

Fecha del CVA	03/06/2026
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Parte A. DATOS PERSONALES

Nombre	David		
Apellidos	Gonzalez Ballester		
Sexo	Hombre	Fecha de Nacimiento	
DNI/NIE/Pasaporte			
URL Web			
Dirección Email			
Open Researcher and Contributor ID (ORCID)	0000-0003-0024-1886		

A.1. Situación profesional actual

Puesto	Profesor Titular de Universidad		
Fecha inicio	2019		
Organismo / Institución	Universidad de Córdoba		
Departamento / Centro	Bioquímica y Biología Molecular / Facultad de Ciencias		
País	España	Teléfono	
Palabras clave	240300 - Bioquímica; 241501 - Biología molecular de microorganismos; 241502 - Biología molecular de plantas		

A.3. Formación académica

Grado/Master/Tesis	Universidad / País	Año
Doctor en Ciencias	Universidad de Córdoba	2005
Licenciado en Bioquímica	Universidad de Córdoba	1998

Parte B. RESUMEN DEL CV

Awarded a predoctoral fellowship from the Andalusian FPD program. PhD degree obtained at the University of Córdoba from 2000 to 2005 under the supervision of Emilio Fernández, focused on nitrogen assimilation in *Chlamydomonas*.

In 2006 I moved to the Carnegie Institution for Science at Stanford University in the United States to work with Prof. Arthur Grossman. I was employed by the Carnegie Institution and later obtained postdoctoral contracts from the Spanish MEC and from the Marie Curie program. My postdoctoral work focused mainly on acclimation responses to sulfur deprivation in *Chlamydomonas* and on the regulatory mechanisms involved. During this period at Stanford I interacted with many leading *Chlamydomonas* researchers and with the U S Department of Energy Joint Genome Institute, which coordinated the *Chlamydomonas* genome project. As a result, I contributed to the publication describing the *Chlamydomonas* genome in Science in 2010.

In July 2010 I returned to the University of Córdoba, where under the supervision of Dr. Emilio Fernández I established a new research line dedicated to hydrogen production in *Chlamydomonas*. This period marked the beginning of my scientific independence, publishing as last and corresponding author. In 2012 I obtained a Ramón y Cajal contract. In 2013 and 2014 I completed two short research stays at the National Renewable Energy Laboratory in Golden, United States.

In 2018 I became Profesor Contratado Doctor and in 2019 Profesor Titular at the University of Córdoba. My participation in the European WABA project from 2017 to 2020 expanded my research interests to alga bacterium interactions for hydrogen production and wastewater bioremediation. In 2020 I acted as principal investigator of the national projects MULTIVALGA from 2020 to 2024 (PID2019 105936RB C22, coordinated) and TOGETH2ER2 from 2023 to 2024 (TED2021 130438B I00), as well as a regional project from 2020 to 2023 (UCO FEDER 1381175 F). These projects led to the identification of several *Chlamydomonas* bacteria consortia with biotechnological applications in bioremediation, biological hydrogen

production and biomass generation. In 2025 I was granted the BIOMASS-ABC project (PID2024 156565OB I00) as principal investigator to continue this research line.

I have signed two collaboration contracts with companies and research institutions (article 83, with NREL and with the Carnegie Institution), and I am co-inventor of a patent submitted in December 2022 to the Spanish Patent Office (submission P202330306), currently under evaluation.

To date I have authored 35 scientific publications, including 30 indexed journal articles and five international book chapters. Among the 30 journal publications, 24 are in Q1 journals and five in Q2 journals. I am first author in 10 publications and last or corresponding author in 9.

I have supervised two PhD theses defended in 2016 and 2019, one of them within a joint program with Tehran University, and I am currently supervising a third thesis expected to be defended in February 2026. I have also supervised numerous bachelor (TFG) and master theses (TFM).

Parte C. LISTADO DE APORTACIONES MÁS RELEVANTES

C.1. Publicaciones más importantes en libros y revistas con “peer review” y conferencias

AC: Autor de correspondencia; (nº x / nº y): posición firma solicitante / total autores. Si aplica, indique el número de citaciones

- 1 Artículo científico.** Manzano-Puga, C.I; Membrives-Barea, N; Gómez-Osuna, A; M. J. Torres; Dubini, A; (6/6) Gonzalez-Ballester, D. 2026. Insights into leveraging alga–bacterium cooperation for dairy wastewater valorization. *Algal Research*. Elsevier. 94-104481.
- 2 Artículo científico.** Torres; Gomez-Osuna; Delgado-Luque; Manzano-Puga; Galvan; Dubini; Gonzalez-Ballester. 2025. Valorization of dairy wastewater: High-yield biomass and hydrogen production using an alga-bacterium consortium. *Environmental Technology and Innovation*. Elsevier. 40-104412.
- 3 Artículo científico.** Neda; Maria Jesús; Emilio; Aurora; Alexandra; (6/6) David. 2024. *Chlamydomonas reinhardtii* and *Microbacterium forte* sp. nov., a mutualistic association that favors sustainable hydrogen production. *Science of the Total Environment*. Elsevier. 913-169559.
- 4 Artículo científico.** Maria Jesus; Neda; Alexandra; David. 2023. *Stenotrophomonas goyi* sp. nov., a novel bacterium associated with the alga *Chlamydomonas reinhardtii*. *F1000Research*. F1000 Research Ltd. 12-1373.
- 5 Artículo científico.** Maria Jesus Torres; David Gonzalez-Ballester; Aitor Gómez-Osuna; Aurora Galván; Emilio Fernández; Alexandra Dubini. 2022. *Chlamydomonas-Methylobacterium oryzae* cooperation leads to increased biomass, nitrogen removal and hydrogen production. *Bioresource Technology*. Elsevier. 352-127088.
- 6 Artículo científico.** Neda Fakhimi; Alexandra Dubini; Tavakoli O; David Gonzalez-Ballester. 2019. Acetic acid is key for synergetic hydrogen production in *Chlamydomonas*-bacteria co-cultures. *Bioresource Technology*. Elsevier Ltd. 289-121648. <https://doi.org/10.1016/j.biortech.2019.121648>
- 7 Artículo científico.** Fakhimi, N.; Tavakoli, O.; Marashi, S.-A.; Moghimi, H.; Mehrnia, M.R.; Dubini, A; González-Ballester, D. 2019. Acetic acid uptake rate controls H₂ production in *Chlamydomonas*-bacteria co-cultures. *Algal Research*. Elsevier. 42-101605. <https://doi.org/10.1016/j.algal.2019.101605>
- 8 Artículo científico.** Subramanian V; Wecker MSA; Gerritsen A; et al; Ghirardi M. 2019. Ferredoxin5 deletion affects metabolism of algae during the different phases of S-deprivation. *Plant Physiology*. American Society of Plant Biologists. 181, pp.426-441. <https://doi.org/10.1104/pp.19.00457>
- 9 Artículo científico.** Ghiradi; Subramanian, V.; Wecker, M.S.A.; et al; Dubini A. 2018. Survey of the anaerobic metabolism of various laboratory wild-type *Chlamydomonas reinhardtii* strains. *Algal Research*. Elsevier. 35, pp.355-361. ISSN 2211-9264. <https://doi.org/10.1016/j.algal.2018.05.002>

- 10 Artículo científico.** Gonzalez-Ballester, D; Sanz-Luque E; Galvan A; Fernandez E; de Montaigne A. 2018. Arginine is a component of the ammonium-CYG56 signalling cascade that represses genes of the nitrogen assimilation pathway in *Chlamydomonas reinhardtii*. Plos One. 13-4. ISSN 1932-6203. <https://doi.org/10.1371/journal.pone.0196167>
- 11 Artículo científico.** David Gonzalez-Ballester; Jose Luis Jurado-Oller; Aurora Galvan; Emilio Fernandez; Alexandra Dubini. 2017. H₂ production pathways in nutrient-replete mixotrophic *Chlamydomonas* cultures under low light. Response to the commentary article "on the pathways feeding the H₂ production process in nutrient-replete, hypoxic conditions," by Alberto Scoma and Szilvia Z. Tóth. Biotechnology for Biofuels. BioMed Central Ltd. 10-1. <https://doi.org/10.1186/s13068-017-0801-5>
- 12 Artículo científico.** Muñoz-Marin, MC; Gomez-Baena, G; Diez, J; Beynon, RJ; David Gonzalez-Ballester; Zubkov, MV; Garcia-Fernandez, JM. 2017. Glucose uptake in *Prochlorococcus*: Diversity of kinetics and effects on the metabolism. Frontiers in Microbiology. Frontiers Research Foundation. 8. ISSN 1664-302X. <https://doi.org/doi:10.3389/fmicb.2017.00327>
- 13 Artículo científico.** Jurado-Oller, JL; Dubini A; Galvan A; Fernandez, E; GONZALEZ-BALLESTER, D. 2015. Low oxygen levels contribute to improve photohydrogen production in mixotrophic nonstressed *Chlamydomonas* cultures. BIOTECHNOLOGY FOR BIOFUELS. Biomed Central LTD. 8-149, pp.4-14. ISSN 1754-6834. <https://doi.org/10.1186/s13068-015-0341-9>
- 14 Artículo científico.** GONZALEZ-BALLESTER, D; Jurado-Oller, JL; Fernandez, E. 2015. Relevance of nutrient media composition for hydrogen production in *Chlamydomonas*. PHOTOSYNTHESIS RESEARCH. 25-3, pp.395-406. ISSN 01668595. <https://doi.org/10.1007/s11220-015-0152-7>
- 15 Artículo científico.** Munevver, A; Pootakham,W; Pollock, S; Moseley, J; GONZALEZ-BALLESTER, David; Grossman, A. 2013. Tiered Regulation of Sulfur Deprivation Responses in *Chlamydomonas reinhardtii* and Identification of an Associated Regulatory Factor. PLANT PHYSIOLOGY. American Soc Plant Biologist. 162, pp.195-211. <https://doi.org/10.1104/pp.113.214593>
- 16 Artículo científico.** GONZALEZ-BALLESTER, D; Pootakham,W; Mus,F; et al; Grossman,A. 2011. Reverse genetics in *Chlamydomonas*: a platform for isolating insertional mutants. PLANT METHODS. Biomed Central LTD. 7-24. <https://doi.org/10.1186/1746-4811-7-24>
- 17 Artículo científico.** Pootakham,W; GONZALEZ-BALLESTER, D; Grossman, A. 2010. Identification and regulation of plasma membrane sulfate transporters in *Chlamydomonas*. PLANT PHYSIOLOGY. Amer Soc Plant Biologist. 153, pp.1653-1668. <https://doi.org/doi:10.1104/pp.110.157875>
- 18 Artículo científico.** (1/6) GONZALEZ-BALLESTER, D (AC); Casero,D; Cokus,S; Pellegrini,M; Merchant,S; Grossman, A. 2010. RNA-seq analysis of sulfur-deprived *Chlamydomonas* cells reveals aspects of acclimation critical for cell survival. PLANT CELL. Amer Soc Plant Biologist. 22, pp.2058-2084. <https://doi.org/10.1105/tpc.109.071167>
- 19 Artículo científico.** Moseley,JI; GONZALEZ-BALLESTER, D; Pootakham,W; Bailey,S; Grossman,A. 2009. Genetic interactions between regulators of *Chlamydomonas* phosphorus and sulfur deprivation responses. GENETICS. Genetics Soc Amer. 181, pp.889-905. SCOPUS (31) <https://doi.org/doi:10.1534/genetics.108.099382>
- 20 Artículo científico.** GONZALEZ-BALLESTER, D; Pollock,S; Pootakham,W; Grossman,A. 2008. The central role of a SNRK2 kinase in sulfur deprivation responses. PLANT PHYSIOLOGY. Amer Soc of Plant Biologist. 147, pp.216-227. <https://doi.org/10.1104/pp.108.116137>
- 21 Artículo científico.** Llamas, A; Tejada-Jiménez, M; (3/7) GONZALEZ-BALLESTER, D; Higuera-Sobrinho, JJ; Schwarz, G; Galván, A; Fernández, E. 2007. *Chlamydomonas reinhardtii* CNX1e reconstitutes molybdenum cofactor biosynthesis in *Escherichia coli* mutants. EUKARYOTIC CELL. Amer Soc Microbiology. 6-6, pp.1063-1067. SCOPUS (12) <https://doi.org/doi:10.1128/EC.00072-07>

- 22 Artículo científico.** Galván, A; GONZALEZ-BALLESTER, D; Fernández, E. 2007. Insertional mutagenesis as a tool to study genes/functions in Chlamydomonas. ADV EXP MED BIOL. Springer. 617, pp.77-88. https://doi.org/DOI: 10.1007/978-0-387-75532-8_7
- 23 Artículo científico.** Camargo, A; Llamas, A; Schnell, A; Higuera-Sobrinó, JJ; GONZALEZ-BALLESTER, D; Lefebvre, P; Fernández, E; Galván, A. 2007. Nitrate signaling by the regulatory gene NIT2 in Chlamydomonas. PLANT CELL. Amer Soc Plant Biologist. 19-11, pp.3491-3503. <https://doi.org/10.1105/tpc.106.045922>
- 24 Artículo científico.** Merchan,S; Prochnik,S; Vallon,O; et al; et al.2007. The Chlamydomonas genome reveals the evolution of key animal and plant functions. SCIENCE. Amer Associ Adv Science. 318-5848, pp.245-251. <https://doi.org/10.1126/science.1143609>
- 25 Artículo científico.** GONZALEZ-BALLESTER, D; Montaigu, A; Higuera-Sobrinó, J J; Galván, A; Fernández,. 2005. Functional genomics of the regulation of the nitrate assimilation pathway in Chlamydomonas. PLANT PHYSIOLOGY. Amer Soc Plant Biologist. 137-2, pp.522-533. <https://doi.org/10.1104/pp.104.050914>
- 26 Artículo científico.** GONZALEZ-BALLESTER, D; Montaigu, A; Galván, A; Fernández, E. 2005. Restriction enzyme site-directed amplification PCR: a tool to identify regions flanking a marker DNA. ANALYTICAL BIOCHEMISTRY. Elsevier. 340-2, pp.330-335. <https://doi.org/DOI: 10.1016/j.ab.2005.01.031>
- 27 Artículo científico.** GONZALEZ-BALLESTER, D; Camargo, A; Fernández, E. 2004. Ammonium transporter genes in Chlamydomonas: the nitrate-specific regulatory gene NIT2 is involved in AMT1;1 expression. PLANT MOLECULAR BIOLOGY. Springer. 56-6, pp.863-878. <https://doi.org/DOI: 10.1007/s11103-004-5292-7>
- 28 Artículo científico.** Leon-Bañares, R; GONZALEZ-BALLESTER, D; Galván, A; Fernández, E. 2004. Transgenic microalgae as green cell-factories. TRENDS IN BIOTECHNOLOGY. Elsevier. 22-1, pp.45-52. <https://doi.org/DOI: 10.1016/j.tibtech.2003.11.003>
- 29 Revisión bibliográfica.** Calatrava, V; Gonzalez-Ballester, D; Dubini, A. 2024. Microalgae for bioremediation: advances, challenges, and public perception on genetic engineering. BMC Plant Biology. BioMed Central Ltd. 24-1261.
- 30 Revisión bibliográfica.** Fakhimi, N; Gonzalez-Ballester, D; Fernandez, E; Galvan, A; Dubini, A. 2020. Algae-Bacteria Consortia as a Strategy to Enhance H2 Production. Cells. MPDI. 9-1353.

C.3. Proyectos o líneas de investigación

- 1 Proyecto.** Valorización de aguas residuales lácteas: producción de biomasa e hidrógeno mediante consorcios de algas y bacteria (BIOMASS-ABC) (PID2024-156565OB-I00). David. (Universidad de Córdoba). 01/09/2025-31/08/2028. 200.000 €.
- 2 Proyecto.** Algae-Bacteria To Get Green H2 Energy Responses (TOGETHER). TED2021-130438B-I00.. Ministerio de Ciencia e Innovación. David Gonzalez-Ballester. (Universidad de Córdoba). 01/12/2022-30/09/2025. 235.750 €.
- 3 Proyecto.** PID2019-105936RB-C22, Gestión sostenible de residuos lácteos y olivareros a través de la multivalorización integrada de la biomasa de microalgas (MULTIVALGA). Proyectos de I+D+i - RTI Tipo Coord. David Gonzalez-Ballester. (Universidad de Córdoba). 01/06/2020-31/05/2024. Investigador principal.
- 4 Proyecto.** Producción de hidrógeno y otros biocombustibles en microalgas: metabolismo de foto-asimilación de acetato en hipoxia. 1381175-F. UCO-FEDER Andalucía. David Gonzalez-Ballester. (Universidad de Córdoba). 2022-2022. 34.650 €.
- 5 Proyecto.** Wastewater bioremediation using Algae-Bacteria consortia for rural Area (WABA). Unión Europea. Alexandra Dubini. (Universidad de Córdoba). 2017-2020. Miembro de equipo.