CHRISTIAN F. MONTES-SEREY

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PROFESSIONAL SUMMARY

- Curious, patient, and team work-oriented research scientist.
- Strong research experience in everything molecular biology-related.
- Skilled in proteomics and LC-MS work.
- Intermediate to advanced coding skill levels in UNIX (bash) and R
- Ability to manage multiple projects with critical thinking skills.
- Proven skills in scientific communication both written and oral

SKILLS

- Extensive experience on genetic and molecular work on *Arabidopsis thaliana*.
- Proficient in various techniques of plant genetic transformation (floral dip, agroinfiltration, callus vacuum infiltration).
- Vast experience on nucleic acids extraction (DNA and RNA) from plant tissue.
- Molecular cloning (restriction enzyme-based) and PCR.
- Gateway technology and Golden Gate cloning.
- Skilled in sterile microbiological techniques.
- Experience in various protein analysis methods.
    - SDS-PAGE/western blot, recombinant protein expression, *In-vitro* kinase assay, ELISA.
- Experience on sample processing for high throughput proteomics experiments.
- Experience running and doing maintenance on LC-MS systems.
    - Agilent 1260 HPLC, Thermo U3000 UHPLC.
    - Thermo QExactive Plus Orbitrap MS.
- High throughput data analysis skills, performing exploratory analysis and running statistical test to query for significance.
- Skilled in UNIX environments (high performance computers), R script and high throughput data analysis tools.
- Knowledge of network inference algorithms. Correlation-based coexpression networks and regression tree-based gene regulatory networks.
- Great communication skills, verbal and written.
- Excellent interpersonal and mentoring skills.

WORK HISTORY

05/2017 – 12/2022: Graduate research assistant on Dr. Justin Walley laboratory, Department of Plant Pathology and Microbiology, Iowa State University.

02/2008 – 07/2016: Research assistant at the Biotechnology Laboratory of the National Institute of Agricultural Research – Platina station. Supported projects include Biofrutales S.A., grape functional genomics phase II and III, and INFOR.

01/2006 – 12/2007: Undergraduate research assistant, working on project "Study of cell sorting for *Annona cherimola´*s polyphenol oxidase by transient expression of GFP-based fusions", developed at the Biotechnology Laboratory of the National Institute of Agricultural Research – Platina station.

EDUCATION

PhD degree in Genetics and Genomics. Advisor: Justin W. Walley, graduated in December 2022.

Biochemistry professional degree, graduated with highest distinction from Universidad de Chile in March, 2008.

Bachelor in Biochemistry (BSc), graduated with distinction from Universidad de Chile in January, 2008.

AWARDS

Professional Advancement Grant (PAG). Iowa State University Graduate and Professional Student Senate. July 2022.

Travel scholarship. Iowa State University, Genetics and Genomics PhD program. July 2022.

Travel award. American Society of Plant Biology (ASPB). July 2021.

Travel award. First North American Mass Spectrometry Summer School. Madison, WI. 2018

Attendance award. EBI Introduction to Next Generation Sequencing. Hinxton, UK. October 2015.

Attendance award. EMBO Practical Course on Analysis of High-Throughput Sequencing Data. Hinxton, UK. October 2015.

PUBLICATIONS

Brassinosteroids modulate autophagy through phosphorylation of RAPTOR1B by the GSK3-like kinase BIN2 in Arabidopsis. Liao CY, Pu Y, Nolan TM, **Montes C**, Guo H, Walley JW, Yin Y, Bassham DC. (2022). Autophagy.

Temporal and spatial auxin responsive networks in maize primary roots. McReynolds MR, Dash L, **Montes C**, Draves MA, Lang MG, Walley JW, Kelley DR. (2022). Quant. Plant Biol, 3, E21. Doi:10.1017/qpb.2022.17.

Integration of multi-omics data reveals interplay between brassinosteroid and TORC signaling in Arabidopsis. Montes C, Wang P, Liao CY, Nolan TM, Song G, Clark NM, Elmore JM, Guo H, Bassham DC, Yin Y, Walley JW. (2022). New Phytol, 236(3):893-910. doi:10.1111/nph.18404.

Small RNA Differential Expression Analysis Reveals miRNAs Involved in Dormancy Progression in Sweet Cherry Floral Buds. Soto E, Sanchez E, Nuñez C, **Montes C**, Rothkegel K, Andrade P, Prieto H, Almeida AM. (2022). Plants, 11(18):2396. doi:10.3390/plants11182396.

Genomic and Experimental Analysis of the Biostimulant and Antagonistic Properties of Phytopathogens of *Bacillus safensis* and *Bacillus siamensis*. Altimira F, Godoy S, Arias-Aravena M, Araya B, **Montes C**, Castro JF, Dardón E, Montenegro E, Pineda W, Viteri I, Tapia E. (2022). Microorganism, 10(4):670. doi:10.3390/microorganisms10040670.

FERONIA functions through Target of Rapamycin (TOR) to negatively regulate autophagy. Wang P, Clark NM, Nolan TM, Song G, Whitham OG, Liao CY, **Montes C**, Bassham DC, Walley JW, Yin Y, Guo H. (2022). Front Plant Sci. 13:961096. doi: 10.3389/fpls.2022.961096.

Integrated omics reveal novel functions and underlying mechanisms of the receptor kinase FERONIA in Arabidopsis thaliana. Wang P, Clark NM, Nolan TM, Song G, Bartz PM, Liao CY, **Montes C**, Katz E, Polko JK, Kieber JJ, Kliebenstein DJ, Bassham DC, Walley JW, Yin T, Guo H. (2022). The Plant Cell, 34(7):2594-2614. doi:10.1093/plcell/koac111.

The F-box E3 ubiquitin ligase BAF1 mediates the degradation of the brassinosteroid-activated transcription factor BES1 through selective autophagy in Arabidopsis. Wang P, Nolan TM, Clark NM, Jiang H, **Montes C**, Guo H, Bassham DC, Walley JW, Yin Y. (2021). The Plant Cell, 33(11):3532–3554. doi:10.1093/plcell/koab210.

Integrated omics networks reveal the temporal signaling events of brassinosteroid response in Arabidopsis. Clark NM, Nolan TM, Wang P, Song G, **Montes C**, Guo H, Sozzani R, Yin Y, Walley JW. (2021) Nature communications 12 (1), 1-13.

***slim shady* is a novel allele of *PHYTOCHROME B* present in the T-DNA line SALK_015201.** Dash L, McEwan RE, **Montes C**, Mejia L, Walley JW, Dilkes BP, Kelley DR. (2021). Plant Direct (5:e00326). doi:10.1002/pld3.326.

Silencing of one copy of the translation initiation factor eIFiso4G in Japanese plum (*Prunus salicina*) impacts susceptibility to Plum pox virus (PPV) and small RNA production. Rubio J, Sánchez E, Tricon D, **Montes C**, Eyquard JP, Chague A, Aguirre C, Prieto H, Decroocq V. (2019) BMC Plant Biol. 19(1): 440.

DNA methylation and small interference RNAs participate in the regulation of MADS-box genes involved in dormancy in sweet cherry (Prunus avium L.). Rothkegel K, Sánchez E, **Montes C**, Greve M, Tapia S, Bravo S, Prieto H, Miyasaka-Almeida A. (2017) Tree Phys. 37(12): 1739–1751.

Candidate nematicidal proteins in a new *Pseudomonas veronii* isolate identified by its antagonic properties against *Xiphinema index*. Canchignia H, Altimira F, **Montes C**, Sánchez E, Tapia E, Miccono M, Espinoza D, Aguirre C, Seeger M, Prieto H. (2017) *J. Gen. Appl. Microbiol.* 63(1). DOI: 10.2323/jgam.2016.07.001.

A draft genome sequence of *Pseudomonas veronii* R4: a grapevine (*Vitis vinifera*) root-associated isolate with high biocontrol potential. Montes C, Altimira F, Canchignia H, Castro A, Sánchez E, Miccono M, Tapia M, Sequeida A, Valdés J, Tapia P, González C, Prieto H. (2016) *Stand. Genomic. Sci.* 11(1). DOI: 10.1186/s40793-016-0198-y.

Synthesis of an artificial *Vitis vinifera* miRNA 319e using overlapping long primers and its application for gene silencing. Castro A, Quiroz D, Sánchez E, Miccono M, Aguirre C, Ramírez A, **Montes C**, Prieto H. (2016) *J. Biotech.* 233:200-10. DOI: 10.1016/j.jbiotec.2016.06.028.

Genetically engineered 'Thompson Seedless' grapevine plants designed for fungal tolerance: Selection and characterization of the best performing individuals in a field trial. Rubio J, **Montes C**, Castro Á, Álvarez C, Olmedo B, Muñoz M, Tapia E, Reyes F, Ortega M, Sánchez E, Miccono M, Dalla Costa L, Martinelli L, Malnoy M, Prieto H. (2015) *Transgenic Res*. 24(1):43-60.

Differential RNAi responses of *Nicotiana benthamiana* individuals transformed with a hairpin-inducing construct during Plum pox virus challenge. Montes C, Castro A, Barba P, Rubio J, Sánchez E, Carvajal D, Aguirre C, Tapia E, Dell´Orto P, Decroocq V, Prieto H. (2014) *Virus Genes*. 49(2):325-38.

Production of phenolic metabolites by *Deschampsia antarctica* shoots using UV-B treatments during cultivation in a photobioreactor. Sequeida A, Tapia E, Ortega M, Zamora P, Castro A, **Montes C**, Zúñiga G, Prieto H. (2012) *Electron. J. Biotechnol.* 15(4). Doi: 10.2225/vol15-issue4-fulltext-7.

Expression of an optimized *Argopecten purpuratus* antimicrobial peptide in *E. coli* and evaluation of the purified recombinant protein by in vitro challenges against important plant fungi. Tapia E, **Montes C**, Rebufel P, Paradela A, Prieto H, Arenas G. (2011) *Peptides*. 32(9):1909-16.

Development of grapevine somatic embryogenesis using an air-lift bioreactor as an efficient tool in the generation of transgenic plants. Tapia, E., Castro, A., **Montes, C.**, Zamora, P., Lopez, R., Acevedo, F., Prieto, H. (2009) *J. Biotech*. 139:95-101.

BOOK CHAPTERS

Quantitative Profiling of Protein Abundance and Phosphorylation State in Plant Tissues Using Tandem Mass Tags. Song G, **Montes C**, Walley J. W. (2020) Plant Proteomics (147-156). Humana, New York, NY.

PREPRINTS

Plasmodesmata-located proteins regulate plasmodesmal function at specific cell interfaces in Arabidopsis. Li Z, Liu SL, **Montes C**, Walley JW, Aung K. (2022). bioRxiv. doi:10.1101/2022.08.05.502996.

Quantitative proteomics reveals extensive lysine ubiquitination in the Arabidopsis root proteome and uncovers novel transcription factor stability states. Song G, Olatunji D, **Montes C**, Clark NM, Pu Y, Kelley DR, Walley JW. (2020). bioRxiv. doi:10.1101/2021.01.07.425780.

PATENT CLAIMS

Chimeric gene for heterologous expression which encodes for peptides with antimicrobial activity. Inventor: Tapia E, **Montes C**, Prieto H, Altamira F, Arenas. USPTO patent US20200040046A9.

SELECTED PRESENTATION IN CONFERENCES AND SYMPOSIA

Integration of multi-omics data reveals interplay between brassinosteroid and TORC signaling in Arabidopsis. **Montes C**, Wang P, Liao CY, Nolan TM, Song G, Clark NM, Elmore JM, Guo H, Bassham DC, Yin Y, Walley JW. Gordon Research Seminar and conference in Plant Molecular biology. Holderness NH. July 2022. **Oral** presentation.

Interplay between brassinosteroids and TORC signaling in Arabidopsis revealed by integrated multi-dimensional analysis. **Montes C**, Nolan TM, Wang P, Liao CY, Clark NM, Song G, Guo H, Bassham DC, Yin Y, and Walley JW. Plant Biology 2021 World Summit. July 2021. **Poster** presentation.

Identification of differentially expressed and differentially phosphorylated proteins in Arabidopsis in response to brassinosteroid pathway activation using different BIN2 mutants. **Montes C**, Pu Y, Nolan TM, Song G, Yin Y, Bassham DC, and Walley JW. First Annual North American Mass Spectrometry Summer School. Maddison, WI. July 2018. **Poster** presentation.

Biotechnological Application of antimicrobial peptides from South Pacific molluscs against important plant fungi. Tapia, E., **Montes, C**., Peña-Oyarzun, D., Arenas, G., Prieto, H. 4th International Symposium on Antimicrobial Peptides. Lorient, France. June 2014. **Poster** presentation.