

CURRICULUM VITAE: Isabel Fariñas

CV date

3/10/2025

Part A. PERSONAL INFORMATION

First and Family name	Isabel Fariñas		
Researcher numbers	Researcher ID		
	ORCID code		

A.1. Current position

Institution	Universidad de Valencia (UV)		
Department	Instituto Universitario de <i>Biotecnología y Biomedicina</i> (BIOTECMED)		
Address and country	c/ Doctor Moliner 50, 46100 Burjassot, Spain		
Phone number		E-mail	
Current position	Full Professor	Since	23/04/2008
Espec. cód. UNESCO	2407		
Keywords	Adult neural stem cells, quiescence, niche biology, cell cycle, neurogenesis		

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

Period	Position/Institution/Country/Interruption cause
2000-2008 (8y)	Associate Professor, Universidad de Valencia
1998-2000 (2y)	Assistant Professor, Universidad de Valencia
1997-1998 (1y)	Postgraduate Researcher, University of California San Francisco
1995-1997 (2y)	HFSP Postdoctoral Fellow, University of California San Francisco
1993-1995 (2y)	Fulbright Postdoctoral Fellow, University of California San Francisco
1989-1993 (4y)	Assistant Professor, Universidad de Barcelona
1985-1989 (4y)	FPU (MEC) Predoctoral Fellow, Instituto Cajal-CSIC, Madrid

A.3. Education

Degree	University	Year
Bsc in <i>Biology</i>	Universidad Autónoma de Barcelona (UAB)	1985
PhD in <i>Biology</i>	Universidad Autónoma de Barcelona (UAB)	1989

Part B. CV SUMMARY

After a PhD at the Institute Cajal (CSIC), under the supervision of Javier De Felipe, and a postdoctoral period as a Fulbright and HFSP fellow and later as a researcher, in the laboratory of Louis Reichardt at the University of California at San Francisco, I joined the Universidad de Valencia (UV) in 1998. There, I am Professor in *Cell Biology* and coordinator of the *Molecular Neurobiology (NeuroMol)* unit at the UV (GIUV2017-370) which comprises a few neurobiology groups including my own. My postdoctoral studies in genetically modified mice contributed to establish the essential functions of the neurotrophic factors with relevant contributions in high impact journals (*Nature* 369:658-661, 1994; *Cell* 76:989-999, 1994; *Neuron* 16:515-527, 1996; *Genes & Development* 10:1382-1394, 1996; *Nature* 382:76-79, 1996; *Neuron* 17:1065-1078, 1996; *Trends in Neuroscience* 20:169-175, 1997; *Neuron* 21:53-67, 1998; *Neuron* 21:325-334, 1998; *Journal of Neuroscience* 21:6170-6181, 2001). My studies in Spain, as an independent researcher, have focused on the niche biology of neural stem cells (NSCs). My group helped establish that blood vessels are a key element of neurogenic niches, that NSC quiescence is an actively regulated state,

the role of non-canonical functions of cell cycle regulatory molecules in the maintenance of NSCs or the role of cell adhesion and inflammation in the regulation of NSC state, among others (see some examples in the *selected publication list* in part C). Overall, I have led more than thirty competitive research projects (including the recently awarded ERC Advanced Grant) and published more than a hundred articles, with contributions in prestigious journals such as *Nature*, *Nature Cell Biology*, *Nature Neuroscience*, *Cell*, *Cell Stem Cell* or *Neuron*, among others. With an h-index of 51 (WOS) and more than 15,000 citations, I am part of the 2% of most cited scientists in the world (<https://doi.org/10.1371/journal.pbio.3000918>). I have been a member of the boards of the *International Society of Differentiation* (2012-2018), and of the *Spanish Society of Neuroscience* (2012-2015), of *Gene and Cell Therapy* (2009-2013), and of *Developmental Biology* (2018-2024). My laboratory belongs to the *Center for Biomedical Research in Network on Neurodegenerative Diseases* (CIBERNED) since 2006 (directive board member and vicedirector since 2018) and is *Prometheus Group of Excellence* of the Valencian Community since 2008. My group was also member of the RETIC of Cell Therapy (2006-2021; directive board member, 2016-2021). In 2014, I was chosen by the Fundación Botín-Banco Santander to be part of its science program to encourage technological transfer. I was appointed member of the *European Molecular Biology Organization* (EMBO) in 2013 and received the “Premio Nacional de Investigación Ramón y Cajal” award in 2024. I have served as president of the *Biosciences and Biotechnology* area of the Spanish Agencia Estatal de Investigación (2018-2023) and participated in numerous evaluation panels for other agencies. I am or have been member of the scientific advisory boards of 18 different research centers in Spain, and form part of the scientific committee of the CSIC since 2024. I am also member of the jury for the “Banco Sabadell Foundation Award for Biomedical Research”. I have been invited to give lectures and been a member of thesis committees in numerous occasions. I regularly participate in dissemination, with lectures at high schools, conferences as part of the *Unisocietat* outreach program of the UV and even in a TEDex talk.

Besides scientific work and science management, teaching and mentoring new researchers is a very important facet of my activity. I have been teaching cell biology and neurosciences for more than 25 years, trying to inspire generations of students who are trained in the field of biosciences at the UV. I was the chair of the committee for the creation and implementation of the degree in *Biochemistry and Biomedical Sciences* (2008-2014) and of the master's degree in *R&D in Biotechnology and Biomedicine* (2016-2018) and was a member of the academic commission of the PhD in *Neurosciences* (2006-2016) at the UV. A good number of young researchers have been trained in my laboratory, having supervised and/or mentored almost 40 researchers, most of whom continue to work in research. In particular, I have supervised 19 theses already completed and currently I am supervising 3 more. In addition, I have supervised/mentored 15 postdoctoral investigators.

Part C. RELEVANT MERITS

Publications: 129 (104 in Pubmed, <https://pubmed.ncbi.nlm.nih.gov/?term=fari%C3%B1as+i&sort=date>).

Number of citations: 15,495 (WOS; <https://www.webofscience.com/wos/alldb/summary/980e0f87-2efd-4c2c-b9a7-f56f806d079d-c8fd858b/relevance/1>), 19,418 (Google Scholar; <https://scholar.google.com/citations?hl=en&user=kS1zEAAAAAJ>).

Average number of citations per article: 113 (10 articles > 500)

Index h: 52 (WOS), 55 (Google Scholar). **I10 Index:** 84.

Publications in the last ten years: 37 (16 as corresponding author).

C.1. Publications. 10 selected publications as senior/corresponding author in the last ten years

1. Marqués-Torrejón MA, Porlan E, Banito A, Gómez-Ibarlucea E, López-Contreras AJ, Fernández-Capetillo O, Vidal A, Gil J, Torres J, **Fariñas I**. Cyclin-dependent kinase inhibitor p21 controls adult neural stem cell expansion by regulating Sox2 gene expression. *Cell Stem Cell* 12:88-100 (2013). [Selected for “Faculty of One Thousand”. Instituto de Neurociencias “Federico Olóriz” award to best publication of the year in Neuroscience]. IF: 16.24.
2. Porlan E, Morante-Redolat JM, Marqués-Torrejón MA, Andreu C, Carneiro C, Gómez E, Soto A, Vidal A, Ferrón SR, **Fariñas I**. Transcriptional repression of Bmp2 by p21(Waf1/Cip1) links quiescence to neural stem cell maintenance. *Nature Neuroscience* 16:1567-1575 (2013). IF: 14.98.
3. Porlan E, Martí-Prado B, Morante-Redolat JM, Consiglio A, Delgado AC, Kypta R, López-Otín C, Kirstein M, **Fariñas I**. MT5-MMP regulates adult neural stem cell functional quiescence through the cleavage of N-cadherin. *Nature Cell Biology* 16:629-638 (2014). [Preview: Long & French-Constant (2014) Neural stem cell quiescence comes to an un-sticky end. *Nature Cell Biology* 16:625-627]. IF: 16.43.
4. Delgado AC, Ferrón SR, Vicente D, Porlan E, Perez-Villalba A, Trujillo CM, D’Ocón P, **Fariñas I**. Endothelial NT-3 delivered by vasculature and cerebrospinal fluid promotes quiescence of subependymal neural stem cells through nitric oxide induction. *Neuron* 83:572-585 (2014). [“Faculty of One Thousand”. Preview: Silva-Vargas & Doetsch (2014) A New Twist for Neurotrophins: Endothelial-Derived NT-3 Mediates Adult Neural Stem Cell Quiescence. *Neuron*, 83: 507-509]. IF: 13.50.
5. Soriano-Cantón R, Perez-Villalba A, Morante-Redolat JM, Marqués-Torrejón MÁ, Pallás M, Pérez-Sánchez F, **Fariñas I**. Regulation of the p19(Arf)/p53 pathway by histone acetylation underlies neural stem cell behavior in senescence-prone SAMP8 mice. *Aging Cell* 4:453-62 (2015). IF: 6.55
6. Perez-Villalba A, Sirerol MS, Belenguer G, Soriano-Cantón R, Muñoz AB, Villadiego J, Alarcón-Aris D, Soria FN, Dehay B, Bezard E, Vila M, Bortolozzi A, Toledo-Aral JJ, Pérez-Sánchez F, **Fariñas I**. Synaptic regulator α -synuclein in dopaminergic fibers is essentially required for the maintenance of subependymal neural stem cells. *Journal of Neuroscience* 38:814-825 (2018). IF: 6.07
7. Belenguer G, Duart-Abadia P, Jordán-Pla A, Domingo-Muelas A, Blasco-Chamarro L, R. Ferrón S, Morante-Redolat JM, **Fariñas I**. Neural stem cells are alerted by systemic inflammation through TNF- α receptor signaling. *Cell Stem Cell* 28(2):285-299.e9 (2021). Preview: Pluchino & Nicaise (2021) NSCs: Sentinel Cells of the Brain. *Cell Stem Cell* 28(2):177-179. Best paper by a young scientist CIBERNED 2022]. IF: 24.63.
8. Domingo-Muelas A, Morante-Redolat JM, Moncho-Amor V, Jordán-Pla A, Pérez-Villalba A, Carrillo-Barberà P, Belenguer G, Porlan E, Kirstein M, Bachs O, Ferrón SR, Lovell-Badge R, **Fariñas I**. The rates of adult neurogenesis and oligodendrogenesis are linked to cell cycle regulation through p27-dependent gene repression of SOX2. *Cellular & Molecular Life Sciences* 80(1):36 (2023). IF: 9.26
9. Domingo-Muelas A, Duart-Abadia P, Morante-Redolat JM, Jordán-Pla A, Belenguer G, Fabra-Beser J, Lucía Paniagua-Herranz L, Pérez-Villalba A, Álvarez-Varela A, Barriga FM, Gil-Sanz C, Ortega F, Batlle E, **Fariñas I**. Post-transcriptional control of a stemness signature by RNA-binding protein MEX3A regulates murine adult neurogenesis. *Nature Communications* 14(1):373 (2023). [Best paper by a young scientist CIBERNED 2024]. IF: 17.69
10. Rojas-Vázquez S, Lozano-Torres B, García-Fernández A, Galiana I, Perez-Villalba A, Martí-Rodrigo P, Palop MJ, Domínguez M, Orzáez M, Sancenón F, Blandez JF, **Fariñas I***, Martínez-

Máñez R*. A renal clearable fluorogenic probe for in vivo β -galactosidase activity detection during aging and senolysis. *Nature Communications* 15(1):775 (2024). **IF: 17.69**

C.2. Research projects and grants (last 10 years, only those as PI)

- ✓ 2023-2028. *Stem cell plasticity in adult neurogenic niches* (NSC-PLAS). **ERC Advanced Grant 101098241**. 2.500.000 €.
- ✓ 2024-2028. *DANIO-ReCODE: DANIO-CODE – the next frontier: Decoding transcription regulation in regeneration by advanced genomics and computational tools*. Marie Skłodowska-Curie Actions – Doctoral Network/ITN (**HORIZON-MSCA-2023-DN-01-01**). 251.971 €
- ✓ 2006-ongoing. *CIBER-Enfermedades Neurodegenerativas* (CIBERNED). ISCIII (**CB06/05/0086**). 1.800.000 €.
- ✓ 2025-2029. *A multidisciplinary approach to exploring DNA damage responses in quiescence: from yeast to mammalian neural stem cells and back* (NEUROYEAST). Conselleria de Educació de la Generalitat Valenciana. Programa Prometeo de Proyectos de Excelencia (**CIPROM/2024/57**). 600.000 €.
- ✓ 2024-2027. Reguladores metabólicos de la quiescencia de células madre neurales en su nicho vascular (Meta-NSC). MICIN (**PID2023-152962NB-I00**). 384.500 € (direct costs). FPI contract.
- ✓ 2021-2025. *Una aproximación multidisciplinar al estudio de la respuesta al daño genómico en células madre neurales: de levadura a mamíferos y vuelta*. Conselleria de Educació de la Generalitat Valenciana. Programa Prometeo de Proyectos de Excelencia (**PROMETEO/2021/028**). 463.939 €.
- ✓ 2021-2024. *Regulación molecular de la heterogeneidad celular en los nichos neurogénicos adultos*. MICINN (**PID2020-117937GB-I00**). 325.000 € (direct costs). FPI contract.
- ✓ 2018-2021. *Regulación del comportamiento de las células madre neurales por el medio sistémico: el nicho extendido*. MINECO (**SAF2017-86690-R**). 349.000 € (direct costs). FPI contract.
- ✓ 2017-2021. *Efectos directos y remotos de la respuesta inflamatoria sobre las células madre neurales*. Generalitat Valenciana (Proyectos de Excelencia, **PROMETEO/2017/030**). 384.997 €.
- ✓ 2017-2020. *RETIC de Terapia Celular*. ISCIII (**RD16/0011/0017**). 284.999 €.
- ✓ 2015-2017. *Regulación molecular de la quiescencia: células madre neurales*. MINECO (**SAF2014-54581-R**). 450.00 € (direct costs). FPI contract.
- ✓ 2014-2018. *Estudio de células madre en el ámbito de las investigaciones básicas en terapia celular*. Fundación Botín-Banco de Santander. 625.000 €.
- ✓ 2013-2017. *Efectos del microambiente vascular en las células madre del cerebro adulto*. Generalitat Valenciana (Proyectos de Excelencia, **PROMETEOII/2013/020**). 400.000 €.
- ✓ 2013-2016. *RETIC de Terapia Celular*. ISCIII (**RD12/0019/0008**). 296.700 €.
- ✓ 2012-2014. *Dinámica celular y auto-renovación en poblaciones de células madre del cerebro adulto*. MICINN (**SAF2011-13332**). 402.000 € (direct costs). FPI contract.

C.3. Patents

(1) “*Polyclonal trkB antisera*” and (2) “*Polyclonal trkC antisera*”. Reichardt et al. (Fariñas). UCSF, 1997. Under exploitation by Chemicon, EEUU. (3) “*Use of the PEDF factor to induce cell regeneration*”. Fariñas et al. ES2 329 636 (2/7/2010). EP2044952 (4/1/2011). Extended to: France (PE-04880), UK (PE-04881), Germany (PE-04882) and Switzerland (PE-04883).

C.4. Theses

Twelve defended theses and three more in progress in the last 10 years. Seven more before 2013.