



## CURRICULUM VITAE (CVA)

**IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.**

|   |                     |                         |            |
|---|---------------------|-------------------------|------------|
| <b>Part A. PERSONAL INFORMATION</b>         |                     | <b>CV date</b>          | 15/01/2022 |
| First name                                  | Lozano              |                         |            |
| Family name                                 | Rafael              |                         |            |
| Gender (*)                                  | Male                | Birth date (dd/mm/yyyy) | 20/06/1961 |
| Social Security, Passport, ID number        |                     |                         |            |
| e-mail                                      | rlozano@ual.es      | URL Web                 |            |
| Open Research and Contributor ID (ORCID)(*) | 0000-0001-5458-2075 |                         |            |

(\*) Mandatory

### A.1. Current position

|                    |   |                |           |
|--------------------|---|----------------|-----------|
| Position           | Professor of Genetics   |                |           |
| Initial date       | 11/06/1999  |                |           |
| Institution        | Universidad de Almería  |                |           |
| Departament/Center | Biología / CIAIMBITAL   |                |           |
| Country            | Spain   | Teleph. number | 950015111 |
| Key words          | Plant genetics, functional genomics, flowering, reproductive development, genetic mapping, plant breeding, tomato |                |           |

### A.2. Previous positions (research activity interruptions, art. 45.2.c))

| Period         | Position/Institution/Country/Interruption cause     |
|----------------|---|
| 1986-1989      | PhD Student/Universidad de Granada/Spain            |
| 1989-1992      | Non-permanent professor/University of Granada/Spain |
| 1993           | Visiting research/Max-Planck Institute/Germany      |
| 1992-1999      | Lecturer in Genetics (staff)/Univ. Almería/Spain    |
| 1999 - current | Professor of Genetics/Univ. Almería/Spain           |

### A.3. Education

| PhD, Licensed, Graduate      | University/Country     | Year |
|------------------------------|------------------------|------|
| Licensed Biological Sciences | Universidad de Granada | 1984 |
| PhD in Biology               | Universidad de Granada | 1989 |

## Part B. CV SUMMARY (max. 5000 characters, including spaces)

### B.1) Scientific contributions, their relevance and contribution to knowledge generation.

Professor of Genetics at the University of Almería (UAL). Head of Department of Applied Biology (1994-2005) and Director of the Research Center on Agricultural and Food Biotechnology - BITAL (2009-2012). Visiting Scientist at the Max-Planck Institute for Plant Breeding (Cologne, Germany) in 1993 and leader of the Genetics and Physiology of Plant Development Group. He has been Principal Researcher of 37 R+D projects and research private contracts. He has about 30 year experience on plant genetics and genomics. The main R+D activities are focused on the study of gene functions regulating plant development using

tomato as model species, as well as on the genomics-assisted breeding of vegetable crops (tomato, cucurbits, common bean). With the aim to support breeding programs, genetic and genomic tools are being developed in my laboratory. Recently, we have made significant contributions to the balance between plant development and abiotic stress responses through the isolation of novel key regulatory genes determining developmental features of agronomic relevance and mediating abiotic stress signaling. Highlighted contributions have been published in high-quality journals like PNAS, New Phytologist, Plant Biotech J., Plant Physiol., Plant Journal, J. Experimental Botany, Plant Cell & Environ, and others. With this aim, mutant analysis, transcriptome studies and mapping\_by\_sequencing coupled with next generation sequencing (NGS) are currently used for discovering novel genes controlling agronomic traits. In addition, genetic mapping and genomics-assisted selection are routinely applied to plant breeding purposes in collaboration with seed companies and farmer associations. Among the research projects, stands out BRESOV (*Breeding for Resilient, Efficient and Sustainable Organic Vegetable production* (BRESOV - Project ID: 774244), funded by the EU Horizon2020 Programme EU, together the recent research grants recently approved by different Programmes of the Spanish National R+D+I Plan and PAIDI, a regional Excellence R+D+I Programme. In all these projects, my contribution as IP has allowed me to acquire new knowledge and skills in the field of functional genomics and big data analysis, and to consolidate the use of molecular and genomic methodologies for developmental genetics studies and plant breeding purposes. The total financing obtained in the last 10 years amounts to more than 1.72 million euros. Key indicators of my research contributions are the following ones: 89 SCI publications (64 Q1, Web of Science de Thomson Reuters), 5 Research six-year periods, 1 Transfer six-year period, 7 Doctoral Thesis supervised from 1 January 2012, total cites: 2.077; average cites/year rate (2016-2021 period): 173; h-index = 26.

### **B.1) Contributions to society**

Technological development and innovation activities form part of a long track record of research collaboration with seed companies, farmer associations and public administration. In fact, 20 R&D contracts have been signed with them, which have meant more about more than 1,9 million euros of funding.

I have carried out permanent dissemination activities to promote projects' visibility but also to divulgate genetics and biological sciences, as well as successful results arisen from plant breeding and biotechnology.

I am author of 4 patents and 3 registrations of plant varieties.

### **B.3) Contributions to the R&D training of young researchers**

Throughout my academic career, I have contributed to the training of 18 PhD, most of them have continued their scientific career in R&D institutes, belonging to either public institutions (University, CSIC, CBGP -UPM-INIA, and IFPA-Junta de Andalucía) or private companies (Rijk Zwaan, Syngenta, Enza Zaden, Bayer Seed). In addition, I have carried out a permanent training activity as supervisor of more than 40 Master's and Bachelor's degree students, who have successfully concluded their final TFM and TFG projects.

In 1993, I promoted the creation of the Genetics and Physiology of Plant Development at the recently founded University of Almería. Since then, I hope to have contributed to the consolidation of said research team, which in turn allowed the creation of Savia Biotech S.L. an EBT company that emerged from the collaboration with the CSIC and different cooperatives and agricultural companies.

Scientific reviewer for research agencies: BARD (United States-Israel), ANR (France), ANEP and AEI (Spain), NOW (The Netherlands), BSF (USA-Israel).

## Part C. RELEVANT MERITS (sorted by typology)

### C.1. Publications (see instructions)

1. Rocío Fonseca, Carmen Capel, Fernando Yuste-Lisbona, et al. **2021**. Functional characterization of the tomato *HAIRPLUS* gene reveals the implication of the epigenome in the control of glandular trichome formation. **Horticulture Research** DOI: 10.1093/hr/uhab015. Corresponding author: Juan Capel. Position 10/11.
2. Fernando J. Yuste-Lisbona, José M. Jiménez-Gómez, Carmen Capel, Rafael Lozano. **2021**. Effective mapping by sequencing to isolate causal mutations in the tomato genome. In: Crop Breeding: Genetic Improvement Methods. *Methods in Molecular Biology*, vol. 2264 (P. Tripodi, Ed.), pp. 89-103, Springer Nature. ISBN: 978-1-0716-1201-9.
3. Fernando J. Yuste-Lisbona, Antonia Fernández-Lozano, Benito Pineda et al. **2020**. *ENO* regulates tomato fruit size through the floral meristem development network. **Proceedings of the National Academy of Science USA 17: 8187-82915**. Corresponding author: Rafael Lozano. Position: 12/12.
4. Rosa Micol-Ponce, Manuel García-Alcázar, Carmen Capel, et al. **2020**. The tomato *SIVIPP1* gene is required for plant survival through the proper development of chloroplast thylakoid membrane: **Front. Plant Sci. 11: 1305**. Corresponding: Rafael Lozano. Position 11/11.
5. Carlos Ribelles, Begoña García-Sogo, Fernando J Yuste-Lisbona, et al. **2019**. The *Alq* mutation increases fruit set rate and allows the maintenance of fruit yield under moderate saline conditions. **J. Exp. Bot. 70: 5731-5744**. Corresponding author: B. Pineda. Position: 7/9.
6. Fernando Pérez-Martín, Fernando J. Yuste-Lisbona, Benito Pineda, et al. **2018**. Developmental role of the tomato Mediator complex subunit MED18 in pollen ontogeny. **Plant Journal 96: 300-315**. Corresponding author: Rafael Lozano. Position: 14/14.
7. Isabel Egea, Benito Pineda, Ana Ortíz-Atienza et al. **2018**. The SICBL10 calcineurin B-like protein ensures plant growth under salt stress by regulating Na<sup>+</sup> and Ca<sup>2+</sup> homeostasis. **Plant Physiology 176: 1676-1693**. Corresponding author: Rafael Lozano. Position: 20/20.
8. Rojas-Gracia, Pilar; Roque, Edelin; Medina, Mónica et al. **2017**. The parthenocarpic hydra mutant reveals a new function for a SPOROCTELESS-like gene in the control of fruit set in tomato. **New Phytologist. 214: 1198-1212**. Corresponding: C. Gómez-Mena. Position: 9/12.
9. Pérez-Martín, F., Yuste-Lisbona, F.J., Pineda, B., et al. **2017**. A collection of enhancer trap insertional mutants for high throughput functional genomics in tomato. **Plant Biotechnology Journal 15: 1439-1452**. Corresponding autor: Rafael Lozano. Position 22/22.
10. Giménez, Estela; Castañeda, Laura; Pineda, Benito et al. **2016**. *TOMATO AGAMOUS1* and *ARLEQUIN/TOMATO AGAMOUS LIKE1* MADS-box genes have redundant and divergent functions required for tomato reproductive development. **Plant Mol. Biol. 91: 513-531**. Corresponding autor: Rafael Lozano. Position 8/8.

### C.2. Congress

Invited speaker in:

- XL Congreso de la Sociedad Española de Genética, Córdoba Spain. 17 Oct 2015.
- 13th Japan Solanaceae Consortium. Tsukuba, Japan. 25 Nov 2016.
- IX Congreso de Mejora Vegetal. CEBAS-CSIC, Murcia, Spain. 19 Sept 2018.

In addition, I have attended national and international meetings, where I have presented more 150 invited oral and poster communications:

### C.3. Research projects

1. Regulación genética de la actividad de los meristemos reproductivos y su papel en la mejora de la productividad de tomate (BREMAS-Tom). Plan Estatal de I+D+i (Ministerio de Ciencia e Innovación) - Ref. PID2019-110833RB-C31. Duración: 01/06/2020 – 31/05/2023. Financiación: 202.070,00 €. IP y Coordinador: Rafael Lozano.

2. Breeding for Resilient, Efficient and Sustainable Organic Vegetable production (BRESOV). Unión Europea – Horizon2020 – Call: H2020-SFS-2017-2. Project ID: 774244. IP (UAL): Rafael Lozano (Coordinator: Ferdinando Branca, Università degli Studi di Catania). Duración: 2018 -2023. Financiación UAL: 334.860 Euros. IP-UAL: Rafael Lozano.
3. Desarrollo y producción sostenible de nuevos snacks nutritivos de leguminosas y cereales pop (NUTRIPOP). Ministerio de Economía y Competitividad. IP: Rafael Lozano (Univ. de Almería). Duración: 2016-2019. Financiación: 207.059,76 Euros.
4. Genómica funcional y mejora genética de la productividad de tomate: importancia agronómica del balance desarrollo-estrés abiótico. Ministerio de Economía y Competitividad Plan Nacional de I+D+i - Ref. AGL2015-64991-C3-1-R. IP y Coordinador: Rafael Lozano. 01/01/2016 -30/09/2019. Financiación: 193.600 EUR.
5. Mejora genética de variedades tradicionales de tomate: una apuesta por la sostenibilidad y la conservación de la agrobiodiversidad. Junta de Andalucía - Programa de Excelencia - Ref. P12-AGR-01482. IP: Rafael Lozano (UAL). Duración: 30/01/2014 - 31/12/2016. Cuantía: 152.000 Euros.
6. Identificación, etiquetado y análisis funcional de genes implicados en el cuajado del fruto de tomate y tolerancia a la salinidad en especies silvestres relacionadas (A-TOPE). Plan Nacional de I+D+i, MINECO - Ref. AGL2012-40150-C03-02. IP: Trinidad Angosto Trillo (Univ. Almería). Duración: 01/01/2013 - 31/12/2015. Cuantía: 180.000 Euros.
7. Molecular breeding for tolerance to abiotic stress in tomato: a genomic approach for a sustainable agriculture (TOAST). Plant-KBBE 2009 – Ref EUI2009-04074. Coordinador e IP: Rafael Lozano (Univ. de Almería, Savia Biotech SA). Duración: 01/12/2009 - 31/12/2013. Financiación (grupos españoles): 658.000 Euros.

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

1. Innovación varietal en tomate, producción y control calidad de semilla. NATURSUR, S.C.A. IP. Rafael Lozano (Univ. de Almería). Duración: 01/01/2019 – 31/12/2023. Cuantía: 146.700,00 euros.
2. Mejora de la calidad de tomate para el mercado de especialidades de consumo fresco. CASUR, S.C.A. IP. Rafael Lozano (Univ. de Almería). Duración: 01/01/2014 – 31/12/2018. Cuantía: 166.738,00 euros.
3. Phenotypic evaluation of EMS-induced mutations in tomato. RIJK ZWAAN BREEDING B.V. IP: Rafael Lozano (Univ. de Almería). Duración: 01/02/2013 – 01/02/2016. Cuantía: 162.000,00 euros.
4. Desarrollo de métodos de diagnóstico molecular de patógenos y de genes de resistencia a enfermedades de importancia económica en cultivos hortícolas. SAVIA Biotech, S.A. IP: Rafael Lozano (Univ. de Almería). Duración: 15/12/2007 – 30/09/2010. Cuantía: 155.341,90 euros.
5. ESP-SOL - Identification of Genes and Molecules Associated to Tomato Fruit Quality and Participation in the Sequencing of Euchromatic Regions of Chr9. A Genomic Approach. Ministerio de Educación, cultura y Deportes - Fundación GENOMA. IP: Rafael Lozano (Coord. A. Granell). Duración: 01/06/2005 – 31/05/2008. Cuantía: 187.174 euros.
6. Patente. Inventores: Pineda B, Giménez-Caminero E, García-Sogo B, Capel J, Antón T, Atarés A, Angosto T, Moreno V, Lozano R. Título: Nuevo cultivar con frutos y sépalos convertidos en frutos de alto interés para su consumo fresco y procesado industrial. N. de solicitud: P200900003. Fecha: 18/12/2008. Entidad titular: Universidad Politécnica de Valencia, Universidad de Almería.
7. Registro varietal. Autores: M. Santalla, Ana González, R. Lozano, C. Capel, F. Yuste. Título: Variedad PHASIPOP de judía de enrame. N. de Registro de Variedad Comercial (NRVC): 20180287. País de prioridad: España. Entidad titular: CSIC y Universidad de Almería. Publicación: Oficina Española de Variedades Vegetales (OEVV). Entidades en explotación: Semillas Ramiro Arnedo.