MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES

# CURRICULUM VITAE (maximum 4 pages)

## Part A. PERSONAL INFORMATION

| CV date | 2022/01/10 |
|---|---|

| | | | |
|---|---|---|---|
| First and Family name | Álvaro Martínez del Pozo | | |
| ID number | 02702650N | Age | 62 |
| Researcher numbers | Researcher ID | L-8556-2014 | |
| | Orcid code | http://orcid.org/0000-0003-0043-5939 | |

### A.1. Current position

| | | | |
|---|---|---|---|
| Name of University | Universidad Complutense de Madrid | | |
| Department | Bioquímica y Biología Molecular | | |
| Address and Country | Facultad de Química-Ciudad Universitaria-28040 Madrid | | |
| Phone number | 34913944259 | E-mail | alvaromp@quim.ucm.es |
| Current position | Catedrático (Full Professor) | From | Nov 20th 2009 |
| Espec. cód. UNESCO | 2307 Química Física - 2302 Bioquímica - 230218 Lípidos - 230227 Proteínas - 230226 Bioquímica Física | | |
| Key words | Proteins, toxins, pores, latrotoxins, latrodectins, mutagenesis, spectroscopy, membranes, protein-lipid interaction, actinoporins, sea anemones, spiders | | |

### A.2. Education

| Graduation/Ph D degree | Universidad | Año |
|---|---|---|
| Ciencias Químicas-Bioquímica-Premio Extraordinario | UCM | 1981 |
| Ciencias Químicas-Bioquímica-Premio Extraordinario | UCM | 1986 |

### A.3. JCR articles, h Index, thesis supervised…

**Number of sexennia of research:** 6 **Date of last granted:** 2018.
**Number of doctoral theses supervised in the last 10 years:** 4. **JCR Articles:** 162 (ResearcherID) or 179 (Orcid); **Total citations:** 5305 **(**https://scholar.google.es/citations?user=mzMeNdwAAAAJ&hl=es**)**
**Average number of citations/year during the last 5 years (not including the current year):** 349
**Total publications in first and second quartiles (Q1):** 64 (13 in D1) and 62 in Q2**. Index h:** 42 **i10-index:** 133 **(Google Scholar). 58** articles as *corresponding author*.

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

In 1976 I entered the UCM as an undergraduate chemistry student. Since then my professional career has been devoted exclusively to the contribution of the development and transmission of knowledge in its three main facets: research, teaching and dissemination. In 1980 I joined the Department of Biochemistry and Molecular Biology still as a student. I defended my thesis in 1986. Both my bachelor's degree (1981), and my doctorate, were honored with *Ph. D.* UCM extraordinary awards. After two postdoctoral years at *The Rockefeller University* in New York, I returned to UCM as an Assistant Professor. In 2009 I was promoted to Full Professor, category in which I remain. In addition to another three months at *Rockefeller*, during the summer of 1990, I also worked four more months at *Northeastern University* (Boston) and one at *Kyoto University*.

My teaching work, which began in 1981, can be summed up roughly in about 200 hours of class per year since 1990. That is, more than 5000 hours, making a downward estimate. So far, I have also supervised 11 Doctoral Theses and multiple Minor Theses (5), TFG (10) or TFM (6). This facet of training young researchers and future professionals is the most satisfying for me and, in view of the results, the one in which I stand out the most. As side-effect of my teaching, I have also coauthored a textbook on Biochemical Techniques and published two more Science outreach books, one on proteins and the other about the Human Genome Project (translated to Italian and Portuguese).

As for my research, which began in 1980, it was funded uninterruptedly by competitive projects, mainly of national scope, until September 2016. Since then our research has continued with funds from Banco Santander-UCM. I have published more than 150 referenced articles or book chapters (see above) and served as editor of a special issue of the journal *Toxins* entitled *Pore-forming-toxins, never out of*

*fashion*. I am also the author of three national patents. I serve in various panels of evaluators from agencies such as ANECA or AEI. We maintain a wide range of national and international collaborations, some for more than 20 years. My work has always focused on the study of proteins, with special emphasis on aminotransferases and, above all, toxins. Our leitmotif is *Turning toxins into treatments*.

My vocation to divulge Science was born in 1988 during a conference given by Leon Lederman (Nobel Prize in Physics, 1982), when I understood how essential is Science and Society going hand in hand. For this reason, after my return to Spain, I started to get involved in this type of tasks, mainly by going to High and Primary Schools to give talks and seminars. On the Year of Science 2007 and the International Year of Chemistry 2011, this work was intensified. Between 2009 and 2012, I was one of the persons in charge of maintaining the SEBBM dissemination website, enjoyed several funded science outreach grants at national and European level, participated in dissemination work in Europe and Africa with the Cervantes Institute and organized multiple activities during successive Science Weeks and the European Nights of Researchers. In addition, I regularly collaborate in the radiobroadcast program *On the Shoulders of Giants* of RNE, where I maintain my own section.

**Part C. RELEVANT MERITS (LAST 10 YEARS)**

**C.1. Publications (scientific articles)** *(**47 articles** published since 2012/01/01; **10 selected from the last 3 years***

**159**. E. Rivera-de-Torre, J. Palacios-Ortega, J.P. Slotte, J.G. Gavilanes, **A. Martínez-del-Pozo** and S. García-Linares***,$** (2020) *Functional and structural variation among sticholysins, pore-forming proteins from the sea anemone Stichodactyla helianthus.* ***International Journal of Molecular Sciences*** 21, 8915. IF = 5.923 (2020) Q1 (BIOCHEMISTRY & MOLECULAR BIOLOGY).

**158.** R. Lázaro-Gorines, J.C. López-Rodríguez, S. Benedé, M. González, C. Mayorga, L. Vogel, **A. Martínez-del-Pozo**, J. Lacadena***,$** and M. Villalba***** (2020) *Der p 1-based immunotoxin as potential tool for the treatment of dust mite respiratory allergy*. ***Scientific Reports*** 10, 12255. IF = 4.379 (2020) Q1 (MULTIDISCIPLINARY SCIENCES).

**156.** E. Rivera-de-Torre, J. Palacios-Ortega, J.E. Garb, J.P. Slotte, J.G. Gavilanes and **A Martínez-del-Pozo*** (2020) *Structural and functional characterization of Sticholysin III: A newly discovered actinoporin within the venom of the sea anemone Stichodactyla helianthus.* ***Archives of Biochemistry and Biophysics*** 689, 108435. IF = 4.013 (2020) Q2 (BIOCHEMISTRY & MOLECULAR BIOLOGY).

**155.** P. Hernansanz-Agustín, C. Choya-Foces, S. Carregal-Romero, E. Ramos, T. Oliva, T. Villa-Piña, L. Moreno, A. Izquierdo-Álvarez, J.D. Cabrera-García, A. Cortés, A.V. Lechuga-Vieco, P. Jadiya, E. Navarro, E. Parada, A. Palomino-Antolín, D. Tello, R. Acín-Pérez, J.C. Rodríguez-Aguilera, P. Navas, Á. Cogolludo, I. López-Montero, **Á. Martínez-del-Pozo**, J. Egea, M.G. López, J.W. Elrod, J. Ruiz-Cabello, A. Bogdanova, J.A. Enríquez***** and A. Martínez-Ruiz***,$** (2020) *$Na^+$ controls hypoxic signalling by the mitochondrial respiratory chain*. ***Nature*** 586, 287-291. IF = 49.962 (2020) Q1 (D1) (MULTIDISCIPLINARY SCIENCES). ***AMP*** made the biophysical experiments showing that $Na^+$ can restrict membrane fluidity, supporting the lack of CoQ mobility and the production of superoxide.

**154.** A. Partida-Hanon, M. Maestro-López, S. Vitale, D. Turrà, A. Di Pietro, **A. Martínez-del Pozo*** and M. Bruix***** (2020) *Structure of fungal α mating pheromone in membrane mimetics suggests a possible role for regulation at the water-membrane interface.* ***Frontiers in Microbiology*** 11, 1090. IF = 5.64 (2020) Q1 (MICROBIOLOGY).

**153.** M. Olombrada, C. Peña, O. Rodríguez-Galán, P. Nerurkar, M. Altvater, J.G. Gavilanes, **Á. Martínez-del-Pozo**, J. de la Cruz*****, L. García-Ortega***,$** and V. G. Panse***** (2020) *The ribotoxin α-sarcin can cleave the sarcin/ricin loop on late 60S pre-ribosomes*. ***Nucleic Acids Research*** 48, 6210-6222. IF = 16.971 (2020) Q1 (D1) (BIOCHEMISTRY & MOLECULAR BIOLOGY). ***AMP was Ph. D. supervisor of first author Miriam Olombrada. This article is part of her Thesis.***

**152.** J. Palacios-Ortega, E. Rivera-de-Torre, J.G. Gavilanes, J.P. Slotte and **A. Martínez-del-Pozo*** (2020) *Evaluation of different approaches used to study membrane permeabilization by actinoporins on*

*model lipid vesicles*. ***BBA - Biomembranes*** 1862, 183311. IF = 3.747 (2020) Q2 (BIOPHYSICS). **This article was selected by SEBBM as "*Article of the month*".**

**151.** R. Lázaro-Gorines, J. Ruiz de la Herrán, R. Navarro, L. Sanz, L. Álvarez-Vallina, **A. Martínez-del-Pozo**, J.G. Gavilanes, and J. Lacadena***,$** (2019) *A novel carcinoembryonic antigen (CEA)-targeted trimeric immunotoxin shows significantly enhanced antitumor activity in human colorectal cancer xenografts*. ***Scientific Reports*** 9, 11680. IF = 4.011 (2019) Q1 (MULTIDISCIPLINARY SCIENCES).

**150.** E. Rivera-de-Torre, J. Palacios-Ortega, J.G. Gavilanes, **A. Martínez-del-Pozo*** and S. García-Linares***,$** (2019) *Pore-Forming-Proteins from Cnidarians and Arachnids as Potential Biotechnological Tools*. ***Toxins*** 11, 370. IF = 3.895 (2019). Q1 (TOXICOLOGY).

**149**. J. Palacios-Ortega, S. García-Linares, E. Rivera-de-Torre, J.G. Gavilanes, **A Martínez-del-Pozo*** y J.P. Slotte***** (2019) *Sticholysin, Sphingomyelin, and Cholesterol: A Closer Look at a Tripartite Interaction.* ***Biophysical Journal*** 116, 2253-2265. IF = 3.665 (2019). Q2 (BIOPHYSICS). **This article was selected by SEBBM as "*Article of the month*"**.

******Corresponding author* $*AMP was Ph. D. supervisor of those corresponding authors.*

**C.2. Research projects and grants** *Otherwise specified AMP was PI in the projects shown*

ANTICIPACIÓN y PREVENCIÓN de COVID-19 en la COMUNIDAD DE MADRID (ANTICIPA-CM). EXPRESIONES DE INTERÉS PARA LA REALIZACIÓN DE PROYECTOS DE I+D EN MATERIA DE RESPUESTA A COVID-19 FINANCIADOS POR EL FEDER – RECURSOS REACT-UE. Cuantía de la subvención solicitada: 8530000 euros. PI: J.M. Bautista (UCM). AMP participates as the researcher in charge of the UCM ESFUNPROT group, whose function is the production of the antigens and antibodies necessary for the development of the proposal.

TOXINAS DE VENENO DE LA ARAÑA VIUDA NEGRA COMO MODELO DE PROTEINAS GIGANTES FORMADORAS DE POROS. Proyectos de Investigación Santander-UCM 2019. Project PR87/19-22556. Duración: 2020/01/01 to 2021/06/12. Amount granted: 12000 €.

ASPECTOS QUÍMICO-FÍSICOS DE LA METAMORFOSIS DE PROTEINAS HIDROSULUBLES QUE SE INTEGRAN EN LA MEMBRANA. Proyectos de Investigación Santander- UCM 2018. Project PR41/18-21561. Duration: 1 year (2019). Amount granted: 9000 €.

ASPECTOS BIOFISICOS DE LA METAMORFOSIS DE PROTEINAS HIDROSULUBLES QUE SE INTEGRAN EN LA MEMBRANA. Proyectos de Investigación Santander- UCM 2017. Project PR41/17-21012. Duration: 1 year (2018). Amount granted: 12000 €.

DISECCIÓN MOLECULAR DE DOS FAMILIAS DE PROTEÍNAS TÓXICAS Y DE SUS MECANISMOS DE ACTUACIÓN: RIBOTOXINAS Y ACTINOPORINAS. Ministerio de Economía y Competitividad. Proyecto de Investigación Fundamental No Orientada. Project BFU2012-32404. Amount granted: 100000 €. Duration: 2013/01/01 to 2016/09/30.

ESTUDIO DE LAS RELACIONES ESTRUCTURA-FUNCIÓN EN RIBOTOXINAS Y ACTINOPORINAS. Ministerio de Ciencia e Innovación. Proyecto de Investigación Fundamental No Orientada. Proyecto BFU2009-10185. Amount granted: 140000 €. Duration: 2010/01/01 to 2013/09/30.

**C.3. Contracts**

On 16 June 2013, a confidentiality agreement was signed with *Research Corporation Technologies* (Tucson, Arizona), which is still in force. On February 9, 2015, a scientific collaboration agreement was signed with the company *ALK-Abelló*.

**C.5. Dissemination and teaching innovation projects**

***Moléculas de la vida: 50 años de Bioquímica y Biología Molecular en España***. Ministerio de Economía y Competitividad – FECYT. Convocatoria de Ayudas 2012 para el Programa de Cultura Científica y de la Innovación. Proyecto nº FCT-12-4798. Amount granted: 20000 €. Duration: 2012-13. PI: I. Varela-Nieto (**ÁMP**, collaborator during 2012).

***La noche de los investigadores*** (2012/09/28). Unión Europea – VII Programa Marco – Programa People. Amount granted: 125000 € (4980 € were asigned to the SEBBM activity). Duration: 1 year (2012). PI: T. Barbado Salmerón (**ÁMP** collaborator).

***La noche de los investigadores*** (2013/09/27). UE–VII Programa Marco – Programa People. Amount granted: 100000 € (4330 € were allocated to the activity directed by **AMP**). Duration: 1 year (2013). PI: T. Barbado Salmerón.

***Cursos de verano de El Escorial***. *Trabajar por una divulgación de calidad: retos y oportunidades*. Dates: July 2015. Course Director: B. Yélamos López. Course Secretary: **AMP**

***I.amAble: la ciencia (química) al alcance de toda la sociedad. Proyecto de Ciencia Inclusiva.*** UCM-Innova Docencia Proyecto nº 73. Duration: 2016-17. Amount granted: 750 €. PI: S. Herrero Domínguez **AMP**: Projects related to Biochemistry.

***I.amAble: la ciencia como vehículo hacia la plena inclusión. Proyecto de Ciencia Inclusiva.*** UCM-Innova Docencia. Proyecto nº 166. Duration: 2017-18. Amount granted: 1125 €. PI: S. Herrero Domínguez **AMP**: Projects related to Biochemistry and commission of relations with educational centres.

***I.amAble: el aprendizaje en ciencias al servicio de la inclusión educativa***. Proyecto de Ciencia Inclusiva. UCM-Innova Docencia. Proyecto nº 52. Duration: 2018-19. Amount granted: 1125 €. PI: S. Herrero Domínguez **AMP**: Projects related to Biochemistry and commission of relations with educational centres.

***I.amAble: aprendizaje e inclusión educativa mediante talleres científicos***. Proyecto de Ciencia Inclusiva. UCM-Innova Docencia. Proyecto nº 117. Duration: 2019-20. No monetary funding, but with a support scholar PI: S. Herrero Domínguez **AMP**: Projects related to Biochemistry and commission of relations with educational centres.

**C.6. Direction of Doctoral Theses completed or in progress:** Four theses have been completed since 2012: **1**. *Las ribotoxinas fúngicas como herramientas biotecnológicas*. **M. Olombrada Sacristán.** Facultad de Química (UCM) (2015) Sobresaliente *cum laude* with European Mention. **2**. *Análisis molecular del mecanismo de formación de poros por parte de las actinoporinas*. **S. García Linares.** Facultad de Química (UCM) (2017) Sobresaliente *cum laude* with European Mention and extraordinary *Ph. D.* UCM award. **3**. *Estudio estructural y funcional de la acción tóxica de las actinoporinas de anémonas marinas*. **E. Rivera-de-Torre** Sobresaliente *cum laude* with International Mention. **4.** *Molecular Basis of the Sticholysin-Membrane Interaction On the Structure of the Pore and the Effects of Lipids*. **Juan Palacios-Ortega**. Faculty of Science and Engineering, at Åbo Akademi University (ÅAU)/Facultad de Ciencias Químicas, Universidad Complutense (UCM) (2021). Sobresaliente *cum laude*. Double degree *Ph. D.* thesis.

**C.7. Books of Science outreach**

G. Rodríguez-Tarduchy and **A. Martínez-del-Pozo** (2016) *¿Por qué somos como somos? El genoma humano paso a paso.* Collection: Descubrir la Ciencia. Materia - El País (http://elpais.com/promociones/descubrir-la-ciencia/), Bonalletra Alcompas S.L. 132 pp. Legal deposit: B10392-2016. This book was translated into Italian [*Perchè siamo como siamo? Il genoma umano senza segreti* (Scoprire la ciencia #23) ISSN: 2499-2372 and Portuguese [*Porque somos como somos? O genoma humano passo a passo*] (Discover Science) ISBN: 978-989-8836-96-0.

**C.8 Scientific Societies**

**AMP** is member of the board of the Madrid Territorial Section of the Spanish Chemistry Royal Society (RSEQ). He also belongs to the Spanish Society of Biochemistry and Molecular Biology (SEBBM), to the Spanish Society of Biophysics (SBE), and to the Association of Scientific Communicators (AEC2).