Fecha del CVA	16/01/2025

Parte A. DATOS PERSONALES

Nombre	Vanesa		
Apellidos	Nieto Estevez		
Sexo	No Contesta	Fecha de Nacimiento	
DNI/NIE/Pasaporte			
URL Web			
Dirección Email			
Open Researcher and Contributor ID (ORCID)	0000-0002-7265-0593		

A.1. Situación profesional actual

Puesto	Assistant Professor of Research		
Fecha inicio	2022		
Organismo / Institución	The University of Texas at San Antonio, Hsieh Lab		
Departamento / Centro	Department of Neuroscience, Developmental and Regenerative Biology / COS Biology		
País	Estados Unidos de América	Teléfono	(+1) 210-458-4711
Palabras clave	240700 - Biología celular; 241500 - Biología molecular; 249000 - Neurociencias		

A.2. Situación profesional anterior (incluye interrupciones en la carrera investigadora - indicar meses totales, según texto convocatoria-)

Periodo	Puesto / Institución / País
2022 - 2023	Maternity and lactation leave
2018 - 2022	Postdoctoral Fellow / The University of Texas at San Antonio, Hsieh Lab
2020 - 2021	Maternity and lactation leave
2015 - 2018	Postdoctoral Fellow / The University of Texas Southwestern Medical Center, Hsieh Lab
2013 - 2014	Postdoctoral Fellow / Ciberned contract at the Cajal Institute, CSIC, Vicario-Abejón Lab
2008 - 2013	PhD Student, FPI Fellowship 2008-2012 (MCI) / Cajal Institute, CSIC, Vicario-Abejón Lab
2008 - 2008	Research Assistant / Ciberned contract at the Cajal Institute, CSIC, Vicario-Abejón Lab
2006 - 2007	Research Assistant, Collaboration Fellowship 2006 (MEC) / Universidad de Alcalá

A.3. Formación académica

Grado/Master/Tesis	Universidad / País	Año
Doctor en Neurociencia	Universidad Autónoma de Madrid	2013
Licenciado en Biología Especialidad Biología Sanitaria	Universidad de Alcalá	2007

Parte B. RESUMEN DEL CV

My research focuses on brain development and how alterations during this process lead to diseases. I have published 16 articles (9 original manuscripts, 2 preprints, 3 reviews, and 2 comments) which are cited over 420 times. I am the first author on 11 and the corresponding author on one. During my PhD at Dr. Carlos Vicario-Abejón's lab (Cajal Institute, CSIC, Madrid, Spain), I studied the cellular and molecular mechanisms that regulate neural stem cell self-renewal and differentiation in the embryonic and adult brain (V. Nieto-Estévez et al., Cell Mol

Neurobiol, 2021; V. Nieto-Estévez et al., Front Neurosci, 2016; V. Nieto-Estévez et al., PLoS One, 2013). A key aspect of my work was demonstrating for the first time that insulin growth factor-I (IGF-I) produced locally in the brain regulates the transition from stem cells to mature neurons during postnatal/adult hippocampal neurogenesis (V. Nieto-Estévez et al., Stem Cells, 2016). My PhD was funded by an FPI Fellowship from the Spanish Ministry of Science and Innovation. In my postdoctoral research in Dr. Jenny Hsieh's lab (UT Southwestern and UT San Antonio), I initially focused on mechanisms regulating adult hippocampal neurogenesis in physiological and pathological conditions (V. Nieto-Estévez et al., Front Mol Neurosci, 2022). Since animal models do not fully mimic human development, I used induced pluripotent stem cells (iPSCs) and 3D organoids from epilepsy patients to create in vitro "disease-in-a-dish" models for mechanistic and therapeutic discovery. As I did not have previous experience working with these models, I attended the Stem Cell Research Fundamentals Training at Stanford University and incorporated these technologies into our lab, training PhD students and others. Although I was not formally a thesis advisor of any of the students for administrative reasons, I co-authored a manuscript with one of them (K. K. Meyer-Acosta et al., BioRxiv, 2024, under review in Stem Cells Reports). While we were obtaining iPSCs from patients with epilepsy, we published two manuscripts using brain organoids, one on the role of the RB in brain development (T. Matsui*, V. Nieto-Estévez* et al; Development. 2017) and another on the consequences to the fetus of maternal exposure during pregnancy to opioids (V. Nieto-Estévez*, J.J. Donegan * et al. Front Mol Neurosci. 2022). My main project explored ARX-related epilepsies using organoid models. Our group was the first to use human brain organoids to study the effects during brain development of poly-alanine expansion (PAE) mutations in ARX, a X-linked gene implicated in a wide spectrum of neurological disorders (Nieto-Estévez et al., BioRxiv, 2024, under review in Nature Communications). This work has been extensively presented in meetings both as posters and oral presentations, and I have been invited to present it in several occasions. I also received two postdoctoral grants from the Lennox-Gastaut Syndrome Foundation and the American Epilepsy Society. On another note, I represented the postdocs in the Department of Neuroscience, Developmental and Regenerative Biology (NDRB) at UTSA for two years. In September 2022, I was promoted to Assistant Professor of Research and launched my independent research on neurodevelopmental disorders. I have an active NIH grant (role=Multi-PI, 09/15/2023–08/31/2025, $412,500) in collaboration with Dr. Parul Varma to investigate human-specific mechanisms underlying CHD2-associated epilepsy, a severe childhood epilepsy. This project is part of Alonna Rios' Master's Thesis (expected graduation: Summer 2025) and we are preparing two manuscripts. Additionally, through a collaboration with the Southwest National Primate Research Center (SNPRC), I am studying brain development in marmosets (Callithrix jacchus). We optimized tissue collection and immunostaining methods and are working on a manuscript which will serve as a comprehensive atlas of neural cell diversity during development. Finally, I contribute to the peer review process for journals such as Cell Reports, Developmental Biology, and Frontiers, and to grants for the UK Medical Research Council (Feb 2023) and NIH (Feb 2024, Study Section: Neurogenesis and Cell Fate). Full list of publications **:** https://www.ncbi.nlm.nih.gov/pubmed/?term=nieto-estevez

Parte C. LISTADO DE APORTACIONES MÁS RELEVANTES

C.1. Publicaciones más importantes en libros y revistas con "peer review" y conferencias

AC: Autor de correspondencia; (nº x / nº y): posición firma solicitante / total autores. Si aplica, indique el número de citaciones

1 **Artículo científico**. Karina K. Meyer-Acosta; Eva Diaz-Guerra; Parul Varma; et al; Jenny Hsieh; (9/12) Vanesa Nieto-Estevez. 2024. APOE4 impacts cortical neurodevelopment and alters network formation in human brain organoids. BioRxiv, Under review in Stem Cells Reports. https://doi.org/10.1101/2024.10.07.617044

2 **Artículo científico**. (1/12) Vanesa Nieto-Estevez (AC); Parul Varma; Sara Mirsadeghi; et al; Jenny Hsieh. 2024. Dual effects of ARX poly-alanine mutations in human cortical and interneuron development. BioRxiv, Under review in Nat. Communications.

3 **Artículo científico**. (1/9) Vanesa Nieto-Estévez; Jennifer J Donegan; Courtney L McMahon; et al; Jenny Hsieh. 2022. Buprenorphine Exposure Alters the Development and Migration of Interneurons in the Cortex.Front Mol Neurosci.WOS (8) https://doi.org/10.3389/fnmol.2022.889922

4 **Artículo científico**. (1/3) Vanesa Nieto-Estévez; Çağla Defterali; Carlos Vicario. 2022. Distinct Effects of BDNF and NT-3 on the Dendrites and Presynaptic Boutons of Developing Olfactory Bulb GABAergic Interneurons In Vitro. Cell Mol Neurobiol.WOS (4) https://doi.org/10.1007/s10571-020-01030-x

5 **Artículo científico**. (1/7) Vanesa Nieto-Estevez; Gopakumar Changarathil; Adebayo Olukayode Adeyeye; Marissa Olga Coppin; Rawan Serena Kassim; Jingfei Zhu; Jenny Hsieh. 2021. HDAC1 Regulates Neuronal Differentiation.Front Mol Neurosci.WOS (10) https://doi.org/10.3389/fnmol.2021.815808

6 **Artículo científico**. Çağla Defteralı; Mireia Moreno-Estellés; Carlos Crespo; et al; Carlos Vicario; (7/11) Vanesa Nieto-Estévez. 2021. Neural stem cells in the adult olfactory bulb core generate mature neurons in vivo.Stem Cells.WOS (16) https://doi.org/10.1002/stem.3393

7 **Artículo científico**. Takeshi Matsui; (2/5) Vanesa Nieto-Estévez; Sergii Kyrychenko; Jay W Schneider; Jenny Hsieh. 2017. Retinoblastoma protein controls growth, survival and neuronal migration in human cerebral organoids. Development.WOS (27) https://doi.org/10.1242/dev.143636

8 **Artículo científico**. (1/6) Vanesa Nieto-Estévez; Carlos O Oueslati-Morales; Lingling Li; James Pickel; Aixa V Morales; Carlos Vicario-Abejón. 2016. Brain Insulin-Like Growth Factor-I Directs the Transition from Stem Cells to Mature Neurons During Postnatal/Adult Hippocampal Neurogenesis. Stem Cells.WOS (39) https://doi.org/10.1002/stem.2397

9 **Artículo científico**. (1/5) Vanesa Nieto-Estévez; Jaime Pignatelli; Marcos J Araúzo-Bravo; Anahí Hurtado-Chong; Carlos Vicario-Abejón. 2013. A Global Transcriptome Analysis Reveals Molecular Hallmarks of Neural Stem Cell Death, Survival, and Differentiation in Response to Partial FGF-2 and EGF Deprivation. PLoS One. WOS (30) https://doi.org/10.1371/journal.pone.0053594

10 **Revisión bibliográfica**. (1/2) Vanesa Nieto-Estévez; Jenny Hsieh. 2020. Human Brain Organoid Models of Developmental Epilepsies. Epilepsy Curr.WOS (21) https://doi.org/10.1177/1535759720949254

11 **Revisión bibliográfica**. (1/3) Vanesa Nieto-Estévez; Çağla Defterali; Carlos Vicario-Abejón. 2016. IGF-I: A Key Growth Factor that Regulates Neurogenesis and Synaptogenesis from Embryonic to Adult Stages of the Brain. Front Neurosci.WOS (200) https://doi.org/10.3389/fnins.2016.00052

C.2. Congresos

1 Vanesa Nieto-Estevez. Modeling childhood epilepsies using human brain organoids. Seminar of the Department of Pharmacology. UT Health San Antonio. 2025. Estados Unidos de América. Participativo - Ponencia invitada/ Keynote. Seminario.

2 Vanesa Nieto-Estevez. Modeling childhood epilepsies using human brain organoids. Mechanisms of Epilepsy and Neuronal Synchronization.. Gordon Research Conference. 2024. Estados Unidos de América. Participativo - Ponencia invitada/ Keynote. Congreso.

3 Vanesa Nieto-Estevez. Modeling childhood epilepsies using human brain organoids. 20th Christmas Meeting. Institute for Neurosciences, Miguel Hernández University (UMH) and the Spanish National Research Council (CSIC). 2023. Participativo - Ponencia invitada/ Keynote. Jornada.

4 Vanesa Nieto-Estevez. Modeling ARX-Associated Childhood Epilepsies using Human Neural Organoid. Park City Epilepsy Meeting.. University of Utah. 2023. Participativo - Ponencia invitada/ Keynote. Congreso.

5 Vanesa Nieto-Estevez. Modeling childhood epilepsies using human brain organoids. 13th Annual UTSA Neuroscience Symposium. UTSA. 2022. Participativo - Ponencia invitada/ Keynote. Jornada.
6 Vanesa Nieto-Estevez. Precision models of ARX-associated genetic epilepsies. Cajal Xmas Meeting 2020. Cajal Institute. 2020. Participativo - Ponencia invitada/ Keynote. Jornada.
7 Vanesa Nieto-Estevez. Precision models of ARX-associated genetic epilepsies. NextGen Epilepsy Seminar. University of California, Irvine. 2020. Participativo - Ponencia invitada/ Keynote. Seminario.
8 Vanesa Nieto-Estevez. Precision models of ARX-associated genetic epilepsies. 6th Annual RegenMed SA Conference on Stem Cell Research and Regenerative Medicine. RegenMed SA. 2020. Participativo - Ponencia invitada/ Keynote. Congreso.
9 Vanesa Nieto-Estevez. Precision models of ARX-associated genetic epilepsies. American Epilepsy Society Annual Meeting 2019.. American Epilepsy Society. 2019. Participativo - Ponencia oral (comunicación oral). Congreso.
10 Vanesa Nieto-Estevez. Precision models of ARX-associated genetic epilepsies. 49th Annual Meeting of the Society for Neuroscience (SfN). Society for Neuroscience (SfN). 2019. Participativo - Ponencia oral (comunicación oral). Congreso.
11 Vanesa Nieto-Estevez. Modeling CHD2-associated epilepsy in cortical spheroids. CSHL meeting “Development and 3-D Modeling of Human Brain”. CSHL. 2017. Participativo - Ponencia oral (comunicación oral). Congreso.
12 Vanesa Nieto-Estevez. Specific transcription factors and extracellular signals regulate neural stem cell fate in neurogenic zones of the adult mouse brain.. Workshops “Cell Replacement for Regeneration in the Nervous System: Lessons from Adult Neurogenesis”, International University of Andalucia. International University of Andalucia. 2010. Participativo - Ponencia oral (comunicación oral). Congreso.
13 Anahi Hurtado Chong; Vanesa Nieto-Estevez; ; Carlos Vicario Abejon. IGF-I regulates cell proliferation and migration in neurogenic zones of the adult brain.. XIII Spanish Neuroscience Society Congress (Sociedad Española de Neurociencia, SENC). Sociedad Española de Neurociencia, SENC. 2009. Participativo - Póster. Congreso.

C.3. Proyectos o líneas de investigación

1 **Proyecto**. Advancing brain health research through male germline editing in marmosets. Jenny Hsieh. (The University of Texas at San Antonio). 01/08/2021-31/05/2026. Miembro de equipo. The major goals of this project are to advance the utility of the marmoset model for brain research.
2 **Proyecto**. Uncovering mechanisms of CHD2-associated epilepsy using human cortical organoids. R21 National Institutes of Health. Vanesa Nieto Estevez. (The University of Texas at San Antonio). 01/09/2023-31/08/2025. 412.501 €. Investigador principal. The major goal of this project is to understand the cellular and molecular mechanisms of CHD2-associated epilepsy using human cortical organoids derived from patient with mutations on CHD2.
3 **Proyecto**. Precision models of ARX-associated neurodevelopmental disorders. Jenny Hsieh. (The University of Texas at San Antonio). 01/09/2019-31/08/2024. Miembro de equipo. The goal of this project is to use human iPSC-based organoid models, and mice to understand how pAla’s function in brain development and epileptogenesis.
4 **Proyecto**. A personalized approach to Alzheimer’s disease in Hispanic families. Robert J. Kleberg, Jr., and Helen C. Kleberg Foundation. Jenny Hsieh. (The University of Texas at San Antonio). 01/07/2020-31/12/2023. Miembro de equipo. The goal of this proposed work is to identify new genetic variation associated with Alzheimer’s Disease (AD) and unique to Mexican Americans.
5 **Proyecto**. Neurogenesis in the embryonic and adult brain: regulatory mechanisms and neurorepair strategies. Ministerio de Ciencia e Innovación.. Carlos Vicario Abejón. (Instituto Cajal, CSIC, Madrid.). 01/01/2010-31/12/2013. 286.770 €. Miembro de equipo.
6 **Proyecto**. Temporal, regional and transcriptional regulation of the incorporation of new neurons to layers and synaptic circuits in the embryonic and postnatal/adult. Ministerio de Educación y Ciencia/Ministerio de Ciencia e Innovación.. Carlos Vicario Abejón. (Instituto Cajal, CSIC, Madrid.). 01/12/2007-01/12/2010. 254.100 €. Miembro de equipo.