

## CURRICULUM VITAE ABREVIADO (CVA)

### Part A. PERSONAL INFORMATION

First name	Rubén		
Family name	Vicente Pérez		
Gender	Male	Birth date	11/08/1986
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#### A.1. Current position

Position	Tenured Scientist (“Científico Titular”)		
Initial date	19/12/2024		
Institution	Spanish National Research Council (CSIC)		
Department/Center	Abiotic Stress / Institute of Natural Resources and Agrobiology of Salamanca (IRNASA)		
Country	Spain	Teleph. number	(+34) 923386398
Key words	crop improvement, climate change, abiotic stress, phenotyping, photosynthesis, carbon/nitrogen metabolism, source-sink dynamics, cereals, genotype-by-environment interaction		

#### A.2. Previous positions

Period	Position/Institution/Country/Interruption cause
06/2024-12/2024	Ramón y Cajal/R3 Researcher, IRNASA-CSIC (Spain)
02/2020-05/2024	Principal Investigator, Instituto de Tecnología Química e Biológica Antonio Xavier (ITQB NOVA), New University of Lisbon (Portugal)
11/2018-12/2018	Visiting Researcher, University of Campania L. Vanvitelli (Italy)
06/2017-01/2020	Postdoctoral Researcher, Department of System Regulation, Max Planck Institute of Molecular Plant Physiology (Germany)
01/2016-05/2017	Postdoctoral Researcher, Integrative Crop Ecophysiology Group, University of Barcelona (Spain)
08/2013-10/2013	Visiting Researcher, RWTH Aachen University (Germany)
06/2013-08/2013	Visiting Researcher, Max Planck Inst. Mol. Plant Physiology (Germany)
04/2012-06/2012	Visiting Researcher at the RWTH Aachen University (Germany)
10/2010-12/2015	Predocctoral Researcher, IRNASA-CSIC (Spain)

#### A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Ph.D. in Plant Biotechnology	University of Salamanca	2015
M.Sc. in Plant Biotechnology	University of Salamanca	2011
M.Sc. in Occupational Risk Prevention	Instituto Madrileño de Formación	2009
Expert in Renewable Energies & Ener. Efficiency	University of Salamanca	2008
Postgraduate Certificate in Education	University of Salamanca	2008
B.Sc. in Environmental Sciences	University of Salamanca	2008

### Part B. CV SUMMARY

My research career has focused on understanding C/N coordination, source-sink dynamics, and responses to abiotic stress for crop improvement and resilience. I did my PhD thesis (**FPI fellowship**) under the supervision of Dr. Rosa Morcuende at **IRNASA-CSIC** (Spain). We demonstrated that long-term exposition to **elevated CO<sub>2</sub>** caused a **photosynthetic acclimation in wheat due to an inhibition of N assimilation** in leaves and roots, being more exacerbated with a low N supply. We also showed that the negative effects of high temperatures can be partially compensated by elevated CO<sub>2</sub> in field conditions, but depends on N fertilisation. We contributed to the progress of **wheat transcriptomics** by developing a quantitative RT-PCR platform and the first *de novo* RNA sequencing analysis in durum wheat under future climate change scenario, allowing us to identify key target genes for crop improvement. I was awarded with 8 **student grants** to present my work in 5 congresses and to assist to

3 Summer Schools abroad (EMBL-EBI, United Kingdom; Teagasc-Oak Park, Ireland; FZ Jülich, Germany). Overall, my PhD thesis led to the publication of **6 papers as first author**, obtained *Summa Cum Laude* grade, International Mention, and the **Extraordinary Doctorate Award** at the University of Salamanca. Then, as **Postdoctoral Researcher at the University of Barcelona** (Spain) under the supervision of Prof. J. L. Araus, I complemented my skills in plant physiology and biochemistry with **high-throughput phenotyping** techniques. This allowed me to develop multidisciplinary skills to study stress responses from canopy to organ and cell level, nutrient use efficiency, and their relation to grain yield and quality, collaborating in breeding programmes. Later, I started as **Postdoctoral Researcher at the Max Planck Institute for Molecular Physiology** (Germany), under the supervision of Prof. Mark Stitt and Dr. John Lunn. I studied the regulation of central metabolism, particularly the role of the signal molecule **trehalose 6-phosphate**. I found it induces several key C and N enzymes for the coordinated synthesis of organic acids for plant growth. In 2020, I joined **ITQB NOVA** (Universidade Nova de Lisboa, Portugal) as the **Head of Plant Ecophysiology and Metabolism Laboratory**. We perform multidisciplinary approaches, from field high-throughput phenotyping to biochemical analyses and omics technologies, to identify novel biomarkers for grain filling and to define local ideotypes of cereals to promote crop improvement and resilience under Mediterranean environments. I set up my research group with 484k€ for a pioneering phenotyping platform and human resources, together with 162k€ obtained from my participation as ITQB representative in two projects of the **European Commission**. I was also the leader of a project for Citizen Science (IMPETUS Accelerator) and 1 project with the private sector. Overall, I carried out 4 stays abroad as visiting researcher that, together with my work in three different countries, led to broaden my **network of internationally recognised collaborators** (Prof. Mark Stitt, Dr. John Lunn, Prof. Aleksandra Skirycz, Prof. José Luis Araus, Prof. Elena Baena, Dr. Iker Aranjuelo, Prof. Petronia Carillo, etc.). Later, I was awarded with the **contract “Ramón y Cajal”**, obtaining the 5<sup>th</sup> position in Agricultural and Agri-Food Sciences (97.5/100) and the Talent Attraction award from MICINN and CSIC (414k€), as well as the **certificate R3 – Established Researcher** (90/100). Thus, I joined IRNASA-CSIC in July 2024 to establish again my own group, and promoted to **Tenured Scientist** in December 2024. My career track demonstrates my dedication to scientific excellence with an **h-index of 19/21 and 1030/1375 citations in Scopus and Google Scholar**, respectively. I have edited 2 e-books, published 6 research articles in books and proceedings, and **40 research articles** in peer-reviewed journals: 36 Q1, 13 as first author, 7 as last author, and 14 as corresponding author. I have participated in **54 national and international congresses**, contributing with 34 oral presentations (including 13 as the speaker and 4 as keynote/invited talk) and 34 posters. I participated actively in **29 projects**, funded at regional (4, total=579k€), national (14, total=12.9M€) and European (6, total=27.6M€) level, as well as 5 contracts with the private sector (total=148k€). I **supervised** 3 postdoctoral researchers, 7 PhD students (3 during short-stays), 4 MSc students, 10 BSc students, 4 lab technicians, and 30 High School students. Apart from leading my own group, I am (i) member of the Research Units of Excellence in Castile and León since 2018 and Basque Country from 2022, (ii) Professor in the international PhD programme Plants for Life at ITQB NOVA, (iii) Associate Editor in *Planta* (>80 manuscripts edited) and Editor in *Frontiers in Plant Science*, (iv) member of Doctoral Thesis Committees, and (v) responsible of the phenotyping facilities at my institutions.

## Part C. RELEVANT MERITS

### C.1. Publications

- Vicente R** (CA), Vergara-Díaz O, Uberegui E, [...] Araus JL. 2024. Non-foliar photosynthesis and nitrogen assimilation influence grain yield in durum wheat regardless of water conditions. *Journal of Experimental Botany* 75: 3412-3430. doi: [10.1093/jxb/erae064](https://doi.org/10.1093/jxb/erae064). My position: 1/10. JIF=6.9, Q1, rank 19/238 Plant Sciences.
- Martínez-Peña R, Rezzouk FZ, Díez-Fraile MC, [...] Aparicio N (CA), **Vicente R** (CA). 2023. Genotype-by-environment interaction for grain yield and quality traits in durum wheat: identification of ideotypes adapted to the Spanish region of Castile and León. *European Journal of Agronomy* 151: 126951. doi: [10.1016/j.eja.2023.126951](https://doi.org/10.1016/j.eja.2023.126951). My position: 7/7. JIF=5.2, Q1, rank 12/88 Agronomy.
- Martínez-Peña R, Schlereth A, Höhne M, [...] **Vicente R** (CA). 2022. Source-sink dynamics in field-grown durum wheat under contrasting nitrogen supplies: key role of non-foliar organs during grain filling. *Frontiers in Plant Science* 13: 869680. doi: [10.3389/fpls.2022.869680](https://doi.org/10.3389/fpls.2022.869680). My position: 9/9. JIF=6.627, Q1, rank 17/235 Plant Sciences.

4. Peixoto B, Moraes TA, Mengin V, [...] Baena-González E (CA). 2021. Impact of SnRK1 protein kinase on sucrose homeostasis and the transcriptome during the diel cycle. *Plant Physiology* 187: 1357-1373. doi: [10.1093/plphys/kiab350](https://doi.org/10.1093/plphys/kiab350). My position: 5/12. JIF=8.340, Q1, rank 9/325 Plant Sciences.
  5. Moreno JC, Rojas B, **Vicente R**, [...] Skirycz A (CA). 2021. Tyr-Asp inhibition of glyceraldehyde 3-phosphate dehydrogenase affects plant redox metabolism. *EMBO Journal* 40: e106800. doi: [10.15252/emboj.2020106800](https://doi.org/10.15252/emboj.2020106800). My position: 3/19. JIF=11.598, Q1, rank 22/295 Biomechistry and Molecular Biology).
  6. Sánchez-Bragado R, **Vicente R**, Molero G, Serret MD, Maydup ML, Araus JL (CA). 2020. New avenues for increasing yield and stability in C<sub>3</sub> cereals: exploring the ear photosynthesis. *Current Opinion in Plant Biology* 56: 223-234. doi: [10.1016/j.pbi.2020.01.001](https://doi.org/10.1016/j.pbi.2020.01.001). My position: 2/6. JIF=7.834, Q1, rank 10/235 Plant Sciences.
  7. **Vicente R** (CA), Bolger AM, Martínez-Carrasco R, Pérez P, Gutiérrez E, Usadel B, Morcuende R (CA). 2019. *De novo* transcriptome analysis of durum wheat flag leaves provides new insights into the regulatory response to elevated CO<sub>2</sub> and high temperature. *Frontiers in Plant Science* 10: 1605. doi: [10.3389/fpls.2019.01605](https://doi.org/10.3389/fpls.2019.01605). My position: 1/7. JIF= 4.402, Q1, rank 19/235 Plant Sciences.
  8. **Vicente R**, Vergara-Díaz O, Medina S, [...] Araus JL (CA). 2018. Durum wheat ears perform better than the flag leaves under water stress: gene expression and physiological evidence. *Environmental and Experimental Botany* 153: 271-285. doi: [10.1016/j.envexpbot.2018.06.004](https://doi.org/10.1016/j.envexpbot.2018.06.004). My position: 1/9. JIF=3.712, Q1, rank 29/228 Plant Sciences.
  9. **Vicente R**, Pérez P, Martínez-Carrasco R, [...] Morcuende R (CA). 2016. Metabolic and transcriptional analysis of durum wheat responses to elevated CO<sub>2</sub> at low and high nitrate supply. *Plant and Cell Physiology* 57: 2133-2146. doi: [10.1093/pcp/pcw131](https://doi.org/10.1093/pcp/pcw131). My position: 1/10. JIF=4.760, Q1, rank 16/212 Plant Sciences.
  10. **Vicente R**, Pérez P, Martínez-Carrasco R, Usadel B, Kostadinova S, Morcuende R (CA). 2015. Quantitative RT-PCR platform to measure transcript levels of C and N metabolism-related genes in durum wheat: transcript profiles in elevated [CO<sub>2</sub>] and high temperature at different N supplies. *Plant and Cell Physiology* 56: 1556-1573. doi: [10.1093/pcp/pcv079](https://doi.org/10.1093/pcp/pcv079). My position: 1/6. JIF=4.319, Q1, rank 17/209 Plant Sciences.
- The rest of my publications can be found in my [ORCID](#), [GoogleScholar](#) and [ResearchGate](#).

## C.2. Congress

1. Invited talk. **Vicente R** (CA). UK-Iberia Bilateral Workshop on Wheat Genetic Improvement, WheatNet. 10/12/2024, Lleida, Spain.
2. Invited talk. **Vicente R** (CA). COLife Meeting 2022. 19/09/2022, Oeiras, Portugal.
3. Invited keynote talk. **Vicente R** (CA). XV Portuguese-Spanish Symposium on Plant Water Relations. 26-28/01/2022, Lisbon, Portugal.
4. Invited talk. **Vicente R** (CA), Vergara-Díaz O, Martínez-Peña R, [...] Araus JL. Encontro Ciência '21. 28-30/06/2021, Lisbon, Portugal.
5. Oral presentation. **Vicente R** (CA), Leão MJ, Brigadeiro E, Reis JM, [...]. VI Spanish Symposium on Physiology and Breeding of Cereals. 16-17/10/2020, Salamanca, Spain.
6. Oral presentation. **Vicente R** (CA), Vergara-Díaz O, Morcuende R, [...] Araus JL. II Spanish Symposium on Physiology and Breeding of Cereals. 6-7/03/2019, Córdoba, Spain.
7. Oral presentation. **Vicente R** (CA), Pérez P, Martínez-Carrasco R, [...] Morcuende R. XIV Hispanic-Portuguese Congress of Plant Physiology. 14-17/06/2015, Toledo, Spain.
8. Oral presentation. **Vicente R** (CA), Pérez P, Martínez-Carrasco R, Usadel B, Morcuende R. XII National Meeting of Nitrogen Metabolism. 7-9/07/2014, Bilbao, Spain.
9. Oral presentation. **Vicente R** (CA), Pérez P, Martínez-Carrasco R, Usadel B, Morcuende R. XIII Hispanic-Portuguese Congress Plant Physiology. 24-27/07/2013, Lisbon, Portugal.
10. Oral presentation. **Vicente R** (CA), Morcuende R, Babiano J. Conference Food/Feed Quality, Safety and Risks in Agriculture. 25-28/10/2011, Tallin, Estonia.

## C.3. Research projects.

1. Ref. RYC2022-037887-I. **Ramón y Cajal contract, entitled “Regulation of carbon and nitrogen metabolism as a key player for source-sink dynamics, abiotic stress responses, and crop improvement and resilience”**. PI: Rubén Vicente (IRNASA-CSIC). Funded by Spanish Ministry of Science and Innovation, call [2022](#). Duration: 2024-2028. Funding: 414.350€ (194.350€ salary, 50.000€ base funding, 70.000€ Talent Attraction MICINN, 100.000€ Talent Attraction CSIC).

2. Ref. 101094587. **Tools and methods for extended plant PHENotyping and EnviroTyping services of European Research Infrastructures (PHENET)**. Funded by European Commission, call [HORIZON-INFRA-2022-TECH-01](#). Coordinated by INRAE (France). Duration: 2023-2027. Funding: 11,132,235€. Role: Researcher, representative of ITQB NOVA (93,625€ budget).
3. Ref. 101058020. **Integrated SERvices supporting a sustainable AGROecological transition (AgroServ)**. Funded by European Commission, call [HORIZON-INFRA-2021-SERV-01](#). Coordinated by Centre National de la Recherche Scientifique, CNRS (France). Duration: 2022-2027. Funding: 14,252,873€. Role: Researcher, representative of ITQB NOVA (68,930€ budget).
4. Refs. UIDB/04551/2020, UIDP/04551/2020. **R&D Unit GREEN-IT – Bioresources for Sustainability**. Funded by FCT - Fundação para a Ciência e a Tecnologia (Portugal), [Unidades de I&D](#). Participants: ITQB NOVA (Coordinator), IGC, iBET, INIAV, and INSA. Duration: 2020-2024. Funding: 1,881,300€. Role: Beneficiary for the creation of my group, involving 50,000€ budget, 2-year postdoc contract, 2 4-year PhD student fellowships, and 430,000€ for building a phenotyping platform.
5. Ref. PID2019-107154RB-I00. **Variability in wheat species response to water deficit under elevated CO<sub>2</sub> and temperature: impact on primary, secondary and antioxidant metabolism and grain quality (WHEATERMET)**. Funded by Spanish National Plan R+D+i of the Ministry of Science and Innovation, [R&D&I Projects Oriented to the Challenges of Society](#). PI: Dr. Rosa Morcuende and Juan Arellano (IRNASA-CSIC). Duration: 2020-2024. Funding: 169,500€. Role: Work team member.
6. Ref. PID2019-106650RB-C21. **Multiscale wheat phenotyping: from ideotype to regional adaptation (WheatPhenoScale)**. Funded by Spanish National Plan R+D+i of the Ministry of Science and Innovation, [R&D&I Projects Oriented to the Challenges of Society](#). PI: Dr. J.L. Araus (Univ. Barcelona). Duration: 2020-2023. Funding: 232,320€. Role: Work team member.
7. Ref. AGL2016-76527-R. **Phenotyping in durum wheat: physiological basis, selection criteria and evaluation platforms (FENOTRIGO)**. Funded by Spanish Nat. Plan R+D+i of the Ministry of Economy and Competitiveness, [R&D&I Projects for Research Challenges](#). PI: Dr. J.L. Araus (Univ. Barcelona). Duration: 2017-2019. Funding: 254,100€. Role: Work team member.
8. Ref. CSI260P20. **Effect of nitrogen availability in grain yield and bioactive compound composition in durum wheat varieties grown under elevated CO<sub>2</sub> and high temperatures**. Funded by Junta de Castilla y León, Programme of Support for Research Projects Co-financed by the European Regional Development Fund. PI: Dr. Rosa Morcuende (IRNASA-CSIC). Duration: 2021-2023. Funding: 172,000€. Role: Research team member.
9. Ref. AGL2013-44147-R. **Advance and high throughput precision phenotyping in durum wheat: physiological basis and tools for selection (FENOMED)**. Funded by Spanish National Plan R+D+i of the Ministry of Economy and Competitiveness. PI: Dr. José Luis Arays (Univ. Barcelona). Duration: 2014-2016. Funding: 220,000€. Role: postdoctoral researcher hired by the project.
10. Ref. AGL2009-11987. **Integration of gene expression with metabolism and photosynthesis for assessing the impacts on durum wheat of the increases in CO<sub>2</sub> and temperature foreseen with climate change**. Funded by Spanish National Plan R+D+i of the Ministry of Economy and Competitiveness, [Projects of Fundamental Research](#). PI: Dr. Rosa Morcuende (IRNASA-CSIC). Duration: 2010-2013. Funding: 145,200€. Role: PhD fellowship associated with the project.

#### C.4. Contracts, technological or transfer merits

1. Citizen Science project “Oeiras Experimenta: climate-smart crops for sustainable food production”. Funding Agency: Oeiras Municipality ([Ciência + Cidadã Programme](#)) and [IMPETUS Accelerator Programme](#) (ref. 101058677, [project 315](#)), European Commission. PI: Dr. Rubén Vicente (ITQB NOVA). Duration: 2023-2025. Funding: facilities and space for field trials (Oeiras Municipality), and 20,000€ (IMPETUS).
2. **Assessing grain yield, quality and resilience of tritordeum as a sustainable strategy for climate change in Portugal (TritorPT)**. Funding Company: [Vivagran SL](#). PI: Dr. Rubén Vicente (ITQB NOVA). Duration: 2023-2024 (project renewed two consecutive years). Funding: 6,000€.
3. **Develop high-throughput phenotyping in Syngenta’s network of trials throughout Spain**. Funding Company: [Syngenta España S.A.](#) PI: Dr. Shawn C. Kefauver and Dr. María Dolors Serret (University of Barcelona). Duration: 2015-2018 (project renewed three consecutive years). Funding: 95,000€.