CURRICULUM VITAE

D r. Isabel Cristina Vélez Bermúdez

PERSONAL DATA

Date of Birth: 29. December 1977

Citizenship: Colombian

Professional title: Postdoc at the Institute of Plant and Microbial Biology, Academia Sinica, Taiwan

EDUCATION

PhD

Dr. awarded in July 2013 (grade: c*um laude*) from the Department of Pharmacy, University of Barcelona. Barcelona, Spain.

Master

Developmental Biology and Genetics, awarded in June 2009 from the Department of Biology, University of Barcelona. Barcelona, Spain.

Master

Environmental Technology awarded in April 2010 from the Department of Science, University of Huelva Inter-University Program / International University of Andalusia. Huelva, Spain.

Diploma

Diploma in Environmental Administration (grade: 4.0/5.0), Technological University of Pereira. Pereira, Colombia.

PROFESSIONAL ACTIVITIES

Since 2013	Postdoctoral Researcher. Institute of Plant & Microbial Biology (IPMB). Academia Sinica. Taipei, Taiwan.
7 2013-9 2013	Postdoctoral Researcher. Center for Research in Agricultural Genomics (CRAG). Barcelona, Spain
7 2007-3 2013	PhD student. Center for Research in Agricultural Genomics (CRAG). Barcelona, Spain.
1 2002-6 2005	Researcher. COLCIENCIAS/ALMA MATER/Technological University of Pereira, Pereira, Colombia.

RESEARCH INTERESTS

Molecular Plant Nutrition

Systems biology

Signaling networks

Responses to abiotic environmental signals

Plant pathogens

Proteogenomics and peptidomics

Method development

OTHER ACTIVITIES AND CONTRIBUTIONS

- **2024.** Guess Editor in Frontiers. Research Topic: Sensing of and Acclimations to Environmental pH in Plants.
- 2023. Reviewer for Start Protocols.
- **Since 2008.** Member of PAIDI group: "AGR248: BIOTECNOLOGÍA AGROALIMENTARIA (BIOAGRO)". Scientific Information System of Andalusia (SICA). https://sica2.cica.es. Andalusia, Spain.
- **10th of April – 11th of July**, **2011.** Short stay: Chromatin Immunoprecipitation (ChIP) and ChIP-seq/Library using the SOLEXA (Illumina Index System) platform. To evaluate the location of DNA-binding proteins in vivo.

  Dr. Erich Grotewold. Dept. of Plant Cellular and Molecular Biology. Plant Biotechnology Center. The Ohio State University. OH, USA.
- **1st of July – 30th of September, 2009**. Short stay: Chromatin Immunoprecipitation (ChIP) technique for identification of direct targets for a maize transcription factor.

  Dr. Erich Grotewold. Dept. of Plant Cellular and Molecular Biology. Plant Biotechnology Center. The Ohio State University. Columbus, OH, USA.
- **29th of October – 30th of December, 2010.** Short stay: Prot.-DNA arrays (PBM11 arrays). Determination of DNA binding sequences of maize transcription factor.

  Dr. Roberto Solano. Dept. Molecular Genetics of Plants. Spanish National Biotechnology Centre. Madrid, Spain.

TECHNICAL SKILLS AND COMPETENCES

- Cloning (Conventional ligation, Gateway, and Gateway PRO).
- DNA fragmentation.
- Generation of Cas9 mutants.
- Production of transgenic lines.
- Confocal microscopy and subcellular localization.
- Bombardment of cells, protoplasts transformation and agroinfiltration of tobacco leaves.
- Maize, tobacco, rice and Arabidopsis cell culture manipulation.
- Chromatin Immunoprecipitation (ChIP) and serial ChIP.
- Library Preparation for Illumina.
- Library Clean up with AMPure XP Beads.
- RNA-Seq.
- Ribo-Seq*.
- Quantitative proteomics (iTRAQ and TMT)*.
- Puromycin-associated nascent chain proteomics (PUNCH-P) for plants.
- Pull-down.
- Yeast two hybrid.
- In Gel Kinase Assay.
- Luciferase reporter assays.
- Compound identification to targeted metabolomics.
- Co-immunoprecipitation*.
- Protein expression*.
- Antibody Production and Purification*.
- Plant transformation (Maize, tobacco, rice and Arabidopsis).
- Phosphopeptide enrichment for phosphoproteomics*.
- Chromatin enrichment for proteomics (ChEP)*.

* For these methods, I have developed and publish protocols as a first and/or corresponding author.

PUBLICATIONS

- **2024 - Vélez-Bermúdez IC** and Schmidt W (2024). IRON MAN is a jack of all trades. Nat. Plants. https://doi.org/10.1038/s41477-024-01688-x
- **2023 - Vélez-Bermúdez IC***, Lin W-D, Chou S-J, Chen A-P and Schmidt W (2023). Transcriptome and translatome comparison of tissues from *Arabidopsis thaliana*. bioRxiv. doi: https://doi.org/10.1101/2023.07.22.550136.
- **2023 - Vélez-Bermúdez IC*** and Schmidt W (2023). The interactome of histone deacetylase HDA19 in dark-grown Arabidopsis seedlings. Front. Plant Sci. 14:1296767. doi: 10.3389/fpls.2023.1296767.
- **2023 - Vélez-Bermúdez IC** and Schmidt W* (2023). pH sensors in the plant apoplast-a sine qua non of phenotypic plasticity. Front. Plant Sci. 14:1227279.
- **2023 - Vélez-Bermúdez IC***, Chou S-J, Chen A-P, Lin W-D and Schmidt W* (2023). Protocol to measure ribosome density along mRNA transcripts of Arabidopsis thaliana tissues using Ribo-seq. STAR Protocols, 4 (3), 102520.
- **2023 - Vélez-Bermúdez IC** and Schmidt W* (2023). Iron sensing in plants. Front. Plant Sci. 14:1145510.
- **2022 - Vélez-Bermúdez IC** and Schmidt W* (2023). Chromatin enrichment for proteomics in plants (ChEP-P). In: Lois, L.M., Trujillo, M. (eds) Plant Proteostasis. Methods in Molecular Biology, vol 2581. Humana, New York, NY.
- **2022- Vélez-Bermúdez IC**, Jain D, Ravindran A, Chen CW, Hsu CH and Schmidt W* (2023). Tandem Mass Tag-Based Phosphoproteomics in Plants. In: Lois, L.M., Trujillo, M. (eds) Plant Proteostasis. Methods in Molecular Biology, vol 2581. Humana, New York, NY.
- **2022 - Vélez-Bermúdez IC** and Schmidt W* (2023). Plant strategies to mine iron from alkaline substrates. Plant and Soil, 483, 1–25.
- **2022 - Vélez-Bermúdez IC**[1]*, Salazar-Henao JE[1], Riera M, Caparros-Ruiz D and Schmidt W* (2022). Protein and antibody purification followed by immunoprecipitation of MYB and GATA zinc finger–type maize proteins with magnetic beads. STAR Protocols, 3 (2), 101449.
- **2021 - Vélez-Bermúdez IC** and Schmidt W* (2021). How plants orchestrate cellular iron homeostasis. Plant & Cell Physiology, 63(2):154-162.
- **2021 - Vélez-Bermúdez IC** and Schmidt W* (2021). Chromatin enrichment for proteomics in plants (ChEP-P) implicates the histone reader ALFIN-LIKE6 in jasmonate signaling. BMC Genomics, 22: 845.
- **2018 -** Tsai HH, Rodriguez-Celma J, Lan P, Wu YC, **Vélez-Bermúdez IC** and Schmidt W* (2018). Scopoletin 8-hydroxylase-mediated fraxetin production is crucial for iron mobilization. Plant Physiology, 177:194-207.

- **2016 -** Salazar-Henao JE, **Vélez-Bermúdez IC** and Schmidt W* (2016). The regulation and plasticity of root hair patterning and morphogenesis. Development, 143(11):1848-1858.
- **2016 - Vélez-Bermúdez IC**, Wen T-N, Lan P and Schmidt W* (2016). Isobaric tag for relative and absolute quantitation (iTRAQ)-based protein profiling in plants. Plant proteostasis. In: Lois, L., Matthiesen, R. (eds) Plant Proteostasis. Methods in Molecular Biology, vol 1450. Humana Press, New York, NY.
- **2015 - Vélez-Bermúdez IC**[1], Salazar-Henao JE[1], Fornalé S, López-Vidriero I, Franco-Zorrilla JM, Grotewold E, Gray J, Solano R, Schmidt W, Pagés M, Riera M*, Caparros-Ruiz D* (2015). A MYB/ZML Complex Regulates Wound-Induced Lignin Genes in Maize. Plant Cell, 27(11):3245-59.
- **2015 - Vélez-Bermúdez IC**, Carretero-Paulet L, Legnaioli T, Ludevid D, Pagès M, Riera M* (2015). Novel CK2α and CK2β subunits in maize reveal functional diversification in subcellular localization and interaction capacity. Plant Science, 235:58-69.
- **2015 - Vélez-Bermúdez IC** and Riera M* (2015). Chapter 4: Maize RNA binding protein ZmTGH: a new partner for CK2β1 regulatory subunit. Series: Advances in Biochemistry in Health and Disease, Vol. 12: Protein Kinase CK2 Cellular Function in Normal and Disease States. Edited by Ahmed, Khalil, Issinger, Olaf-Georg, Szyszka, Ryszard. Springer. ISBN 978-3-319-14543-3.
- **2014 - Vélez-Bermúdez IC** and Schmidt W* (2014). The conundrum of discordant protein and mRNA expression. Are plants special? Front Plant Sci., 5: 619.
- **2014 -** Salazar-Henao JE* and **Vélez-Bermúdez IC** (2014). Riesgo asociado a eventos sísmicos (Risk Associated with Earthquakes). JOURNAL/BOOK TITLE: Editorial Académica Española. ISBN 978-3-8473-6204-3.
- **2013 –** Riera M, **Vélez-Bermúdez IC**, Legnaioli T, Pagès M* (2013). Specific features of plant CK2. The Wiley- IUBMB series on Biochemistry and Molecular Biology: Protein Kinase CK2. Edited by Lorenzo A. Pinna. WILEY-BLACKWELL. ISBN – 13: 978-0-4709-6303-6.
- **2013 - Vélez-Bermúdez IC.** (2013). Caracterización funcional del factor de transcripción ZmZIM91 de maíz (Doctoral dissertation, Barcelona University). Barcelona University Digital Deposit. http://hdl.handle.net/2445/41645.
- **2011 –** Riera M[1], Irar S[1], **Vélez-Bermúdez IC,** Carretero-Paulet L, Lumbreras V, Pagès M* (2011). Role of Plant-Specific N-Terminal Domain of Maize CK2β1 Subunit in CK2β Functions and Holoenzyme Regulation. Plos One, DOI: 10.1371/journal.pone.0021909.
- **2011 - Velez-Bermudez IC**, Irar S, Carretero-Paulet L, Pagès M, Riera M* (2011). Specific characteristics of CK2β regulatory subunits in plants. Mol Cell Biochem, 356(1-2):255-60.
- **2004 - Vélez B., IC** and Salazar H., JE (2004). Componente Ambiental. Ciudad Región Eje Cafetero. Hacia un Desarrollo Sostenible. Instituto Colombiano para el Desarrollo de la Ciencia y la Tecnología "Francisco José de Caldas" (COLCIENCIAS), Red de

Universidades Públicas del Eje Cafetero (ALMA MATER), Universidad Tecnológica de Pereira (UTP), ISBN 958 96988-6-7.

- **2003 - Vélez B., IC** and Salazar H., JE (2004). Index Urban Seismic Risk. Scientia Et Technica. Pereira. No. 21 (JUL. 2003); p. 163-168.

[1]These authors contributed equally to this work.
*Corresponding author.

SEMINARS AND POSTERS

2023. Taiwan-Japan Plant Biology (TJPB).
Authors: Isabel Cristina Vélez-Bermúdez and Wolfgang Schmidt
Title: PUROPlant: a proteomic readout of current translation
Type of contribution: Poster
Place: Taipei, Taiwan.

2023. Taiwan-Japan Plant Biology (TJPB).
Authors: Isabel Cristina Vélez-Bermúdez and Wolfgang Schmidt
Title: How to win a game of cat and mouse: hunting peptides hiding in the Arabidopsis genome
Type of contribution: Poster
Place: Taipei, Taiwan.

2022. Invited speaker "*Estación Experimental de Aula Dei (EEA)*" – CSIC, Zaragoza, Spain.
Authors: Isabel Cristina Vélez-Bermúdez and Wolfgang Schmidt
Title: Unlocking dark matter in the Arabidopsis genome by proteogenomics
Type of contribution: Seminar
Place: Zaragoza, Spain.

2022. 20th International Symposium on Iron Nutrition and Interactions in Plants (ISINIP).
Authors: Isabel Cristina Vélez-Bermúdez and Wolfgang Schmidt
Title: Discovery of a novel peptide repressor of coumarin biosynthesis
Type of contribution: Oral communication
Place: Reims, France.

2022. 20th International Symposium on Iron Nutrition and Interactions in Plants (ISINIP).
Authors: Isabel Cristina Vélez-Bermúdez and Wolfgang Schmidt
Title: Uncovering novel coding regions in the Arabidopsis genome by proteogenomics
Type of contribution: Oral communication and Poster
Place: Reims, France.

2018. 19th International Symposium on Iron Nutrition and Interactions in Plants (ISINIP). Taipei, Taiwan (organising committee).

2016. 18th International Symposium on Iron Nutrition and Interactions in Plants (ISINIP).
Authors: Isabel Cristina Vélez-Bermúdez, Wen-Dar Lin and Wolfgang Schmidt
Title: Orchestration of the transcriptional and translational control of cellular iron homeostasis
Type of contribution: Oral communication
Place: Madrid, Spain.

2016. 18th International Symposium on Iron Nutrition and Interactions in Plants (ISINIP).
Authors: Isabel Cristina Vélez-Bermúdez, En-Jung Hsieh, Wen-Dar Lin and Wolfgang Schmidt
Title: Post-Transcriptional regulation of the Arabidopsis Fe deficiency response by alternative splicing
Type of contribution: Poster
Place: Madrid, Spain.

2014. 17th International Symposium on Iron Nutrition and Interactions in Plants (ISINIP).
Authors: Isabel Cristina Vélez-Bermúdez and Wolfgang Schmidt
Title: Translational dynamics of iron-deficient Arabidopsis roots and shoots revealed by genome-wide profiling of ribosomes (Ribo-Seq)
Type of contribution: Poster
Place: Gatersleben, Germany.

2014. 15th IUBMB-24th FAOBMB-TSBMB International Conference.
Authors: Isabel Cristina Vélez-Bermúdez and Wolfgang Schmidt

Title: Translational dynamics of iron-deficient Arabidopsis roots and shoots revealed by genome-wide profiling of ribosomes (Ribo-Seq)
Type of contribution: Poster
Place: Taipei, Taiwan.

2012. *Fitohormonas, metabolismo y modo de acción. Reunión de la Sociedad Española de Fisiología Vegetal (SEFV)*. Gran Canaria, Spain.

2011. *Sociedad Española de Bioquímica y Biología Molecular (SEBBM)*.
Authors: Isabel Cristina Vélez-Bermúdez, Montserrat Pagès and Marta Riera
Title: Regulation of two splicing forms of Maize transcription factors ZmZIM91 by phosphorylation
Type of contribution: Poster
Place: Barcelona, Spain.

2011. 6th International Conference on Protein Kinase CK2
Authors: Marta Riera M, Sami Irar, Isabel Cristina Vélez-Bermúdez, Tommaso Legnaioli, Lorenzo Carretero-Paulet, and Montserrat Pagès
Title: Role of plant specific N-terminal domain of maize CK2B1 subunit in CK2B functions and holoenzyme regulation
Type of contribution: Poster
Place: Koln, Germany.

2010. 20th IPGSA Conference (International Plant Growth Substances Assodiation). Tarragona, Spain.
Authors: Isabel Cristina Vélez-Bermúdez, Montserrat Pagès and Marta Riera
Title: Regulation of maize transcription factor ZMZIM91 by phosphorylation
Type of contribution: Poster
Place: Tarragona, Spain.

2009. *2on Languedoc Roussillon – Catalogne* meeting on Plant Integrative Biology. Roses (Girona), Spain.

2008. IX Meeting of Molecular Plant Biology
Authors: Isabel Cristina Vélez-Bermúdez, Montserrat Pagès and Marta Riera
Title: Molecular characterization of maize Zim Like transcription factor
Type of contribution: Poster
Place: Santiago de Compostela, Spain.

2007. *1on Languedoc Roussillon – Catalogne* meeting on Plant Integrative Biology. Banyuls Sur Mer, France.

PERSONAL GRANTS AND AIDS

- Academia Sinica Postdoctoral Scholar. July 2018 – June 2020.
- Academia Sinica Postdoctoral Scholar Distinguished. July 2016 – June 2018.
- Ministry of Science and Technology. Postdoctoral Fellow. MOST 104-2811-B-001-025. June 2015 – June 2016.
- FPI, Scholarships and grants for short research stay (2011). Research stay in "The Ohio State University", USA. 2011.
- FPI, Scholarships and grants for short research stay (2010). Research stay in " Spanish National Biotechnology Centre", Spain. 2010.
- FPI, Scholarships and grants for short research stay (2009). Research stay in "The Ohio State University", USA. 2009.
- FPI, Grants for universities and research centers for the recruitment of new research personnel, Spain. 2007 - 2011.
- AUIP scholarship for a research stay in Andalusia, Spain. 2007.
- Scholarship to pursue a Masters in Environmental Technology at the University of Huelva and the UNIA, Spain. 2007.
- Scholarship to pursue a Masters in Plant Biotechnology in the UNIA, Spain. 2006.