Date of the CVA	25/03/2023

PERSONAL DATA

Name and Surname	Lucía Tabares Domínguez	
Research's identification number		
	ORCID	

Current professional situation

Institution	University of Seville			
Dpt./Centre	Medical Physiology & Biophysics / School of Medicine			
Address	Avda. Sánchez Pizjuán 4 – 41009 Seville (Spain)			
Phone		email		
Professional category	Full Professor		Start date	03/07/2009
UNESCO spec. code	249000- Neurosciences			
Keywords	Motor neurons, spinal muscular atrophy, synaptic transmission			

Academic education *(Degrees, institutions, dates)*

Bachelor/Master/PhD	University	Year
Degree in Medicine and Surgery	Sevilla	1981
Doctorate in Medicine and Surgery	Sevilla	1986

Qualification and Professional History

Since 2009 Full Professor, University of Seville Dept. of Medical Physiology and Biophysics
2006 Visiting Professor, Univ. Colorado Dept. of Medical Physiology and Biophysics
2001-2002 Visiting Professor, Rinat Neuroscience, Palo Alto (CA)
1989-2009 Associate Professor Univ. of Seville Dept. of Medical Physiology and Biophysics
1989-1990 Research Fellow, Mayo Clinic (MN)
1988-1989 Research Associate, Marine Biological Laboratory (MA)
1987-1988 Research Associate, University of Pennsylvania (PA)
1982-1986 Research Assistant, Univ. Seville Dept. of Medical Physiology and Biophysics

Personal Statement

My training is in Electrophysiology and Imaging, from ion channel recordings to neurotransmission monitorization, to EMG and ERG. During my Ph.D., I discovered that cortical adrenal cells are electrically excitable and characterized the ion conductances by the patch-clamp technique. As a postdoc, I have been working on calcium channels permeation mechanisms with Clay Armstrong at the University of Pennsylvania and the MBL at Woods Hole (USA). During a second postdoc, at the laboratory of David Clapham of the Mayo Clinic (Rochester, MN), I characterized two chloride channels at the cell nucleus membrane. When I came back to Spain, I got a position as Associate Professor and set up my lab where I studied intracellular calcium signaling in neuroendocrine cells. I also collaborated with Prof. Alvarez de Toledo on the characterization of the last steps of exocytosis with simultaneous capacitance and amperometry measurements. I took a sabbatical in 2001 (15 months) in Palo Alto (CA, USA) at Rinat Neuroscience Corp. (a neuroscience biotech company) where I studied ALS mouse models with electrophysiology techniques. In 2002, I returned to my lab in Spain and started my work in Spinal Muscular Atrophy (SMA) and, since then, I have been committed to investigating the neurotransmission defects and the synaptic morphological alterations in this disease and in others mouse models of synaptopathies. In parallel, and in collaboration with Prof. Bill Betz (Univ. of Colorado, USA), we contributed to the understanding of how active zones organization relates to synaptic transmission regulation. We also performed live imaging of the exo- endocytosis dynamics at motor nerve terminals in synaptopHluorin transgenic mice. I was promoted to Professor in 2009. The main lines my lab now are i) the molecular mechanisms of motoneuron hyperexcitability, ii) the molecular basis of synaptic functional heterogeneity, iii) the role of SMN –the defective protein in SMA- in local translation, iv) the role of synaptic mitochondria in exo-endocytosis and, v) the potential affectation of the

mitochondria in SMA NMJs.

Funding history & Actual Funding
Funded continuously since 1991 by the Spanish Ministry of Science. Other financial sources have been: Integrated Project (VI Framework Program of the EU), Muscular Dystrophy Association (USA), GENAME project, Marató Foundation, SMA Europe. Actual funding: MCIN (PID2019-110272RB-I00). Period: 2020-24 (Role: PI).

Participation in R&D and Innovation contracts
"Effect of some antibodies on one or mole mouse model od neurodegenerative diseases" Rinat Neuroscience (Palo Alto, CA, US). 2003.

Patents
Title: Methods for Treating Lower Motor Neuron Diseases. PCT/US2006/016046; USA application # 60/675393; Priority date: 26 April 2005. Actual owner: Rinat Neuroscience Corporation (Pfizer).

Awards and Other Professional Activities
1986 Theses Excellence Award from the University of Seville
1987-89 Fogarty International Fellowship (Fullbright) (NIH)

Services as Consultant and Advisor
Associate editor for Frontiers (since 2022)
Associate editor for Biomolecules (since 2022)
Scientific Advisory Board European Neuroscience Institute, Gottingen (Germany), 2010-16
Member Research panel of multicenter grants, German Research Foundation (DFG), Ulm Univ. (2016) & Univ. Leipzig/Würzburg (2017) (Germany), and Project evaluator since 2018
Evaluator Muscular Dystrophy UK Project (2019)
Reviewer for Full Professorship (2016), Royal Holloway Univ. London (UK)
Member Parkinson's UK Projects evaluator (2016)
Member of evaluating committees for FPU fellowships (2014 y 2015)
Member of evaluating committee for 'Científicos Titulares del CSIC' (2011)
Council Member Spanish Biophysical Society (SBE) (2010-13)
Program Committee Member Spanish Neuroscience Society (2009-13)
Member Society for Neuroscience (USA) (2007-12)
Projects evaluator Spanish Agencia Nacional de Evaluación y Prospectiva (ANEP)
Projects evaluator Spanish Instituto de Salud Carlos III
Member of evaluating committees for 'Titulares y Catedráticos de Universidad
Member of evaluating committees for Ramón and Cajal y Juan de la Cierva programs
Member Spanish Neuroscience Society, since 2005
Member American Biophysical Society (2001-09)
Corporative Member Marine Biological Laboratory (Woods Hole, USA (1991-1995)
Member Mayo Alumni Association (1990-1995)
Member Spanish Physiological Society (SECF) since 1991
Member European Science Foundation (1984-89)
Peer-reviewer for more than 20 journals (e.g., Nature Comm., Science, PNAS, J. Neurosci., Hum. Mol. Gen., PlosOne, Neuron, Neurobiol. Disease, J. Neurosci. Meth. Mol. Neurobiol., Eur. J. Neurosci., Exp. Neurobiol., Annals of Neurol., etc.)

Efforts and ability to inspire younger researchers
Teaching Physiology to Medical Students since 1986. Supervision of Masters and Ph.D.theses since 1991. Coordinator in several Ph.D. Programs in Physiology and Cell

Biology. Teaching at the Course for German students from the University Georg-August (Gottingen, Germany) “A Story of the Nerve Impulse and Synaptic Transmission” (2008-2012).

RELEVANT SCIENTIFIC PUBLICATIONS

Kim JK, Jha NN, Awano T, Caine C, Gollapalli K, Welby E, Kim SS, Fuentes-Moliz A, Wang X, Feng Z, Sera F, Takeda T, Homma S, Ko CP, Tabares L, Ebert AD, Rich MM, Monani UR. A spinal muscular atrophy modifier implicates the SMN protein in SNARE complex assembly at neuromuscular synapses. **Neuron**. 2023 Feb 22: S0896-6273(23)00082-X. doi: 10.1016/j.neuron.2023.02.004.

Franco-Espin J, Gatius A, Armengol JÁ, Arumugam S, Moradi M, Sendtner M, Calderó J, Tabares L. SMN Is Physiologically Downregulated at Wild-Type Motor Nerve Terminals but Aggregates Together with Neurofilaments in SMA Mouse Models. **Biomolecules**. 2022 Oct 20;12(10):1524. doi: 10.3390/biom12101524.

Bermedo-García F, Zelada D, Martínez E, Tabares L, Henríquez JP. Functional regeneration of the murine neuromuscular synapse relies on long-lasting morphological adaptations. **BMC Biol.** 2022 Jul 8;20(1):158. doi: 10.1186/s12915-022-01358-4.

Tabares L, Rizzoli SO. Editorial: Molecular Nanomachines of the Presynaptic Terminal. **Front Synaptic Neurosci**. 2022 Jun 7;14:941339. doi: 10.3389/fnsyn.2022.941339. eCollection 2022.

Lopez-Manzaneda M, Fuentes-Moliz A, Tabares L. Presynaptic Mitochondria Communicate With Release Sites for Spatio-Temporal Regulation of Exocytosis at the Motor Nerve Terminal. **Front Synaptic Neurosci**. 2022 May 12;14:858340. doi: 10.3389/fnsyn.2022.858340. eCollection 2022.

Lopez-Manzaneda M, Franco-Espin J, Tejero R, Cano R, Tabares L. Calcium is reduced in presynaptic mitochondria of motor nerve terminals during neurotransmission in SMA mice. **Hum Mol Genet**. 2021 May 17;30(8):629-643. doi: 10.1093/hmg/ddab065.

Tejero R, Balk S, Franco-Espin J, Ojeda J, Hennlein L, Drexl H, Dombert B, Clausen JD, Torres-Benito L, Saal-Bauernschubert L, Blum R, Briese M, Appenzeller S, Tabares L, Jablonka S. R-Roscovitine Improves Motoneuron Function in Mouse Models for Spinal Muscular Atrophy. ***iScience***. 2020 Jan 10;23(2):100826. doi: 10.1016/j.isci.2020.100826.

Delezie J, Weihrauch M, Maier G, Tejero R, Ham DJ, Gill JF, Karrer-Cardel B, Rüegg MA, Tabares L, Handschin C. BDNF is a mediator of glycolytic fiber-type specification in mouse skeletal muscle. ***Proc Natl Acad Sci U S A***. 2019;116(32):16111-16120. doi: 10.1073/pnas.1900544116. IF: 9.4212; Q1 (Switzerland-Spain multitechnical collaboration).

Tejero R., Lopez-Manzaneda M., Franco-Espín J., Tabares, L. Maturation and heterogeneity of vertebrate motor synapses. **Current Opinion in Physiology** August 2018; 4(1-6). doi.org/10.1016/j.cophys.2018.02.009.

Bachiller S, Roca-Ceballos MA, García-Domínguez I, Pérez-Villegas EM, Martos-Carmona D, Pérez-Castro MA, Real LM, Rosa JL, Tabares L, Venero JL, Armengol JA, Carrión AM, Ruiz R. HERC1 Ubiquitin Ligase Is Required for Normal Axonal Myelination in the Peripheral Nervous System. **Mol Neurobiol**. 2018 Dec;55(12):8856-8868. doi: 10.1007/s12035-018-1021-0. Epub 2018 Mar 30.

Arumugam S, Garcera A, Soler RM, Tabares L. Smn-Deficiency Increases the Intrinsic Excitability of Motoneurons. ***Front Cell Neurosci***. 2017. 11:269.

Lopez-Ortega E, Ruiz R, Tabares L. CSPα, a Molecular Co-chaperone Essential for Short and Long-Term Synaptic Maintenance. ***Front Neurosci***. 2017.11:39.

Tejero R, Lopez-Manzaneda M, Arumugam S, Tabares L. Synaptotagmin-2, and -1, linked to neurotransmission impairment and vulnerability in Spinal Muscular Atrophy. ***Hum Mol Genet.*** 2016. 25(21):4703-4716.

Rizzoli SO, Tabares L. Editorial: Molecular Nanomachines of the Presynaptic Terminal. ***Front Synaptic Neurosci***. 2016. 8:27.

Cano R, Tabares L. The Active and Periactive Zone Organization and the Functional Properties of Small and Large Synapses. ***Front Synaptic Neurosci***. 2016. 8:12.

Wu YJ, Tejero R, Arancillo M, Vardar G, Korotkova T, Kintscher M, Schmitz D, Ponomarenko A, Tabares L, Rosenmund C. Syntaxin 1B is important for mouse postnatal survival and proper synaptic function at the mouse neuromuscular junctions. ***J Neurophysiol***. 2015. 114(4):2404-17.

Bachiller S, Rybkina T, Porras-García E, Pérez-Villegas E, Tabares L, Armengol JA, Carrión AM, Ruiz R. The HERC1 E3 Ubiquitin Ligase is essential for normal development and for neurotransmission at the mouse neuromuscular junction. ***Cell Mol Life Sci***. 2015. 15:2961-71.

Arnold AS, Gill J, Christe M, Ruiz R, McGuirk S, St-Pierre J, Tabares L, Handschin C. Morphological and functional remodelling of the neuromuscular junction by skeletal muscle PGC-1α. ***Nature Commun***. 2014. 5:3569.

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Ruiz R, Tabares L. Neurotransmitter release in motor nerve terminals of a mouse model of mild spinal muscular atrophy. ***J Anat***. 2014. 224(1):74-84.

Krieger F, Elflein N, Ruiz R, Guerra J, Serrano AL, Asan E, Tabares L, Jablonka S. Fast motor axon loss in SMARD1 does not correspond to morphological and functional alterations of the NMJ. ***Neurobiol Dis.*** 2013. 54:169-82.

Caraballo-Miralles V, Cardona-Rossinyol A, Garcera A, Torres-Benito L, Soler RM, Tabares L, Lladó J, Olmos G. Notch signaling pathway is activated in motoneurons of spinal muscular atrophy. ***Int J Mol Sci***. 2013;14(6):11424-37.

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Torres-Benito L, Ruiz R, Tabares L. Synaptic defects in spinal muscular atrophy animal models. ***Dev Neurobiol***. 2012;72(1):126-33. Review.

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Rey, E, Hernández-Díaz, FJ, Abreu, P, Alonso, R, Tabares, L. Dopamine induces intracellular Ca2+ signals mediated by alpha1B-adrenoceptors in rat pineal cells. European **Journal of Pharmacology**, 430: 9-17, 2001.

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