

## Part A. Personal Information

DATE	17/11/2018
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Surname(s)	Orte Gutiérrez	
Forename	Ángel	
Social Security, Passport, ID number	44.365.284-D	
Sex	Male	
Age	40	
Researcher codes	WoS Researcher ID (*)	J-4810-2012
	SCOPUS Author ID(*)	6507491360
	Open Researcher and Contributor ID (ORCID)	0000-0003-1905-4183

(\*) At least one of these is mandatory

## A.1. Current position

Post/ Professional Category	Profesor Titular de Universidad	
UNESCO Code	2301.06, 2302.26, 2210.20, 2210.22, 2406.00	
Key Words	Biophysics, Fluorescence, Single-molecule, nanosensors, amyloids	
Name of the University/Institution	Universidad de Granada	
	Department/Centre	Fisicoquímica
	Full Address	Facultad de Farmacia. Campus Cartuja
	Email Address	angelort@ugr.es
	Phone Number	(34) 958243825
Start date	27/07/2012	

## A.2. Education (title, institution, date)

Year	University	Degree	Title
2000	Cordoba (Spain)	First degree	Chemistry
2004	Granada (Spain)	PhD	European Doctorate award

## A.3. Indicators of Quality in Scientific Production (See the instructions)

**Sexenios de investigación:** 2 (last one awarded in 2013).  
**PhD Theses supervised:** 2.  
**Total citations:** 1692 (15/11/2018, Web of Knowledge); 2226 (15/11/2018 - Google Scholar)  
**Average citations/years (in 2013-2017):** 226 (2018 not included)  
**Q1 publications:** 40 (Top 1: 4, Top 10%: 17).  
**h-index:** 20 (Web of Knowledge); 21 (Google Scholar)  
 (Data from Web of Knowledge, unless otherwise indicated)

## Part B. Free Summary of CV (Max. of 3.500 characters, including spaces)

Ángel Orte earned a degree in Chemistry from the University of Cordoba, Spain (2000), and obtained his Ph.D. degree in ultrafast proton-transfer reactions from the University of Granada, Spain, in 2004. He spent four years as a Postdoctoral Research Assistant at the Department of Chemistry, University of Cambridge, UK, within the group of Professor David Klenerman. At the Klenerman group, he developed dual-color single-molecule fluorescence methodologies and employed them in the study of biophysical problems such as protein aggregation, protein folding, and protein–DNA interactions. In 2009, he returned to the Department of Physical Chemistry, Faculty of Pharmacy, University of Granada, Spain, to open up new single molecule fluorescence (SMF) research lines. He serves currently as a permanent Assistant Professor at the Faculty of Pharmacy, having received positive evaluation for a full Professorship by the ANECA agency.

Dr Orte's main research lines lie in the application of spectroscopy and microscopy techniques, as well as advanced SMF techniques, to the design of fluorescent intracellular sensors and

biophysical studies of biomedical relevance. In particular, Dr Orte has developed methodologies of analysis of the early aggregates on pathway of amyloid aggregation at the molecular level (*PNAS* 2008). This was a seminal work that permitted a better understanding of the amyloid formation process, and contributed to many other subsequent studies of high impact (*Cell* 2012, *Nature Struct. Mol. Biol.* 2012, *Sci. Rep.* 2017). Importantly, the paper published in *Cell* (2012) has received the consideration of *Highly-Cited Paper* by the Web of Knowledge in 2018. The methodologies developed by Dr Orte were also applied to other biophysical and biomedical problems, such as the conformational space of ubiquitin dimers (*Nature* 2012), the structure of the telomerase enzyme (*Nature Chem. Biol.* 2008, *JACS* 2010). Dr Orte's research lines are also focused on the development of intracellular sensors and nanosensors, specifically designed to be quantitative in fluorescence lifetime imaging microscopy (FLIM) (*ACS Nano* 2013, *Chem. Comm.* 2015, *Chem. Eur. J.* 2015,...). These cutting-edge and multidisciplinary research lines are supported by the publication of 67 peer-reviewed papers in international journals. As emerging principal investigator, Dr Orte has been awarded several funded research grants in national and European competitive calls, as well as he has managed research and transfer contracts with charities and SMEs. He is also leading the contribution of the University of Granada on a H2020 consortium, funded with €445,500, that gathers the participation of three technological companies (Optoelectronica Italia SRL, DestiNA Genomics y GeneXPlain), and the Universities of Trento (Italy) and Santa Catarina (Brasil), and the Hannover Medical School (Germany).

## Part C. Relevant accomplishments

### C.1. Selected publications from 2013

- 1) F. Linares, E. Garcia-Fernandez, F.J. López-Garzón, M. Domingo-García, **A. Orte**, A. Rodríguez-Diéguez, M.A. Galindo, 2019, Multifunctional behavior of molecules comprising stacked cytosine–Ag<sup>I</sup>–cytosine base pairs; towards conducting and photoluminescence silver-DNA nanowires. **Chem. Sci.** DOI: 10.1039/c8sc04036b. (IF<sub>2017</sub>: 9.063) Rank 18/171. Hybrid materials prepared from DNA-base stacking interacting with silver. The formation of silver nanoclusters upon reduction provided the material with interesting conducting and luminescent properties.
- 2) P. Herrero-Foncubierta, J.M. Paredes, M.D. Giron, R. Salto, J.M. Cuerva, D. Miguel, **A. Orte**,\* 2018, A Red-Emitting, Multidimensional Sensor for the Simultaneous Cellular Imaging of Biothiols and Phosphate Ions. **Sensors** 18, 161 (1-18). Corresponding author. (IF: 2.475) Rank 16/61. Making use of the multi-dimensionality of the FLIM microscopy, we developed a family of dual, intracellular sensors, responding simultaneously to cellular biothiols and intracellular phosphate. We tested the approach in photosensitive cell lines, which undergo cellular stress upon light irradiation.
- 3) A. Delgado-Gonzalez, E. Garcia-Fernandez, T. Valero, M.V. Cano-Cortes, M.J. Ruedas-Rama, A. Unciti-Broceta, R. Sanchez-Martin, J.J. Diaz-Mochon,\* **Angel Orte**,\* 2018, Metallofluorescent nanoparticles for multi-modal applications. *ACS Omega* 3, 144-153. Corresponding author. IF pending (new journal). A family of polystyrene-based nanoparticles including within the surface fluorescent molecules and metal ions. The particles demonstrated an unprecedented activity to be employed simultaneously in cellular imaging, fluorescence-aided cell sorting, and mass cytometry.
- 4) F. Castello, J.M. Paredes, M.J. Ruedas-Rama, M. Martin, M. Roldan, S. Casares, **A. Orte**,\* 2017, Two-step Amyloid Aggregation: sequential lag phase intermediates. **Sci. Rep.** 7, 40065 (1-11). Corresponding author. (IF: 4.122) Rank 12/64. A step forward in the multi-dimensional analysis of amyloid aggregates at the molecular level.
- 5) R. Jurado, F. Castello, P. Bondia, S. Casado, C. Flors, R. Cuesta, J.M. Domínguez-Vera, **A. Orte**,\* N. Gálvez,\* 2016, Apoferritin fibers: a new template for 1D fluorescent hybrid nanostructures. **Nanoscale** 8, 9648-9656. Corresponding author. (IF: 7.367) Rank 23/275. The first report of apoferritin amyloid fibril formation. The fibrils were modified with nanoparticles and fluorophores as controllable nanomaterials.
- 6) C. Ripoll, M. Martin, M. Roldan, E.M. Talavera, **A. Orte**,\* M.J. Ruedas-Rama,\* 2015, Intracellular Zn<sup>2+</sup> detection with quantum dot-based FLIM nanosensors, **Chem. Commun.** 51, 16964-16967. Corresponding author. (IF: 6.567) Rank 21/163. A family of intracellular FLIM-

based nanosensors, specific for Zn<sup>2+</sup> ions, an important regulatory and signalling system in the cells.

7) S. Resa, **A. Orte**, D. Miguel, J.M. Paredes, V. Puente-Muñoz, R. Salto, M.D. Giron, M.J. Ruedas-Rama, J.M. Cuerva, J.M. Alvarez-Pez, L. Crovetto, 2015, New Dual Fluorescent Probe for Simultaneous Biothiol and Phosphate Bioimaging, **Chem. Eur. J.** 21, 14772-14779. (IF: 5.771) Rank 24/163. The first realization of the concept of a dual, intracellular sensor, in which the sensing parameters are based in different properties of the emission: fluorogenic enhancement of the emission intensity for biothiols, and fluorescence lifetime for phosphate ions.

8) D. Miguel, S.P. Morcillo, A. Martín-Lasanta, N. Fuentes, L. Martínez-Fernández, I. Corral, M.J. Ruedas-Rama, D.J. Cárdenas, L. Álvarez de Cienfuegos, **A. Orte**,\* J.M. Cuerva,\* 2015, Development of a New Dual Polarity and Viscosity Probe Based on the Foldamer Concept, **Org. Lett.** 17, 2844-2847. Corresponding author. (IF: 6.732) Rank 4/59 (Top 10). Novel ortho-oligophenylene-ethylene foldamers were developed as viscosity and polarity probes, as the fluorescent properties of such molecules are modulated by the kinetics of the folding process.

9) M. Tsytlonok, S.M. Ibrahim, P.J.E. Rowling, W. Xu, M.J. Ruedas-Rama, **A. Orte**, D. Klenerman, L.S. Itzhaki, 2015, Single-Molecule FRET Reveals Hidden Complexity in a Protein Energy Landscape, **Structure** 23, 190-198. (IF: 5.237) Rank 9/72 (Top 10). A complete single-molecule study of the AnkyrinR, a giant adaptor molecule that anchors integral membrane proteins to the spectrin-actin cytoskeleton. The study demonstrated the presence of hidden conformational equilibria, with biological relevance.

10) **A. Orte**, J. M. Alvarez-Pez, M.J. Ruedas-Rama, 2013, Fluorescence Lifetime Imaging Microscopy for the Detection of Intracellular pH with Quantum Dot Nanosensors, **ACS Nano**, 7, 6387-6395. (IF: 12.033) Rank 9/148 (Top 10). An important report on the use of Quantum-Dot-based nanosensors, capable of accurately following changes in intracellular pH, by means of FLIM microscopy.

## C.2. Research Projects and Grants

1) CTQ2017-85658-R: TG-DiAG: Nuevas Estrategias de Diagnostico Basadas en Fluorescencia con Ventana Temporal. Ministerio de Economía y Competitividad. **PI: A. Orte Gutiérrez**. January 2018 – January 2021. Funding: 116,160€.

2) miRNA-DisEASY (690866): microRNA biomarkers in an innovative biophotonic sensor kit for high-specific diagnosis. MSCA-RISE from Horizon 2020. Coordinator: Cristina Ress. December 2015 – December 2019. Funding: 445,500€. A. Orte is the leading researcher from the University of Granada within the consortium.

3) CTQ2014-56370-R: Una Plataforma de Multi-Imagen para la Evaluación del Metabolismo Celular. Aplicación al Diagnóstico del Cáncer y la Citotoxicidad de Oligómeros Amiloides. Ministerio de Economía y Competitividad. **PI: A. Orte Gutiérrez**. January 2015 – December 2018. Funding: 99,000€.

4) Research grant. Diagnóstico del Cáncer mediante una Plataforma de Nanosensores Metabólicos. Fundación Ramón Areces (XVII Concurso Nacional para la adjudicación de ayudas a la investigación en Ciencias de la vida y de la Materia). **PI: A. Orte Gutiérrez**. April 2015 – April 2018. Funding: 83,430€.

5) P10-FQM-6154: Cambios estructurales en la formación de fibras amiloides estudiados mediante espectroscopia de fluorescencia de moléculas individuales y técnicas de imagen de tiempos de vida. Conserjería de Economía, Innovación, Ciencia y Empresa (Junta de Andalucía). **PI: A. Orte Gutiérrez**. April 2011 – February 2016. Funding: 173,122€.

## C.3. Contracts

1) Contract, managed by the UGR-Tech transfer office (OTRI), with the company DestiNA Genómica S.L. **PI: A. Orte Gutiérrez**. March 2015 – July 2016. Funding: 58,964.44 €.

## C.4. Patents and other IPR

- 1) Patent application: P201730777. Title: Sondas Duales para Citometría de Flujo y Citometría de Masas. Inventors: A. Delgado González; R.M. Sánchez Martín; J.J. Díaz Mochón; M.T. Valero Griñán; **A. Orte Gutiérrez**; E. García Fernández. Date: 7/6/2017.
- 2) Ref: WO 2014/198986 A1. International patent. Title: Method for estimating the concentration of phosphates in live cells, xanthene colourant and synthesis thereof. Inventors: J. M. Alvarez Pez; L. Crovetto; J. M. Cuerva; M. D. Giron; J. R. Justicia; **A. Orte**; M. J. Ruedas; R. Salto; E. M. Talavera; Á. Martínez; J. M. Paredes. Priority: International. Date: 18/12/2014.

### C.5. PhD Theses supervised or in due course

- 1) M. Carmen González García. Year: estimated 2021. Title: Desarrollo y estudio fotofísico de nuevas sondas fluorescentes, y su empleo en la detección de microRNAs como biomarcadores.
- 2) Pilar Herrero Foncubierta. Year: estimated 2019. Title: Síntesis y Aplicaciones In Vivo e In Vitro de Nuevos Colorantes Orgánicos.
- 2) Consuelo Ripoll Lorente. Year: estimated February 2019. Title: Nanosensores metabólicos para la identificación de fenotipos tumorales.
- 3) Fabio Castello. Year: 2016. Title: Cambios estructurales en agregados pre-amiloidogénicos del dominio SH3 de  $\alpha$ -espectrina. International PhD award.
- 4) José Manuel Paredes Martínez. Year: 2010. Title: Síntesis, fotofísica y aplicación a la espectroscopia de correlación de fluorescencia de derivados xanténicos útiles como sondas fluorescentes "on/off". International PhD award.

### C.6. Evaluation and Editorial Boards

- 1) Evaluator for the EUROPEAN COMMISSION RESEARCH EXECUTIVE AGENCY (REA) for the programmes HORIZON2020-MSCA-IF (Individual Fellowships Marie Skłodowska-Curie). Calls: 2015, 2016, 2017, and 2018.
- 2) Evaluator for the ANEP (Spain) for programmes of the Junta de Castilla La Mancha. 2018 call.
- 3) Evaluator for the EUROPEAN COMMISSION RESEARCH EXECUTIVE AGENCY (REA) for the programmes FP7-PEOPLE-2013-IEF FP7-PEOPLE-2013-IIF FP7-PEOPLE-2013-IOF (Marie Curie Individual Fellowships). 2013 call.
- 4) External evaluator for the Fonds Wetenschappelijk Onderzoek (Research Foundation – Flanders, Belgium) for the postdoctoral contracts programme. 2015 call.
- 5) Member of the Scientific Editorial Board of the journal ISRN Analytical Chemistry. 2011-2014.
- 6) Guest editor of a Special Issue for the journal **Sensors**. 2018-2019.
- 7) Frequent reviewer for the journals: Chem. Comm., Biophys. J., Phys. Chem. Chem. Phys., Anal. Chem., J. Phys. Chem, ACS Nano, The Analyst, Anal. Methods, Sensors, Soft Matter, Anal. Methods, J. Luminescence, Org. Biomol. Chem., RSC Adv., Int. J. Mol. Sci., Sensors, Polymers. 2007-2018.

## Instructions

### Important Announcement

Following the Call for Proposals, **ONLY CVS SUBMITTED IN THIS FORMAT WILL BE TAKEN INTO CONSIDERATION. CVs presented in other formats WILL BE DISMISSED with no possibilities for modifications.**

### **GENERAL CONSIDERATIONS**

Following the call it is mandatory to use the following format when filling the document: Font Times New Roman / Arial (minimum size 11), single interlineal space, lateral margins of 2.5 cm and top and bottom margins of 1.5 cm.

Max. length of the whole document (Part A, B and C) cannot exceed four pages.

### **PART A. PERSONAL INFORMATION**

**Researcher ID** is a unique identifier that consists of alphanumeric characters that enable researchers to manage their publication lists, track their times cited counts and h-index, identify potential collaborators and avoid author misidentification. It is hosted by Web of Science.

Access: Web of Science > My Tools > Researcher ID.

**Author ID** is a unique identifier that consists of alphanumeric characters that enable researchers to manage their publication lists, track their times cited counts and h-index, identify potential collaborators and avoid author misidentification. It is assigned automatically by SCOPUS. You can find an author identifier by running a search for that author. It will appear underneath the author details.

Access: SCOPUS > Author Feedback Wizard> Researcher name.

**Open Researcher and Contributor ID (ORCID)** provides a persistent digital identifier that distinguishes the researcher from every other person and, through integration in key research workflows such as manuscript and grant submission, supports automated linkages between you and your professional activities ensuring that your work is recognized.

Access: [www.orcid.org](http://www.orcid.org)

### **A.3. Indicators of Quality in Scientific Production**

Please add information on a) total number of citations, average number of citations during the last five years, b) total number of publications in the first quartile (Q1) and first decile (D1), c) h-index, d) thesis supervised, and e) any other indicators that you may consider relevant.

To calculate these values, use default data collected in the Web of Science or Scopus. When this is not possible, other indicators may be used, specifying the reference database.

### **PART B. FREE SUMMARY OF CV** (Max. of 3.500 characters, including spaces)

Describe briefly your scientific career, the main scientific-technical achievements, and the mid-to-long term scientific-technical interests and objectives of your research agenda. Indicate any other aspects that you may consider important to understand your career path.

### **PART C. ACCOMPLISHMENTS (Order by typology)**

Given the limitations in number of characters, please mention the most relevant achievements sorted by the typology that best suits your scientific profile. Please be clear and avoid ambiguities.



Use reverse chronological order within each section. Limit your merits over the past 5 years, except for those which have an extraordinary importance for your CV.

### **C.1. Publications**

Include a full review of relevant 5 to 10 publications.

In case of an article, please include authors in order of signature, year of publication, title of the article, name of the journal, volume, start page to end page.

If it's a book or chapter of a book, include its publisher and ISBN also.

If there are many authors, please indicate the total number of signatories and the position of the researcher (total number/ position of researcher) as for example 95/18.

### **C.2. Participation in Research, Development and Innovation Projects**

Indicate the most important projects in which you have participated (maximum 5 to 7 projects), including a) its reference, b) title, c) funding body and call for proposals, d) name of the principal investigator and his/her institution affiliation, e) date of start and end of the project, f) amount of subsidy, and g) your type of participation, e.g.: researcher, principal investigator, European project coordinator, etc..

### **C.3. Participation in Research, Development and Innovation Contracts**

Indicate the most important contracts in which you have participated (maximum 5 to 7 contracts), including a) title, b) company or entity, c) name of principal investigator and his/her institution affiliation, d) date of start and end of the contract, and e) amount of funding.

### **C.4. Patents**

Indicate the most important patents and other intellectual property in which you have collaborated. Give a) the order of signing authors, b) reference, c) title, d) priority countries, e) date, f) holder entity and companies that are exploiting the patents.

### **C.5, C.6, C.7... Other**

By sequential numbering (C.5, C.6, C.7 ...) please include any other achievements that you deem necessary, such as for example: direction of works, participation in assessment or advisory tasks, membership of international committees, management of scientific activity, editorial boards, scientific awards, etc.

## **FINAL CONSIDERATIONS**

Please remember that all the submitted achievements must be presented concisely, including dates or periods for each performance.

The short CV aims to facilitate, organize and streamline the evaluation process. The use of the individual researcher identifier facilitates access to the published scientific papers and information on the impact of each of them.

**Remember that only CVs submitted either in this format or in CVN abridged version will be taken into consideration.**