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	Francisco Rafael		
Family name	Nieto López		
Gender (*)	Male	Birth date (dd/mm/yyyy)	
Social Security, Passport, ID number			
e-mail	fnieto@ugr.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)		0000-0001-9555-0651	

(*) Mandatory

A.1. Current position

Position	Associate Professor (*titular*)		
Initial date	24/02/2022		
Institution	University of Granada		
Department/Center	Pharmacology	Faculty of Medicine	
Country	Spain	Teleph. number	958242096
Key words	Pain, Rheumatoid Arthritis, Inflammation, Sigma-1 receptors		

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

Period	Position/Institution/Country/Interruption cause
28/12/2020-23/02/2022	Associate Professor (*Contratado Doctor*)/UGR/Spain
20/11/2018-27/12/2020	Assistant Profesor/UGR/Spain
01/06/2016-31/05/2018	Investigador Juan de la Cierva-Incorporación /UGR/Spain
04/02/2012-03/02/2016	Posdoctoral "Research Associate/KCL/UK
01/04/2007-30/04/2011	Predoctoral Contract FPU/UGR/Spain

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
PhD	UGR/Spain	2012
Master's Degree in Biomedicine	UGR/Spain	2007
Doctoral Program Neurosciences and Pain (DEA)	UGR/Spain	2006
Degree in Biology	UGR/Spain	2004

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

I am the author of 39 articles published in international journals, most of them (92%) have been published in journals in the first decile or quartile (Pharmacol Research, PAIN, Arthritis & Rheumatology; Life Sciences). Approximately 10 of my articles have received more citations than 90% of the works published in the same area, and I have collected more than 2200 citations so far (h index=23, WOS). I have been the principal investigator (PI) of a project funded by the National Research Plan and another by the Junta de Andalucía, in addition to various smaller projects. I collaborate with European research groups within the framework of a COST funded action (2024; CA23156 - European Network for Sigma-1 Receptor as a Therapeutic Opportunity [SIGMA-1EUROPE]). My research objectives are to deepen the knowledge of the pathophysiology of pain and to contribute to the development of new drugs for pain treatment. During my scientific career, I have studied the role of sigma-1 receptors in neuropathic pain, and some of my research has contributed to this receptor being considered an emerging

target for the treatment of neuropathic pain. I have also studied the neuroinflammatory mechanisms that contribute to chronic pain. My current goal is to consolidate the research line started in my first national project to elucidate the role of the sigma-1 receptor in rheumatoid arthritis, and in particular in the pain associated. Knowledge transfer has always played an important role in my career. I have been the PI of two research contracts with the private sector and I am an inventor on five worldwide patents (PCT) and another one currently submitted to the patent office. I have collaborated with the pharmaceutical industry (Esteve) in the development of S1RA, a sigma-1 antagonist evaluated in phase II clinical trials. I am also currently collaborating with WEX Pharmaceuticals in the development of TTX, which is currently in phase III clinical trials. I have been invited to give several lectures at conferences of Scientific Societies (Spanish Society of Pain and Spanish Society of Pharmacology) and also at the conference of the Spanish Network of Ionic Channels. Transferring to society also takes up part of my time. I actively collaborate as head of dissemination workshops with the Granada Science Park during Brain Week (2022-2024), and some of my research has been echoed in some media. I am currently the co-investigator in charge of the "Neuropharmacology of Pain" research group at the Biosanitary Research Institute of Granada (IBS.Granada). I have directed a PhD thesis, which has been awarded several times, and I am currently directing another one. I received the Extraordinary Doctoral Award (Biomedicine) from the UGR and some of my research has been awarded, such as the Grünenthal Foundation Award (2018). I have collaborated with the State Research Agency as a commissioner of the technical committee for the evaluation of projects in the DPT area (2023 and 2025) and as an external evaluator of the same area (2024). I have also evaluated foreign projects such as for the Medical Research Council (UK) or the VersusArthritis Foundation (UK). I am an associate editor of Frontiers in Pharmacology and have been a reviewer for numerous JCR journals (Pain, Biochem Pharmacol, JPET, Neuropharmacology, Pharmacol Res, J Neuroinflammation, Sci Rep, among others). I also hold an academic position as Coordinator of the Official Master's Degree in Basic and Applied Neurosciences and Pain at the UGR.

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

C.1. Publications (showing only last 10 years)

1. Huerta MÁ, Codony X, …Nieto FR**(*CA) (10/10)**. Generation and phenotypic characterization of a sigma-1 receptor knockout rat. Life Sci. 2025 (in press). https://doi: 10.1016/j.lfs.2025.123953
Impact Factor (JCR): **5.1** **Q1** ("Pharmacology & Pharmacy")

2. Ruiz-Cantero MC, Entrena JM,…Cobos EJ*(*CA) **(6/10)**. Sigma-1 Receptors Control Neuropathic Pain and Peripheral Neuroinflammation After Nerve Injury in Female Mice: A Transcriptomic Study. J Neuroimmune Pharmacol. 19(1):46 https:// doi: 10.1007/s11481-024-10144-8
Impact Factor (JCR): **5.2** **Q1** ("Pharmacology & Pharmacy") Citations (JCR): 3

3. Huerta MÁ, de la Nava J, Artacho-Cordón A, **Nieto FR*. (*CA)**. Efficacy and Security of Tetrodotoxin in the Treatment of Cancer-Related Pain: Systematic Review and Meta-Analysis. Mar Drugs. 21(5):316, 2023. https://doi.org/10.3390/md21050316
Impact Factor (JCR): **4.9** **Q1** ("Pharmacology & Pharmacy") Citations (JCR): 9

4. Wilke J, Kawamura T, Xu H,…Waldmann H*(*CA) **(10/14)**. Discovery of a σ1 receptor antagonist by combination of unbiased cell painting and thermal proteome profiling. Cell Chem Biol. 28(6):848-854.e5, 2021. https://doi.org/10.1016/j.chembiol.2021.01.009
Impact Factor (JCR): **9.039** **Q1** (Biochemistry & Molecular Biology) Citations (JCR): 18

5. Ruiz-Cantero MC, González-Cano R, Tejada MÁ, Santos-Caballero M, Perazzoli G, **Nieto FR*,** Cobos EJ **(*CA).** Sigma-1 receptor: A drug target for the modulation of neuroimmune and neuroglial interactions during chronic pain. **Pharmacol Res**, 163:105339, 2021. https://doi.org/10.1016/j.phrs.2020.105339
Impact Factor (JCR): **10.334** **D1** en "Pharmacology & Pharmacy" Citations (JCR): 48
Higher number of citations than 90% of the articles in the same area and year.

5. Jiménez-López J, Bravo-Caparrós I, Cabeza L,…Prados J*(*CA) **(4/11)**. Paclitaxel antitumor effect improvement in lung cancer and prevention of the painful neuropathy using large pegylated cationic liposomes. Biomed Pharmacother. 133:111059, 2021. https://doi.org/10.1016/j.biopha.2020.111059
Impact Factor (JCR): **7.419** **D1** (Pharmacology and Pharmacy) Citations (JCR): 41
Higher number of citations than 90% of the articles in the same area and year.

6. Bravo-Caparrós I, Ruiz-Cantero MC, Perazzoli G,…**Nieto FR*(*CA)**. **(10/10)** Sigma-1 receptors control neuropathic pain and macrophage infiltration into the dorsal root ganglion after peripheral nerve injury. **FASEB J**, 34(4):5951-5966, 2020 https://doi.org/10.1096/fj.201901921r

Impacto (JCR): **5.192** **Q1** en "Biology" Citations (JCR): 62
Comentado en Noticias de la UGR, el Ideal, la Vanguardia, y ABC, entre otros. Higher number of citations than 90% of the articles in the same area and year.

7. Bravo-Caparrós I, Perazzoli G, Yeste S, Cikes D, Baeyens JM, Cobos EJ, **Nieto FR* (*CA)**. Sigma-1 Receptor Inhibition Reduces Neuropathic Pain Induced by Partial Sciatic Nerve Transection in Mice by Opioid-Dependent and -Independent Mechanisms. Front Pharmacol. 10:613, 2019. https://doi.org/10.3389/fphar.2019.00613
Impacto (JCR): **3.845** **Q1** ("Pharmacology and Pharmacy") Citations (JCR): 50
Higher number of citations than 90% of the articles in the same area and year.

8. Cobos EJ, Nickerson CA, Gao F,…Costigan M*(*CA.) **(12/22)**. Mechanistic Differences in Neuropathic Pain Modalities Revealed by Correlating Behavior with Global Expression Profiling. **Cell Rep**. 22(5):1301-1312, 2018 https://doi.org/10.1016/j.celrep.2018.01.006
Impacto (JCR): **7.815** **Q1** en "Cell Biology" Citations (JCR): 127
Higher number of citations than 90% of the articles in the same area and year. **Premiado por la Fundación Grünenthal** (2018). Commented on over 50 online media outlets including, noticias UGR, Agencia SINC, 20 minutos, Cadena SER, Ideal, Europa Press, and several printed newspapers (el Ideal y Granada Hoy). Commented in English media (p.ej. EurekAlert). ***Featured as one of the Top 10 Pain Articles of the Decade 2010-2019 (link).***

9. **Nieto FR**, Clark AK, Grist J, Hathway GJ, Chapman V, Malcangio M*(*CA). Neuron-immune mechanisms contribute to pain in early stages of arthritis. J Neuroinflammation 13:96, 2016. https://doi.org/10.1186/s12974-016-0556-0
Impacto (JCR): **5.102** **Q1** ("Neurosciences") Citations (JCR): 101
Mayor número de citas que el 90% de artículos de su misma área y año.

10. **Nieto FR**, Clark AK, Grist J, Chapman V, Malcangio M*(*CA). Calcitonin gene-related peptide-expressing sensory neurons and spinal microglial reactivity contribute to pain states in collagen-induced arthritis. Arthritis Rheumatol 67:1668-77, 2015. https://doi.org/10.1002/art.39082
Impacto (JCR): **7.470** **D1** ("Rheumatology") Citations (JCR): 63
Mayor número de citas que el 90% de artículos de su misma área y año.

C.2. Congress (showing only invited talks in the last 10 years)

1. XX Congress of the Spanish Pain Society (SED) (León, 2024). Title: La toxina del pez globo como tratamiento del dolor neuropático asociado a la quimioterapia
2. IX Congress of the Spanish Network of Ionic Channels (RECI) (Granada, 2024). President of the Organizing Committee.
3. XL Congress of the Spanish Society of Pharmacology (SEF) (Toledo, 2023). Title: Demonstrating the placebo effect to pharmacology students
4. Workshop Targeting Neuroinflammation for CNS Treatment Disorders. Spanish Society of Pharmacology. (Madrid, 2023). Title: Neuropathic pain and neuroinflamation: role of sigma-1 receptors
5. I Precision Medicine Symposium IBS.Granada. (Granada, 2021). Title: Role of the sigma-1 receptor in pain and neuroinflammation in rheumatoid arthritis.
6. Virtual Pain Congress. 30th Anniversary of the Spanish Pain Society (2020). Title: Fisiopatología del dolor en la artritis reumatoide: lecciones aprendidas de pacientes y roedores.
7. XVI Congress of the Spanish Pain Society (Zaragoza, 2019). Title: Aspectos centrales del dolor.
8. VII Congress of the Spanish Network of Ionic Channels (RECI). (Cáceres, 2019). Title: Voltage-gated sodium channels as pharmacological targets for neuropathic pain relief.

C.3. Research projects, (selection last 10 years).

1. PID2024-161093OB-I00. Sigma-1 receptor antagonism: a novel therapeutic strategy with analgesic and disease-modifying properties in rheumatoid arthritis. **PI: FR Nieto**. 01/09/2025-31/08/2029. 295.200€

2. PID2021-123058NA-I00. Inhibition of the sigma-1 (σ1) receptor and of the soluble epoxide hydrolase (sEH) enzyme: a new strategy for the treatment of pain in rheumatoid arthritis. Plan Nacional MICINN. **PI: FR Nieto**. 01/09/2022-31/08/2025. **96.437 €.**

3. P20_00132. Multimodal analgesia in rheumatoid arthritis: sigma-1 receptor inhibition to increase the therapeutic range of NSAIDs. J. de Andalucía. PI: EJ Cobos. 2021-2023. 142.367 €.

4. B-CTS-642-UGR20. Sigma-1 receptors, endogenous opioid analgesia and neuroinflammation in rheumatoid arthritis. FEDER Operational Program in Andalucia 2014-2020. **PI:** EJ Cobos y **FR Nieto**. 07/01/2021-06/30/2023. **35.000€.**

5. INTRAIBS-2020-09. Pilot project: sigma-1 receptor and immunotherapy for the treatment of pain in rheumatoid arthritis. Intramural Projects ibs.GRANADA. **PI: FR Nieto**. 01/01/2021-31/12/2021. **5.000 €.**

C.4. Contracts, technological or transfer merits, (selection of most relevant).

C.4.1. Research Contrat

1. Effects of Tetrodotoxin (TTX) and of the association of TTX and morphine, in post-operative pain in preclinical models of mice (Contract nº 6482, OTRI, UGR). Wex Pharmaceuticals Inc (Canada**). PI: FR Nieto** 17/05/2024-17/05/2025. **15.637€.**

2. Essay tasks required for the evaluation of a first-in-class candidate for the treatment of pain (Contract nº 5284, OTRI, UGR). Fundación Bosch I Gimpera. **PI: FR Nieto** 16/03/2022-15/10/2022. **32.065 €.**

3. MuMo 5: "Translational models" (Contract nº 4353, OTRI, UGR). Esteve Pharmaceuticals. PI: EJ Cobos 01/01/2020-30/06/2020. **36.300 €.**

4. Study of the analgesic efficacy, mechanism of action and side effects of new drugs (Contract nº 4203, Fundación-EmpresaUGR). Esteve Pharmaceuticals. PI: JM Baeyens 2015-2019. **266.208 €.**

C.4.2. Patents

1. **Nieto FR**, Cobos EJ, Huerta MÁ, Ruiz-Cantero MC. **Nº Solicitud P202430364**. Sigma-1 receptor inhibitors for the treatment of rheumatoid arthritis. Holder: UGR. Fecha de prioridad: 08/05/2024.

2. Vázquez Cruz, Pujol E, Cobos EJ, **Nieto FR**, Santos-Caballero M, Entrena JM. **WO2024105225 A1**. Synergistic combinations of a sigma-1 receptor antagonist and a soluble epoxide hydrolase inhibitor and their use in the treatment of pain. World patent (PCT). Holder: UB and UGR.

3. Baeyens JM; Buschmann H; Vela JM; Zamanillo D, **Nieto FR**. **WO2009103487A1**. Use of compounds binding to the sigma receptor for the treatment of neuropathic pain developing as a consequence of chemotherapy. World patent (PCT) with various extensions: UE EP2254579 (10-1-18); Japón JP5859207 (10-2-16), Rusia RU2537226 (27-12-14), USA US20170112829 (27-4-17). Holder: Esteve Pharmaceuticals

4. Baeyens JM; Buschmann H; Vela JM; Zamanillo D, **Nieto FR**. **WO2011018488**. Sigma ligands for the prevention or treatment of pain induced by chemotherapy. World patent (PCT). Holder: Esteve Pharmaceuticals

5. **Nieto FR;** Parra A; Baeyens JM; García-Granados A; Entrena JM; Cobos EJ; Martínez A; Rivas F. **WO2011018488**. Use of maslinic acid for treating nociceptive, inflammatory and neurogenic pain. World patent (PCT). Holder. Titular: UGR

6. Baeyens JM; Buschmann H; Vela JM; Zamanillo D, **Nieto FR**. **WO2011018487**. Sigma ligands for the prevention or treatment of pain induced by chemotherapy. Patente mundial (PCT) con diversas extensiones (selección): USA US20160220575 (4-8-16), Canadá CA2770441 (12-12-17), Brasil BR112012003053 (2-8-16), Australia AU2016228207 (29-9-16), India IN2149/DELNP/2012 (7-8-15), China CN102497864 (13-6-12), UE EP2464356 (20-6-12). Holder: Esteve Pharmaceuticals. **Patent in operation with the clinical development of the drug S1RA by the holder.**

C5. Funded research networks

1. CA23156, European Network for Sigma-1 Receptor as a Therapeutic Opportunity (Sigma-1Europe). **Acción COST (UE).** Lead applicant: Tangui Maurice (France). Role: secondary applicant. 2024-2028.

2. RED2022-134420-T, Spanish Ion Channel Network (RECI). Research Networks, National Plan. Role: Applicant member of the network team. 2022-2024.

C.6. Reviewer of Research Grants

1. Member of Technical Commission for the Evaluation of Projects of the State Research Agency (AEI). Subarea of Diagnostic, Prognostic and Therapeutic Tools, Biomedicine (2025), 12 project evaluations.

2. Member of Technical Commission for the Evaluation of Projects of the State Research Agency (AEI). Subarea of Diagnostic, Prognostic and Therapeutic Tools, Biomedicine (2023), 19 project evaluations.

3. State Research Agency (AEI): 2 project evaluations (2024).

4. Medical Research Council (Reino Unido). 3 project evaluations (2021)

5. Versus Arthritis Foundation (Reino Unido): 1 project evaluations (2019)

C.7 Management activities and institutional responsibilities.

1. Coordinator of the Official Master's Degree in Basic and Applied Neurosciences and Pain at the University of Granada (2020-present).

2. Co-investigator in charge of the "Neuropharmacology of Pain" research group at the Biosanitary Research Institute of Granada (IBS.Granada) (2023-present).