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	Manuel J.		
Family name	Muñoz		
Gender (*)	Male	Birth date	
Social Security, Passport, ID number			
e-mail		URL Web	
Open Researcher and Contributor ID (ORCID) (*)		0000-0002-0111-1541	

A.1. Current position

Position	Professor of University		
Initial date	02/06/2024		
Institution	University Pablo de Olavide		
Department/Center	Centro Andaluz de Biología del Desarrollo		
Country	Spain	Teleph. number	
Key words	*C. elegans*, aging, sulfated neurosteroids,STS		

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

Period	Position/Institution/Country/Interruption cause
1997-2000	Postdoc/Universtity of Missouri/USA

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Biology	University of Malaga	1991
PhD	University of Malaga	1997

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

Manuel Muñoz did his PhD in the area of Genetics of the University of Malaga working on cell division regulation with the yeast Schizosaccharomyces pombe. During this period, he identified two genes necessary for the correct functioning of the key genes of the cell cycle cdc2 and wee1, publishing 5 articles and a book chapter. In his postdoctoral training, he decided to work on genetic of longevity and for that, he chose the model organism *Caenorhabditis elegans*. He did his postdoctoral training with Donald Riddle where he designed a protocol that allowed him to isolate the largest collection to that date of long-lived mutants (Muñoz et al. 2003). This article was highlighted by the Science related journal SAGE KE as a recommended reading article. In 2003, he joined the Pablo de Olavide University in Seville as a professor and researcher. He obtained funding for a European project, from Andalucia regional government and from the Spanish government, as principal investigator. In the framework of these projects, new longevity mutants and longevity suppressors were isolated, characterized and published and also characterize some of the mutants affected in longevity (Wolkow et al. 2003, Houthoofd 2005). Some of these mutants are also related to human diseases such as diabetes or galactosemia and we study them in this framework (Monje et al. 2011, Pérez-Jiménez et al. 2014, Brokate-Llanos et al. 2014a, Brokate-Llanos et al. 2014b, Cornes et al. 2015, Sanzo-Machuca et al. 2019). Using this knowledge, he set up a worm facility for researchers and companies to test drugs and compounds using those and other mutants, around 15 companies and researchers have used this facility.

The group has always been involved in technology transfer and has developed new technologies for the industrial application using *C. elegans*. He developed an idea of using *C. elegans* to reduce sludge of urban water treatment that was granted by the company

ABENGOA and recently published in the journal of circular economy, which is a chemical engineering leading in circular economy with an impact factor highest than 10 and to our knowledge, the first time that *C. elegans* is the protagonist of a chemical engineering journal. He was involved in 10 contract with companies developing new technology or offering research services. He is an author of 9 patents and two industrial secrets. Six of the patents have been licensed. He is also promotor of three Spin-off. ONESTX SL started after the publication of paper in Nature Communication (Perez-Jimenez et al, 2021). In this paper, the group described STX64 that alters steroid hormones and increases longevity together with improvement of the symptoms of neurodegenerative diseases in *C. elegans* and mammal models. The results were patented and stablishes a spin-off (ONESTX) with the participation of the University where he is CSO. The goal of this company is to do a phase 2 clinical trial for Alzheimer. At the moment, the company received private and public investment to start working in this objective.

Part C. RELEVANT MERITS *(sorted by typology)*

C.1. Publications *(see instructions)*

1.- Ana M. Brokate-Llanos, María Beltran, Andrés Garzón… , Manuel J. Muñoz(AC), Antonio J. Pérez-Pulido(AC) (5/6) (2025). Inhibition of acid sphingomyelinase increases SMN levels and connects sphingolipid metabolism to Spinal Muscular Atrophy. Biomedicine & Pharmacotherapy. 192, November, 118610

2.- Moreno-Sánchez, I., Hernández-Huertas, L., Nahón-Cano, D….Moreno-Mateos, M.A. (15/20) (2025) Enhanced RNA-targeting CRISPR-Cas technology in zebrafish. Nature Communications, 16(1), 2591

3.- Hamdi, A., Córdoba-Rojano, M.A., Monje-Moreno, J.M., ... Guillén-Bejarano (7/8), R. Harnessing the Potential of Walnut Leaves from Nerpio: Unveiling Extraction Techniques and Bioactivity Through *Caenorhabditis elegans* Studies. Foods 14(6), 1048

4.- Arroyo, E., Monje-Moreno, J.M., Torres-Herrero, B., ... Ocaña, M (5/7) (2025) Cr3+-Doped γ- and β-Gallium Oxide Nanoprobes for Bioimaging: Synthesis, Persistent Luminescence, and Biocompatibility. Advanced Optical Materials e01422

5.- Lucas-Rodríguez, P., Brokate-Llanos, A.M., Hernandez-Curiel, J.M..., Muñoz, M.J (AC) (7/7) 2024 Monosaccharides improve symptoms of an animal model for type III galactosemia, through the activation of the insulin pathway. Biomedicine and Pharmacotherapy 181, 117677

6.-Brokate-Llanos AM, Sanchez-Ibañez M, Pérez-Jiménez MM, …Muñoz M J (AC), Royo JL(AC). (10/11) 2024 Ribonucleotide reductase inhibition improves the symptoms of a *Caenorhabditis elegans* model of Alzheimer's Disease. G3, 24. Feb 24

7.- Calderón-Olvera R.M. , Nuñez N. O., González-Mancebo D., … Ocaña M(AC). (5/10) 2023 Europium doped-double sodium bismuth molygdate nanoparticles as contrast agents dor luminescence bioimagin and X-ray computed tomography. Inorganic Chemistry Frontiers. February

8.- López-Viso C., Hodaifa G.(AC), Muñoz M. J (AC). 2022 Nematode biomass production from sewage sludge as a novel method for circular economy. Journal of Cleaner Production 330

9.- Pérez-Jiménez M, Monje-Moreno J, Brokate-Llanos A… Muñoz MJ (AC). (14/14) Jan 4. 2021 Steroid hormones sulfatase inactivation extends lifespan and ameliorates age-related diseases. Nature communication; 12-49.

10.- Perez-Pulido, Antonio J; Asencio-Cortes, Gualberto; Brokate-Llanos, Ana M; Brea-Calvo, Gloria; Rodriguez-Grinolo, Rosario; Garzon, Andres; Munoz, Manuel J. (2021). Serial co-expression analysis of host factors from SARS-CoV viruses highly converges with former high-throughput screenings and proposes key regulators. Briefings in Bioinformatics 22. Pag 1038-1052.

C.2. Congress, indicating the modality of their participation (invited conference, oral presentation, poster)

More than 40 participations most of them poster and some selected for oral presentation.

C.3. Research projects, indicating your personal contribution. In the case of young researchers, indicate lines of research for which they have been responsible.

1. TITLE: Mecanismo de acción de la inhibición de la sulfatasa esteroideas para aumentar la esperanza de vida y mejorar los síntomas de las enfermedades neurodegenerativas. Entidad financiadora: MICIN. PID2024-161733OB-I00.Entidades participantes: Universidad Pablo de Olavide. Duración: desde: Sept 2024 - Sept 2027
   Investigador responsable: Manuel Muñoz. Cuantía de la subvención: 237.500€.

2. TITLE: Alteración de los niveles de neuroesteroides sulfatados para el diagnóstico y terapia de la enfermedad de Alzheimer. CPP2022-009908 AEI. 2023-2026. Principal Investigator: Manuel Muñoz (as CSO of ONESTX). Amount: 805.443,47€

3. TITLE: Potencial terapéutico de un inhibidor de sulfatasa de esteroides en la enfermedad de Huntington y factores implicados en su efecto antineurodegeneración. CPP2023-010925 AEI. 2024-2027. Principal Investigator: Manuel Muñoz (as CSO of ONESTX). Amount: 957.181,15€

4. TITLE: Estudio clínico de seguridad, dosis y eficacia de un fármaco estabilizador de esteroides sulfatados endógenos como terapia innovadora en pacientes de la enfermedad de Alzheimer. CPP2024-011709 AEI. 2025-2028. Principal Investigator: Manuel Muñoz (as CSO of ONESTX). Amount: 1.410.555,01€

C.4. Contracts, technological or transfer merits

Patents

1. Divisional European Patent Application. Títtle: Compositions for treating and/or preventing protein aggregation disease. Inventors: Manuel J. Muñoz, Angel M Carrión, Mercedes Perez Jiménez. Code: EP22186334.3, Priority Europe: 21/06/2022. Ttitular: Universidad Pablo de Olavide. Licensed to the Company: ONSTX

2. Titlte; Sulfated C19 steroid hormones to extend lifespan and protect against aging-associated proteotoxicity. Inventores (p.o. de firma): Manuel J. Muñoz, Angel M Carrión, Mercedes Perez Jiménez Code: EP20382930. Priority: Spain. 26/10/2020. Ttitular: Universidad Pablo de Olavide. Licensed to the Company: ONSTX

3. Titlte: Sulfated C19 steroid hormones to treat and/or prevent proteotoxicity in protein-aggegation disseases. Inventores (p.o. de firma): Manuel J. Muñoz, Angel M Carrión, Mercedes Perez Jiménez. Code: EP20382931. Priority: España 26/10/2020. Entidad titular: Universidad Pablo de Olavide. Licensed to the Company: ONSTX

4. Títtle: Compositions for treating and/or preventing protein aggregation diseases. Inventors: Manuel J. Muñoz, Angel M Carrión, Mercedes Perez Jiménez. Code:

EP18382439. Priority: Europa. Date of priority: 19/06/2018. Titular Entity: Universidad Pablo de Olavide. Licenced to the Company: Spherium Biomed. Now to ONSTX. Title granted number: P19730826(5). Publication number:ES2931815B2 /03/08/2022)

5. Títtle: Gencitabine para ser usada en la reduccion de la citoxicidad producida por la acumulación del peptido β-amiloide en la enfermedad de alzheimer.: José Luís Royo Palencia, Mireya Sánchez Ibáñez, Cárlos Vivar Ríos, Ana María Brokate Llanos, Manuel J. Muñoz. Code: P201830955. Priority: España. Date of priority: 3/10/2018. Titular Entity: Universidad de Málaga, Universidad Pablo de Olavide. Title granted number: P201830955.. Publication number: ES2752274B2 (03/08/2022)

Contracts:
(2 of 7 contracts)

1. TITLE: Ensayo de bacterias potencialmente probióticas en modelos animales de diabetes y enfermedades asociadas. Artículo 83: Biosearch Life. 2016-2017. Principal Investigator: Manuel Muñoz. Amount: 54.450€

2. TITLE: Búsqueda de nuevos compuestos contra la Atrofia Muscular Espinal capaces de mantener niveles de la proteína SMN. Artículo 83: Galiciame. 2020-2021. Principal Investigator: Manuel Muñoz/Antonio Pérez. Amount: 40.000€

C.5. BUSINESS SECRET

1. López-Viso, C., Hodaifa M. and Muñoz M. J. 2020. Method to cultivate the nematode *Caenorhabditis elegans* using industrial yeast avoiding unwanted bacterial contamination. 2020 Business secret SEUPO2020-011.

2. Hodaifa M., Muñoz M.J. Intensive integrated process for nematode biomass production. 2020 Business secret SEUPO2020-010

C.6. SPIN-OFF GENERATED

1. CEPA SL: Caenorhabiditis Elegans Production for Aquaculture SL. Spin-off with the goal of using *C. elegans* in aquaculture. Manuel Muñoz: CSO, promotor and founder, Gassan Hodaifa: CPO, Peter Berry: CEO. Founded 2018

2. ONESTX SL: Olavide Neuron STX SL: Spin-off with the goal of using the drug STX64 for treatment of neurodegenerative diseases: Manuel Muñoz: CSO, Promotor and founder, Angel Cebolla: CEO and investor. Jorge Alemany: Founder, Luis Ruiz: Founder, Angel Carrión: Founder, Mercedes Pérez-Jiménez: Founder. Founded 2020

3. ARCOS recombine: Spin-off with the goal of production of recombinant protein developing a new technology: Manuel Muñoz: CSO, Promotor and founder. Laura Tomás: Promotor and founder, Andrés Garrido: CEO, Founder and investor. Jorge Alemany: Founder. Francisco Rodriguez: Founder and investor. Javier Ruiz: Founder and investor. Founded: 2025

C. AWARDS

5 university and local awards related to technology transfer technology