MINISTERIO DE CIENCIA E INNOVACIÓN

Cofinanciado por la Unión Europea

AGENCIA ESTATAL DE INVESTIGACIÓN

CURRICULUM VITAE (CVA)

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

Part A. PERSONAL INFORMATION

CV date	05/02/2025

First name	Rosa Maria		
Family name	Hernandez		
Gender (*)	Female	Birth date	11/08/1965
ID number	7.857.508H		
e-mail	rosa.hernandez@ehu.es	URL Web	
Open Researcher and Contributor ID (ORCID) (*)		0000-0002-3947-409X	

(*) Mandatory

A.1. Current position

Position	Professor of Pharmaceutics		
Initial date	20-04-2009		
Institution	University of the Basque Country (UPV/EHU)		
Department/Center	Pharmacy	School of Pharmacy	
Country	Spain	Teleph. number	945013095
Key words	Drug delivery; mesenchymal stem cells; cell therapy; biosafety; biomaterials; hydrogels; immunomodulation; regenerative medicine; biomedical devices; nanotechnology, secretome, exosomes		

A.2. Previous positions (research activity interuptions, art. 14.2.b)

Period	Position/Institution/Country/Interruption cause
1995-2009	Associate Professor/University of Basque Country
1993-1995	Assistant Professor/University of Basque Country
1989-1992	FPI fellow /University of Salamanca

A.3. Education

PhD, Licensed, Graduate	University/Country	Year
Bachelor's Degree	University of Salamanca	1988
PhD in Pharmacy	University of Salamanca	1992

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

Rosa Hernández is Full Professor of Pharmaceutical Technology at the University of Basque Country (UPV/EHU), Spain (2009). She received her Pharmacy Degree (1988), and Ph.D. (1992) from the University of Salamanca. She conducted her doctoral research in the design of oral controlled-release formulations. During this period, she received an Erasmus fellowship grant for one-year research internship at the University of Pavia (Italy) under the supervision of Prof C. Caramella and U. Conte.

In 1993, the recently created School of Pharmacy at UPV/EHU appointed her as Assistant Professor. Prof Hernández established the scientific and technological bases for the development of two main research lines together with Prof Pedraz, director of her PhD. The first one focused on the use of micro-nanotechnology for the development of vaccines and the second one, based on the use of cell microencapsulation for cell therapy.

At the end of the nineties, Prof Hernández and cols. reported for the first time the encapsulation and controlled release of Spf66 (malaria antigen) from PLGA microparticles and their efficacy in Aotus monkey model (*Vaccine 20 (2002): 1707, Vaccine 22 (2004): 1423*). Afterwards, we assayed nanoparticles formulations by the intranasal route for vaccination and for the treatment of Parkinson or Alzheimer's diseases, in order to overcome mucosal barriers like blood-brain barrier (*J Biomed Nanotechnol 12: 2220 (2016), Mol Neurobiol 55 (2018): 145*).

At the same time, we conducted research studies in the field of chronic wound healing designing different approaches of drug delivery, such as nanoparticles and scaffolds. After the results obtained in mice (*J Control Release 185 (2014): 51*) and in a porcine model (*Journal of Controlled Release 197 (2015): 41*), the developed EGF lipid nanoparticles were patented together with the Praxis Pharmaceutics company (*US 2016/0199447 A1*).

In the field of Advanced Therapies, our group has had a longstanding interest in cell transplantation for the delivery of therapeutics. The immunoisolation of engineered cells enclosed in biocompatible polymeric semipermeable microcapsules allowed the transplantation of allogeneic cells while protected from rejection (*Nature Medicine 9 (2003): 104, J Control Release 137 (2009): 174*). Now, we are applying our knowledge and technologies to improve biomaterials for application in regenerative medicine and tissue engineering (*Biomaterials 257 (2020): 120266, Green Chem 22 (2020): 3445)*.

Currently, her research focuses on the development of multifocal strategies based on the combined use of stem cells, extracellular vesicles and biomaterials for application in regenerative immunology, mainly for the treatment of inflammatory bowel disease and the regeneration of chronic wounds. She also works on the development of Pharmaceuticals and Drug Delivery Devices based on nanotechnology. (*Stem Cell Res Ther 13 (2022): 147, Biomat Advances 155 (2023): 213682, J Control Release 379 (2025): 951).*

In line with the entire scientific trajectory explained above, R. Hernández has participated as PI or researcher in more than 50 projects financed by public bodies (UPV/EHU, Basque Government, Ministry of Education, Ministry of Industry, Ministry of Health and European Union). She is co-IP in the NanoBioCel group at the UPV/EHU, recognized as a Consolidated Group of Excellence type A by the Basque Government. Moreover, this research group belongs to the Ciber-BBN of the Carlos III Health Institute. Her wide professional trajectory of collaboration in projects with companies has resulted in an economic return for the University superior to 5.000.000 €. Indeed, as a result of this collaboration, more than 10 patents have been published.

In addition, she has supervised 24 PhD thesis works, most of which are international theses, and co-authored more than 200 scientific articles in high impact journals. h-index: 52 Scopus, 61 Google Scholar. R. Hernández has completed 5 six-years research periods and 1 transfer period (recognized by the Comisión Nacional Evaluadora de la Actividad Investigadora (CNEAI).

On the other hand, she was founder of the Pharmaceutical Development Unit of the Basque Country, currently known as TECNALIA Pharma Labs and integrated in the TECNALIA Corporation within a joint project with the UPV/EHU. Nowadays, she is the Scientific Director of Galenic Development of TECNALIA Pharma Labs, a Contract Manufacturing and Development Organization (CDMO) that offers high quality services under a solid quality system, with more than two decades at the service of the pharmaceutical industry.

Regarding her academic trajectory, she is academic Secretary of the Department of Pharmacy and Food Sciences since 2003 and member of the University of the Basque Country Research Commission since 2017. Furthermore, It should be noted that she has acted as an expert appointed by Ministry of Economy and Competitiveness in the selection of National Plan R & D projects in the areas of Biomedicine and Biotechnology. Her teaching activity is carried out at the School of Pharmacy of the UPV/EHU, where she is the Coordinator of the Pharmacy Degree and Head of the Department of Pharmacy and Food Sciences. She has been Board

Member of the IKERBASQUE Foundation and currently, she is Vice-President of the Spanish Society of Industrial and Galenic Pharmacy (SEFIG).

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

C.1. Publications

1. Erana-Perez Z, Igartua M, Santos-Vizcaino E*, **Hernandez RM* (AC)**. Differential protein and mRNA cargo loading into engineered large and small extracellular vesicles reveals differences in in vitro and in vivo assay. J Control Release 379: 951 (2025) IF: 11.467, Q1.
2. Las Heras K, Garcia-Orue I, Aguirre JJ, de la Caba K, Guerrero P, Igartua, Edorta Santos-Vizcaino M*, **Hernandez RM* (AC)**. Soy protein/β-chitin sponge-like scaffolds laden with human mesenchymal stromal cells from hair follicle or adipose tissue promote diabetic chronic wound healing. Biomater Adv 155: 213682 (2023). IF: 7.9, Q1.
3. Las Heras K, Royo F, Garcia-Villacrosa C, Igartua M, Santos-Vizcaino, Falcon-Perez JM*, **Hernandez RM* (AC).** Extracellular vesicles from hair follicle-derived mesenchymal stromal cells: isolation, characterization and therapeutic potential for chronic wound healing. Stem Cell Research & Therapy 13: 147 (2022). IF: 5.985, Q1.
4. Gonzalez-Pujana A, Vining KH, Zhang DKY, Santos-Vizcaino E, Igartua M, **Hernandez RM (AC),** Mooney DJ (AC). Multifunctional biomimetic hydrogel systems to boost the immunomodulatory potential of mesenchymal stromal cells. Biomaterials. 257: 120266 (2020). IF: 10.307, Q1.
5. Las Heras K, Santos-Vizcaino E, Garrido T, Gutierrez FJ, Aguirre JJ, De la Caba K, Guerrero P, Igartua M, **Hernandez RM (AC).** *Soy protein and chitin sponge-like scaffolds: from natural by-products to cell delivery systems for biomedical applications.* Green Chemistry, 22: 3445-3460 (2020). IF: 10.182, Q1.
6. Gonzalez-Pujana A, Santos-Vizcaino E, García-Hernando M, Hernaez-Estrada B, M. de Pancorbo M, Benito-Lopez F, Igartua M, Basabe-Desmonts L (AC), **Hernandez R.M. (AC).** *Extracellular matrix protein microarray-based biosensor with single cell resolution: Integrin profiling and characterization of cell-biomaterial interactions.* Sensors and Actuators, B: Chemical. 299:126954 (2019). IF: 7.460, Q1.
7. Hernando S, Requejo C, Herran E, Ruiz-Ortega JA, Morera-Herreras T, Lafuente JV, Ugedo L, Gainza E, Pedraz JL, Igartua M (AC), **Hernandez RM (AC).** *Beneficial effects of n-3 polyunsaturated fatty acids administration in a partial lesion model of Parkinson's disease: The role of glia and NRf2 regulation.* Neurobiology Disease 121:252-262 (2019). IF: 5.332, Q1.
8. Garcia-Orue I, Santos-Vizcaino E, Etxabide A, Uranga j, Bayat A (AC)., Guerrero P, Igartua M, de la Caba K, **Hernandez RM (AC).** *Development of Bioinspired Gelatin and Gelatin/Chitosan Bilayer Hydrofilms for Wound Healing.* Pharmaceutics. 11 (7): 314-332 (2019). IF: 4.699, Q1.
9. Hernando, S., Herran, E., Figueiro-Silva, J., Pedraz J.L., Igartua M., Carro, E., **Hernandez, R.M. (AC).** *Intranasal administration of TAT-conjugated lipid nanocarriers loading GDNF for Parkinson's disease.* Molecular Neurobiology 55: 145-155 (2018). IF: 4.586, Q1.
10. Gainza G., Celdrán D, Moreno B, Aguirre J.J., Gutierrez F.B., Villullas S., Pedraz J.L, Igartua M., **Hernández R.M (AC).** *The topical administration of rhEGF-loaded nanostructured lipid carriers (rhEGF-NLC) improves healing in a porcine full-thickness excisional wound model*. Journal of Controlled Release 197: 41-47 (2015). IF: 7.441, Q1.

C.2. Congress

A. Gozález-Pujana, E.Santos-Vizcaino, G. Orive, J.L. Pedraz, R.M. Hernández. Cell behavior is conditioned by the composition of the encapsulating solutions in cell microencapsulation technology. 2017 CRS Annual Meeting and Exposition. Boston.

I. Garcia-Orue, A. Etxabide, J. Uranga, E. Santos-Vizcaino, P. Guerrero, J.L. Pedraz, M. Igartua, K. de la Caba, and R.M. Hernandez. Characterization Of A Gelatin/Chitosan Bilayered Scaffold For Wound Healing. 2018 CRS Annual Meeting & Exposition. Nueva York.

B Hernaez-Estrada, E Santos-Vizcaino, R M Hernandez, K L. Spiller. Crosstalk with tissue-engineered blood vessels promotes M2 polarization of macrophages. Society For Biomaterials 2022 Annual Meeting & Exposition. Baltimore (EEUU).

C.3. Research projects

2022–2026: Hidrogeles de liberación sostenida de secretoma inmunomodulador de células madre: Hacia terapias libres de células en el tratamiento de la enfermedad inflamatoria intestinal (PID2021-122577OB-I00). Ministry of Science and Innovation. MCIU-Proyectos de Investigación Orientada (242,000.00 €). Head of Research: **Rosa Mª Hernández** and Manuela Igartua.

2022–2024: 3D-Printable eutecto/hydrogels for personalized wound dressings (3D-THEDES). cOLAB 22/05.Universidad del País Vasco (UPV/EHU). Proyectos Colaborativos 2022. (35.009 €). Head of Research: **Rosa Mª Hernánde**z and Marcelo Calderón.

2021–2024: Research Group of Excellence. Grants to Support the Activities of the Research Groups of the Basque University System (IT1448-22). Basque Government. (392,700.00 €). Head of Research: José Luis Pedraz Muñoz and **Rosa Mª Hernández.**

2022-2023: Sistemas inmunomoduladores tixotrópicos ricos en secretoma de células madre del folículo piloso para el tratamiento de la enfermedad inflamatoria intestinal. (VITAL21/28). Fundación Vital Fundazioa Research Plan (5,200 €) Head of Research: **Rosa Mª Hernández** and Manuela Igartua

2021–2022: RESIST: New Therapeutic Strategies in the treatment of Antimicrobial Resistance. ELKARTEK 21/77 (KK-2021/00052). Department of Economic Development and Infrastructure (Basque Government). ELKARTEK Program: (35,100 €). Head of Research: **Rosa Mª Hernández**.

2020-2021: ONKOTOOL: Cancer diagnosis, prognosis and treatment: a new generation based on lipidomics and development of personalized vaccines. ELKARTEK 20/11 (KK-2020/00069).Department of Economic Development and Infrastructure (Basque Government). ELKARTEK Program: (40,490 €). Head of Research: **Rosa Mª Hernández.**

2018–2020: NANOGROW: Innovative and effective Bioengineered Cornea Substitutes based on combined Cell Therapy and Nanotechnologies. (RTC-2017-6696-1). Ministry of Economy and Competitiveness. Retos-Colaboración Plan: 77,547.60 €. Head of Research: Manuela Igartua

2019–2020: XMILE: **Microbial exopolymers: diversity, function and applications** (KK-2019/00076). Department of Economic Development and Infrastructure (Basque Government). ELKARTEK Program: 53,413.72€ Head of Research: **Rosa Mª Hernández.**

2018 – 2021: Multifunctional systems based on microencapsulated stem cells: activation of their immunomodulatory effect for the treatment of intestinal inflammatory diseases (SAF2017-82292-R). Ministry of Economy and Competitiveness. National R & D Plan. MINECO: 157,000 €**.** Head of Research: **Rosa Mª Hernández** and Manoli Igartua

2015 – 2018: Diabetes reversing implants with enhanced viability and long-term efficacy. 645991-2. Basque Government: 623,600 €. European Comunity H2020- NMP-10-2014: Biomaterials for the treatment of Diabetes Mellitus: 8,832,061.50 €, NanoBioCel: 550.000 €. Head of Research: Garry Duffy, José Luis Pedraz Muñoz (NanobioCel Group).

C.4. Contracts, technological or transfer merits

Hernández R.M., Santos-Vizcaíno E., Igartua M., Las Heras K., Jiménez J., de la Caba K., Guerrero P., Etxabide A. **EP21382834.6** (solicitada 15-09-21). Sponge-like scaffold for promoting haemostasis.

Gainza, E., Gainza, G., Villullas, S., M. Pastor, O. Ibarrola, Del Pozo, A., G. Alonso, A. del Pozo, Hernández, R.M., Igartua M., Pedraz, J.L. **US 2016/0199447 A1** (14-07-2016). Lipid nanoparticles for wound healing.