Jordan A. Berg

CONTACT INFORMATION

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RESEARCH INTERESTS

Cancer Metabolism, Biological Networks, Pattern Recognition, Software Development

EDUCATION

2016-present	Ph.D. in Biochemistry, University of Utah
2010-2016	B.S. in Molecular Biology, Brigham Young University

RESEARCH EXPERIENCE

2016-present	Graduate Research Assistant, Jared Rutter Lab, University of Utah
2013-2016	Undergraduate Research Assistant, Julianne Grose Lab, Brigham Young University

SERVICE

2020-present	*Codechecker*, CODECHECK organization
2018-present	*Web Designer/Social Media Outreach Officer*, University of Utah SACNAS Chapter
2018	*Lead Recruitment Host*, Molecular Biology Graduate Program, University of Utah
2018	*Volunteer*, Adventure Scientists
2014-2016	*Volunteer*, Provo Youth Mentoring, Provo, UT

Reviewer (ad hoc): *Bioinformatics*, *NAR Genomics and Bioinformatics*, *Comput Struct Biotechnol J*, *F1000 Research*, and *Journal of Emerging Investigators*.
See Publons record.

HONORS, AWARDS, AND FELLOWSHIPS

2020-2022	*F99 Predoctoral Fellow*, National Cancer Institute
2018-2020	*T32 Graduate Trainee*, National Institute of Diabetes and Digestive and Kidney Diseases
2016	*Outstanding Research Award*, Department of Microbiology and Molecular Biology, Brigham Young University
2014	*iGem Silver Medal*, iGEM World Jamboree, Boston, MA

SELECTED PUBLICATIONS

& indicates co-corresponding authors

Berg JA[&], George I, Zhou Y, Hicks KG, Wang B, Rutter J[&].
Electrum contextualizes enzyme-metabolite interactions and predicts allosteric regulatory mechanisms.
[working draft] [software]

Berg JA[&], Zhou Y, Ouyang Y, Waller TC, Cluntun AA, Conway ME, Nowinski SM, Van Ry T, George I, Cox JE, Wang B, Rutter J[&].
Network-aware reaction pattern recognition reveals regulatory signatures of mitochondrial dysfunction.
bioRxiv. (2020) https://doi.org/10.1101/2020.06.25.171850. [software]

Berg JA[&], Belyeu JR, Morgan JT, Ouyang Y, Bott AJ, Quinlan AR, Gertz J, Rutter J[&].
XPRESSyourself: Enhancing, Standardizing, and Automating Ribosome Profiling Computational Analyses Yields Improved Insight into Data.
PLoS Comp. Biol. (2020) https://doi.org/10.1371/journal.pcbi.1007625. [software]

Berg JA, Merrill BD, Breakwell DP, Grose JH, Hope S.
A PCR-based method for distinguishing between two common beehive bacteria, *Paenibacillus larvae* and *Brevibacillus laterosporus*.
Journal of Appl Environ Microbiol. (2018) https://doi.org/10.1128/AEM.01886-18. [software]

Berg JA, Merrill BD, Crockett JT, Esplin KP, Evans MR, Heaton KE, Hilton JA, Hyde JR, McBride MS, Schouten JT, Simister AR, Thurgood TL, Ward AT, Breakwell DP, Burnett SH, Grose JH.
Characterization of five novel *Brevibacillus* bacteriophages and genomic comparison of *Brevibacillus* phages.
PLoS ONE. (2016) https://doi.org/10.1371/journal.pone.0156838.

Other Publications

Hicks KG, Cluntun AA, Schubert HL, Hackett SR, **Berg JA**, Leonard PG, Ajalla Aleixo MA, Blevins A, Barta P, Tilley S, Fogarty S, Ahn H-C, Allen KN, Atsushi M, Block SD, Ding J, Dreveny I, Gasper C, Ho Q, Palladino MJ, Prajapati S, Sun PK, Tittmann K, Tolan DR, Unterlass J, VanDemark AP, Vander Heiden MG, Webb B, Yun C-H, Zhap PK, Hill CP, Nonato MC, Muller FL, Gottschling DE, Cox JE, Rutter J.
Protein-Metabolite Interactomics Reveals Novel Regulation of Carbohydrate Metabolism.
bioRxiv. (2021) https://doi.org/10.1101/2021.08.28.458030.

Winter JM, Fresenius H, Keys HR, Cunningham CN, Ryan J, Sirohi D, **Berg JA**, Tripp S, Barta P, Agarwal N, Letai A, Sabatini D, Wohlever M, Rutter J.
Co-deletion of ATAD1 with PTEN primes cells for BIM-mediated apoptosis.
bioRxiv. (2021) https://doi.org/10.1101/2021.07.01.450781.

Nuebel E, Morgan JT, Fogarty S, Winter JM, Lettlova S, **Berg JA**, Chen Y-C, Kidwell CU, Maschek JA,Clowers KJ, Argyriou C, Chen L, Wittig I, Cox JE, Roh-Johnson M, Braverman N, Steinberg SJ, Gygi SP, Rutter J.
The biochemical basis of mitochondrial dysfunction in Zellweger Spectrum Disorder.
EMBO Reports. (2021) https://doi.org/10.15252/embr.202051991. [code notebook]

Cluntun AA, Badolia R, Lettlova S, Parnell KM, Shankar TS, Diakos NA, Olson KA, Taleb I, Tatum SM, **Berg JA**, Cunningham CN, Van Ry T, Bott AJ, Krokidi AT, Fogarty S, Skedros S, Swiatek WI, Yu X, Luo B, Merx S, Navankasattusas S, Cox JE, Ducker GS, Holland WL, McKellar SH, Rutter J, Drakos SG.
The Pyruvate-Lactate Axis Modulates Cardiac Hypertrophy and Heart Failure.
Cell Metabolism. (2020) https://doi.org/10.1016/j.cmet.2020.12.003. [code notebook]

Nowinski SM, Solmonson A, Rusin SF, Maschek JA, Bensard CL, Fogarty S, Jeong M, Lettlova S, **Berg JA**, Morgan JT, Ouyang Y, Naylor BC, Paulo JA, Funai K, Cox JE, Gygi SP, Winge DR, Deberardinis RJ, Rutter J.
Mitochondrial fatty acid synthesis coordinates oxidative metabolism in mammalian mitochondria.
eLife. (2020) https://doi.org/10.7554/eLife.58041. [code notebook]

Waller TC, **Berg JA**, Lex A, Chapman BE, Rutter J.
Compartment and Hub Definitions Tune Metabolic Networks for Metabolic Interpretations.
GigaScience. (2020) https://doi.org/10.1093/gigascience/giz137. [software]

Hughes CE, Coody TK, Jeong M, **Berg JA**, Winge DR, Hughes AL.
Amino acid toxicity drives age-related mitochondrial decline by altering iron metabolism.
Cell. (2020) https://doi.org/10.1016/j.cell.2019.12.035. [code notebook]

Bensard CL, Wisidigama DR, Olsen KA, **Berg JA**, Krah NM, Schell JC, Nowinski SM, Fogarty S, Bott AJ, Wei P, Dove KK, Tanner JM, Panic V, Cluntun A, Lettlova S, Earl CS, Namnath DF, Vázquez-Arregun K, Villanueva CJ, Tantin D, Murtaugh LC, Evason KJ, Ducker GS, Thummel CS, Rutter J.

Regulation of Tumor Initiation by the Mitochondrial Pyruvate Carrier.
Cell Metabolism. (2019) https://doi.org/10.1016/j.cmet.2019.11.002. [code notebook]

Van Vranken JG, Nowinski SM, Clowers KJ, Jeong M, Ouyang Y, **Berg JA**, Gygi J, Gygi SP, Winge DR, Rutter JP.
ACP acylation is an acetyl-CoA-dependent modification required for electron transport chain assembly.
Molecular Cell. (2018) https://doi.org/10.1016/j.molcel.2018.06.039. [code notebook]

A complete list of publications can be found at Google Scholar.

Oral Presentations

Gazing into the Metaboverse — Automated exploration and contextualization of metabolic data
CSHL Biological Data Science (2020; virtual) - *Selected Talk*
Program *Slides*

ISMB (2020; virtual) - *Selected Short Talk*
Program *Slides*

EMBL/EMBO Epigenetics Meets Metabolism (2019) - *Selected Talk*
Program *Slides*

XPRESSyourself: Enhancing, Standardizing, and Automating Ribosome Profiling Computational Analyses Yields Improved Insights
CSHL Genome Informatics (2019) - *Lightning Talk*
Program

Bioinformatics Seminar Series, Center for Computational Biology & Bioinformatics, UCSD (2019) - *Invited Talk*
Program *Slides*

Characterization and analysis of six novel Erwinia phages reveals relationship to Enterobacteriaceae family members
Tri-branch ASM meeting (2015) - *Selected Talk*

Poster Presentations

A novel metabolic signature in malignant human lung adenocarcinomas is revealed by contextual, reaction-resolution analysis of metabolic data
Keystone Symposia: Metabolic Decisions in Development and Disease (2021; virtual)
Poster

Keystone Symposia: Tumor Metabolism and the Microenvironment (2021; virtual)
Poster

Gazing into the Metaboverse — Automated exploration and contextualization of metabolic data
Systems Approaches to Cancer Biology (2020; virtual)
Poster

XPRESSyourself: Enhancing, Standardizing, and Automating Ribosome Profiling Computational Analyses Yields Improved Insights
CSHL Genome Informatics (2019)

RECOMB (2018)

Ribosome profiling reveals translation-level regulation of peroxins in response to loss of peroxi-

somes
Frontiers in Metabolism (2018)

GENBANK PUBLICATIONS

A complete listing of bacteriophage genome publications can be found on GenBank (60 total).

TEACHING EXPERIENCE

2018, 2020	MBIOL 6200: Lit. & Problem Solving, University of Utah (3CR; 4 class hours/week; TA)
2015-2016	MMBIOL194B: Phage Hunters Genomics, Brigham Young University (2CR; 6 lab hours/week; TA)
2014-2015	MMBIOL194A: Phage Hunters Discovery, Brigham Young University (2CR; 6 lab hours/week; TA)

TRAINEES

Lilly R. (High School Student)
Ian George* (Undergraduate, U. of Utah)
Claudia Charles (Undergraduate, U. of Utah)
Nolan Beatty (Undergraduate, Brigham Young U.)
Braden Brundage* (Undergraduate, Brigham Young U.)
Alisa Buchanan (Undergraduate, Brigham Young U.)
Minsey Choi* (Undergraduate, Brigham Young U.)
Justin Crockett* (Undergraduate, Brigham Young U.)
Kyle Esplin* (Undergraduate, Brigham Young U.)
Marlee Evans* (Undergraduate, Brigham Young U.)
Hannah Ferguson* (Undergraduate, Brigham Young U.)
Karli Heaton* (Undergraduate, Brigham Young U.)
Jared Hilton* (Undergraduate, Brigham Young U.)
Emily Hurst (Undergraduate, Brigham Young U.)
Jonathan Hyde* (Undergraduate, Brigham Young U.)
Moon Hee I (Undergraduate, Brigham Young U.)
Morgan McBride* (Undergraduate, Brigham Young U.)
Sam Pollock (Undergraduate, Brigham Young U.)
Micah Putnam* (Undergraduate, Brigham Young U.)
Jordan Schouten* (Undergraduate, Brigham Young U.)
Jeremy Severe (Undergraduate, Brigham Young U.)
Austin Simister* (Undergraduate, Brigham Young U.)
Philip (PJ) Tatlow* (Undergraduate, Brigham Young U.)
Trever Thurgood* (Undergraduate, Brigham Young U.)
Charles (CJ) Webb* (Undergraduate, Brigham Young U.)

An asterisk indicates those who presented their research at a conference or in a publication.

OTHER

Languages: English (native), Spanish (professional working proficiency), Mandarin Chinese (elementary proficiency)

Programming: Python, R, Javascript, HTML/CSS, LaTeX, Bash, SLURM, C++, Julia

Citizenship: United States; Born: 1991

Last update: September 7, 2021