

Part A. PERSONAL INFORMATION

CV date

25/03/2025

First and Family name | M. Isabel Díaz Rodríguez

A.1. Current position

Name of University/Institution	Centro de Biotecnología y Genómica de Plantas (CBGP-UPM-INIA)- Universidad Politécnica de Madrid		
Address and Country	Campus de Montegancedo. Autovía M40 (km 38). Pozuelo de Alarcón. 28223 Madrid		
Current position	Full Professor	From	17/09/2012
Key words	Plant defences, insect, acari, biotic and abiotic stresses, defence regulation and signalling		

A.2. Education

PhD, Licensed, Graduate	University	Year
Doctor Cc. Biológicas	Universidad Complutense de Madrid	1986
Lcda. de Grado Cc. Biológicas	Universidad Complutense de Madrid	1982
Lcda. Cc. Biológicas	Universidad Complutense de Madrid	1981

A.3. General indicators of quality of scientific production (see instructions)

Hundred and seventeen research articles published in indexed journal (82 D1, 97 Q1), 10 research articles published in not indexed journals, 20 book chapters, editor of 2 books.

h index: 47 (WOS source, search criteria DIAZ I). Total number of cites: 6,904.

Five recognised research periods (1990-95; 1996-01; 2002-07; 2008-13, 2014-19) and **one recognized transference period** (2014-19)

Part B. CV SUMMARY (max. 3500 characters, including spaces)

Degree in Biology in 1981 and Master Degree in 1982 by the Universidad Complutense de Madrid. PhD thesis (1982-1986) on somatic embryogenesis and regeneration of hybrids in Solanaceae, at the CIB-CSIC of Madrid, under the supervision of Dr. R. Moreno, financed by a fellowship from CajaMadrid. During this period, I spent 3 months (1984) at the Max-Planck-Cologne (Germany) y 14 months (1985-86) at the University of Nottingham, UK, in the labs of Dr. O. Schieder and E.C. Cocking, respectively. The major milestone of my PhD thesis was the regeneration of fertile pepper plants from isolated protoplasts, and the production of somatic cell fusions between petunia and tobacco and the generation of hybrid plants. After one-year period, as Ramon Areces postdoctoral researcher under the supervision of Dr. J. Ramón Díaz-Ruiz (CIB-CSIC, Madrid), I got a position as Scientific Researcher in the private company CEPESA-Madrid, where I worked for 18 months, focused in the identification and molecular characterization of alkaline proteases from *Bacillus subtilis* as potential additives of laundry detergents. In 1989, I joined to Dr. P. Carbonero's group at the UPM, to study the role of transcriptional factors (DOF, bZIP, R1-MYB, R2R3-MYB families) in the regulation of the development and germination processes of cereal grains.

In 1993, I got a permanent position as Associate Professor at the UPM after a competitive examination, and in 2012 as Full Professor. During the first permanent period, I collaborated with Dr. Carbonero, and I started my own research line on the molecular characterization of plant defense genes with insecticide properties and their potential to control plant pests. In between, I did a stay (8 months) as invited Professor at the Dr. Indra Vasil's Group, at the University of Florida-USA, to work on the stable transformation of cereals for improving their growth and defense properties.

In September 2008, I moved to the CBGP-UPM-INIA. Since then, I lead a research group focused on the molecular aspects of the plant-pest interactions. The main goal of this research is to understand the complex network of plant responses to insect/acari feeding and oviposition. In addition, my group has also been involved in an additional research line to decipher the function of a family of barley proteases (C1A class) and their inhibitors in the protein recycling process associated to germination and senescence mediated abiotic (drought and darkness) and/or biotic (pests) stresses. The end of this research line was to know how these independent or combined stresses affect plant growth and quality and yield of the grain.

Results from both investigation lines have been successfully published and, consequently our team is internationally recognized as prestigious group in both research lines.

In conclusion, my field of expertise is associated with getting wider knowledge and understanding on plant responses to biotic/abiotic stresses, and covers a wide range of molecular, biochemical and physiological aspects of the plant-pest interplay. Moreover, my work has taken care of both sides of this interaction, plants and phytophagous feeders.

I am author of 117 research articles, 20 book chapters and 2 books as editor. I have taken part in about 100 national and international congresses. I have collaborated with national and international research groups, and have cofounded, together with Dr. Miodrag Grbic from Western Ontario University of Canada, the GAP-M Consortium (Genomics in Agriculture Pest Management, <http://devbiol.zoo.uwo.ca/spidermite/>). I have participated in 36 national and international research projects (20 as IP). I have led 6 contracts with private companies. I have been “garante” of the Severo Ochoa awarded project (SEV-2016-0672) for the CBGP-UPM-INIA for two periods (2017-21 and 2022-25).

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications (ten selected) (10 selected publications)

1-Grbic M, Van Leeuwen T, Clark R, Rombauts S, Rouze P, Grbic V, Osborne E, Dermauw W, Thi Ngoc PC, Ortego F, Hernandez-Crespo P, **Diaz I**, et al. (2011) The genome of *Tetranychus urticae* reveals herbivorous pest adaptations. **Nature** 479:487-492. (D1-Multidisciplinary Sciences)

2-Arnaiz a, Romero-Puertas MC, Santamaria ME, Rosa-Diaz I, Arbona V, Muñoz A, Grbic V, González-Melendi P, Castellano M, Sandalio LM, Martinez M, **Diaz I**. (2023) The Arabidopsis thioredoxin TRXh5 regulates the S-nitrosylation pattern of the TIRK receptor being both proteins essential in the modulation of defences to *Tetranychus urticae*. **Redox Biology** 67: 102902. (D1-Multidisciplinary Sciences).

3-Santamaria ME, Martínez M, Arnaiz A, Rioja C, Burow M, Grbic V, **Diaz I**. (2019) An Arabidopsis TIR-lectin chimeric protein confers defence properties against *Tetranychus urticae*. **Plant Physiology** 179:1298. (D1-Plant Sciences)

4-Arnaiz A, Santamaria ME, Diaz-Rosa I, Garcia I, Dixit S, Vallejos S, Gotor C, Martinez M, Grbic V, Diaz I. (2022) Hydroxynitrile lyase defends Arabidopsis against *Tetranychus urticae*. **Plant Physiology** 189: 2244-2258. (D1-Plant Sciences)

5-Diaz-Mendoza M, Dominguez-Figueroa JD, Velasco-Arroyo B, Cambra I, Gonzalez-Melendi P, Lopez-Gonzalez A, Garcia A, Hensel G, Kumlehn J, **Diaz I**, Martinez M. (2016) HvPap-1 C1A protease and HvCPI-2 cystatin contribute to the barley grain filling and germination. **Plant Physiology** 170:2411-2424. (D1-Plant Sciences)

6- Zhurov V, Navarro M, Bruinsma KA, Arbona V, Santamaria ME, Cazauxa M, Wybouve N, Osborn EJ, Ensa C, Rioja C, Vermeirssen V, Rubio-Somoza I, Krishnaa P, **Diaz I**, Schmid M, Gómez-Cadenas A, Van de Peer Y, Grbic M, Clark RM, Van Leeuwen T, Grbic V. (2014) Reciprocal responses in the interaction between *Arabidopsis* and the cell-content feeding chelicerate herbivore *Tetranychus urticae*. **Plant Physiology** 164:384-399. (D1-Plant Sciences)

7-Rosa-Diaz I, Rowe J, Cayuela-Lopez A, Arbona V, **Diaz I**, Jones AM. (2024) Spider mite herbivory induces an abscisic acid-driven stomatal defense. **Plant Physiology** (doi: 10.1093/plphys/kiae215)

8-Gomez-Sanchez A, Gonzalez-Melendi P, Santamaria ME, Arbona V, Lopez-Gonzalez A, Garcia A, Hensel G, Kumlehn J, Martinez M, **Diaz I**. (2019) Expression of drought-induced cysteine-protease genes alters barley leaf structure and the response to abiotic and biotic stresses. **Journal of Experimental Botany** 70: 2143-2155. (D1-Plant Sciences)

9-Velasco-Arroyo B, Diaz-Mendoza M, Gomez-Sanchez A, Moreno-Garcia B, Santamaria ME, Torija-Bonilla M, Hensel G, Kumlehn J, Martinez M, **Diaz I**. (2018). Silencing barley cystatins HvCPI-2 and Hv-CPI4 specifically modifies plant responses to drought. **Plant, Cell and Environment** 41:1776-1790. (D1-Plant Sciences)

10-Gomez-Sanchez A, Santamaria ME, Gonzalez-Melendi P, Muszynska A, Matthess C, Martinez M, **Diaz I**. (2021) Repression of barley cathepsins, HvPap-19 and HvPap-1, differentially alters grain composition and delays germination. **Journal of Experimental Botany** 72: 3471. (D1-Plant Sciences)

C.2. Research projects (5 selected projects)

1. PLANT PERCEPTION, DOWNSTREAM SIGNALLING AND DEFENCES AGAINST SPIDER MITE FEEDING AND OVIPOSITION (BIO-83472-R)
Institution: MINISTERIO DE ECONOMIA Y COMPETITIVIDAD
PI: ISABEL DIAZ
(01/01/2018 – 31/12/2020)
2. NEW GENERATION SUSTAINABLE TOOLS TO CONTROL EMERGING MITE PESTS UNDER CLIMATE CHANGE (GENOMITE) (618105 FACCE-ERA-NET+)
PI: ISABEL DIAZ (coordinator: Jerry Cross-UK)
Institution: Europe
(01/01/2015 - 31/12/2018)
3. APRENDIENDO DE LA NATURALEZA: INTERACCIONES MULTITROFICAS PARA LA PROTECCION DE CULTIVOS Y BOSQUES (RED2018-102407-T)
PI: ISABEL DIAZ (Coordinator of 11 Spanish groups)
Institution: MINISTERIO DE CIENCIA E INNOVACION
(01/01/2020 - 31/09/2022)
4. FROM MODEL SPECIES TO CROPS: CYANOHYDRIN-DERIVED COMPOUNDS IN CROP PROTECTION TO PESTS (PDC2021-121055-I00)
PI: ISABEL DIAZ
Institution: MINISTERIO DE CIENCIA E INNOVACION
(01/11/2021 - 31/11/2023)
5. PAPEL DE LA PARED CELULAR DE LA PLANTA EN EL COMPROMISO ENTRE DEFENSA Y CRECIMIENTO DURANTE LA INTERACCION CON ARAÑA ROJA (PID2023-147339OB-I00)
PI: M. ESTRELLA SANTAMARIA

C.3. Contracts, technological or transfer merits

1. STUDY OF EFFECTS OF PLANT NATURAL COMPOUNDS AGAINST PHYTOPHAGOUS ARTHROPODS (P160050096)
PI: ISABEL DIAZ
Institution: SEIPASA
(01/04/2016 - 31/03/2020)
2. IDENTIFICATION OF DEFENSE GENES OF RESISTANCE IN APHID POPULATIONS (P150050210)
PI: ISABEL DIAZ
Institution: DOW AGROSCIENCES
(03/06/2015 - 31/12/2015)
3. ANALYSIS OF APHID POPULATION SAMPLES (*Myzus persicae*) TO DETERMINE THE PRESENCE OF POINT MUTATION IN A GENE ENCODING NICOTINIC ACETYLCHOLINE RECEPTOR, TARGET OF NICOTINOIDS (P150050210)
PI: ISABEL DIAZ
Institution: DOW AGROSCIENCES
(03/06/2016 - 31/12/2016)

C.4. Patents

Inventors: CARBONERO P, DIAZ I, VICENTE-CARBAJOSA J, LARA P, OÑATE L.
Title: NUCLEIC ACID MOLECULE ENCODING TRANSCRIPTION ACTIVATING
Reference: EP CpNV. Ref: d1320ep (1999). Belgium
Company: CROP DESIGN

C.5. Other merits

1. **Six recognized teaching periods** (quinquennios): 1990-94; 1995-99; 2000-04; 2005-09; 2010-14 y 2015-19.
2. **Five recognized research periods** (sexenios): 1990-95; 1996-01; 2002-07; 2008-143, 2014-19 and **one sexenio of transference** (2014-19)

- 3. Director of PhD thesis:** 12 defended (all *cum laude* and 4 awarded with the extraordinary PhD title).
- 4. Associate editor for:**
 - Transgenic Research (ISSN:0962-8819). Springer, The Netherlands. 2004-20
 - International Journal of Molecular Science (ISSN:1422-0067). 2017-21
 - Frontiers in Plant Sciences (ISSN:1664-462X). 2018 to now
- 5. Guest editor** of special issues related with plant and biotic stress for Frontiers in Plant Science and International Journal of Molecular Sciences.
- 6. Principal investigator of the Grupo de investigación consolidado UPM:** "Plant-pest molecular interactions" at the UPM. Since 2008 to now
- 7. Teaching experience** in under- and post-graduate studies:
 - ETSI Agrónomos, Universidad Politécnica de Madrid. Since 1999 to now.
 - Universidad de Chile, Santiago de Chile (2000-04).
- 8. Reviewer of scientific articles** for more than 40 different indexed international journals.

C.6. GESTION related to scientific activities

- 1. Adjunta (Agriculture area) of ANEP** (Agencia Nacional de Evaluación y Prospección) of MINECO (Ministry of Economy). 2010-14
- 2. Gestora of Agriculture** of **SGPI** (Subdirección General de Proyectos de Investigación-MINECO). 2015-16
- 3. Gestora of Agriculture** of **AEI** (Agencia Estatal de Investigación). 2017-18.
- 4. President of Agriculture area of ACCUA** (Agencia para la Calidad Científica y Universitaria de Andalucía). 2020-25
- 5. Coordinator of two Scientific Advisory Board linked to Deep-Max-CSIC programe** to enhance excellence in EEZ-CSIC (Granada) and IBVF-CSIC (Seville) centers.
- 6. Project and grant/contract reviewer for:**
 - Spanish institutions:*
 - Agencia Nacional de Evaluación y Prospección of Ministry of Science, Innovations and Universities. 2010 to now
 - Agencia para la Calidad del Sistema Universitario de Castilla y León. 2007-21
 - Agencia Andaluza de Evaluación de la Calidad y Acreditación Universitaria. 2008-21
 - Agencia Valenciana D'Avaluació i Projecció, Generalitat Valenciana. 2017-21
 - Plan Gallego de Investigación, Desarrollo e Innovación Tecnológica. 2008-13
 - Agencia de Qualitat Universitària de les Illes Balears. 2020 to now
 - Certificació R&D for DNV GL Business Assurance (Certification services for certification of I+D+i projects). Since 2018 to now
 - Certificació R&D for ACERTA I+D+i SL (Certification services for certification of I+D+i projects). Since 2019 to now
 - Internacional institutions:*
 - Israel Science Foundation, Israel. 2010, 2014
 - Fondo para la Investigación Científica y Tecnológica, Argentina. 2010-14
 - Dutch Research Council for the Applied Engineering Sciences. 2012-14, 2020
 - Binational Agricultural Research and Development Fund, Israel-USA. 2015
 - INRA (Institut National de la Recherche Agronomique)-Agreen Skill-Plus, France. 2016
 - Foundation for Science and Technology, Portugal. 2019-22
 - Talent program for the Netherlands Organization for Scientific Research (NOW), The Netherlands. 2020
 - German Foundation for Scientific Research and Development (GIF). 2021
- 7. Advisor for ERC preparation projects (FECYT:** Fundación Española para Ciencia y la Tecnología). 2018-20
- 8. Member of the Executive Committee** for the Federation of European Societies of Plant Biology (FESPB). 2020-25
- 9. Coordinator of the Doctoral Programme PD-02E4** (Biotecnología y Recursos genéticos de plantas y microorganismos asociados) de la UPM. 2023 to now