

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

CV date

14/01/2024

First name	Miguel Angel		
Family name	Burguillos García		
Gender (*)	Male	Birth date (dd/mm/yyyy)	23/03/1979
Social Security, Passport, ID number			
e-mail		URL Web https://www.ibis-sevilla.es/en/research/neurosciences/neuronal-aging/members/3540/ and https://bibliometria.us.es/prisma/investigador/6638	
Open Researcher and Contributor ID (ORCID) (*)	0000-0002-3165-9997		

(*) Mandator

A.1. Current position

Position	Scientific Researcher at the Spanish National Research Council (CSIC)		
Initial date	09/01/2024		
Institution	Institute of Biomedicine of Seville (IBiS)		
Department/Center	Neuroscience Area in IBiS		
Country	Spain	Telephone number	
Key words	Microglía, caspase, neuroinflammation, neurodegeneration, Parkinson's disease, Alzheimer's disease, Epigenetics, TET2, ischemia, galectin-3, glioma, TLRs		

A.2. Previous positions (research activity interruptions, art. 14.2.b))

Period	Position/Institution/Country/Interruption cause
2019-2024	Ramón y Cajal Fellow/University of Seville/Spain
2021-2022	Paternity leave (4 months)
2018 - 2018	Research Associate/ Department of Biochemistry/ University of Cambridge / UK
2017	Paternity leave (2 weeks)
2016 - 2018	Research Associate/ Cambridge Institute of Medical Research (C.I.M.R) / University of Cambridge/ UK
2016 - 2016	Post doc/ Queen Mary University of London/UK
2014 - 2016	Senior Research Fellow / Queen Mary University of London / UK
2011 - 2013	Postdoc / Karolinska Institute / Sweden
2009 - 2011	Postdoc / Lund University / Sweden

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD in Biochemistry	University of Seville / Spain	2009
Licenciante in Biology	University of Seville / Spain	2003

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



Currently I am working as a tenured scientist (Científico Titular) at *Consejo Superior de Investigaciones Científicas (CSIC)* in the Institute of Biomedicina of Seville (IBiS) I have also been recently awarded with the **i3 certificate (13/2021/0941 with a score of 10/10 points)** for Excellence in Research issued by the Secretaría General de Universidades (Ministerio de Universidades). Previous to this position that I am currently holding I was a Ramon y Cajal Fellow with double affiliation with the Institute of Biomedicine of Seville (IBiS) and the University of Seville from January 2019 until January 2024. During this period, I have been granted the title **“Investigador Emergente”** (from the Institute of Biomedicine of Seville (IBiS), which is the step prior to being considered an **“Investigador Responsable”** within the Institute.

My research focuses on various aspects of microglia activation in neurodegenerative diseases and comprises three lines of investigation: control of microglial activation through “executioner” caspases, role of galectin-3 in microglia activation and epigenetic control of microglia activation. One of our main achievements has been to be one of the first groups to describe a non-apoptotic role for caspase-3/7 and -8 in the regulation of microglia activation, which we published in a full article in the journal **Nature** (Burguillos MA et al., 2011 PMID: 21389984) and commented afterwards in Nature Review Neuroscience, Science Signaling, Nature Review Immunology and Science-Business eXchange. This study opened a new line of research in the field of non-apoptotic roles for caspase-3, which other research groups have followed. Subsequently, we started a new line of research exploring the role of galectin-3 in microglia activation during PD, ischemic and traumatic conditions. Additionally, we started a separate line of investigation into how epigenetic modifiers, such as the DNA demethylase TET2, positively regulate the proinflammatory response of microglia independently of its oxidase activity.

In the ten years since my PhD defence, I have benefited from postdoctoral positions in several labs abroad. In Dr. Tomas Deierborg’s group in Lund University, Sweden, I investigated the function of galectin-3 in neuroinflammation under ischemic conditions. In Dr. Bertrand Joseph’s group at Karolinska Institute, Stockholm, Sweden, I obtained a highly competitive fellowship from the Vetenskapsrådet (Swedish Research Council) to study microglial caspase-3 in glioma expansion. In 2014, I continued my research on galectin-3 in neuroinflammation after head trauma at the Blizzard Institute, Queen Mary University of London in Dr. Adina Michael-Titus’s group. It was there that I developed an interest in the epigenetic mechanisms that govern microglial activation under pathological conditions. At the University of Cambridge, UK, I investigated TREM2-dependant mechanisms in AD in the group of Dr. Peter StGeorge-Hyslop at the Cambridge Institute of Medical Research (C.I.M.R.). Finally, in the group of Dr. Guy Brown at the Department of Biochemistry, University of Cambridge, I developed a new technique to transfect the normally difficult to transfect primary microglia cell cultures with siRNA.

I have participated in 11 funded projects as main applicant, and I have been invited as an external reviewer on several occasions for grant proposals in the UK for Medical Research Council (MRC) and the Biotechnology and Biological Sciences Research Council (BBSRC) and in Spain for the Ministerio de Ciencia y Tecnología. Since my return to Spain, I have been invited as external reviewer 12 times for the Agencia Estatal de Investigación since 2020. I have also reviewed articles in multiple journals including Cell Death and Disease, Cell Reports, Alzheimer’s Research & Therapy, among others.

I have published 34 papers in international journals (mostly Q1 journals), with an h-index of 24 and 2534 citations (Google Scholar). I am the first author on 7 papers, second author on 9 papers and on 10 papers I appear as last and corresponding author.

I have taught at several levels of graduate and postgraduate courses in Sweden, UK and Spain, directed 5 PhD theses (including one current PhD candidate) and several TFG and TFM in UK and Spain. Currently, all the PhD graduates are working in positions related to their profession (as it is described in more detail in the *Memoria científica*).

I have organised the annual Cancer Centrum Karolinska congress (CCK Kick-OFF) in Winterviken (2012), Stockholm (Sweden) with 180 participants.

Part C. RELEVANT MERITS (sorted by typology)

C.1. Publications *(in chronological order)*

1.Review article: (8/9). García-Revilla J, Boza-Serrano A, Espinosa-Oliva A, Sarmiento M, Deierborg T, Ruiz R, Martinez R, **Burguillos MA** and Venero JL. Galectin-3, a rising Star in modulating microglia activation under conditions of neurodegeneration. **Cell Death Dis**. 2022 Jul 20;13(7):628. doi: 10.1038/s41419-022-05058-3. WOS (2)

2.Review article: **Corresponding author** (6/6). Bahatyrevich-Kharitonik B, Medina-Guzman R, Flores-Cortes A, García-Cruzado M, Kavanagh E and **Burguillos MA**. Cell Death Related Proteins Beyond Apoptosis in the CNS. **Frontiers in Cell and Developmental Biology** 2022 10.3389/fcell.2021.825747 WOS (2). **First author is my current PhD student.**

3.Review article: **Corresponding author** (10/10). Rodríguez-Gómez JA, Kavanagh E, Engskog-Vlachos P, Engskog MKR, Herrera AJ, Espinosa-Oliva AM, Joseph B, Hajji N, Venero JL, **Burguillos MA**. **Cells**. 2020 Jul 17;9(7):1717 doi: 10.3390/cells9071717 WOS (97).

4.Research article: **Corresponding author** (25/25). Carrillo-Jimenez A, Deniz Ö, Niklison-Chirou MV, Ruiz R, Bezerra-Salomão K, Stratoulis V, Amouroux R, Yip PK, Vilalta A, Cheray M, Scott-Egerton AM, Rivas E, Tayara K, García-Domínguez I, Garcia-Revilla J, Fernandez-Martin JC, Espinosa-Oliva AM, Shen X, St George-Hyslop P, Brown GC, Hajkova P, Joseph B, Venero JL, Branco MR, **Burguillos MA**. TET2 Regulates the Neuroinflammatory Response in Microglia. **Cell Rep**. 2019 Oct 15;29(3):697-713.e8. doi: 10.1016/j.celrep.2019.09.013. WOS (45) **First author was my PhD student.**

5.Research article: **Corresponding author** (7/7). Carrillo-Jimenez A, Puigdemívol M, Vilalta A, Venero JL, Brown GC, StGeorge-Hyslop P, **Burguillos MA**. Effective Knockdown of Gene Expression in Primary Microglia With siRNA and Magnetic Nanoparticles Without Cell Death or Inflammation. **Front Cell Neurosci**. 2018 Sep 21;12:313. doi: 10.3389/fncel.2018.00313. eCollection 2018. WOS (10) **First author was my PhD student.**

6.Review article: **Corresponding author** (4/4). Shen X, Venero JL, Joseph B, **Burguillos MA**. Caspases orchestrate microglia instrumental functions. **Prog Neurobiol**. 2018 Dec;171:50-71. doi: 10.1016/j.pneurobio.2018.09.007. Epub 2018 Oct 2 WOS (23). **First author was my PhD student.**

7.Research article: **Corresponding author** (17/17). Carrillo-Jimenez A*, Yip PK*, King P, Vilalta A, Nomura K, Chau CC, Egerton AM, Liu ZH, Shetty AJ, Tremoleda JL, Davies M, Deierborg T, Priestley JV, Brown GC, Michael-Titus AT, Venero JL, **Burguillos MA**. Galectin-3 released in response to traumatic brain injury acts as an alarmin orchestrating brain immune response and promoting neurodegeneration. **Sci Rep**. 2017 Jan 27;7:41689. doi: 10.1038/srep41689. WOS (89) **First author was my PhD student.**

8.Research article: ***shared first authorship** (1/20). **Burguillos MA***, Shen X*, Osman AM, Friehoff J, Carrillo-Jiménez A, Kanatani S, Augsten M, Saidi D, Rodhe J, Kavanagh E, Rongvaux A, Rrakli V, Nyman U, Holmberg J, Östman A, Flavell RA, Barragan A, Venero JL, Blomgren K, Joseph B. Glioma-induced inhibition of caspase-3 in microglia promotes a tumor-supportive phenotype. **Nat Immunol**. 2016 Nov;17(11):1282-1290. doi: 10.1038/ni.3545. Epub 2016 Sep 12. WOS (62) **I shared first authorship with my PhD student.**

9.Research article: ***corresponding author** (1/20). **Burguillos MA***, Svensson M, Schulte T, Boza-Serrano A, Garcia-Quintanilla A, Kavanagh E, Santiago M, Viceconte N, Oliva-Martin MJ, Osman AM, Salomonsson E, Amar L, Persson A, Blomgren K, Achour A, Englund E, Leffler H, Venero JL, Joseph B, Deierborg T. Microglia-Secreted Galectin-3 Acts as a Toll-like Receptor 4 Ligand and Contributes to Microglial Activation. **Cell Rep**. 2015 Mar 10;10(9):1626-1638. doi: 10.1016/j.celrep.2015.02.012. Epub 2015 Mar 5. WOS (186)

10.Research article: (1/11) **Burguillos MA**, Deierborg T, Kavanagh E, Persson A, Hajji N, Garcia-Quintanilla A, Cano J, Brundin P, Englund E, Venero JL, Joseph B. Caspase

signalling controls microglia activation and neurotoxicity **Nature**. 2011 Apr 21;472(7343):319-24. doi: 10.1038/nature09788. Epub 2011 Mar 9. WOS (413)

C.2. Congress (as Invited speaker)

-2nd Cell Death Network at Nynäshavsbab, 2010, Stockholm, Sweden.

-Non-Lethal Roles of Cell Death Proteins, 5th - 8th September 2022, Galway, Ireland.

C.3. Research projects

1. Project. Sex and microglia in Parkinson's disease (FE_MALEmicrogliaPD). Ministerio de Ciencia e Innovación (CSIC) (Spain) 1/09/2023-31/08/2026 218.750 €. **Principal investigator**

2. Project. TET2 in Parkinson's disease (TET2PD). Ministerio de Ciencia e Innovación (CSIC) (Spain) 1/09/2023-31/08/2025. 196.865 €. **Principal investigator**

3. Project. Beca Contrato perteneciente al subprograma Ramon y Cajal (RYC) (Spain) 09/01/2019-09/01/2024. 161.320 €. **Principal investigator**

4. Project. Contribución de las caspasas 3 y 7 en la etiología de la enfermedad de Alzheimer. Ministerio de Ciencia e Innovación (Universidad de Sevilla). 01/06/2020-31/05/2023. 142.780 €. **Principal investigator**.

5. Project. Study of the caspase-3 dependent mechanisms governing microglial activation in Parkinson's disease. (Universidad de Sevilla). 01/01/2020-31/01/2022. 30.000 €. **Principal investigator**

6. Project. Generation of a new method for gene silencing in primary microglia cellcultures. Alzheimer Research UK (ARUK) Cambridge Network Pump Priming Grant.01/06/2017-31/12/2017. 5.483 €. **Principal investigator**.

7. Project. Epigenetic control of the neuroinflammatory response in microglia. Wellcome Trust Institutional Strategic Support Fund (ISSF) Early Career Stage Researchers(ECR) Bridging Fund. Miguel Angel Burguillos Garcia. (Queen Mary University of London). 01/09/2015-31/01/2016. 25.108 €. **Principal investigator**

8. Project. Differential Toll like receptor (TLR)-4 response in microglial cells stimulated with Galectin-3 as compared with HMGB1 or LPS. Molecular and Cellular Medicine Research Stimulus. (Blizard Institute. Queen Mary University of London). 01/04/2014-31/12/2014. 5.093 €. **Principal investigator**

9. Project. Caspase signaling controls microglia activation and glioma invasion. (Karolinska Institute). 01/01/2013-31/12/2013. 4.393 €. **Principal investigator**

10. Project. Caspases in neuroinflammation. Kungliga Fysiografiska Sällskapet i Lund. (Lund University). 01/01/2010-31/12/2010. 7.921 €. **Principal investigator**

11. Project. Role of Caspases in Neuroinflammation-Regulation of microglial activation by galectin 3. Lars Hiertas mine. (Lund University). 01/01/2010-31/12/2010. 5.280 €. **Principal investigator**

C.4. Contracts, technological or transfer merits

1. Project. Investigation of the effects of target gene modulation on neuroinflammation and neurodegeneration. **Principal investigator** (ref. 4048/1081; Cerevance Limited). 01/02/2021-31/03/2023. 187.720,55€