



## CURRICULUM VITAE (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	1-3-2023
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First name	Eva		
Family name	Alés González de la Higuera		
Gender (*)	Female	Birth date (dd/mm/yyyy)	
Social Security, Passport, ID number			
e-mail	eaales@us.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)			

(\*) Mandatory

#### A.1. Current position

Position	Profesor Titular (Associate professor)		
Initial date	6/11/2010		
Institution	University of Seville		
Department/Center	Medical Physiology and Biophysics	Faculty of Medicine	
Country	Spain	Teleph. number	954 55 98 68
Key words	Mast cell, microglia, exocytosis, endocytosis, calcium, neuroinflammation, neuron, histamine.		

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

Period	Position/Institution/Country/Interruption cause
2008-2010	“Contratado Doctor” Teacher/ University of Seville/Spain
2004-2007	“Ramón y Cajal”/ University of Seville/Spain
1999-2003	Postdoctoral/ Universidad Autónoma de Madrid/ Madrid/ Spain
1995-1998	Predocctoral Fellow (FPI)/ University of Seville/Spain
1993-1994	Contract in vitro fertilization clinic/Seville

#### A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Degree in Biology	University of Seville	1991
PhD in Biology	University of Seville	1998

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

After obtaining her degree in Biology, Dr. Eva Alés worked for a short time in a private clinic of *in vitro* fertilization and was trained in oocytes microinjection techniques in Erlangen (Germany). However, she soon became an investigator as it was always her vocation. From the beginning of her scientific career, her interest was to study the neurotransmitter release mechanisms and the functioning of the exo-endocytotic machinery. In her doctoral thesis under the supervision of Dr. Guillermo Alvarez de Toledo, she developed and applied the patch amperometry technique to the study of exocytosis, which allowed her to demonstrate the



hypothesis of neurotransmitter release by the “kiss-and-run” mechanism in chromaffin cells, a finding that was published in the prestigious journal *Nature Cell Biology* in 1999.

During her postdoctoral period at the Teófilo Hernando Institute of Pharmacology (UAM) with Dr. Manuela García, Dr. Eva Alés focus her research on the modulation of neurotransmission by calcium and potassium channels, and nicotinic receptor modulators. During this period, she made fruitful international stays at the Milano-Bicocca University (Milan) with Dr. Enzo Wanke and the University of Valparaiso (Chile) with Dr. Ana Cárdenas. She also gained experience in the preclinical evaluation of drugs, highlighting the results of the study on the mechanism of action of Galantamine, in a project sponsored by Janssen pharmaceutical laboratories (*Galantamine prevents apoptosis induced by beta-amyloid and thapsigargin: involvement of nicotinic acetylcholine receptors, Neuropharmacology, 2004*).

Subsequently, she obtained a Ramón y Cajal contract and rejoined the University of Seville, where she established an independent research group aiming to the study of exocytosis and endocytosis in mast cells, cells of the immune system which play an important role in many inflammatory settings including neuroinflammation. The most relevant articles during this period are: 1) *Myosin II contributes to fusion pore expansion during exocytosis (Journal of Biological Chemistry, 2008)* and 2) *Mechanisms of granule membrane recapture following exocytosis in intact mast cells (Journal of Biological Chemistry, 2013)*. She also participated as first coauthor in a highly relevant work published in collaboration with the 2013 Nobel Prize in Medicine, Dr. Thomas Südhof (*Push-and-pull regulation of the fusion pore by synaptotagmin-7, PNAS, 2010*).

Currently, she has focused her research to the communication mast cell establishes with neurons and microglia to understand the role of mast cells in neurodegenerative diseases. Recently, she reported hippocampal neurons and mast cells can talk in a bidirectional manner, emphasizing the potential role of brain mast cells mediators in physiological and pathological processes of the CNS (*Proteoglycans involved in bidirectional communication between mast cells and hippocampal neurons, Journal of Neuroinflammation, 2019*). Recently, her group also revealed mast cells can activate microglia via histamine and ATP (*Mast cell changes the phenotype of microglia via histamine and ATP, Cell Physiol Biochem. 2021*) and the role of ketotifen as potential therapeutical tool in neurodegeneration (Life Sciences, in press).

The medium/long-term objectives of the lines of research are: 1) to determine which exo-endocytotic mechanisms are activated in mast cell in the face of a particular stimulus or cellular environment, 2) Mast cell involvement in microglial activation and synaptic function and 3) the potential therapy that derives from the control of the mast cell secretory response in aberrant inflammatory states, mainly in neuroinflammatory processes.

Since Dr. Eva Alés established her laboratory, she has received funding as IP with four projects of the national plan and participated in more than 10 regional, national, and international projects. She has been the organizer of an international workshop and has participated in the organization of two National Congresses. She is a member of the SECF and SOBLA societies, and GETTECU. She has many contributions in national and international meetings and congresses. In parallel to her scientific career, Dr. Eva Alés has carried out an intense academic activity teaching students of health sciences (medicine, physiotherapy, nursing, podiatry) and graduate students (final projects and master's degree). She supervised three doctoral theses and received the award from the Royal Academy of Medicine of Seville for the best publication in basic research in 2010. She has participated as a professor in postgraduate programs and courses at the Neuroscience Center of the University of Valparaiso, the University of La Laguna, the University of Seville, and the Autonomous University of Madrid.

## **Part C. RELEVANT MERITS**

### **C.1. Publications (CA, corresponding author)**

**AUTHORS:** Ramírez-Ponce, María Pilar; Flores, Juan Antonio; Barrella, Lorenzo, **Alés, Eva**

**TÍTULO:** Ketotifen is a microglia stabilizer by inhibiting secretory vesicle acidification

**JOURNAL:** Life Sciences

**VOLUME/PAGES/YEAR:** en prensa (2023)



AUTHORS: Ramírez-Ponce, María Pilar; Sola-García, Alejandro; Balseiro-Gómez, Santiago; Maldonado, María Dolores; Acosta, Jorge; **Alés, Eva\*** (CA); Flores, Juan Antonio.  
TÍTULO: Mast Cell Changes the Phenotype of Microglia via Histamine and ATP  
JOURNAL: Cellular Physiology and Biochemistry  
VOLUME/PAGES/YEAR: 55(1):17-32, 2021.

AUTHORS: Martín-Sánchez, Carolina; **Alés, Eva**; Balseiro-Gómez, Santiago; Montiel, Carmen (position 2/9)  
TÍTULO: The human-specific duplicated  $\alpha 7$  gene inhibits the ancestral  $\alpha 7$ , negatively regulating nicotinic acetylcholine receptor-mediated transmitter release  
JOURNAL: Journal of Biological Chemistry  
VOLUME/PAGES/YEAR: 296:100341, 2021.

AUTHORS: Negrete, María; Romero-Ben, Elena; Gutiérrez-Valencia, Alicia; Muntané, Jordi (position 5/13)  
TÍTULO: PDA-based glyconanomicelles for hepatocellular carcinoma cells active targeting via mannose and asialoglycoprotein receptors  
JOURNAL: ACS Applied Bio Materials  
VOLUME/PAGES/YEAR: 4(6): 4789 - 4799, 2021.

AUTHORS: Flores, Juan Antonio; Ramírez-Ponce, María Pilar; Montes, María Ángeles; Balseiro-Gómez, Santiago; Acosta, Jorge; Álvarez De Toledo, Guillermo; **Alés, Eva** (CA).  
TÍTULO: Proteoglycans involved in bidirectional communication between mast cells and hippocampal neurons  
JOURNAL: Journal of Neuroinflammation  
VOLUME/PAGES/YEAR: 16(1): 107, 2019

AUTHORS: Flores, Juan A.; Balseiro-Gómez, Santiago; **Alés, Eva** (CA)  
TÍTULO: Emerging Roles of Granule Recycling in Mast Cell Plasticity and Homeostasis  
JOURNAL: Critical Reviews in Immunology  
VOLUME/PAGES/YEAR: 36(6): 461-484, 2017

AUTHORS: Balseiro-Gomez, Santiago; Ramirez-Ponce, M. Pilar; Acosta, Jorge; **Ales, Eva\*** ; Flores, Juan A\*. (\*Corresponding authors)  
TÍTULO: Intestinal and peritoneal mast cells differ in kinetics of quantal release.  
JOURNAL: Biochemical and Biophysical Research Communications  
VOLUME/PAGES/YEAR: 469(3):559-564, 2016

AUTHORS: Balseiro-Gomez, Santiago; Flores, Juan A.; Acosta, Jorge; Ramirez-Ponce, M. Pilar; **Ales, Eva** (CA)  
TÍTULO: Transient fusion ensures granule replenishment to enable repeated release after IgE-mediated mast cell degranulation  
JOURNAL: Journal of Cell Science  
VOLUME/PAGES/YEAR: 129(21):3989-4000, 2016

AUTHORS: Balseiro-Gomez, Santiago; Flores, Juan A.; Acosta, Jorge; Ramirez-Ponce, M. Pilar; **Ales, Eva** (CA)  
TÍTULO: Identification of a New Exo-Endocytic Mechanism Triggered by Corticotropin-Releasing Hormone in Mast Cells  
JOURNAL: Journal of Immunology  
VOLUME/PAGES/YEAR: 195(5):2046-2056, 2015

AUTHORS: Flores, Juan A.; Balseiro-Gomez, Santiago; Cabeza, Jose M.; Acosta, Jorge; Ramirez-Ponce, Pilar; **Ales, Eva** (CA)  
TÍTULO: A New Role for Myosin II in Vesicle Fission  
JOURNAL: Plos One  
VOLUME/PAGES/YEAR: 9(6):e100757-e100757, 2014



AUTHORS: Cabeza, Jose M.; Acosta, Jorge; **Alés, Eva** (CA)  
TÍTULO: Mechanisms of Granule Membrane Recapture following Exocytosis in Intact Mast Cells  
JOURNAL: Journal of Biological Chemistry  
VOLUME/PAGES/YEAR: 288(28):20293-20305, 2013

### C.2. Congress

TÍTULO: "Role of Mast Cells in Alzheimer's disease"  
AUTHORS: Vázquez-Román V., Montes de Oca-Pineda L., Martín-Lacave I., Fernández-Santos J.M., Ramírez-Ponce M.P., Flores-Cordero J.A. and **Alés E.**  
TYPE: Póster; DATE: Granada, 6-9 septiembre 2022  
CONGRESS: XXI Congreso de la sociedad española de histología e ingeniería tisular, IX International congress of histology and tissue engineering y VIII Congreso iberoamericano de histología.

TÍTULO: "Exo-endocytocys in response to stress hormonal stimulation in peritoneal mast cells"  
AUTHORS: Flores, JA; Balseiro-Gomez, AJ; Ramirez-Ponce, MP; **Ales, E**  
TYPE: Poster  
PUBLICATION: Acta physiologica, Vol.212, pg. 66, 2014  
CONGRESS: 37<sup>th</sup> Congress of the Spanish Society of Physiological Sciences.

TÍTULO: "Loss of myosin ii function reduces the efficiency of membrane scission by making vesicle closure incomplete"  
AUTHORS: Balseiro-Gomez, S; Flores; Cabeza, JM; Acosta, J; Ramirez-Ponce, MP; **Ales, E**  
TYPE: Oral  
PUBLICATION: Acta physiologica, Vol.12, pg. 33, 2014  
CONGRESS: 37<sup>th</sup> Congress of the Spanish Society of Physiological Sciences.

### C.3. Research projects

REFERENCE: BFU2017-85832-R  
TÍTULO: "Papel del mastocito en la activación microglial y función sináptica neuronal. Potencial efecto terapéutico de la estabilización del MC en la enfermedad de Alzheimer"  
FUNDING ENTITY: Ministerio de Economía, Industria y Competitividad  
DURATION: from January 2018 to September 2021  
PRINCIPAL INVESTIGATOR: **Eva Alés**  
AMOUNT OF THE GRANT: 96.800 -€

REFERENCE: PI011257  
TÍTULO: "Regulación molecular del poro de fusión: implicaciones en la liberación de mediadores de la inflamación"  
FUNDING ENTITY: Instituto de Salud Carlos III. Ministerio de Ciencia e Innovación  
DURATION: from January 2012 to July 2015  
PRINCIPAL INVESTIGATOR: **Eva Alés**  
AMOUNT OF THE GRANT: 75.141 -€

REFERENCE: PI081246  
TÍTULO: "Regulación de la liberación de neurotransmisores: implicación de canales de calcio y neurotrofinas"  
FUNDING ENTITY: Ministerio de Ciencia e Innovación  
DURATION: from January 2009 hasta December 2011  
PRINCIPAL INVESTIGATOR: **Eva Alés**  
AMOUNT OF THE GRANT: 84.579-€