

Nº Procedimiento: 030569 Código SIACI: SKAZ

**ANEXO III. INFORMACIÓN CURRICULAR: CURRÍCULUM ABREVIADO (CVA).  
CONVOCATORIA 2024.**

**EXTENSIÓN MÁXIMA 4 PÁGINAS (sin incluir la página 1)**

Para cumplimentarlo, lea detenidamente las instrucciones disponibles en la Sede Electrónica (<https://www.jccm.es/>) y en el Portal de Educación (<http://www.educa.jccm.es/idiuniv/es/investigacion/convocatorias-ayudas-proyectos-investigacion>)

Nombre y Apellidos: María Antonia Herrero Chamorro

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Parte A. DATOS PERSONALES		Fecha del CVA	14/01/2025
Nombre y apellidos	María Antonia Herrero Chamorro		
Núm. identificación del investigador	Researcher ID	I-4245-2014	
	Código Orcid	0000-0002-8860-9325	

### A.1. Situación profesional actual

Organismo	Universidad de Castilla La Mancha		
Dpto./Centro	Dpto, química orgánica, inorgánica y bioquímica		
Dirección	Avda. Camilo Jose Cela s/n		
Teléfono	926295300	correo electrónico	Mariaantonia.herrero@uclm.es
Categoría profesional	Profesor titular de Universidad	Fecha inicio	05/2011
Espec. cód. UNESCO	2306		
Palabras clave	Nanomaterials, hydrogels, organic chemistry		

### A.2. Formación académica (*título, institución, fecha*)

Licenciatura/Grado/Doctorado	Universidad	Año
Degree in Chemistry	University of Castilla-La Mancha	2000
Master for teaching	University of Extremadura	2011
High certificate in English	Oficial School of languages. Ciudad Real	2005
Master tesis	University of Castilla-La Mancha	2003
PhD in Chemistry	University of Castilla-La Mancha	2006

### A.3. Indicadores generales de calidad de la producción científica (*véanse instrucciones*)

- Number of recognized periods CNEAI: 3 (2002-2007, 2008-2013, 2014-2019)
- 1 Sesenio of Transfer of knowledge (2000-1012)
- 2 PhD thesis supervised and 4 in progress
- Total number of citations: **3496** (26/10/2024)
- number of citations/year (last 5 years): **180**
- JRC articles: **61**; (Q1): 51
- H index: **27** (26/10/2024)

### Parte B. RESUMEN LIBRE DEL CURRÍCULUM

In 2006, Dr. M. Antonia Herrero Chamorro earned her **European Ph.D.** in organic chemistry under microwave irradiation from UCLM, with brief stints at the University of Oxford and Uppsala. Sponsored by JCCM, her initial postdoctoral research at the University of Graz under Prof. O. Kappe resulted in a notable paper in JOC. Her second postdoctoral tenure at the University of Trieste under Prof. M. Prato focused on designing new nanomaterials for medicinal chemistry and material science. Returning to UCLM, she established the MSOC Nanochemistry group with the group leader, Prof. Ester Vazquez. This group integrated alternative techniques like microwave and mechanochemistry for activating carbon nanostructures in solvent-free conditions, preparing multifunctional derivatives for materials science and biological applications. The group has grown significantly, supervising numerous students and developing a stabilized ball-milling protocol for 2D nanomaterials and integrating them into 3D hydrogels scaffolds. She **co-founded the spin-off "Biograph Solutions" and serves as its president**, contributing to technological development through knowledge transfer. She has secured funding for various projects, including integrating carbon nanomaterials in solar cells and designing new SERS systems and recently as co-IP of the

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Ministry of Science. She has published over 61 scientific articles, 4 book chapters, and one book, and has participated in numerous conferences, some as an invited speaker. She has been the principal **organizer of conferences** “MATSUS23 and sustainable technology forum valencia (stech23)” and “the young conference” organized every year in the faculty of chemistry. She served as an evaluator for research projects for the governments of Argentina and Spain (ANECA, 3 years). In 2010, she received the “**Women for Science**” award by L’Oreal-UNESCO and in 2011, the “**Ibn Wafid de Toledo**” Prize for young researchers of CLM. She was selected as a “**Ramon y Cajal**” researcher in 2010 and was promoted to **Associate Professor in 2011**. In November 2018, she was elected **President of the RSEQ of CLM**. In April 2021, she assumed the role of **Vice-Dean at the Faculty of Science and Chemistry Technologies**. In charge of vital programs like ‘Mentorizacion,’ funded by UCLM with a project (co-IP), she actively participates in knowledge transfer, collaborating with both companies and the community to promote an appreciation of the importance of science. Notable initiatives involve organizing regular events like ‘Viernes en el IRICA,’ open days at the Faculty of Chemistry and IRICA, as well as school visits, all geared towards bridging the gap between science and society. She is also the principal investigator of a **FECYT project** aimed at promoting science in rural areas. She just received **accreditation as Full Professor in October 2024**. She assumed the role of **Vice-Rector of Professor at the UCLM** in January 2025.

### **Parte C. MÉRITOS MÁS RELEVANTES** (ordenados por tipología)

#### **C.1. Publicaciones**

1. I. Sánchez-Ajofrín, C.M. Andreu, J.M. Galindo, I. San-Millán, S. Merino, A.J. Soler, M.A. Herrero, E. Vázquez. A Biomimetic Follicle-Based Design for Engineering Reproductive Technologies. *Adv Func Mat.*, (2023). 10.1002/adfm.202310787R. Impact factor (2022): 19, Ranking: 8/178 (JCR Category Chemistry, multidisciplinary). **Corresponding author.**
2. J.M. Galindo, I. San-Millan, C.A. Castillo-Sarmiento, I. Ballesteros-Yanez, M.A. Herrero, S. Merino, E. Vazquez. Mimicking the extracellular matrix by incorporating functionalized graphene into hybrid hydrogels, *Nanoscale*, (2023), 15, 14238-14248. Impact factor (2022): 6,7. Ranking: 43/178 (JCR Category Chemistry, multidisciplinary). **Corresponding author.**
3. M.I. Lucío, F. Giacalone, V. La Parola, S. Gámez-Valenzuela, F. Muñoz-Alba, M.C. Ruiz Delgado, M. A. Herrero, E. Vazquez. A Prato Tour on Carbon Nanotubes: Raman Insights, *Chem. Eur. J.* 2023, 10.1002/chem.202302476. Impact factor (2022): 4,30. Ranking: 66/178 (JCR Category Chemistry, multidisciplinary). **Corresponding autor.**
4. D. Iglesias, R. Martin, M.A. Alvarez-Sanchez, I. Badía-Domínguez, E. Vazquez, MCR Delgado, P. Prieto, M.A. Herrero. Understanding the Raman enhancement of carbon nanohorns labelled with organic dyes. *Nanoscale*, (2023), 15, 12280-12286. Impact factor (2022): 6,7. Ranking: 43/178 (JCR Category Chemistry, multidisciplinary). **Corresponding author.**
5. E. Briñas, V. J. Gonzalez, M. Zougagh, A. Rios, M. A. Herrero, E. Vazquez. SERS-Based Methodology for the Quantification of Ultratrace Graphene Oxide in Water Samples, *Environmental Science & Technology*, (2022), 56, 9527-9535. Impact factor (2021). 11,4. Ranking: 7/55 (JCR Category Engineering Environmental). **Corresponding author**
6. D. Iglesias, J. Guerra, M.I. Lucío, R.C. Gonzalez-Cano, J.T. Lopez Navarrete, M. C. Ruiz, E. Vazquez, M.A. Herrero. Microwave-assisted functionalization of carbon nanohorns with oligothiophene units with SERS activity. *Chem. Commun.* (2020). DOI: 10.1039/D0CC03496G. Impact factor (2020): 6.222, Ranking: 44/179 (JCR Category Chemistry, multidisciplinary). **Corresponding author**
7. A. López-Díaz, A. Martín-Pacheco, A. M. Rodríguez, M. Antonia Herrero, E. Vázquez, Andrés S. Vázquez. Concentration Gradient-Based Soft Robotics: Hydrogels Out of Water. *Adv. Funct. Mater.*, 11, (2020). DOI: 10.1002/ADFM.202004417. Impact factor (2020): 18.808, Ranking: 15/335 (JCR Category Materials science, multidisciplinary).

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8. A. Naranjo, M. Cristina, A. López-Díaz, A. Martín-Pacheco, A. M. Rodríguez, Fco. J. Patiño M. Antonia Herrero, E. Vázquez, Andrés S. Vázquez. Autonomous self-healing hydrogel with anti-drying properties and applications in soft robotics. *Applied Materials Today*, (2020) DOI: 10.1016/J.APMT.2020.100806). Impact factor (2020): 10.041, Ranking: 57/380 (JCR Category Materials science, multidisciplinary). **Corresponding author**

9. M.I. Lucio, R. Opri, M. Pinto, A. Scarsi, J. Fierro, M. Meneghetti, G. Fracasso, M. Prato, E. Vazquez, M. A. Herrero, Targeted killing of prostate cancer cells using antibody–drug conjugated carbon nanohorns, *J. Mat. Chem. B*, 2017, 5, 8821-8832. Impact factor (2017): 4.543, Ranking: 6/33 (JCR Category Material science, Biomaterials). **Corresponding author**

10. D. Iglesias, J. Guerra, M.V. Gomez, A. Rodriguez, M.P. Prieto, E. Vazquez, M.A. Herrero, Design of Assembled Systems Based on Conjugated Polyphenylene Derivatives and Carbon Nanohorns, *Chem. Eur. J.*, 2016, 22, 11643-11651. Impact factor (2016): 5.317, Ranking: 29/166 (JCR Category Chemistry multidisciplinary). **Corresponding author**

### C.2. Proyectos

1. Diseño y Síntesis de Folículos Biomiméticos 4D para maduración in vitro de Ovocitos. IP: Ester Vázquez, Ministerio de Ciencia e Innovación (PID2023-150894OB-I00) 2024-2027. Cantidad 179.375 €. IP: Ester Vazquez, M. Antonia Herrero. **Principal Researcher**

2. Advanced Materials Programme. MCIN, European Union NextGenerationEU (PRTR-C17.11) and Junta de Comunidades de Castilla-La Mancha. 2022-2025, **Research Team**. IP: Ester Vázquez. Amount UCLM: 1.440.000 €

3. Smart Materials in soft robotics for hand rehabilitation. Junta de Comunidades de Castilla-La Mancha. SBPLY/21/180501/000135. 2022-2025. IP: Ester Vazquez, M. Antonia Herrero, Amount: 198.574,67€. **Principal Researcher**

4. Hard 2D Materials for Soft 3D Smart Cellular Scaffolds. Ministerio de Ciencia e Innovación. (PID2020-113080RB-100) 2021-2024. **Research Team**. IP: E. Vázquez. Amount: 145.200 €

5. 881603-Graphene Core 3, Graphene-based disruptive technologies, European Union FET flagship graphene, 2020-2023. IP: Ester Vázquez. **Research Team**. Total amount: 715.250 €

6. Engineering graphene hybrid gels for culturing cells: Smart and printable nanoscaffolds. Ministerio de Educación y Ciencia. (CTQ2017-88158-R) 2018-2021. IP: Ester Vázquez. **Research Team**. Amount: 134.310 €

7. 785219-Graphene Core 2, Graphene-based disruptive technologies, European Union FET flagship graphene, 2018-2020. IP: Ester Vázquez. **Research Team**. Total amount: 440.000 €

### C.3. Contratos, méritos tecnológicos o de transferencia

1. Study and preparation of metallic nanoparticles supported on two-dimensional nanomaterials (2D) applied in catalytic uses related to hydrogen production. Project in collaboration with the Hydrogen Center. JCCM & CNH2, 2024-2025, **Research Team**. IP UCLM Ester Vázquez.

2. Analysis and Structural Determination of Organic Compounds by Mass Spectrometry and Nuclear Magnetic Resonance. Funding Company: Servier Laboratories S.L., 2011-2023. **Research Team**. Principal researcher: Antonio de la Hoz

3. Integrated Project for the Assessment of Exposure to Nanomaterials in Occupational Environments. Ministry of Employment and Social Security - National Institute of Safety, Health, and Wellbeing at Work. 2018. PI: Á. Ríos, J. Rodriguez, E. Vázquez. **Research Team**.

4. Development of SERS Systems Based on Carbon Nanohorns. Funding Entity: Provincial Council of Ciudad Real. 2016-2017. **PI: M. Antonia Herrero**.

5. Utilizing Nanotechnology to Combat Climate Change. Funding Organization: Iberdrola Foundation. 2012-2014. **PI: M. Antonia Herrero**.

6. Creation of the technology-based company (**Spin-off**) BIOGRAPHY SOLUTIONS, 2019. President of the company

7. 1 “**six-knowledge transfer**” period 2000-2012. Responsible of a “**Maria Zambrano program**” 2022-2024 and **Investigo program** responsable, 2024-2025

#### **C.4. Patentes**

1. V. Ceña, M<sup>a</sup> del P. Sánchez, S. Merino, J. Calixto García, J. Rodríguez, E. Vázquez, M. A. Herrero, A. Campo, I. Rivilla, F. C. Pérez, F. J. Guerra. Title: Dendrimers as non-viral vehicles for gene therapy. Number of publication: US20130210887 A1. Priority country: US. Date: 15/08/2013, UCLM.EP2543659(A1),JP2013521328(A) WO2011107648(A1) ES2370638(A1) ES2370638(B1) Other countries: Europa (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, L, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,TR) JP y US. Company: Nanodrugs.

2. V. Ceña, M. P. Sánchez-Verdú, S. Merino, J. C. García, J. Rodríguez, E. Vázquez, M. A. Herrero, A. Campo, N. Rubio, F. C. Pérez, F. J. Guerra. Title: Dendrímeros como vehículos no virales para terapia génica. Number of publication: ES2370655 B1. Priority country: ES. Date: 05/11/2012, UCLM. Company: Nanodrugs.

3. V. Ceña, M. P. Sánchez, S. Merino, J. C. García, J. Rodríguez, E. Vázquez, M. A. Herrero, A. Campo, N. Rubio, F. C. Pérez, F. J. Guerra. Título: Vectores no virales para terapia génica. Number of publications: ES2374243 B1 y ES2374245 B1 Country of priority: España. Date: 12/12/2012. UCLM. Company: Nanodrugs.

4. V. Ceña, M. P. Sánchez, S. Merino, J. C. García, J. Rodríguez, E. Vázquez, M. A. Herrero, A. Campo, N. Rubio, F. C. Pérez, F. J. Guerra. Título: Carbon nanohorns comprising dendrimers on their surface as non-viral vectors for gene therapy. Nº: ES2374245 B1 País de prioridad: España. Fecha de concesión: 12/12/2012. Entidad titular: UCLM. Empresa que la están explotando: Nanodrugs.

#### **C.5 Grants and Awards**

- Postdoctoral grant. JCCM. 05/2006-11/2008
- Contrant of UCLM. 01/2006-03/2006
- Contrant of researcher. JCCM. 03/2004 – 01/2006
- Grant of researcher. JCCM. 05/2002 – 03/2004
- Grant of researchcer. Ref. 2001-B-061. UCLM. 07/2001 – 05/2002
- Grant Erasmus. Program 13.3/153. 07/2001-10/2001
- Grant of researcher. Ref. 2000-B-045. UCLM. 10/2000 – 01/2001
- Award Young researcher “Ibn Wafid de Toledo” of Castilla-La Mancha 2011
- Selected as “Ramón y Cajal” in 2010.
- Award “women for science” of Loreal Unesco 2010.

#### **C.6 Stays in other centers:**

- University of Trieste (Italia) 01/2007-10/2008
- University of Graz (Austria) 05/2006-10/2006
- University of Uppsala (Suecia) 08/3003-12/2003
- University of Oxford (inglaterra) 07/2001-10/2001

#### **C.7 Others merits.**

- President of the RSEQ of the Castilla La Mancha
- Vice dean of faculty of science and chemistry technologies: 2020-
- IP of FECYT, Trazando un futuro más sostenible: despertando vocaciones STEM con referencia FCT-23-19633.
- Manager of the “viernes en el IRICA”, scientific conferences 2017-2021
- Organizacion de las olimpiadas de química de CLM (2018-2021)
- Responsible of the Instrumentation IRICA service/ Member of the steering committee of the IRICA.
- Participate in more than 45 national and international conferences (20 oral communications)