MINISTERIO DE CIENCIA E INNOVACIÓN

Cofinanciado por la Unión Europea

AGENCIA ESTATAL DE INVESTIGACIÓN

**CURRICULUM VITAE ABREVIADO (CVA)**

## Part A. PERSONAL INFORMATION

| | | | |
|---|---|---|---|
| First name | MARÍA | | |
| Family name | LINARES GÓMEZ | | |
| Gender (*) | WOMAN | Birth date (dd/mm/yyyy) | 16/08/1983 |
| ID number | 50219325K | Researcher ID: Q-4106-2017 | Scopus ID: 18037731800 |
| e-mail | mlinares@ucm.es | URL Web https://www.ucm.es/bbm/laboratorio-de-tumores-hematologicos-y-microorganismos | |
| Open Researcher and Contributor ID (ORCID) (*) *(*) Mandatory* | | 0000-0003-3180-6560 | |

### A.1. Current position

| | | | |
|---|---|---|---|
| Position | Associate Professor (Profesor Contratado Doctor) | | |
| Initial date | 29/05/2023 | | |
| Institution | UNIVERSIDAD COMPLUTENSE DE MADRID (UCM) | | |
| Department/Center | Biochemistry and Molecular Biology | Pharmacy School | |
| Country | Spain | Teleph. number | 686598450 |
| Key words | Molecular mechanisms of disease, Microbiology, Haematology, Multiple Myeloma, Microbiota, Artificial Intelligence | | |

### A.2. Previous positions (research activity interuptions, indicate total months)

| Period | Position/Institution/Country/Interruption cause |
|---|---|
| 04/02/2023-26/05/2023 | Maternity Leave |
| 25/11/2019-28/05/2023 | PhD. Assistant Professor/Pharmacy School-UCM/Spain<br>Member of Hematología Traslacional H12O Group |
| 27/02/2019-18/06/2019 | Maternity Leave |
| 20/12/2017-24/11/2019 | Adjunt Professor/Pharmacy School-UCM/Spain<br>Member of Hematología Traslacional H12O Group |
| 15/01/2018-24/11/2019 | FEHH-Postdoctoral Researcher/CNIO-H12O/Spain |
| 30/11/2016-30/04/2017 | Adjunct Professor/Biology School-UCM/Spain<br>Member of Hematología Traslacional H12O Group |
| 01/05/2017-14/01/2018 | Postdoctoral Researcher/Hospital 12 Octubre (H12O)/Spain |
| 01/05/2015-30/04/2017 | Juan de la Cierva Postdoctoral Researcher/ H12O/ Spain |
| 09/01/2012-08/01/2015 | Senior Scientist/GSK/Spain |

### A.3. Education

| PhD, Licensed, Graduate | University/Country | Year |
|---|---|---|
| PhD. Biochemistry and Molecular Biology *(outstanding cum laude)* | UCM Spain | 2011 |
| Hons Project in Microbiology *(with Honors)* | UCM Spain | 2008 |
| B.Sc. in Biology.Speciality:Biotechnology *(Extraordinary Award)* | UCM Spain | 2006 |

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

Dr. María Linares graduated with Honours in Biology at UCM (2006). Complementarily, she collaborated with the department of Microbiology of the same School from 2003 to 2006. In 2007, she obtained a Ministry of Education-FPU Fellowship to complete a PhD in Biochemistry

and Molecular Biology (2011, UCM), investigating the molecular aspects of the infection *in vitro* and *in vivo*. In addition, in 2008 she completed a Research Fellowship within the Gulbenkian Institute of Science (Oeiras, Portugal) in the Inflammation Laboratory. In 2012, she joined the Malaria DPU of GlaxoSmithkline as senior scientist, acting as GSK project coordinator of the Malaria Drug Target Identification Project founded by Gates Foundation to identify new targets by chemogenomics, which has produced a high impact in the scientific community, generating highly cited publications in journals such as Science and Nature Communications. At GSK, she was also involved in drug development programs and in the optimization of high throughput screenings. This activity complemented her profile focusing on the search of new targets. In 2012, she collaborated in the Immunogenetics Laboratory of Institut Pasteur (Dakar, Senegal) to improve the research capacity of the group, setting up a culture system that she optimized during her PhD Thesis. This protocol has been heavily used by the scientific community and was published in Nature Protocols. In 2015, she joined at the Hematología Traslacional Group (H12O) thanks to the Juan de la Cierva 2013 Program to apply her experience to hematological tumors. In 2017 she obtained a FEHH Grant to continue her investigations at the Hematological Tumors Unit from CNIO-H12O. During this period, she has elucidated molecular mechanisms of response, contributing to new NGS systems to anticipate relapse and new therapeutically options which have been exploited in clinical Trials, as the RuNic Trial. She has also collaborated with Dr. Fulciniti (Boston, USA). In January 2018, she completed a stay at CRCINA (Nantes, France) with her collaborator Dr. Hermouet to set up a project exploring the role of microorganisms in the progression of hematological tumors, especially multiple myeloma, in which she has been working the last years and for which she has obtained funded as PI (MICIN, ISCIII, CDTI, CAM, UCM, AECC and CRIS). Moreover, she has acquired expertise in the analysis of microbiota and microbial metabolites with the help of Dr. Gómez-Garre and Dr. Tomás-Barberán. Combining with her experience on drug discovery, she is focused in developing new biomarkers associated with the prognosis, developing new therapies for non-responders. In addition, María Linares is Specialist Advisor and co-funder of Spotlab, spin-off from Universidad Politécnica de Madrid (UPM) dedicated to the development of Video Games, tools and artificial intelligence systems for diagnosis. Now, she is leading her own line. She has supervised several Final Project students, 2 technicians and 5 PhD Students, 3 of them have recently defended their PhD Thesis and continue their research in haematology. The scientific development in the group has allow her students to obtain 3 competitive grants (1 FPU and 2 FEHH). The team has published the research in Q1 and D1 journals such as Clinical Cancer Research, Leukemia and Haematologica. The leading capacity of Dr. Linares is also recognised by 15 articles as senior or corresponding author. She believes that communication to the public is equally important, thus she has participated in several innovative projects and science outreach activities such as Microbacterium, SomosCientíficos, La Biotheque, CienciaCarbónica, Semana de la Ciencia, Night of the researchers..., in innovative projects with students (talks for professional advice, dissemination activities …) and in technology projects such as Spotwarriors which will help to bring science and technology closer to the society. She is author of 43 publications (15-D1/16-Q1; 23 as first/last author), with a total impact factor of 276,4. Thanks to her collaboration with Dana Farber Cancer Institute (Boston, USA), one of her results has been selected for a cover page in the journal Blood. She has contributed with more than 100 communications in national or international conferences. She is PI (or Co-PI) of 6 research projects, 1 clinical study of artificial intelligence with Spotlab, 1 contract with VIVIA and has participated in 13 national and international competitive projects as researcher. She has received 15 awards: for her studies (UCM), for the best scientific work (RANF, ROCHE, SEBBM), for the best communication (SEMTSI, SEM, LABCLIN, GSK, UCM and two ASH awards) for the best dissemination work (OTRI, SEM, SomosCientificos) and for the best research image (SEBBM). She has obtained 4 competitive grants (UCM Collaboration, FPU, Juan de la Cierva and FEHH). She is editor of Frontiers in Immunology and has reviewed scientific works for different journals.

## Part C. RELEVANT MERITS

### C.1. Publications

10 selected publications relevant to the project in the last years:

1.- Rodríguez-García, A; Arroyo, A; Garcia-Vicente, R; et al.; **Linares, M (AC).** (16/16,senior author). 2024. Short-chain fatty acid production by gut microbiota in multiple myeloma. **Clinical Cancer Research (D1)** 30(4), pp. 904-917.

2.- Morales, ML; Garcia-Vicente, R; Rodríguez García, A; et al.; **María Linares (AC)**. (14/14, **senior author**). 2023. Posttranslational splicing modifications as a key mechanism in cytarabine resistance in Acute Myeloid Leukemia. **Leukemia (D1**). 37 (8), pp. 1649-1659. (AC, corresponding author).

3.-Rodríguez-García, A; Mennesson, N; Hernandez-Ibarburu, G; et al. **Linares, M* (AC)**; Hermouet, S*. (13/14, **co-senior author**). 2023. Impact of viral hepatitis therapy in multiple myeloma and other monoclonal gammopathies linked to hepatitis B or C viruses. **Haematologica (Q1, JCI: D1)**. 109 (1), pp. 272-282. (AC, corresponding author).

4.-Rodríguez-García, A*; **Linares, M* (AC)**; Morales, ML; et al.; Martínez-López, J. (2/12, **co-first author**). 2021. Efficacy of Antiviral Treatment in Hepatitis C Virus (HCV)-Driven Monoclonal Gammopathies Including Myeloma. **Frontiers in Immunology (Q1).** 12, pp. 797209. (AC, corresponding author).

5.-Morales, ML; Arenas, A; Ortiz-Ruiz, A; et al; **Linares, M*(AC)**; Martínez-López, J*. (13/14, **co-senior author**). 2019. MEK inhibition enhances the response to tyrosine kinase inhibitors in acute myeloid leukemia. **Scientific Reports (Q1).** 9, pp.18630. (AC, corresponding author).

6.-Rodríguez-García, A; Morales, ML; Garrido-García, V; et al; **Linares, M**. (13/13, **senior author**). 2019. Protein Carbonylation in Patients with Myelodysplastic Syndrome: An Opportunity for Deferasirox Therapy. **Antioxidants (D1)**. 8-508, pp.1-17.

7.-Cortés, A; Ayala Diaz, R; Hernández-Campo, P; et al; **Linares, M***; Martínez-López, J*. (11/12, **co-senior author**). 2019. Ruxolitinib in combination with prednisone and nilotinib exhibit synergistic effects in human cell lines and primary cells from myeloproliferative neoplasms. **Haematologica (D1).** 104 (5), pp. 937-946.

8.-Alencar, N*; Sola, I*; **Linares, M***; et al; Luque, FJ. (3/14, **co-first author**). 2018. First homology model of Plasmodium falciparum glucose-6-phosphate dehydrogenase: Discovery of selective substrate analog-based inhibitors as novel antimalarial agents. **European Journal of Medicinal Chemistry (D1)**. 146, pp.108-122.

9.-Cowell, AN; Istvan, ES; Lukens, AK; et al; Winzeler, EA. (13/39). 2018. Mapping the malaria parasite drug-able genome using in vitro evolution and chemogenomics. **Science (D1).** 359-6372, pp.191-199. **ML was the Project Leader at GSK.**

10.-Fulciniti, M; Martínez-López, J; Senapedis, W; et al; Munshi,NK. (12/24). 2017. Functional role and therapeutic targeting of p21-associated kinase 4 (PAK4) in Multiple Myeloma. **Blood (D1)**. 129-16, pp.2233-2245. **ML was the author of the image selected for the cover page.**

### C.2. Congress

118 Congresses: 64 Nationals (2 plenary sessions, 24 orals -3 invited to M.Linares-) and 54 Internationals (4 invited communications). 69 published communications in journals such as Blood and Haematologica.

### C.3. Research projects

Selected projects relevant to the project:

1.- PID2021-123056OA-I00. Urolithin production by gut microbiota: a new paradigm for multiple myeloma prognosis. Proyectos de Generación de Conocimiento. Ministerio de Ciencia e Innovación. **Linares, M.** (UCM). 2022-2025. 157.300,00 €. **Principal investigator.**

2.- PR27/21-03. Microbiota productora de butirato en la respuesta del linfoma a la inmunoterapia. Ayuda Jóvenes Doctores UCM. **Linares, M.** (UCM). 2022-2024. Cuantía total: 57.811,74 €. **Principal investigator.**

3.- PMPTA22/00088. ALMA - Inteligencia Artificial para diagnóstico, tratamiento y pronóstico de enfermedades hematológicas. Subvenciones de Proyectos de I+D+I vinculados a la

Medicina Personalizada y Terapias Avanzadas dentro de la actuación coordinada ISCIII-CDTI para el fomento de la colaboración público-privada del PERTE para la Salud de Vanguardia. **Linares, M.** (UCM). 2023-2025. 74.052,00 €. **Principal investigator.**

4.-ANTICIPA-CM. Anticipación y Prevención de COVID-19 en la Comunidad de Madrid. Comunidad de Madrid. REACT-UE. Bautista, JM. (UCM). 01/01/2022-31/12/2022. 6.640.000 €. **Principal Investigator** of one of the research groups, funded with 94.888 euros.

5.-2024/031. Programa para el desarrollo de terapias avanzadas y nuevos biomarcadores y mecanismos de resistencia en hematología. CRIS Contra el Cáncer. Martínez-López, J. (Fundación para la Investigación Biomédica Hospital 12 de Octubre). 01/01/2024-31/12/2026. 1.763.000€. **Linares, M as Co-principal investigator.**

6.- IDEAS20014LINA. El papel de los microorganismos en el origen del Mieloma. Asociación Española Contra el Cáncer. Ideas Semilla. **Linares, M.** (Fundación para la Investigación Biomédica Hospital 12 de Octubre). 2020-2022. 19.900 €. **Principal investigator.**

7.- EUROPEAN COMMISSION 881062. Developing tools for faster, low-cost microscopy diagnosis. EUROPEAN COMMISSION. Horizon 2020 - Research and Innovation Framework Programme. Call: H2020-SMEInst-2018-2020-2. Funding scheme: SME-2. Luengo-Oroz, M. (Spotlab). 2019- 2021. 1.572.156 €. Investigator.

8.-SNEO-20171197. MicroSpot. El primer microscopio portátil robotizado. NEOTEC (CDTI – Ministerio de Ciencia, Innovación y Universidades). Luengo-Oroz,M. (Spotlab). 01/01/2018-30/06/2019. 152.891 €. Investigator.

9.- EUROPEAN COMMISSION 808405. Microspot: The first portable, low-cost, robotized scanner microscope that converts any smartphone into a high quality and intelligent tele-microscopy image diagnosis system. EUROPEAN COMMISSION. Horizon 2020 - Research and Innovation Framework Programme. Call: H2020-SMEINST-1-2016-2017. Funding scheme: SME-1. Luengo-Oroz, M. (Spotlab). 01/02/2019-31/07/2018. 50.000 €. Investigator.

10.-MDTIP (http://winzeler.ucsd.edu/BMGF/50malariadrugs.html), The Malaria Drug Target Identification Project. Bill and Melinda Gates Foundation. Winzeler, E (general coordinator). (University of California, San Diego (general coordinator group)). 2012-2016. **Linares, M as Co-ordinator at GSK**.

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

Merits relevant to the project:

1.- AEMC8/23; AEMC10/21. Puesta a punto de una sala de cultivos. Acciones especiales Comunidad de Madrid. UCM. **Linares, M.** (UCM). 2023; 2021. 685; 1.261,00 €. **Principal investigator.**

2.- PEJ-2020-AI/BMD-1868. Contratación de un ayudante de investigación. Ayudas para la realización de contratos para ayudantes de investigación Comunidad de Madrid. **Linares, M.** (UCM). 2021-2023. 2 years of salary. **Principal investigator.**

3.- ISRCTN10382623. Evaluation of a digital ecosystem leveraging mobile technology and artificial intelligence for digitalization and remote analysis of bone marrow samples. Spotlab. **Linares, M.** (Fundación para la Investigación Biomédica Hospital 12 de Octubre). 01/11/2020-31/05/2022. **Principal Investigator.**

4.-OPB-111077 in Patients With Relapsed or Refractory Acute Myeloid Leukaemia Apices Soluciones S.L.; Otsuka Pharmaceutical, S.A.; VIVIA BIOTECH SL. **Linares, M**, Martínez-López, J. (Hospital Universitario 12 de Octubre). 07/09/2017- 31/12/2020. 15.000 €. **Co-principal investigator.**

5.- Development of the videogame MalariaSpot Bubbles : **Linares, M (AC);** Postigo, M; Cuadrado, D; et al; Luengo-Oroz, M. (1/14). 2019. Collaborative intelligence and gamification for on-line malaria species differentiation. Malaria Journal. Biomed Central. 18(1):21; Ortiz-Ruiz, A; Postigo, M; Gil-Casanova, S; Cuadrado, D; Bautista, JM; Rubio, JM; Luengo-Oroz, M; **Linares, M (AC).** (8/8, **senior author**). 2018. Plasmodium species differentiation by non-expert on-line volunteers for remote malaria field diagnosis. Malaria Journal. BioMed Central. 17, pp.54. AC, Corresponding author.

6.-**Cofunder of Spotlab**. Spotlab is a spin-off from UPM that uses the power of crowdsourcing and artificial intelligence for diagnosis. Cofunded by H2020, Neotec, EIT Health, red.es and FEDER. Awarded by Cruz Roja, UPM, MIT and European Foundations.