ho, Nate J Cira, John A Crooks, Josue Baeza, Douglas B Weibel*, PloS one.

2012 **Human immunodeficiency virus enhances hepatitis C virus replication by differential regulation of IFN and TGF family genes**, *Xiaozhen Zhang, Marybeth Daucher, Josue Baeza, Cheol-Woo Kim, Rodney Russell, Shyamasundaran Kottilil*, Journal of medical virology.

Research Talks

Jun 2020 **Applications of Skyline for Method Development and Quantification of Histone PTMs**, *Skyline User Group Meeting*, Online.

Jun 2019 **Quantitative analysis of the fetal tissue 'Translatome' reveals temporal and tissue-specific regulatory networks in utero**, *American Society for Mass Spectrometry*, Atlanta, GA.

Mar 2018 **Quantifying protein synthesis rates during fetal development reveals temporal and tissue specific regulatory networks**, *US Human Proteome Organization*, Minneapolis, MN.

Selected Posters

Oct 2020 **A robust and flexible method for quantifying protein turnover rates across an entire proteome**, *US Human Proteome Organization - Connect*, Online.

Mar 2019 **Quantitative analysis of the fetal tissue translatome by mass spectrometry reveals temporal and tissue-specific regulatory networks in utero**, *US Human Proteome Organization*, Washington DC.

Sep 2018 **Quantifying the fetal tissue translatome reveals temporal and tissue specific regulatory networks during development**, *Human Proteome Organization*, Orlando, FL.

Jun 2017 **Acetylation stoichiometry analysis of the Sirt3 deficient liver**, *American Society for Mass Spectrometry*, San Antonio, TX.

Jun 2015 **Site specific reactivity of non-enzymatic lysine acetylation**, *American Society for Mass Spectrometry*, St. Louis, MO.

Dec 2014 **Site specific reactivity of non-enzymatic lysine acetylation**, *American Society for Cell Biology*, Philadelphia, PA.

Jun 2014 **Stoichiometry of acetylation in an entire proteome**, *American Society for Mass Spectrometry*, Minneapolis, MN.

Aug 2013 **Stoichiometry of acetylation determined by isotopic modification and mass spectrometry**, *Molecular Biosciences Training Grant Retreat*, Madison, WI.

Sep 2011 **MicroRNA expression profiling identifies potential anti-viral targets in HCV-infected human hepatoma cells**, *International Symposium on Hepatitis C Virus*, Seattle, WA.

Aug 2010 **Determining hepatitis C virus diversity and evolution during antiviral therapy using quantitative deep sequencing**, *NIH Summer Research Program Poster Day*, Bethesda, MD.

Feb 2010 **Purification of the human T-cell leukemia virus type-1 virion using sucrose density gradient ultracentrifugation**, *American Association for the Advancement of Science*, San Diego, CA.

Professional Organizations

2017 Human Proteome Organization.

2017 US Human Proteome Organization.

2013 American Society for Mass Spectrometry.