Elly Poretsky
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EDUCATION

June 2021 **Ph.D. Biology:** Alisa Huffaker lab, UC San Diego

Sept. 2014 **B.S. Biology,** The Open University, Israel

PROFESSIONAL EXPERIENCE

2021 – present **Post-doctoral Researcher:** Alisa Huffaker lab, UC San Diego

2015 - 2021 **Ph.D. Graduate Student:** Alisa Huffaker lab, UC San Diego

2014 - 2015 **Research Assistant:** Julian Schroeder lab, UC San Diego

SELECTED BIOINFORMATICS SKILLS

Languages	Python, R, Bash, SQL, Snakemake
Genomics	Samtools, BCFTools, BioPython, rMVP
Transcriptomics	STAR, BWA, kallisto, DESeq2, edgeR, limma,
Comparative genomics	IQtree, FastTree, FAMSA, MUSCLE, Cutadapt, ggtree, genoPlotR
Gene annotations	BLAST, Diamond, orthofinder, InterProScan, HMMER
Statistics	statmodels, scikit-learn, glmnet, ALDEx2, vegan, Prism

SELECTED BIOINFORMATICS PROJECTS

MutRank Developed an R Shiny app for coexpression analysis with user-provided data
2018-2020 Project code: https://github.com/eporetsky/MutRank

Workflows Created workflows for high throughput analyses of raw transcriptomic data
2022-Present Website address: https://github.com/eporetsky/workflows/

PlantApp Developing a Python Dash website for comparative genomics queries and apps
2021-Present Website address: https://www.plantapp.org

SQNce Developing a custom SQLite database for querying common genomic data
2021-Present Project code: https://github.com/eporetsky/SQNce

syntenyZ Developed an R Shiny app for comparative genomics with custom genomes
2020-2021 Project code: https://github.com/eporetsky/syntenyZ

SELECTED WET-LAB SKILLS

Molecular Biology	DNA/RNA purification, qPCR, preparation of NGS libraries, gene cloning
Biochemistry	Heterologous gene expression, western blotting, co-immunoprecipitation
Physiology	Assays for induced plant stress responses, antimicrobial growth assays
Chemistry	Extraction and chromatographic purification of plant metabolites

PUBLICATIONS

June 2022 Poretsky, E. and Huffaker, A. (2022) Plant signaling: Sustaining leaf electrical excitability protects against prolonged herbivory. Current Biology, 32, R525–R528.

March 2022 Murphy, K.M.*, Poretsky, E.*, Liu, H., Micic, N., Nyhuis, A., Bohlmann, J., Schmelz, E.A., Zerbe, P., Huffaker, A. and Bjarnholt, N. (2022) Shielding the oil reserves: the scutellum as a source of chemical defenses. Plant Physiology, 188, 1944–1949.

January 2022 Poosapati, S., Poretsky, E., Dressano, K., Ruiz, M., Vazquez, A., Sandoval, E., Estrada-Cardenas, A., Duggal, S., Lim, J.-H., Morris, G., Szczepaniec, A., Walse, S.S., Ni, X., Schmelz, E.A. and Huffaker, A. (2022) A sorghum genome-wide association study (GWAS) identifies a WRKY transcription factor as a candidate gene underlying sugarcane aphid (Melanaphis sacchari) resistance. Planta, 255, 37.

December 2021 Poretsky, E., Ruiz, M., Ahmadian, N., Steinbrenner, A.D., Dressano, K., Schmelz, E.A. and Huffaker, A. (2021) Comparative analyses of responses to exogenous and endogenous antiherbivore elicitors enable a forward genetics approach to identify maize gene candidates mediating sensitivity to herbivore-associated molecular patterns. Plant J, tpj.15510.

December 2020 Poretsky, E., Dressano, K., Weckwerth, P., Ruiz, M., Char, S. N., Shi, D., Abagyan, R., Yang, B., & Huffaker, A. (2020). Differential activities of maize plant elicitor peptides as mediators of immune signaling and herbivore resistance. The Plant Journal, tpj.15022.

November 2020 Poretsky, E., & Huffaker, A. (2020). MutRank: An R shiny web-application for exploratory targeted mutual rank-based coexpression analyses integrated with user-provided supporting information. PeerJ, 8, e10264.

November 2020 Ding, Y., Weckwerth, P. R., Poretsky, E., Murphy, K. M., Sims, J., Saldivar, E., Christensen, S. A., Char, S. N., Yang, B., Tong, A., Shen, Z., Kremling, K. A., Buckler, E. S., Kono, T., Nelson, D. R., Bohlmann, J., Bakker, M. G., Vaughan, M. M., Khalil, A. S., … Huffaker, A. (2020). Genetic elucidation of interconnected antibiotic pathways mediating maize innate immunity. Nature Plants, 6(11), 1375–1388.

August 2020 Dressano, K., Weckwerth, P. R., Poretsky, E., Takahashi, Y., Villarreal, C., Shen, Z., Schroeder, J. I., Briggs, S. P., & Huffaker, A. (2020). Dynamic regulation of Pep-induced immunity through post-translational control of defence transcript splicing. Nature Plants, 6(8), 1008–1019.

October 2019 Ding, Y., Murphy, K. M., Poretsky, E., Mafu, S., Yang, B., Char, S. N., Christensen, S. A., Saldivar, E., Wu, M., Wang, Q., Ji, L., Schmitz, R. J., Kremling, K. A., Buckler, E. S., Shen, Z., Briggs, S. P., Bohlmann, J., Sher, A., Castro-Falcon, G., … Schmelz, E. A. (2019). Multiple genes recruited from hormone pathways partition maize diterpenoid defences. Nature Plants, 5(10), 1043–1056. https://doi.org/10.1038/s41477-019-0509-6.

April 2019 Fong, S. H., Carlin, D. E., Ozturk, K., Ideker, T., Arang, N., Bao, B., Bennett, H., Cai, X., Chau, K., Fixsen, B., Gonzalez-Avalos, E., Hakansson, A., Hu, V., Kaul, A., Kufareva, I., Nguyen, D., Poretsky, E., Qin, Y., Rideout, D., … Zhou, J. (2019). Strategies for Network GWAS Evaluated Using Classroom Crowd Science. Cell Systems, 8(4), 275–280.

July 2015 Brandt, B., Munemasa, S., Wang, C., Nguyen, D., Yong, T., Yang, P. G., Poretsky, E., Belknap, T. F., Waadt, R., Alemán, F., & Schroeder, J. I. (2015). Calcium specificity signaling mechanisms in abscisic acid signal transduction in Arabidopsis guard cells. ELife, 4, e03599.

INVITED PRESENTATIONS

March 2021 "Uncovering the Genetic Basis of Maize Sensitivity to Herbivore-Associated Fatty-acid Amino-acid Conjugates", Maize Genetics Conference, online.

April 2019 "Uncovering the Genetic Basis of Maize Sensitivity to Herbivore-Associated Fatty-acid Amino-acid Conjugates." Plant Talks Seminar, UC San Diego, La Jolla, CA.

June 2018 "Within spitting distance: Zeroing in on how plants recognize herbivore attack." Annual CMG Research Colloquium, UC San Diego, La Jolla, CA.

POSTER PRESENTATIONS

December 2021 Poretsky E, Schmelz E, Huffaker A. "syntenyZ: BLAST-based, annotation-independent, targeted comparative genomic analyses of syntenic regions in the maize NAM parents" Plant Genomes, Systems Biology and Engineering.

June 2020 Poretsky E, Huffaker A. "mutRank: An R Shiny web-application for Mutual Rank-based coexpression analysis combined with tools for gene candidate prioritization" Maize Genetics Conference.

March 2019 Poretsky E, Shen Z, Dressano K, Sandoval-Bautista E, Cardenas J, Briggs SP, Huffaker A. "Quantitative phosphoproteomics reveals novel regulators of maize defenses against biotic stress". Maize Genetics Conference.

March 2017 Poretsky E, Weckwerth P, Schmelz E, Huffaker A. "Induced foliar volatile production in response to the herbivore elicitor N-linolenoyl L-glutamine maps to a single QTL in maize". Maize Genetics Conference.

February 2016 Poretsky E, Weckwerth P, Schmelz E, Huffaker A. "Induced foliar volatile production in response to the herbivore elicitor N-linolenoyl L-glutamine maps to a single QTL in maize". Plant Volatiles Gordon Research Conference.

RELEVANT COURSEWORK

2020 Annotation Jamboree - Maize Genetic Cooperation (MGC) by Doreen Ware

2018 BNFO286: Network Biology & Biomedicine – UC San Diego by Trey Ideker

2017 Math Modeling Tutorial Workshop - San Diego Center for Systems Biology

2016 Cereal Genomics Workshop - Cold Spring Harbor Laboratory by David Jackson

2016 BGGN237: Quantitative Methods in Genetics and Genomics by Gene Yeo

INSTRUCTION

Winter 2019 **Instructional Assistant**: BILD1 - The Cell, UC San Diego

Spring 2018 **Instructional Assistant**: BILD2 - Multicellular Life, UC San Diego

Spring 2017 **Instructional Assistant**: BIMM101 - Recombinant DNA Techniques, UC San Diego

FUNDS AND AWARDS

2016-2018 NIH Cellular and Molecular Genetics Training Grant

August 2016 Helmsley Scholarship for the Cold Spring Harbor Laboratory course

2015-2016 GAANN Fellowship