CURRICULUM VITAE ABREVIADO (CVA)

***IMPORTANT** – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.*

Part A. PERSONAL INFORMATION *

First name	Marta		
Family name	ARTAL SANZ		
Gender (*)		Birth date	
Social Security, Passport, ID number			
e-mail		URL Web	
Open Researcher and Contributor ID (ORCID) (*)			

A.1. Current position

Position	Profesora Titular de Universidad/Assistant Professor Scientific Deputy Director of the CABD		
Initial date	22/12/2023		
Institution	Universidad Pablo de Olavide		
Department/Center	Andalusian Centre for Developmental Biology (CABD)		
Country	Spain	Teleph. number	
Key words	Molecular, cellular and genetic biology, genomics, aging, metabolism, mitochondria		

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

Period	Position/Institution/Country/Interruption cause
2017-2023	Prof. Contratada Doctora. Universidad Pablo de Olavide
2012-2017	Group Leader Position (Ramón y Cajal)/Andalusian Centre for Developmental Biology (CABD)/Spain.
2010-2012	Senior Researcher Group Leader Position./Albert-Ludwigs-University of Freiburg/Germany.
2008-2010	Post-doctoral researcher (Juan de la Cierva)/IBV (CSIC)/Spain.
2005-2008	Post-doctoral researcher (Mari Curie-IEF)/ IMBB (FORTH)/Crete, Greece
2004-2005	Post-doctoral researcher/University of Amsterdam/The Netherlands

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD in Science	University of Amsterdam	2003
Postgraduate Studies	University of Amsterdam	1997-1999
Graduate (BSc+MSc equivalent)	Universitat de València	1996

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

1. Scientific Contributions: Artal-Sanz heads a laboratory at the Andalusian Centre for Developmental Biology (CABD) since 2012. She earned her PhD degree at the University of Amsterdam, focusing on the study of mitochondrial proteins linked to human disease. She focused on the mitochondrial Prohibitin (PHB) complex, a highly evolutionarily conserved complex, associated with ageing in yeast and cancer in humans. Her investigation using *S. cerevisiae* lead to a breakthrough hypothesis for the functioning of the PHB complex as a membrane bound chaperone (*EMBO J.* co-1st author). She decided to investigate the role of PHB proteins in the development of a multicellular organism and chose *C. elegans* as a model system. She established the model at the University of Amsterdam and published a *J. Biol. Chem*. paper as first and only corresponding author. She gathered founding from the EU (**Marie Curie EIF**) to go to the laboratory of Prof. Tavernarakis (IMBB-FORTH, Greece). There, she investigated the role of lysosomes in *C. elegans* neurodegeneration (*J. Cell Biol*. 1st author). In parallel, she focused on the role of mitochondrial PHBs in lifespan determination using *C. elegans* as a model system. This work revealed a previously unsuspected and strikingly opposing function of the PHB complex in ageing, depending on intrinsic and extrinsic cues. This work culminated

in a first and corresponding author publication at *Nature* (2009), with Taveranarakis as only co-author. Her findings brought a new twist into the ageing field, which now serves as a basis for her continuing research.

In 2010 she obtained a Group Leader Position at the University of Freiburg, Germany. There she developed the bases of a solid project and obtained funds form the European Research Council. In March 2012, she repatriated to Spain with a **Ramón y Cajal** contract and an **ERC_StG**. She gathered funds from the Junta de Andalucía and the Spanish Ministry and attracted a postdoctoral fellow that joined the lab with a Marie Curie IEF. She has been awarded an **ERC_PoC** to find drugs that will ameliorate infertility associated to defective Insulin/IGF-1 signalling (IIS). Her laboratory focuses in understanding the crosstalk between mitochondria and cellular signalling networks, with a special focus on IIS in the regulation of ageing by applying a multidisciplinary approach involving genome-wide imaging screens, metabolomics, transcriptomics and functional genomics in *C.elegans*. Her investigations revealed several epigenetic factors as regulators of the differential response triggered by PHB depletion in wild type and IIS mutants. During her last project **(PID2022-139772NB-I00)** she focused on a new epigenetic regulator, a histone deubiquitinase (manuscript resubmitted to *Nature Communications*). Her current focus is uncovering the mechanism by which histone 2B deubiquitination differentially mediates transcriptional responses to mitochondrial stress.

Artal-Sanz is author of **35 peer-reviewed papers, some published in major generalist and specialised journals.** Among them, as corresponding author: 1 **Nature**, 1 **Aging-US**, 1 **TRENDS Endocrin. Met**., 1 **BMC Biol**., 1 **Nature Sci. Rep**., 1 **J. Biol. Chem**., 1 **BBA-Bioenergetics**, 1 **PLoS One**, 1 **Cells**, 1 **Front. Physiol**., 1 **Metabolites,** 1 **Front. Aging, 1 Genetics, 1 iScience** and 2 **Aging Cell**, and as senior scientist through collaborations: 1 **Nat. Comm**., 1 **Nat. Biotechnol**., 1 **Cell Host & Microbe**, 1 **Apoptosis** and 2 **Genetics**.

2. Societal Contributions: She is also actively involved in dissemination activities such as: "The week of Science" and "La Noche Europea de los Investigadores". She has organised Workshops and been Speaker at the ERC=Sience2 project. Round table: "Longevidad ¿Quién quiere vivir eternamente?" Parque de las Ciencias, Granada, and at the Fab-Lab about longevity. Parque de las Ciencias, Granada.

3. Role in shaping young scientists: She has mentored a total of 10 postdoctoral researchers (7 national and 3 international) which are currently continuing their careers in academia (Institut Jacques Monod-Université Paris Diderot/CNRS, University of Freiburg, University of Lisbon, University Pablo de Olavide and University of Seville) Biotech industry (Medical Science Liaison at Janssen) or as co-founder of biotech company, attaining an independent research or academic position. In addition, she has mentored 3 PhDs (one now at UCL- University College London and one teaching in academia and one a Postdoctoral Juan de la Cierva) and 1 PhD will defend in 2028. Recently, she attracted a postdoctoral fellow (June 2022) within the Maria Zambrano framework (European Union "NextGenerationEU," and Ministry of Universities) that started as Junior **Ramón y Cajal** in 2023 in her lab**.**

Artal-Sanz actively participates as Reviewer for national (Plan Nacional) and international grants (Israel Science Foundation and Flanders Research Foundation) and as a Review Editor (Frontiers and Cells) and Reviewer for several journals (e.g.: Frontiers, PLOS One, G3, Aging Cell, BMC Biol, Methods in Cell Biol, and EMBO Mol Med).

Part C. RELEVANT MERITS

C.1. Publications (CA corresponding author)

35- Giovannetti M, Rodríguez-Palero MJ, Fabrizio P, **Artal-Sanz M (CA)**, Palladino F(CA) (**8/9**) (2024). SIN-3 transcriptional coregulator maintains mitochondrial homeostasis and polyamine flux. ***iScience.*** 2024 Apr 22;27(5):109789. doi: 10.1016/j.isci.2024.109789.

34- de la Cruz-Ruiz P, Rodríguez-Palero MJ, Askjaer P (CA), **Artal-Sanz M (CA)** (**4/4**) (2023) . Tissue-specific chromatin binding patterns of *C. elegans* heterochromatin proteins HPL-1 and HPL-2 reveal differential roles in the regulation of gene expression. ***Genetics.*** 2023 Apr 29;iyad081. doi: 10.1093/genetics/iyad081

31- Lourenço A, Rodríguez-Palero MJ, Doherty MK, **Artal-Sanz M (CA)** (**9/9**) (2021). The Mitochondrial PHB Complex Determines Lipid Composition and Interacts With the Endoplasmic

Reticulum to Regulate Ageing. ***Frontiers in Physiology***. Jul 1;12:696275. doi:10.3389/fphys.2021.696275

30- de la Cruz-Ruiz P, Hernando-Rodriguez B , Perez-Jimenez MM, Rodriguez-Palero MJ, Martinez-Bueno MD, Pla A, Gatsi R, **Artal-Sanz M (CA) (8/8)** (2021) Prohibitin depletion extends lifespan of a TORC2/SGK-1 mutant through autophagy and the UPR^{mt}. ***Aging Cell***. May;20(5): e13359 doi:10.1111/acel.13359

26- Olmedo M (CA), Mata-Cabana A, Rodríguez-Palero MJ, García-Sánchez S, Fernández-Yañez A, Merrow M and **Artal-Sanz M (CA) (7/7)** (2020) Prolonged quiescence delays somatic stem cell-like division in *Caenorhabditis elegans* and is controlled by insulin signalling. ***Aging C*ell** Dec 19(2):e13085. doi: 10.1111/acel.13085.

24- Zhang J, Li X, Olmedo M, Holdorf AD, Shang Y, **Artal-Sanz M**, Yilmaz LS, Walhout AJM (CA) (6/8) (2019). A Delicate Balance between Bacterial Iron and Reactive Oxygen Species Supports Optimal C. elegans Development. **Cell Host Microbe**. Aug 14. pii: S1931-3128(19)30354-3. doi: 10.1016/j.chom.2019.07.010.

20- Hernando-Rodríguez B, Erinjeri AP, Rodríguez-Palero MJ, **Artal-Sanz M (CA)** (11/11) **(**2018). Combined flow cytometry and high- throughput image analysis for the study of essential genes in *Caenorhabditis elegans*. ***BMC Biology.*** Mar 29;16(1):36. doi: 10.1186/s12915-018-0496-5

19- Rodríguez-Palero MJ, López-Diaz A, Marsac R, Gomes JE, Olmedo M and **Artal-Sanz M (CA) (**2018). An automated method for the analysis of food intake behaviour in *Caenorhabditis elegans*. ***Nature Scientific Reports***, 1–10. Feb 26;8(1):3633. doi: 10.1038/s41598-018-21964-z

16- Bastos Lourenço A, Muñoz Jiménez C, Venegas Calerón M, and **Artal-Sanz M (CA)** (2015). Analysis of the effect of the mitochondrial prohibitin complex, a context-dependent modulator of longevity, on the *C. elegans* metabolome. ***BBA-Bioenergetics***, 2015 Nov;1847(11):1457-68 doi:10.1016/j.bbabio.2015.06.003.

13- Artal-Sanz M (CA) and N. Tavernarakis (CA). (2009). Prohibitin couples diapause signalling to mitochondrial metabolism during ageing in *C. elegans.* ***Nature***, 461: 793-7. doi:10.1038/nature08466

C.2. Congress, (Presenter underlined)

Invited Speaker at the **EMBO/FEBS Lecture Course "Mitochondria in life, death and disease".** Heterochromatin Protein 1 controls gene expression and longevity in response to mitochondrial dysfunction. 16-20 September 2024, Lanshut, Germany

De La Cruz Ruiz P, Heluani Gahete H, Ortega De La Torre MA, Rodríguez Palero MJ, Ayuso García C, Ohta S, Askjaer P and **Artal-Sanz M**. "Heterochromatin Protein 1 controls gene expression and longevity in response to mitochondrial dysfunction". **Oral presentation at Euromit 2023**. **International Meeting on Mitochondrial Pathology.** 11-15 June 2023. Bologna, Italy.

De La Cruz Ruiz P, Heluani Gahete H, Ortega De La Torre MA, Rodríguez Palero MJ, Ayuso García C, Ohta S, Askjaer P and **Artal-Sanz M**. "Heterochromatin Protein 1 controls gene expression and longevity upon prohibitin depletion". **Oral presentation at the 24th International *C.elegans* Conference**. 24-28 June, 2023, Glasgow, Scotland.

De La Cruz Ruiz P, Heluani-Gahete H, Ortega De La Torre MA,…Askjaer P, **Artal-Sanz M**. "Heterochromatin Protein 1 controls gene expression and longevity in response to mitochondrial dysfunction". **Poster presentation at the Cell Symposia: Mulifaceted Mitochondria**. Seville. Spain. November 6-8, 2022

De La Cruz Ruiz P, Askjaer P and **Artal Sanz M.** "Heterochromatin protein 1 and prohibitins regulate longevity and the Mitochondrial Unfolded Protein Response". **Poster presentation at the Virtual 23rd International *C. elegans* Conference.** University of California. Los Angeles. U. S. A. June 21-24, 2021

De La Cruz Ruiz P, Askjaer P and **Artal Sanz M.** "Heterochromatin protein 1 and prohibitins regulate longevity and the Mitochondrial Unfolded Protein Response". **Poster presentation at the EMBL Conference: Chromatin and epigenetics**. 17-20 May 2021.

Artal-Sanz M. "Prohibitin depletion extends lifespan of aTORC2/SGK-1 mutant by suppressing autophagy defects". **Oral presentation at the Virtual European Worm Meeting 2020**. 22-23 June 2020.

García-Rodríguez FJ, Paul Erinjeri A, Bastos Lourenço A, Doherty M, Whitfield P, Askjaer P, **Artal-Sanz M.** "GSK-3 intestinal activity impacts mitochondrial function and ageing". **Oral presentation at the EMBO Workshop *C. elegans* development, cell biology and gene expression and European Worm Meeting (EWM)**. Barcelona, 13–17 June, 2018

Invited Seminar at the Institut d'Investigació Biomèdica de Bellvitge (IDIBELL). L´Hospitalet de Llobregat, Barcelona, Spain. 23 Novembre, 2018. "GSK-3 activity impacts mitochondrial metabolism and ageing"

Artal-Sanz M. "Investigating Prohibitin genetic interactions in the regulation of ageing and the mitochondrial unfolded protein response", **Oral presentation at the EMBO Workshop**: **Developmental circuits in aging**. Heraklion, Crete, Greece, 25-28 May. 2015

Hernando-Rodriguez B, Millar V, Jarit-Cabanillas A, Manchada H, Kaderali L, **Artal-Sanz M**. Identification of new pathways involved in the regulation of the UPRmt reveals a crosstalk between mitochondrial stress response and insulin signaling. **Oral presentation at the 21st International *C. elegans* Conference.** University of California. Los Angeles. U. S. A. June 21-25 2017

C.3. Research projects, As Principal Investigator since 2012:

PID2022-139772NB-I00:"Mitochondrial stress signalling: the role of histone deubiquitination in ageing regulation" (MITDUBAGE) PI: Marta Artal-Sanz. Funding Institution: Spanish Ministry of Science and Innovation, Agencia Estatal de Investigación (AEI) (01/09/2023-31/08/2026). Total amount: 175.000€ and one PhD funded position (FPI)(**PRE2023-PID2022-139772NB-I00**).

P20_00873: "The role of chromatin regulators in mitochondrial unfolded protein response and longevity". PI: Marta Artal-Sanz_University Pablo de Olavide. Funding institution: Consejería de Transformación Económica, Industria, Conocimiento y Universidades de la Junta de Andalucía (04/10/2021- 31/12/2022). Total amount: 45.995€

PID2019-104145GB-I00. Mitochondrial stress signalling: from epigenetic modifications to ageing regulation (EPIMITAGE). PI: Marta Artal-Sanz. Funding Institution: Spanish Ministry of Science, Innovation and Universities, Agencia Estatal de Investigación (AEI) (01/06/2020-31/05/2023). Total amount: 119.790€

FEDER 2014-2020/UPO-1260918. "Mitochondrial stress signaling: from epigenome to ageing". PI: Marta Artal-Sanz, co-PI: Peter Askjaer. Funding institution: Fondo Europeo de Desarrollo Regional-Universidad Pablo de Olavide (01/01/2019-31/12/2021). Total amount: 33.750€

ERC-2016-PoC_737559_INFISS: "Targeting infertility associated to defective Insulin/IGF-1 signalling" Funding institution: European Research Council H2020. PI: Marta Artal-Sanz_University Pablo de Olavide (01/05/2017-31/10/2018). Total amount: 150.000€.

FP7-PEOPLE-2013-IEF–627263: "Circadian timing of metabolism in *C.elegans*_TiMetab". Funding institution: European Union, 7th Framework Program. PI: Marta Artal-Sanz_University Pablo de Olavide (01/07/2014–30/06/2016). Total amount: 223.002€.

ERC-2011-StG-20101109–281691: "Mitochondrial signalling crosstalk in the regulation of ageing_MitoSigAge". Funding institution: European Research Council, Ideas-7thFramework Program. PI: Marta Artal-Sanz_University Pablo de Olavide (01/06/2012–31/05/2018). Total amount: 1.424.640€.

CEIC-C2A-ID: 42571/Exp: 70806: Mitochondrial stress signalling in the regulation of ageing. Funding institution: Junta de Andalucía. Programa de captación del conocimiento. PI: Marta Artal-Sanz_University Pablo de Olavide (01/06/2012–31/05/2017). Total amount: 541.150€.

BFU2012-35509: "Mitochondrial Stress Signalling in the regulation of ageing". Funding institution: Ministerio de Economía y Competitividad. PI: Marta Artal-Sanz_University Pablo de Olavide (01/01/2013–31/12/2015). Total amount: 163.800€.

BIOSS: "Studies for the analysis of biological signalling processes in *C. elegans*". Funding institution: BIOSS-Cluster of excellence University of Freiburg**.** PI: Marta Artal-Sanz_University of Freiburg (15/02/2011–29/02/2012). Total amount: 33.870€.