**Dr. Marta Bjornson**

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@MB\_MPMI

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| **Education** | | | | |
| 2009 - 2016 | | *PhD Horticulture and Agronomy, Designated Emphasis in Biotechnology*  University of California, Davis | | |
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| 2005 - 2009 | | *B.S. Bioengineering*  Rice University  Magna Cum Laude | | |
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| **Research Experience** | | | | |
| 2022-present | | *Project Scientist - University of California, Davis, Davis CA*  **Supervisor**: Prof. Steven Knapp  **Project**: Resistance to soil-borne diseases in strawberry | | |
| 2016 - 2021 | | *Postdoctoral Researcher - The Sainsbury Laboratory, Norwich, UK &*  *The University of Zurich, Zurich, Switzerland*  **Supervisor**: Prof. Cyril Zipfel  **Project**: The transcriptional landscape of plant pattern-triggered immunity | | |
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| 2009 - 2016 | | *Doctoral Researcher – University of California, Davis, Davis CA*  **Supervisors**: Prof. Abhaya Dandekar (Department of Plant Sciences) and  Prof. Katie Dehesh (Department of Plant Biology)  **Dissertation title**: Regulation of the plant general stress response (GSR) | | |
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| 01/2016 - 04/2016 | | *Visiting Student Researcher Program (VSRP) Intern - King Abdullah University of Science and Technology, Saudi Arabia*  **Supervisor**: Prof. Heribert Hirt  **Project**: Immunity characterization of retrograde signaling and GSR mutants | | |
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| 06/2015 - 09/2015 | | *Research Intern – Monsanto, Woodland, CA*  **Supervisor**: Dr. Juan Pedro Sanchez  **Project**: BioDirectTM mode of action investigation and efficiency improvement | | |
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| 2007 - 2009 | | *Undergraduate researcher – Rice University, Houston, TX*  **Supervisor**: Prof. Bonnie Bartel  **Project**: Identification of novel mutants deficient in peroxisome function | | |
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| 07/2007 - 09/2007 | | *Undergraduate researcher – Keck Graduate Institute, Claremont, CA*  **Supervisor**: Prof. Kathrin Schrick  **Project**: Characterization of sterol biosynthesis mutants | | |
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| **Publications** – [17 total](https://scholar.google.com/citations?hl=en&user=msdqproAAAAJ&scilu=&scisig=AMstHGQAAAAAWyeOzsaTrvdR6TMQbqRHoGfj0Di5pHL0&gmla=AJsN-F48Uoraii24tcTOa_iuhEo4Q4ahRwE71sUaZn1eIMR7RwJe5W4s36U_kQ9o5Tox1z_trmf321gcF6EF8kk8_67ABM1pR59LX1kmpaF2DfqYV73JstA&sciund=5309489598133860176), 8 first author | | | | |
| N.P. Jiménez, M.J. Feldmann, R.A. Famula, D.D.A. Pincot, **M. Bjornson**, G.S. Cole, S.J. Knapp “Harnessing Underutilized Gene Bank Diversity and Genomic Prediction of Cross Usefulness to Enhance Resistance to Phytophthora cactorum in Strawberry” **The Plant Genome 2022** 00, 1– 23. | | | | |
| D.D.A. Pincot, M.J. Feldmann, M.A. Hardigan, M.V. Vachev, P.M. Henry, T.R. Gordon, **M. Bjornson**, A. Rodriguez, N. Cobo, R.A. Famula, G.S. Cole, G.L. Coaker, S.J. Knapp. “[Novel Fusarium wilt resistance genes uncovered in natural and cultivated strawberry populations are found on three non-homoeologous chromosomes](https://link.springer.com/article/10.1007/s00122-022-04102-2)” **Theor Appl Genet 2022** 135, 2121–2145 | | | | |
| J. Dindas, T.A. DeFalco, G. Yu, L. Zhang, P. David, **M. Bjornson**, M.-C. Thibaud, V. Custódio, G. Castrillo, L. Nussaume, A.P. Macho, C. Zipfel “[Direct inhibition of phosphate transport by immune signaling in Arabidopsis](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8791604/)” **Curr Biol 2022** 32(2):488-495.e5 | | | | |
| J. Rhodes, A. Roman, **M. Bjornson**, B. Brandt, P. Derbyshire, M. Wyler, M.W. Schmid, F.L.H. Menke, J. Santiago, C. Zipfel “[Perception of a conserved family of plant signalling peptides by the receptor kinase HSL3](https://elifesciences.org/articles/74687)” **eLife. 2022** 11:e74687 | | | | |
| K. Bender, D.Couto, Y. Kadota, A. Macho, J. Sklenar, P. Derbyshire, **M. Bjornson**, T. A. DeFalco, A. Petriello, M. F. Farre, B. Schwessinger, V. Ntoukakis, L. Stransfeld, A. M. E. Jones, F. L. H. Menke, C. Zipfel “[Activation loop phosphorylaton of a non-RD receptor kinase initiates plant innate immune signaling](https://www.pnas.org/content/118/38/e2108242118)” **Proc Natl Acad Sci USA. 2021** September 21 118 (38)  **M. Bjornson** and C. Zipfel “[Plant immunity: Crosstalk between plant immune receptors](https://www.cell.com/current-biology/pdf/S0960-9822%2821%2900648-5.pdf)” **Current Biology** Dispatch **2021** June 31(12)  **M. Bjornson**, P. Pimprikar, T. Nürnberger, C. Zipfel “[The transcriptional landscape of *Arabidopsis thaliana* pattern-triggered immunity](https://www.nature.com/articles/s41477-021-00874-5)” **Nature Plants 2021** 7: 579–586; top 5% Altmetric attention score; News and Views article *Different threats, same response* | | | | |
| **M. Bjornson**\*, K. Kajala, C. Zipfel, P. Ding\* [“Low-cost and high-throughput RNA-seq library preparation for Illumina sequencing](https://bio-protocol.org/e3799)” **Bio-Protocol 2020** October 10(20): e3799 \*contributed equally | | | | |
| JZ. Wang, B. Li, Y. Xiao, H. Ke, P. Yang, A. de Souza, **M. Bjornson**,X. He, Z. Shen, G.U. Balcke, S.P. Briggs, A. Tissier, D.J. Kliebenstein, K. Dehesh, “[Initiation of ER body formation and indole glucosinolate metabolism by the plastidial retrograde signaling metabolite, MEcPP](https://www.sciencedirect.com/science/article/pii/S1674205217302757),” **Mol. Plant 2017** Nov; 10(11) 1400-1416 | | | | |
| **M. Bjornson**, G.U. Balcke, Y. Xiao, A. de Souza, JZ. Wang, D. Zhabinskaya, I. Tagkoupoulos, A. Tissier, & K. Dehesh, “[Integrated omics analyses of retrograde signaling mutant delineate interrelated stress-response strata](https://onlinelibrary.wiley.com/doi/full/10.1111/tpj.13547),” **Plant J. 2017** Jul; 91(1) 70-84 | | | | |
| **M. Bjornson,** A. Dandekar, J. Chory, & K. Dehesh, “[Brassinosteroid's multi-modular interaction with the general stress network customizes stimulus-specific responses in Arabidopsis](https://www.sciencedirect.com/science/article/pii/S0168945216301224),” **Plant Sci. 2016** Sep; 250 165-177. | | | | |
| G. Benn, **M. Bjornson**, H. Ke, A DeSouza, E.I. Balmond, J.T. Shaw, & K. Dehesh, “[Plastidial metabolite MEcPP induces a transcriptionally centered stress-response hub via the transcription factor CAMTA3](http://www.pnas.org/content/113/31/8855.short),” **Proc Natl Acad Sci USA. 2016** Aug 02; 113(31) 8855-8860 | | | | |
| M. Lemos, Y. Xiao, **M. Bjornson**, J. Wang, D. Hicks, A.J. De Souza, C-Q. Wang, P. Yang, S. Ma, S. Dinesh-Kumar, & K. Dehesh “[The plastidial retrograde signal methyl erythritol cyclopyrophosphate is a regulator of salicylic acid and jasmonic acid crosstalk](https://academic.oup.com/jxb/article/67/5/1557/2885142),” **J Exp Bot. 2016** Mar; 67(5) 1557-1566 | | | | |
| **M. Bjornson**, A. Dandekar, & K. Dehesh, “[Determinants of timing and amplitude in the plant general stress response](https://onlinelibrary.wiley.com/doi/full/10.1111/jipb.12373),” ***J. Integr. Plant Biol.* 2016** Feb; 58(2) 119-126 | | | | |
| **M. Bjornson**, X. Song, A. Dandekar, A. Franz, G. Drakakaki, & K. Dehesh, “[A Chemical Genetic Screening Procedure for *Arabidopsis thaliana* Seedlings.](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4950980/)” ***Bio-protocol* 2015** July; 5(13): e1519 | | | | |
| **M. Bjornson**, G. Benn, X. Song, L. Comai, A. K. Franz, A. Dandekar, G. Drakakaki, & K. Dehesh, “[Distinct roles for MAPK signaling and CAMTA3 in regulating the peak time and amplitude of the plant general stress response](http://www.plantphysiol.org/content/166/2/988.short).,” ***Plant Physiol.* 2014** Oct; 166(2) 988-996 | | | | |
| A. W. Woodward, W. A. Fleming, S. E. Burkhart, S. E. Ratzel, **M. Bjornson**, & B. Bartel, “[A viable Arabidopsis pex13 missense allele confers severe peroxisomal defects and decreases PEX5 association with peroxisomes](https://link.springer.com/article/10.1007/s11103-014-0223-8),” ***Plant Mol. Biol.*, 2014** Sep; 86(1-2) 201-214 | | | | |
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| **Teaching** | | | | |
| 2020 | | *Methods in Molecular Plant Biology (BIO282) Instructor: RNA biology section*  In this four-week block course, I lectured and guided students for one week through experimental and analysis procedures for assaying plant transcriptional responses - using RNAseq, qRT-PCR, and luciferase reporter lines. | | |
| 2019 | | *Plant Sensing (BIO286) Guest lecturer and mentor*  Gave a guest lecture on experimental design and data presentation  Mentored two undergraduate students through a four-week mapping-by sequencing project, including selection, DNA extraction, and analysis of previously generated data. | | |
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| 2017 | | *TSL Summer School facilitator*  The TSL summer school teaches visitors ranging from new group leaders to graduate students fundamentals of plant immunity research. I assisted with the Zipfel lab section on innate immunity assays. | | |
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| 2014 | | *Plant Physiology (PLB111) Guest lecturer*  Gave two lectures on plant water relations | | |
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| 2013, 2014 | | *Plant Physiology (PLB111) course Teaching Assistant*  Instructors: Katie Dehesh and William Lucas  Led discussion sections and held office hours weekly, designed and graded homeworks and exams  Received excellent evaluations praising my knowledge, organization, and dedication to students, such that I was “without question as essential to the course as [the professors]” | | |
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| 2013 | | *Principles of Horticulture and Agronomy (HRT 200B) Reader*  Designed assignments and rubrics, graded written assignments in multiple professional styles  Helped redesign course –this course now has a full Teaching Assistant and my assignments and rubrics were still in use when I graduated UC Davis | | |
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| 2010, 2011 | | *Principles of Plant Biotechnology (BIT160) Teaching Assistant*  Designed and graded homework assignments and exams, led review sessions for exams  Received extremely positive student evaluations, praising my dedication to help students and clarity of feedback. | | |
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| **Fellowships/Awards/Grants** | | | | |
| Year | *~ Amt (US$)* | | Name | Notes |
| 2022 | 6,255,366 | | *USDA SCRI grant* | Co-PI on “Delivering Breeding and Management Solutions to Prevent Losses to Emerging and Expanding Disease Threats in Strawberry” |
| 2016 | 245,000 | | *Marie Skłodowska-Curie Individual Fellowship* | Competitive postdoctoral fellowship grant, two years of salary with research support |
| 2016 | 88,000 | | *Japan Society for the Promotion of Science Postdoctoral fellowship* | Competitive postdoctoral fellowship grant, two years of salary with research support- declined |
| 2015 | 1,500 | | *Walter R. and Rosalind H. Russell Fellowship* | Research funding awarded to single Plant Biology Graduate Student annually, 15 minute talk at annual Celebration of Plant Biology |
| 2012 |  | | *Participant, NAIST/UCD/CAS International Student Workshop* | Competitive position, one of ten among UC Davis College of Biological Sciences students |
| 2012 | 600 | | *American Society of Plant Biologists travel grant* | Funds early career scientists’ registration and travel to ASPB annual meeting, approximately 80 awarded |
| 2009-2012 | 78,500 | | *John F. Steindler Fellowship* | Two years’ support offered to graduate students working in selected research areas, including molecular biology of plants, one awarded annually |
| 2010-2012 | 82,000 | | *NSF CREATE-IGERT* | Two year’s support for graduate students working on interdisciplinary research on plant transformation and crop improvement, 6-8 awarded annually |
| 2011 | 1,500 | | *Elsie Taylor Stocking Memorial Fellowship* | Research and travel money awarded to three-to-four selected Plant Biology graduate students based on a proposal, 5 minute presentation at annual Celebration of Plant Biology |
| 2010 | 2,500 | | *Henry A. Jastro Research Award* | Research and travel money awarded to selected Plant Sciences graduate students based on a proposal |
| 2009 | 1,275 | | *Bert and Nell Krantz International Agriculture Fellowship* | Awarded based on outstanding scholarship and potential to benefit agriculture in developing countries |
| 2009-2015 | 80,000 + 6,000 | | *UC Davis Graduate Student Research Assistantship and assorted grants* | Full support for two years and assorted smaller grants, awarded based on scholarship, research potential, and service to department, graduate group, and community |
| **Selected Mentoring** | | | | |
| 2022 | | *Research mentor*  Held weekly one-on-one meetings with doctoral students in Knapp lab, sharing molecular biology knowledge and guiding project development | | |
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| 2020 | | *Research mentor*  Mentored Oïana Brayle during her masters internship for triclustering of time-series RNAseq, and gene regulatory network generation, analysis, and validation | | |
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| 2017 | | *L’ecole Biologie-Biotech de l’UCLY mentor*  Mentored Mathilde Large, from a technical masters program, learning time management, data analysis, and troubleshooting through a genetic screen | | |
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| 2009 - 2016 | | *Research mentor*  In Dehesh and Dandekar labs I mentored undergraduate and graduate students.   * Undergraduates Joe Garcia, Brandyn Bobb, and Linda Du worked with me on forward genetic screening. Joe and Brandyn went on to medical school, and Linda is working at a Biomedical research company. * PhD student Jenna Gallegos rotated with me in the Dehesh lab, learning new skills in image analysis and map-based cloning. | | |
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| 2011, 2013 | | *Sheldon High School e-mentor*  Exchanged weekly e-mails with a local high school student discussing working in the sciences | | |
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| 2011, 2012, 2013 | | *Young Scholars Program*  Mentored YSP high school students, in an immersive college experience program consisting of half shared coursework/labwork, half full-time labwork, culminating in a research presentation. Students worked with me primarily on forward genetic screening, carrying on to MIT, Berkeley, and Harvard. | | |
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| 2011, 2012 | | *Nara Institute of Science and Technology Exchange*  Mentored two visiting PhD students from NAIST, in an immersive language/science exchange program with the UC Davis College of Biological Sciences. In this short program we focused on sharing protocols and techniques. | | |
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| **Selected Service/Outreach** | | | | |
| 2022 | | *California Strawberry Commission Research Committee Annual Meeting*  Led panel discussion on genome editing: the technology, the capabilities at UC Davis, the opportunities, and the regulations in the US and worldwide. | | |
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| 2021 | | *International Society for Molecular Plant Microbe Interactions eSymposium Poster Session moderator*  I facilitated discussion in one of several poster breakout sessions | | |
| 2021 | | [*Plant Immunity’s First Response*](http://www.tsl.ac.uk/news/plant-immunitys-first-response/)  I coordinated with The Sainsbury Laboratory’s press office to write this press release sharing my research results in common language | | |
| 2019 | | [*Results in Brief News Article*](https://cordis.europa.eu/article/id/252277-harnessing-the-immune-defences-of-plants-for-better-crop-yields?WT.mc_id=exp)  Selected Marie Curie fellowships are selected for a News in Brief article summarizing the results of the fellowship, which is published on the website of the European Commission’s Community Research and Development Information Service. | | |
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| 2017 | | *TSL Postdoc Society Communication Committee*  The Communication Committee focused on facilitating communication within and beyond TSL. Our work included generating and analyzing a survey of TSL postdoc interests and working through LinkedIn to maintain contact with TSL alumni. | | |
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| 2011 - 2016 | | *Coordinator, Horticulture and Agronomy Journal Club*  I founded this group in 2011 to improve communication and scholarship in the Horticulture and Agronomy Graduate Group. Each week the journal club critically discusses a paper from one of the fields in Horticulture and Agronomy, relevant high-impact pieces, or new technology releases. As coordinator, I arranged for speakers each week, maintained the website, and archived discussion topics. | | |
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| 2014, 2015 | | *Fiesta de las Ciencias*  Prepared and presented “Plant Plumbing” to 8-10 year old children at Margeurite Montgomery elementary school with the Horticulture and Agronomy graduate group | | |
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| 2010, 2011, 2014 | | *Teen Biotech Challenge Award Dinner*  This dinner celebrates 15-18 year olds who have researched a scientific topic and created a web page explaining a topic in biotechnology. | | |
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| **Selected Meeting Presentations and Posters** | | | | |
| 2023 | | **M. Bjornson**, D.D.A. Pincot, M.J. Feldmann, N.P. Jiménez, M.V. Vachev, R.A. Famula, G.S. Cole, G.L. Coaker, and S.J. Knapp “Genetic Basis of Resistance to California-Prevalent Diseases in Strawberry” Talk in the Fruit/Nut Workshop, Plant and Animal Genome Conference (PAG 30) | | |
| 2021 | | **M. Bjornson**, P. Pimprikar, T. Nürnberger, C. Zipfel “The transcriptional landscape of Arabidopsis thaliana pattern-triggered immunity” Talk at International Plant Systems Biology Workshop *\*Winner, early career researcher presentation award* | | |
| 2019 | | **M Bjornson.** “Golden Gate-enabled CRISPR multiplexing” Institute for Plant and Molecular Biology Synthetic Biology Workshop *\*Workshop co-chair* | | |
| 2019 | | **M. Bjornson**, S. Ranf, T. Nürnberger, & C. Zipfel “The transcriptional landscape of plant pattern-triggered immunity” International Society for Molecular Plant Microbe Interactions XVIII congress *\*Selected for 3-minute poster flash talk* | | |
| 2018 | | **M. Bjornson**, S. Ranf, T. Nürnberger, & C. Zipfel “The transcriptional landscape of plant pattern-triggered immunity” Poster at the Zurich-Basel Plant Science Center Symposium Zurich, Switzerland. *\*Winner, second place poster prize* | | |
| 2015 | | **M. Bjornson,** A.M.Dandekar. J. Chory, & K. Dehesh. “The Systemic General Stress Response is Enhanced by Brassinosteroid signaling” Poster at the Keystone Symposium - Plant Receptor Kinases: from molecules to the environment, Taos, NM | | |
| 2013 | | **M. Bjornson**, A.M. Dandekar, R. Bostock, & K. Dehesh. “Arachidonic acid for durable resistance to Phytophthora plant pathogens” “Dragon’s Den”-style pitch to regulators, investors and academics at CREATE-IGERT International Symposium Galway, Ireland | | |
| 2012 | | **M. Bjornson**, A.M. Dandekar, & K. Dehesh. “The Plant Rapid Stress Response,” Presentation at NAIST/UCD/CAS Internations Workshop *\*Selected among plant biology talks to present to larger audience* | | |
| 2008, 2009 | | **M. Bjornson**, A.W. Woodward, B. Bartel “Screening for peroxisome function mutants Poster at Rice Undergraduate Research Symposium and Southern Section American Society for Plant Biologists *\*Winner, undergraduate poster presentation* | | |
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| **Professional Societies** | | | | |
| 2019 | | American Society of Plant Biologists | | |
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| 2018 | | International Society for Molecular Plant-Microbe Interactions | | |
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| 2009 | | Phi Beta Kappa  US oldest and most highly regarded honor society | | |
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| 2009 | | Tau Beta Pi  US oldest and most highly regarded engineering honor society | | |