CURRICULUM VITAE ABREVIADO (CVA)

IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.

Part A. PERSONAL INFORMATION

First name	Catalina		
Family name	Hernández-Sánchez		
Gender (*)	Female	Birth date (dd/mm/yyyy)	30/07/1965
Social Security, Passport, ID number	27467261V		
e-mail	chernandez@cib.csic.es	URL Web https://www.cib.csic.es/research/molecular-biomedicine/3d-lab-development-differentiation-degeneration	
Open Researcher and Contributor ID (ORCID) (*)		0000-0002-0846-5019	

(*) Mandatory

A.1. Current position

Position	Científica Titular		
Initial date	June 2007		
Institution	Consejo Superior de Investigaciones Científicas		
Department/Center	Molecular Biomedicine	Margarita Salas Center for Biological Research	
Country	Spain	Teleph. number	911097335/ 679236189
Key words	Embryonic Development; Programmed cell death; Apoptosis; Proinsulin; Insulin Receptor; Retina; Retinitis pigmentosa; Neurodegeneration; Neuroprotection; Inflammation; Innate Immunity; Aging.		

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

Period	Position/Institution/Country/Interruption cause
1990-1992	PhD Student/ Cajal Institute (CSIC)/ Spain
1993	Postdoctoral Fellow/ Center for Biological Research (CSIC)/ Spain
1994-1998	Visiting Fellow/ National Institutes of Health/ USA
1999-2000	Visiting Associate/ National Institutes of Health/ USA
2000	Postdoctoral Fellow/ Center for Biological Research (CSIC)/ Spain
2000-2002	Postdoctoral Researcher/ Center for Biological Research (CSIC)/ Spain
2000-2007	Researcher Ramón y Cajal/ Center for Biological Research (CSIC)/ Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Licensed in Biological Sciences	Autónoma of Madrid/ Spain	1989
PhD in Biological Sciences	Autónoma of Madrid/ Spain	1993

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

I began my research career focused on the study of the cellular mechanisms involved in the specification and differentiation of neural precursors in the embryonic retina at the Cajal Institute (CSIC). During my postdoctoral stage at the National Institutes of Health (Maryland, USA), initially as Visiting Fellow, I focused on the study of the transcriptional and post-

translational regulation of IGF1R (Insulin Like Growth-1 Receptor). In the second phase of my postdoctoral stay as Visiting Associate, I started a new line of research in the group on the role of the sulfonylurea receptor in neurodegenerative processes. I returned to Spain to the CIB (CSIC) first as a Post-doctoral researcher (2000-2002), then as a Ramón y Cajal Program Researcher (2002-2007), and since 2007 as Senior Scientist. The stay at the National Institutes of Health provided me with the molecular tools and knowledge to start a new line of research at the CIB focused on the transcriptional and post-transcriptional study of the insulin gene and its implications in the pathophysiology of the embryonic development of the heart, pancreas and central nervous system. Part of the results of these studies gave rise to a patent 200802422; priority country: Spain; Priority date: August 2008. In 2011 I did a stay as a Visiting Scientist at St. Georges Hospital, (University of London, United Kingdom).
Since ever I started my scientific career I was interested in applying the knowledge generated by my research and reversing the support received from society. Accordingly, in 2014 I joined the line of research led by Dr. E J de la Rosa " Cellular and molecular alterations in retinitis pigmentosa and other neurodegenerative diseases and novel therapeutical approaches" (https: //www.cib.csic.es/es/project/alteraciones-celulares-y-moleculares-en-la-retinosis-pigmentaria-y-otras-enfermedades). Since then, we have made progress in the knowledge of the neurodegenerative process of the retina and carried out proofs of concept in preclinical studies with various molecules generated by our collaborators who are experts in drug development. Our studies with proinsulin led to the creation of the Spin-Off, ProRetina Therapeutics, S.L., in which I participated as a founding partner, which licensed a group patent. Very recently we have filed another patent application EP22382277.6, filed on March 25, 2022, “Peptides for the Treatment of Retinitis Pigmentosa”. Throughout these years I have contributed 45 publications that in total collect 1356 citations.
Our group maintains contact with patient associations for which we have prepared reports on the main advances in clinical trials for degenerative diseases of the retina presented at international meetings in the field.
I have been principal investigator of two regional projects and one with a company, and co-principal investigator of two national projects. I have been a continuous part of the research team in national projects, and participated in projects with companies.
Throughout these years I have supervised/co-supervised 4 doctoral Thesis (plus one in progress), 10 TFM and 7 TGF. In addition, I am an evaluator of national and regional projects and reviewer of articles in publications with "peer review".

Part C. RELEVANT MERITS *(sorted by typology)*

C.1. Publications *(maximum 10)*

1. A Coro, A Herrero Ruiz, M Pazo-González, A Sánchez-Cruz, T Busch, A Hernández Medel, EC. Ximendes, DH. Ortgies, R López-Méndez, A Espinosa, D Jimenez de Aberasturi, D Jaqe, N Fernández Monsalve, EJ. de la Rosa, **C Hernández-Sánchez**, E Martín Rodríguez*, B H. Juárez*. Ag2S biocompatible ensembles as dual OCT contrast agents and NIR ocular imaging probes. Small. 2023 Aug 18:e2305026. doi: 10.1002/smll.202305026.
2. A Sirés, M Pazo-González, J López-Soriano, A Méndez, EJ de la Rosa, P de la Villa, JX Comella, **C Hernández-Sánchez**, Solé M. The Absence of FAIM Leads to a Delay in Dark Adaptation and Hampers Arrestin-1 Translocation upon Light Reception in the Retina. Cells. 2023 Feb 2;12(3):487. doi: 10.3390/cells12030487.
3. A Sánchez-Cruz, M D. Hernández-Fuentes, C Murillo-Gómez, E J. de la Rosa **and C Hernández-Sánchez***. Possible Role of Insulin-Degrading Enzyme in the Physiopathology of Retinitis Pigmentosa. Cells 2022, 11, 1621. https://doi.org/10.3390/cells11101621.
4. A Sánchez-Cruz, A Hernández-Pinto, C Lillo, C Isiegas, M Marchena, I Lizasoain, F Bosch, P de la Villa, **C Hernández-Sánchez***, EJ de la Rosa*. Insulin receptor activation by proinsulin preserves synapses and vision in retinitis pigmentosa. Cell Death Dis. 2022 Apr 20;13(4):383. doi: 10.1038/s41419-022-04839-0.
5. A Sánchez-Cruz, AC Méndez, I Lizasoain, P de la Villa, EJ de la Rosa*, **Hernández-Sánchez C***. Tlr2 Gene Deletion Delays Retinal Degeneration in Two Genetically Distinct Mouse Models of Retinitis Pigmentosa. Int J Mol Sci. 2021 Jul 22;22(15):7815. doi: 10.3390/ijms22157815.PMID: 34360582.

6. A Sánchez-Cruz, B Villarejo-Zori, M Marchena, J Zaldivar-Díez, V Palomo, C Gil, I Lizasoain, P de la Villa, A Martínez, EJ de la Rosa* and **C Hernández-Sánchez***. Modulation of GSK-3 provides cellular and functional neuroprotection in the rd10 mouse model of retinitis pigmentosa. Mol Neurodegeneration. (2018). DOI: doi.org/10.1186/s13024-018-0251-y.
7. M Platón-Corchado, PF Barcelona, S Jmaeff, M Marchena, AM Hernández-Pinto, **C Hernández-Sánchez**, UH Saragovi and EJ de la Rosa. p75NTR
antagonists attenuate photoreceptor cell loss in murine models of retinitis pigmentosa. Cell Death and Dis 13, e2922 (2017). DOI:10.1038/cddis.2017.306.
8. R Corpas, AM Hernández-Pinto, D Porquet, **C Hernández-Sánchez**, F Bosch, A
Ortega-Aznar, F Comellas, EJ de la Rosa, C Sanfeliu. Proinsulin protects against age-related cognitive loss through anti-inflammatory convergent pathways. Neuropharmacology 1, 221-232 (2017). DOI: 10.1016/j.neuropharm.2017.06.014.
9. M Marchena, B Villarejo-Zori, J Zaldivar-Diez, V Palomo, C Gil, **C Hernández- Sánchez**, A Martínez, EJ de la Rosa. Small molecules targeting glycogen synthase kinase 3 as potential drug candidates for the treatment of retinitis pigmentosa. J Enzyme Inhib Med Chem. 32, 522-526 (2017). DOI: 10.1080/14756366.2016.1265522.
10. C Isiegas, JA Marinich-Madzarevich, M Marchena, JM Ruiz, MJ Cano, P de la Villa,
C Hernández-Sánchez, EJ de la Rosa and F de Pablo. Intravitreal Injection of Proinsulin-Loaded Microspheres Delays Photoreceptor Cell Death and Vision Loss in the rd10 Mouse Model of Retinitis Pigmentosa. Invest Ophthalmol Vis Sci. 57, 3610-3618 (2016).

C.3. Research projects, indicating your personal contribution. In the case of young researchers, indicate lines of research for which they have been responsible.
1) Role of innate immunity and microglial senescence on the structural and functional alterations associated to neurodegeneration in Retinitis Pigmentosa. PID2022-138917OB-I00 de la Agencia Estatal de Investigación (AEI). October 2023 to September 2026, amount granted 220.000 €. Enrique J. de la Rosa and Catalina Hernández Sánchez (coIPs).
2) Development of a potential immunomodulatory therapy for Retinitis Pigmentosa.
PDC2022-133960-I00 de la Agencia Estatal de Investigación (AEI), December 2022 to November 2024, amount granted 149,500 €.
Enrique J. de la Rosa and Catalina Hernández Sánchez (coIPs).
3) Exploring the role of the innate immunity in retinitis pigmentosa as a key process and a potential therapeutic target. PID2019-109506RB-I00 de la Agencia Estatal de Investigación (AEI), June 2020 to May 2023, amount granted 118,580 €. Enrique J. de la Rosa and Catalina Hernández Sánchez (coIPs).
4) Early molecular and cellular alterations in Retinitis Pigmentosa and their value as therapeutical targets. SAF2016-75681-R de la Agencia Estatal de Investigación (AEI), December 2016 to November 2019, amount granted 199,650 €. Enrique J. de la Rosa and Flora de Pablo (coIPs).
4) Neuroprotective strategies for retinitis pigmentosa based on modulation of cell death and inflammation. SAF2013-41059-R de la Agencia Estatal de Investigación (AEI), January 2014 to September 2017, amount granted 356,950 €. Flora de Pablo and Enrique J. de la Rosa (coIPs).

C.4. Contracts, technological or transfer merits, Include patents and other industrial or intellectual property activities (contracts, licenses, agreements, etc.) in which you have collaborated. Indicate: a) the order of signature of authors; b) reference; c) title; d) priority countries; e) date; f) Entity and companies that exploit the patent or similar information, if any
1) Inventors: Catalina Hernández-Sánchez, Óscar Bártulos Encinas, Flora de Pablo and Amelia Aránega Jiménez.
Original reference: 200802422
Title: Use of Catecholamines for the differentiation of stem cells to cardiomyocytes
Country of priority: Spain, Priority date: 5/10/2007
Titular entity: Spanish National Research Council and Autonomous University of Barcelona
2) Inventors: Catalina Hernández-Sánchez and Enrique J. de la Rosa.
Original reference: EP22382277.6
Title: Peptides for the treatment of retinitis pigmentosa
Country of priority: Spain, Priority date: 25/03/2022
Titular entity: Spanish National Research Council