MINISTERIO DE CIENCIA E INNOVACIÓN

Cofinanciado por la Unión Europea

AGENCIA ESTATAL DE INVESTIGACIÓN

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	26/04/2022

First name	EVA M.		
Family name	CANDAL SUÁREZ		
Gender (*)	F	Birth date	19/06/1974
Social Security, Passport, ID number	[redacted]		
e-mail	eva.candal@usc.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)		0000-0001-6136-7605 https://orcid.org/0000-0001-6136-7605	

(*) Mandatory

A.1. Current position

Position	Profesora Titular de Universidad 3 six-year research periods (sexenios, last granted 2012/2017)		
Initial date	29/11/2017		
Institution	Universidad de Santiago de Compostela (USC)		
Department/Center	Biología Funcional	CIBUS Centro de Investigación en Biología de la USC	
Country	Spain	Telephone number	0034-881816947
Key words	nervous system, neurogenesis, retina, brain, cell cycle, neural progenitor cells, development, evolution, elasmobranch, teleost, immunohistochemistry, *in situ* hybridization, gain-of-function analysis, loss-of-function analysis, snRNA-Seq, bioinformatics		

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

Period	Position/Institution/Country/Interruption cause
1998- 2001	FPU Fellow, Universidad de Santiago de Compostela, Spain
2002-2004 27 months	Postdoctoral Researcher, Institute de Neurobiologie A. Fessard. JE INRA UPR CNRS 2197, DEPSN, FRANCE.
2005-2010	Postdoctoral Fellow (Isidro Parga Pondal Program, Xunta de Galicia 2005), Universidad de Santiago de Compostela, Spain
2010-2017	Assistant Professor (Profesora Contratada Doctora), Universidad de Santiago de Compostela, Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Licenciado en Ciencias Biológicas	Universidad de Santiago de Compostela, Spain	1997
Doctor en Ciencias Biológicas Doctorado Europeo	Universidad de Santiago de Compostela, Spain	2002

Part B. CV SUMMARY

Scientific contributions related to the project. Researcher on Developmental Neurobiology at the Center for Research in Biology of USC. Most of my research has been focused on fundamental questions in developmental biology, including the following: what regulates the number of cells of the neural tissue? How they differentiate in a variety of neuron and glial cells during the neurogenic process? How they become organized in a functional structure? While studying these questions from an evolutionary approach, one question becomes especially relevant: how is it that, unlike mammals, fish maintain the ability to generate (and regenerate) new neurons during adulthood? What can we learn in fishes about the regenerative capacity of the adult nerve tissue? Can endogenous neural cells be reprogrammed to regain the ability to proliferate and repair the neural tissue following the loss of neurons? And finally, could our studies be clinically relevant in the context of neurodegenerative diseases in humans? Our first, basic, approach to postembryonic neurogenesis in fish (Candal et al., 2005 Dev Brain Res. 154:101-119) resulted in a publication cited over one hundred times, which continues to be referenced in the most recent reviews on adult neurogenesis. After my incorporation to the BRAINSHARK group at the University of Santiago de Compostela (USC) as a Postdoctoral I. Parga Pondal Fellow (2005-2010, Xunta de Galicia), I have pioneered the research using the retina of the elasmobranch fish *Scyliorhinus canicula* as a remarkably convenient model for studying the basic strategies instructing neurogenesis. Since 2015, I have been coordinator of the BRAINSHARK group (now NEURODEVO), focused on the development and regeneration of the nervous system of fish. From 2018, we went on to analyse the transcriptional dynamics of retinal neurogenic niches at the single cell resolution and on to functional investigations. Besides other contributions, **in the last 10 years** (2011-2021), I have co-authored 28 articles (senior author in 15 of them) in journals indexed in the JCR, 27 of them in the first quartile (Q1) of their category. Research in the last 10 years was carried out in the framework of 6 national and autonomic projects funded by Spanish Ministry of Education and Technology-FEDER and by Xunta de Galicia, of which I was principal investigator (PI) or Co-PI in 4. During this period, 60% of the publications I authored were produced in collaboration with PIs in France, Germany and UK. International collaboration provides us with: (1) access to genomic/transcriptomic data of *S. canicula* (collaboration with Dr S. Mazan, Sorbonne Université-CNRS-UPMC UMR 7232, Banyuls, France); (2) access to advanced single-cell sequencing technologies (with Dr. H. Kaessmann, Center for Molecular Biology of Heidelberg University DKFZ-ZMBH Alliance, Heidelberg, Germany); (3) access to single nucleus RNA sequencing bioinformatic analyses and spatial transcriptomics (with Dr. D. Robledo, The Roslin Institute and Royal (Dick) School of Veterinary Studies, University of Edinburgh, UK). In 2021, the NEURODEVO Group I coordinate has been recognized as a benchmark group (Grupo de Referencia Competitiva) by the Xunta de Galicia. We transfer our expertise in neurogenesis, morphogenesis and regionalization of the retina and brain of *S. canicula*, a model species that has become a reference in studies of Developmental and Evolution (Evo-Devo) of the Central Nervous System.

Contribution to society. I have been member of the Organizing Committee of seminars aimed to show the general public how biology and mathematics are present in our life, including the following activities funded by the *Convocatoria de Ayudas para el Fomento de la Divulgación Científica* from the Fundación Española para la Ciencia y la Tecnología (FECYT): (1) FECYT 2016 (FCT-16-11015, 01/2017-03/1018); (2) FECYT 2019 (FCT-19-14383, 07/2020-09/2021). With F. Adrio, I have been awarded at the *XIII Concurso de Ideas Empresariales Innovadoras de la Universidad de Santiago de Compostela*, with the project “miSlideLab” (11/11/2013).

Training of researchers. In the last 10 years, I have been supervisor or co-supervisor of 6 Doctoral Thesis, all with European/ International Distinction. I am currently co-supervisor of 1 project of Doctoral Thesis. I have supervised more than 30 Final Degree and Final Master Projects (TFG/TFM).

Other relevant contributions. Evaluator of projects for the Agencia Estatal de Investigacion. Currently, Topic Editor at *Frontiers in Cell and Developental Biology* with the topic “Regional and Time-specific Strategies of Neurogenesis and Neuronal Differentiation Across Evolution”. Referee of manuscripts in JCR journals including Journal of Experimental Zoology_Molecular and Developmental Evolution, Journal of Anatomy, Brain Structure and Function and Frontiers in Neuroanatomy.

Part C. RELEVANT MERITS

C.1. Publications. CA: corresponding author, x/y: position of applicant/total nº of authors. Selected publications are related to the topic of the project.

Hernández-Núñez I, Quelle-Regaldie A, Sánchez L, Adrio F, **Candal E (CA, 5/6)**, Barreiro-Iglesias A (CA). 2021. Decline in Constitutive Proliferative Activity in the Zebrafish Retina with Ageing. Int J Mol Sci. 22(21):11715.

Hernández-Núñez I, Robledo D, Mayeur H, Mazan S, Sánchez L, Adrio F, Barreiro-Iglesias A, **Candal E (CA, 8/8)**. 2021.Loss of Active Neurogenesis in the Adult Shark Retina. Front Cell Dev Biol. 9:628721.

Docampo-Seara A, Pereira-Guldrís S, Sánchez-Farías N, Mazan S, Rodríguez MA, **Candal E (CA, 6/6)**. 2020. Characterization of neurogenic niches in the telencephalon of juvenile and adult sharks. Brain Struct Funct. 225(2):817-839.

Docampo-Seara A, Santos-Durán GN, **Candal E (CA, 3/4)**, Rodríguez Díaz MÁ (CA). Expression of radial glial markers (GFAP, BLBP and GS) during telencephalic development in the catshark (Scyliorhinus canicula). Brain Struct Funct. 224(1):33-56.

Docampo-Seara A, Lagadec R, Mazan S, Rodríguez MA, Quintana-Urzainqui I, **Candal E (CA, 6/6)**. 2018. Study of pallial neurogenesis in shark embryos and the evolutionary origin of the subventricular zone. Brain Struct Funct. 223(8):3593-3612.

Lagadec R, Lanoizelet M, Sánchez-Farías N, et al., **Candal E (9/10)**, Mazan S (CA). 2018. Neurogenetic asymmetries in the catshark developing habenulae: mechanistic and evolutionary implications. Sci Rep. 8(1):4616.

Sánchez-Farías N, **Candal E (CA, 2/2)**. 2016. Identification of Radial Glia Progenitors in the Developing and Adult Retina of Sharks. Front Neuroanat. Jun 20;10:65.

Sánchez-Farías N, **Candal E (CA, 2/2)**. 2015. Doublecortin is widely expressed in the developing and adult retina of sharks. Exp Eye Res. 134: 90-100 (2015).

Ferreiro-Galve S, Rodríguez-Moldes I, **Candal E (CA, 3/3)**. 2012. Pax6 expression during retinogenesis in sharks: comparison with markers of cell proliferation and neuronal differentiation. Journal of experimental zoology part B, Molecular and Developmental Evolution 318: 91-108.

C.2. Congress. All conferences listed below correspond to oral presentations.

Hernández-Núñez I, Adrio F, Barreiro-Iglesias A, **Candal E**. Decline in constitutive proliferative activity in the shark and zebrafish retinas after sexual maturation. XII Meeting of the Red NeuroEvoDevo Pedro Ramón y Cajal (PRamon). 19th National Congress of the Spanish Society of Neuroscience (SENC). Lleida, Spain. 03/11/21

Hernández-Núñez I, Docampo-Seara A, Mazan S, Adrio F, **Candal E**. The retina of Scyliorhinus canicula as a model for characterization of subtypes of progenitor cells. XI Meeting of the Red NeuroEvoDevo Pedro Ramón y Cajal (PRamon). 18 National Congress of the Spanish Society of Neuroscience (SENC). Santiago de Compostela, España. 04/09/2019

Docampo-Seara A, Sánchez-Farías N, Pereira-Guldrís S, Mazan S, Rodríguez MA, Rodríguez-Moldes I, **Candal E.** Adult neurogenesis in the telencephalon of sharks. X Meeting of the Club Pedro Ramón y Cajal of Comparative Neurobiology. Spanish Society of Neuroscience. Alicante, España. 27/09/2017

Sánchez-Farías N, **Candal E**. Doublecortin and neurogénesis in the retina of sharks. IX Reunión Club Pedro Ramón y Cajal de Neurobiología Comparada. XVI Congress of the Spanish Society of Neuroscience. Granada, España. 23/09/2015

Candal E. GRADschools: formación competencial para investigadores. Spanish Young Neuroscientists Symposium. Oviedo, España. 24/09/2013

Candal E. Functional and evolutionary insights into vertebrate brain development from studies in *S. canicula*. Troisème séminaire du réseau EFOR. EFOR Meeting 2012. Paris, France. 10/01/2012

Candal E, Pose-Méndez S, Quintana-Urzainqui I, Sánchez-Farías N, Santos-Durán G, Rodríguez-Moldes I. Contributions of developmental studies in Scyliorhinus canicula to the functional and evolutionary knowledge of the brain of vertebrates. The ASSEMBLE conference "Access to Marine Resources: Generating Knowledge for Science and Society". Olhão, Portugal. 23/10/2012

C.3. Research projects. Principal Investigator **(PI) of 4 research projects** in the last 10 years. Member in 2 additional projects in this period.

- ED431C 2021/18. Grupo de Referencia competitiva NEURODEVO (GI-1853). Funding entity: Xunta de Galicia. Ayudas para la consolidación y estructuración de unidades de investigación competitivas y otras acciones de fomento en las universidades del Sistema universitario de Galicia, modalidad A: Grupos de referencia competitiva. PI (coordinator): Eva Candal Suárez (Universidad de Santiago de Compostela, USC). Period: 2021-2024. Funding: 200.000 €. Role: **PI (Coordinator).**

- BFU2017-89861-P. Descodificacion de las bases moleculares de la neurogenesis en el adulto mediante el analisis de la dinamica transcripcional de nichos neurogenicos de larga duracion. Funding entity: MICINN 2017. PI: Eva Candal Suárez e Isabel Rodríguez-Moldes Rey (USC). Period: 2018-2020. Funding: 133.100 €. Role: **Co-PI**.

- ED341D R2016/032. Red de investigación INBIOEST (Nuevas herramientas estadísticas y computacionales aplicadas a la investigación en Salud, Deporte y Medio Ambiente). Funding entity: Axencia Galega de Innovación, Xunta de Galicia. Ayudas para la consolidación y estructuración de unidades de investigación competitivas y otras acciones de fomento en las universidades del Sistema Universitario de Galicia, modalidad C: Redes de Investigación. PI: Carmen Cadarso Suárez (USC). Period: 2017-2018. Funding: 120.000 €. Role: member and coordinator of the BRAINSHARK Group.

- BFU2014-58631-P. Estudio de la neurogenesis en cerebro embrionario y adulto desde una perspectiva evolutiva. Funding entity: MICINN 2014. PI: Eva Candal Suárez e Isabel Rodríguez-Moldes Rey (USC). Period: 2015-2017. Funding:145.000 €. Role: **Co-PI**.

- CN 2012/237. Grupo de Potencial Crecimiento BRAINSHARK (GI-1853). Funding Entity: Xunta de Galicia. Ayudas para la consolidación y estructuración de unidades de investigación competitivas del Sistema Universitario de Galicia, modalidad B: Grupos de Potencial crecimiento. PI: Isabel Rodríguez-Moldes Rey (USC). Period: 2012-2014. Funding: 14.000 €. Role: member. - BFU2010-15816. Buscando la condición ancestral de la organización cerebral de gnatóstomos. Funding entity: MICINN 2010. PI: Isabel Rodríguez-Moldes Rey (USC). Period: 2011-2013. Funding: 181.500 €. Role: member.

- 10PXIB200051PR. Control de la expresión génica in ovo durante el desarrollo del sistema nervioso de peces. Identificación de mecanismos conservados evolutivamente. Funding entity: Xunta de Galicia. PI: Eva Candal Suárez (USC). Period: 2010-2013. Funding: 91.560 €. Role: **PI**