

Personal Information



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Current position

Professional category: Post-Doctoral Fellow

Organization: Anna Spiegel Center of Translational Research, Medical University of Vienna (MUV)

Department: Dermatology

Address: Lazarettgasse 14, 1090 Vienna, Austria

Research Focus

Inflammatory Skin Diseases, Atopic Dermatitis, Psoriasis, Host-Pathogen Interactions, Staphylococcus aureus-mediated infection

Past Research Lines

Schwann Cells, Peripheral Neuropathies, Cancer, Demyelination, Nerve regeneration, Lyme disease, Host-Pathogen Interactions, Autophagy



Education

- 01/02/2016 - 24/06/2020 International **PhD** in Neuroscience- *Cum laude* (Thesis title: Gene Regulatory Network in Schwann Cell Disorders. Date of PhD award: 24.06.21)-*Possibility to apply for the Extraordinary Prize of the Thesis (2022)*
Neuroscience Doctoral Program, mentioned towards excellence, University of the Basque Country (UPV/EHU) and CIC bioGUNE, Derio, Spain
Supervisors: General Director, Prof. José Maria Mato, Dr. Ashwin Woodhoo.
- 01/09/2013 – 31/07/2014 **Master** in Molecular Biology and Biomedicine (UPV/EHU, Leioa, Spain)
Molecular Biology of Cancer. Thesis title: Study of Cyclin/CDK interaction and the response to DNA damage in E2F2^{-/-} cells. Grade: 9.27/10
- 01/09/2009 – 31/07/2013 **Degree** in Biology
2011 – 2013 (3rd and 4th years): UPV/EHU, Leioa, Spain
2009 – 2011 (1st and 2nd years of the Degree): Autonomous University of Barcelona (UAB), Barcelona, Spain

Professional Research Experience

02/11/2020 – Present

ERC Post-Doctoral Fellow (Genes and Disease Laboratory, MUV, Vienna, Austria)

I am currently working in Inflammatory Skin Diseases (ISDs) in Prof. Erwin Wagner's laboratory. My work is focused on uncovering key genes and their function in skin pathological conditions such as Atopic Dermatitis and Psoriasis with the ultimate goal to prevent or ameliorate ISD. For that, I am using Genetically Engineered Mouse Models (GEMMs) that exhibit hallmarks of ISD, and patient-derived samples provided by our collaborators. The ultimate goal is to define molecular pathways leading to disease development and to identify novel therapeutic targets for ISDs.

01/07/2019 – 11/10/2019

Visiting PhD student (Nobel laureate Randy Schekman's laboratory, UC Berkeley, California, US)

I learnt to isolate extracellular vesicles from MDA-MB-231 breast cancer cell line, human epidermal keratinocytes (hPEK) and human dermal fibroblasts (hPDF), and the following purification of exosomes by an optimized protocol generated in R. Schekman Laboratory. I used Nanoparticle Tracking Analysis and specific exosome markers analysed by western blot. hPEK and hPDF are responsible for the regeneration of the skin after injury. These cells are activated after injury and hPEK migrate to the side of the wound to promote regeneration. As hPEK and hPDF are not in physical contact, I tried to ascertain the hypothesis that extracellular vesicles (EVs) have an essential role in the activation and migration of hPEK and hPDF in regeneration. (The project is ongoing).

01/02/2016 – 31/12/2019

Early-stage researcher (Nerve Disorders Laboratory, CIC bioGUNE, Derio, Spain)

07/01/2015 – 01/02/2016

Laboratory technician (Nerve Disorders Laboratory, CIC bioGUNE, Derio, Spain)

01/07/2014 – 31/12/2014

Research assistant (Nerve Disorders Laboratory, CIC bioGUNE, Derio, Spain)

Briefly, during the 6 years that I worked in Dr. Ashwin Woodhoo's laboratory I learnt mechanistic approaches, as well as achieved transferable and soft skills essential for my future career. I was also supervised by the General Director Prof. José M. Mato. The collaboration with different international groups and being involved in different research fields have been fundamental to acquire multidisciplinary mechanistic skills. I used in vivo and in vitro assays to study gene regulatory networks in Peripheral Nervous System pathologies, such as cancer and demyelination. I published a high-impact peer-reviewed article before starting my PhD and one article as first author regarding my main PhD project about Malignant Peripheral Nerve Sheath Tumours, as well as a book chapter with required steps to isolate Schwann cells from mouse/rat. Moreover, we are planning to submit (2021) the other manuscript related to my other PhD project. In this study, we found a direct interaction between Borrelia burgdorferi pathogen, the causative agent of Lyme Disease, and Schwann cells.

01/09/2013 – 31/07/2014

Laboratory work as Master student (Dept. of Genetics, Anthropology and Animal Physiology, Molecular Biology of Cancer, UPV/EHU, Leioa, Spain)

I worked for more than 10 months in Prof. Ana Zubiaga's laboratory as a Master student, where I used mouse as model organism to study the implication of mammalian E2F transcription factors (E2F1-E2F8) in DNA damage and repair in cancer.

Fellowships and Awards

- 27/04/2022** APART-MINT fellowship for excellent young scientists in mathematics, natural and life sciences, technical sciences and medicine (Austrian Academy of Sciences)
- 21/03/2022** Seal of Excellence, Marie Skłodowska Curie Fellowship Call 2021
- 10/02/2022** FEBS YSF grant to assist Young Scientists' Forum (6-9 July, Vimeiro, Portugal) and IUBMB-FEBS-PABMB Congress (9-14, Lisbon, Portugal)
- 09/09/2021** Inflammatory Skin Disease Summit travel grant (3-6 November, New York, US)
- 24/06/2020** International PhD, *Cum laude* (Committee agreement to apply for the Extraordinary Thesis Prize in 2022, UPV/EHU)
- 11/03/2020** VIBes in Biosciences conference travel grant (Leuven, Belgium)
- 01/07/2019** Boehringer Ingelheim Fonds (BIF) travel grant (research stay, Schekman Lab, UC Berkeley, California, US)
- 01/07/2019** Severo-Ochoa grant (UC Berkeley, California, US)
- 03/09/2019** EMBO Short-Term Fellowship (Dr. Ragnhildur Thora Karadottir, University of Cambridge, UK) *not benefited*
- 01/02/2016** Pre-doctoral grant (Basque Government, Department of Education, Language Policy and Culture)
- 01/09/2011** SÉNECA fellowship-Grant program for the mobility of university students within 1 year (Ministry of Education, Culture and Sports, Spain)

Scientific Publications

Elsa González-Cubero, María Luisa González-Fernández, María Rodríguez-Díaz, Natalia Valero-Avivar, **Marta Palomo-Irigoyen**, Ashwin Woodhoo, Vega Villar-Suárez. Application of adipose-derived Mesenchymal Stem Cells in an *in vivo* model of peripheral nerve damage (Submitted to Cell & Bioscience: 19/04/2022).

In this study, we show by in vivo and in vitro experiments, that both adipose tissue derived-mesenchymal stem cells (ASCs) and ASC-conditioned medium can protect peripheral nerves against demyelination and promote nerve regeneration. My role: Design and perform experiments with nerves (sciatic nerves, brachial plexus) and rat/mice primary Schwann Cells, discussion of results, supervision of E. González-Cubero PhD student and manuscript correction.

Marta Palomo-Irigoyen, Encarni Pérez-Andrés, Adrián Barreira-Manrique, Nicolás Navasa, Hector Rodriguez, Aize Pellon...Juan Anguita, Ashwin Woodhoo. *Borrelia burgdorferi* bacterium: a direct inducer of peripheral nervous system demyelination. In preparation. (Expected submission: July 2022).

Our results indicate that B. burgdorferi pathogen can bind to Schwann cells, triggering demyelination in myelinating Schwann cells, in the absence of immune cells, as well as in dorsal root ganglia (DRG)-Schwann cell cocultures and peripheral nerves. Moreover, we demonstrate that B. burgdorferi regulates key intracellular signaling pathways, including Wnt/ β -Catenin, which leads to a strong repression of myelin genes and protein expression, throwing light on one of the most intriguing pathological features of Lyme disease, the most common arthropod-borne disease in northern hemisphere. My role: Design and perform all experiments, make the figures for the article and manuscript writing.

Francisco González-Romero, Daniela Mestre, Igor Aurrekoetxea, Colm J O'Rourke, Jesper B Andersen, Ashwin Woodhoo, Miguel Tamayo-Caro, Marta Varela Rey, **Marta Palomo-Irigoyen**...Patricia Aspichueta. E2F1 and E2F2-mediated repression of CPT2 establishes a lipid-rich tumor-promoting environment. *Cancer Res*, 2021, 81, 2874-2887. doi: [10.1158/0008-5472.CAN-20-2052](https://doi.org/10.1158/0008-5472.CAN-20-2052)).

This study indicates that activation of the E2F1-E2F2-CPT2 axis provides a lipid-rich environment required for hepatocarcinogenesis. These findings identify E2F1 and E2F2 transcription factors as metabolic drivers of hepatocellular carcinoma. Actually, deletion of just one is sufficient to prevent the disease. My role: Perform experiments (e.g. RTqPCR), results discussion and manuscript correction.

Supawadee Sukseree, Latifa Bakiri, **Marta Palomo-Irigoyen**, Özge Uluçkan, Peter Petzelbauer, Erwin F Wagner. Sequestosome 1/p62 enhances chronic skin inflammation. *J Allergy Clin Immunol*, 2021, S0091-6749(21)00357-2. doi: [10.1016/j.jaci.2021.02.028](https://doi.org/10.1016/j.jaci.2021.02.028)

This study provide for the first time in vivo evidence for a proinflammatory role of p62 in skin inflammation. Data suggest p62-dependent signaling pathways may be promising therapeutic targets to ameliorate the skin manifestations of ISDs, including Atopic Dermatitis and possible Psoriasis. My role: Perform IHC and ELISA from lesional skin of JunB^{Δep} and JunB^{Δep}p62^{-/-} mice, results discussion and manuscript correction.

Marta Palomo-Irigoyen, Encarni Pérez-Andrés, Marta Iruarrizaga-Lejarreta, Marta Varela-Rey, Adrián Barreira-Manrique, Miguel Tamayo-Caro...Ashwin Woodhoo. HuR/ELAVL1 drives malignant peripheral nerve sheath tumour growth and metastasis. *J Clin Invest*, 2020,130, 3848-3864. doi: [10.1172/JCI130379](https://doi.org/10.1172/JCI130379)

Here, we identified the RNA-binding protein HuR as a central oncogenic driver for malignant peripheral nerve sheath tumours (MPNSTs). HuR was bound to a multitude of cancer-associated transcripts in human MPNST samples. Moreover, genetic and pharmacological inhibition of HuR inhibited tumour growth, and strongly suppressed metastatic capacity in vivo. Importantly, we linked the profound tumorigenic function of HuR to its ability to simultaneously regulate multiple essential oncogenic pathways including the Wnt/ β -Catenin, YAP/TAZ, Rb-E2F and BET proteins, which converge on key transcriptional networks. Therefore, here we proposed that HuR represents an ideal therapeutic target for MPNST treatment. My role: Experiments design, perform, results discussion, manuscript draft writing and final correction.

Jose A. Gomez-Sanchez, Lucy Carty, Marta Iruarrizaga-Lejarreta, **Marta Palomo-Irigoyen**, Marta Varela-Rey, Megan Griffith...Rhona Mirsky, Ashwin Woodhoo, Kristján R. Jessen. Schwann cell autophagy, myelinophagy, initiates myelin clearance from injured nerves. *J Cell Biol*. 2015, 210, 153-168. doi: [10.1083/jcb.201503019](https://doi.org/10.1083/jcb.201503019)

In this study, we show that Schwann cells degrade myelin after injury by selective autophagy, term that we called myelinophagy. Autophagy was up-regulated by myelinating Schwann cells after nerve injury and myelin debris were observed in autophagosomes by Transmission Electron Microscopy. Furthermore, pharmacological and genetic inhibition of autophagy impaired myelin clearance. Hence, these data reveal autophagy as a potent therapeutic target to improve myelin clearance in demyelinating diseases. My role: Perform nerve regeneration in vivo experiments in mice, ex vivo experiments with peripheral nerve segments (sciatic nerves) with or without autophagy inhibitors to analyse the role of Schwann Cells autophagy in nerve regeneration, results discussion, manuscript correction.

Book Chapters

Marta Palomo-Irigoyen, Miguel Tamayo-Caro, Encarnacion Pérez-Andrés, Adrián Barreira-Manrique, Marta Varela-Rey, Ashwin Woodhoo. Isolation and purification of primary rodent Schwann cells. *Methods in Molecular Biology* “Myelin”. Springer Protocols, **2018**, 81-93.

Here I describe the steps required to isolate and purify Schwann cells from rodent (rat and mice) peripheral nerves. The use of these cultures to model myelination in vitro is essential to study mechanistically Peripheral Nervous System disorders including demyelinating neuropathies. My role: Design and optimize the protocol, write the book chapter.

Miguel Tamayo-Caro, **Marta Palomo-Irigoyen**, Encarnacion Pérez-Andrés, Adrián Barreira-Manrique, Marta Varela-Rey, Ashwin Woodhoo. Analyzing autophagic flux in nerve cultures. *Methods in Molecular Biology* “Myelin”. Springer Protocols, **2018**, 193-206.

In this chapter, we describe an optimized protocol to monitor autophagy in peripheral nerves, using the autophagy flux assay. This can be used to compare basal and demyelination-induced autophagy in genetic mice models, or after treatment with specific compounds. My role: Optimize the protocol, and correct chapter draft.

Participation in Research Projects

Chronic Systemic Inflammation: Functional organ cross-talk in inflammatory disease and cancer (CSI-Fun). *European Research Council (ERC) Advanced grant. ID:741888. (2017- 5 years maximum). Head of research: Erwin F. Wagner, Medical University of Vienna, Austria. Budget: €2.499.875. Participation type: I design, plan and carry out experiments, discuss results and supervise PhD students.*

Role of post-translation modifications in Schwann cell myelination and demyelination, and in peripheral nervous system regeneration *Spanish Ministry of Science and Innovation, Universities. RTI2018-097503-B-I00, 01/01/2019 - 31/12/2021. Head of research: Ashwin Woodhoo, CIC bioGUNE, Spain. Budget: €217.000. Participation type: I carried out experiments and discussed results.*

Dissecting the master regulatory control of Schwann cell reprogramming. *Spanish Ministry of Economy, projects "I+D+I Retos" SAF2015-65360-R, 01/01/2016 - 3/12/2018. Head of research: Ashwin Woodhoo, CIC bioGUNE, Spain. Budget: €312.000. Participation type: I designed, planned and carried out experiments and discussed results.*

The *Borrelia burgdorferi* bacterium: a novel contact-dependent inducer of peripheral nerve demyelination. *Spanish Ministry of Economy, projects "Explora Ciencia" SAF2015-72416-EXP", 06/2016 - 30/05/2018. Head of research: Ashwin Woodhoo, CIC bioGUNE, Spain. Budget: €48.000. Participation type: I designed, planned and carried out experiments, discussed results, wrote the manuscript (plan to submit 2021) and supervised students. This project was one of the main projects that I was involved during my PhD.*

Role of the histone methyltransferase Ezh2 in Schwann cell reprogramming. *BBVA, 01/10/2015 - 30/11/2016. Head of research: Ashwin Woodhoo, CIC bioGUNE, Spain. Budget: €40.000. Participation type: I planned and carried out experiments and discussed results.*

Identifying the master regulatory signal that initiates Schwann cell reprogramming. *Spanish Ministry of Science and Innovation, Universities. SAF2015-62588-ERC, 01/08/2015 - 30/09/2016. Head of research: Ashwin Woodhoo, CIC bioGUNE, Spain. Budget: €232.000. Participation type: I planned and carried out experiments, discussed results and write reports.*

The role of autophagy in Schwann cells dedifferentiation and axon regeneration. *Instituto de Salud Carlos III PFIS (PI12/00005), 01/01/2013 - 31/12/2015. Head of research: Ashwin Woodhoo, CIC bioGUNE, Spain. Budget: €121.000. Participation type: I carried out *in vitro* and *ex vivo* experiments with Schwann cells and peripheral nerve segments, respectively in the presence or without autophagy inhibitors to analyse the role of autophagy in Wallerian degeneration, and discussed the correspondent results.*

The role of the RNA binding protein HuR (Elavl1) in MPNST (Malignant Peripheral Nerve Sheath Tumors). *Dept. of Education of the Basque Government, 01/2013 - 12/2015. Head of research: Ashwin Woodhoo, CIC bioGUNE, Spain. Budget: €28.875. Participation type: I carried out experiments (e.g. xenograft mouse models, *in vivo* experimental lung metastasis assay, CHIPseq, gene silencing of HuR and its targets by shRNA, soft-agar assay) and discussed the correspondent results.*

National and International Project Collaborations

E2F2 is a metabolic driver that mediates nonalcoholic fatty-liver disease development and progression to hepatocarcinogenesis (*Principal Investigator: Patricia Aspichueta, University of the Basque Country UPV/EHU, Spain*). My role: Perform experiments (e.g. RTqPCR), manuscript correction.

Role of secretome and mesenchymal stem cells derived-exosomes in sciatic neuropathy (*Principal Investigator: Maria Vega Villar, University of León, Spain*). My role: *In vitro* and *ex vivo* experiments design and perform them with nerves and Schwann Cells, results discussion, supervision of E. González-Cubero and manuscript correction.

Deciphering RBPMS role in normoxic and hypoxic conditions in retinal ganglion cells (*Principal Investigator: Elena Vecino, UPV/EHU, Spain*). My role: Design and perform experiments (RTqPCR and CHIPseq), write results reports and discuss results.

Guanine-7 methylation of RNA in stem cells and prostate cancer (*Principal Investigator: Sandra Blanco, Centro de Investigación del Cancer, University of Salamanca-CSIC, Spain*). My role: Design and perform experiments (polysome analysis), teach PhD student Raquel García Vílchez and discuss results.

Extracellular vesicles derived from primary human epidermal keratinocytes and human dermal fibroblasts promote migration of skin cells (*Principal Investigator: Arup Indra, Oregon State University, US*). My role: Perform experiments (cell culture of human keratinocytes and fibroblasts, isolation of extracellular vesicles and purification for exosomes, western blotting and migration assay), discuss results, and write a report for BIF.

Attendance and Contributions to National and International Conferences/Meetings

- 27/09/2022** The ESDR Future Leaders Academy in Dermatology (FLA), Valencia, Spain. Oral talk.
- 09/07/2022** IUBMB-FEBS-PABMB 2022 Congress: The Biochemistry Global Summit, Lisbon, Portugal. **Marta Palomo-Irigoyen**, Latifa Bakiri, Erwin F. Wagner. The role of S100A8, S100A9 and Calprotectin in Skin Inflammation. Oral talk.
- 06/07/2022** IUBMB-FEBS-PABMB Young Scientists' Forum (YSF 2022), Vimeiro, Portugal. **Marta Palomo-Irigoyen**, Latifa Bakiri, Erwin F. Wagner. The role of S100A8, S100A9 and Calprotectin in Skin Inflammation. Poster.
- 20/05/2022** Falling Walls Lab, Vienna, Austria. Breaking the walls of Inflammatory Skin Diseases (selected to talk).
- 03/11/2021** Inflammatory Skin Disease Summit, New York, US. **Marta Palomo-Irigoyen**, Latifa Bakiri. The role of S100A8, S100A9 and Calprotectin in Skin Inflammation. Poster.
- 04/03/2021** 47th Arbeitsgemeinschaft Dermatologische Forschung (ADF) Annual Conference (virtual).
- 01/07/2021** Francisco Gonzalez-Romero, Daniela Mestre Congregado, Igor Aurrekoetxea, Colm O Rourke, Jesper Andersen, Ashwin Woodhoo, Miguel Tamayo-Caro, Marta Varela-Rey, **Marta Palomo-Irigoyen**...Patricia Aspichueta. Repression of fatty acid oxidation in steatohepatic-HCC is mediated by E2F1 and E2F2 transcription factors. *J. Hepatology* 75, S497-S498.
- 11/03/2020** VIBes in Biosciences (International symposium for PhD students in life sciences), Leuven, Belgium. **Marta Palomo-Irigoyen**, Encarni Pérez-Andrés, Adrián Barreira-Manrique, Miguel Tamayo-Caro, Juan Anguita, Ashwin Woodhoo. The *Borrelia burgdorferi* bacterium: a direct inducer of peripheral nervous system demyelination. Poster, n° 50.
- 05/10/2019** ASEMV (Annual meeting of American Society for exosomes and microvesicles), Pacific Grove, California, US.
- 13/09/2019** CDB meeting (Annual retreat of Cell & Developmental Biology division, UC Berkeley), Pacific Grove, California, US.
- 10/04/2019** 54th Annual Meeting of the European Association for the Study of the Liver (EASL), Vienna, Austria, Francisco González-Romero, Daniela Mestre, Igor Aurrekoetxea, Diego Sáenz de Urturi, Beatriz Gomez-Santos, Maitane Nuñez-García, Xabier BuquéIgotz Delgado, **Marta Palomo-Irigoyen**, Miguel Tamayo-Caro, Ashwin Woodhoo, Marta Varela-Rey...Patricia Aspichueta. E2F2 mediated repression of fatty acid B-oxidation is mitigated through CREB1 in progressive non-alcoholic fatty liver disease. *J. Hepatology* 70, PS-008. doi: [https://doi.org/10.1016/S0618-8278\(19\)30014-3](https://doi.org/10.1016/S0618-8278(19)30014-3)
- 10/07/2019** 14th European Meeting on Glial Cells in Health and Disease. Portugal, Spain. Miguel Tamayo-Caro, **Marta Palomo-Irigoyen**, Encarni Pérez-Andrés, Marta Iruarrizaga-Lejarreta, Marta Varela-Rey, Ashwin Woodhoo. The RNA-binding protein HuR/Elavl1 controls a core gene regulatory circuitry essential for MPNST growth and metastasis. Poster, *Glia*, 67, E719-E719.
- 11/12/2018** MikrobiOGUNE (1st Basque Microbiology Meeting), Bilbao, Spain. **Marta Palomo-Irigoyen**, Encarni Pérez-Andrés, Marta Iruarrizaga-Lejarreta, Adrián Barreira-Manrique, Miguel Tamayo-Caro, Marta Varela-Rey, Ashwin Woodhoo. The *Borrelia burgdorferi* bacterium: a novel contact-dependent inducer of peripheral nerve demyelination. Flash communication and Poster, BM03.

- 07/09/2018** Neurogune (Basque Neuroscience meeting), Vitoria, Spain. **Marta Palomo-Irigoyen**, Encarni Pérez-Andrés, Marta Iruarrizaga-Lejarreta, Adrián Barreira-Manrique, Miguel Tamayo-Caro, Marta Varela-Rey, Ashwin Woodhoo. The *Borrelia burgdorferi* bacterium: a novel contact-dependent inducer of peripheral nerve demyelination. Poster, T2-28.
- 07/09/2018** Neurogune (Basque Neuroscience meeting), Vitoria, Spain. **Marta Palomo-Irigoyen**, Encarni Pérez-Andrés, Marta Iruarrizaga-Lejarreta, Adrián Barreira-Manrique, Miguel Tamayo-Caro, Marta Varela-Rey, Ashwin Woodhoo. The RNA-binding protein HuR/Elavl1 controls a core transcriptional regulatory circuitry essential for MPNST growth and metastasis. Poster, T2-29.
- 08/07/2017** 13th European Meeting on Glial Cells in Health and Disease, Edinburgh, Scotland. Marta Iruarrizaga-Lejarreta, Encarni Pérez-Andrés, Diana Medrano, **Marta Palomo-Irigoyen**, Marta Varela-Rey, Ashwin Woodhoo. The RNA-binding protein HuR is a master regulator of malignant peripheral nerve sheath tumorigenesis. Poster, *Glia*, 65, E567-E567.
- 27/06/2016** Neurogune (Basque Neuroscience meeting), Bilbao, Spain. **Marta Palomo-Irigoyen**, Marta Iruarrizaga-Lejarreta, Marta Varela-Rey, Ashwin Woodhoo. The RNA-binding protein HuR/Elavl1 controls a core transcriptional regulatory circuitry essential for MPNST growth and metastasis. Poster, IDO05.
- 15/07/2015** 12th European Meeting on Glial Cell Function in Health and Disease, Bilbao, Spain. **Marta Palomo-Irigoyen**, Marta Iruarrizaga-Lejarreta, Marta Varela-Rey, Ashwin Woodhoo. The RNA-binding protein HuR/Elavl1 controls a core transcriptional regulatory circuitry essential for MPNST growth and metastasis. Poster, T17-04B.
- 15/07/2015** 12th European Meeting on Glial Cell Function in Health and Disease, Bilbao, Spain. Jose A. Gomez-Sanchez, Lucy Carty, Marta Iruarrizaga-Lejarreta, **Marta Palomo-Irigoyen**, Marta Varela-Rey, Rhona Mirsky, Ashwin Woodhoo and Kristján R.Jessen. Schwann cell autophagy, myelinophagy, initiates myelin clearance from injured nerves, *Glia*, 63, E127-E128.

Academic mentorship

I achieved expertise mentoring and supervising students during the previous 6 years (2015-2021). I taught and supervised overall 5 Master students (*e.g.* Sofia Marcos, Nagore Beitia Telletxea), laboratory technicians (*e.g.* Adrián Barreira Manrique, Daniela Medrano) and PhD students (*e.g.* Elsa González Cubero, expected PhD viva 2021; Miguel Tamayo-Caro, expected PhD viva 2021).

Memberships

- 14/05/2022** Member of European Academy of Dermatology and Venereology (EADV).
- 02/05/2022** Member of the Official Association of Biologists of the Basque Country (Colegio Oficial de Biólogos de Euskadi-COB).
- 08/12/2021** Member of Spanish Society of Biochemistry & Molecular Biology (SEBBM).
- 16/09/2021** Member of European Society for Dermatological Research (ESDR). Post Doc Green Campaign.
- 31/08/2021** Member of Spanish Society for Cell Biology (SEBC).
- 24/08/2021** Member of Society for Investigative Dermatology (SID).
- 29/04/2021** Member of Spanish Society for Immunology (SEI).

Examples of Industrial application

My past research have a profound implication in Peripheral Nervous System pathologies and bacterial infections, that can be applicable to Pharma companies, as we identified targetable mechanisms promising for peripheral neuropathies including Schwann cell cancer (MPNSTs) and Lyme Disease. My current research in Genes and Disease Laboratory, might be applicable in an industrial context, as one of the hottest research fields includes gut-skin axis and the oral administration of probiotics to treat inflammatory skin diseases (ISDs). However, I will establish within this project whether topical application of correspondent drug(s) may be the future effective treatment for skin inflammation and derived gut inflammation as I proposed, that will be suitable for **Pharma companies** (I have already contacted Origimm Biotechnology for future applications, Vienna, Austria). Moreover, my research is invaluable to determine whether a vaccine can be effective to prevent ISDs that will attract **third-party funds** in non-academic sector.

Scientific Courses and workshops

1. Giving International Talks –*Julia Warner, MUV, Austria (20.04.2021)*
2. 4 keys for making effective presentations – *Bizkaia Science and Technology Park; International business Communication skills, Spain (22.05.2019)*

3. Translating science from academia to society-InnoBerrIkasi –CIC bioGUNE, Spain (08.04.2019)
4. Cancer Plasticity and heterogeneity symposium –JCB, JEM. Online participation (09/10/2018)
5. Workshop in Neuroinflammation and Neurodegeneration (Encuentro Científico “De la Neuroinflamación a la Neurodegeneración”) –Achucarro Basque Center for Neuroscience, Spain (28.09.2018)
6. Applications of Electron Microscopy: Knowledge and facilities in Basque Country –CIC bioGUNE, Spain (15.03.2018)
7. Basic Course in Proteomics –CIC bioGUNE, Spain (01.03.2017)
8. Photoshop CS6 (for research images) –Fundación Estatal para la formación en el empleo, Spain (21.12.2016)
9. Dissemination of the plan for the prevention of risks at work and risks in the laboratory –CIC bioGUNE, Spain (09.09.2016)
10. Statistics: Initiation into SPSS and Creation of databases for basic research –Fundación Tripartita para la formación en el empleo, Spain (07/03/2016)
11. Statistics: Creation of databases for basic research-Practical examples –Fundación Tripartita para la formación en el empleo, Spain (07/03/2016)
12. Statistics: Initiation into SPSS -Practical examples –Fundación Tripartita para la formación en el empleo, Spain (07/03/2016)
13. Animal Facility training course: Function C (Función de Realización de los Procedimientos: Función C) –Animalaria Formación y Gestión S.L, Spain (06.06.2016)
14. Animal Facility training course: Function B (Función de Eutanasia de los Animales: Función B) Animalaria Formación y Gestión S.L, Spain (06.06.2016)
15. Presenting information effectively in English: 5 keys to improvement –Bizkaia Science and Technology Park (Lanser English training), Spain (18.02.2015)
16. Introduction to Clinical Genetics –Basurto Hospital, Spain (01.06.2013)

Scientific and Social Impact of the Results

J. Cell Biol. **2015**, 210, 153-168, Times Cited: **197**. Highlighted by Dr. Michael Thumm (University of Göttingen, Germany) and Dr. Mikael Simons (Max Planck Institute of Experimental Medicine, Germany) in: Myelinophagy: Schwann cells dine in, J. Cell Biol. **2015**; 210 (1): 9-10. doi: 10.1083/jcb.201506039.

In the News

European Commission-CORDIS-<https://cordis.europa.eu/article/id/421496-cic-biogune-research-opens-up-avenues-for-treating-a-highly-aggressive-cancer-of-the-nervous->

REDIB (Red Iberoamericana de Innovación y Conocimiento Científico)-<https://redibinforma.com/art/1225/descubren-vias-contra-cancer-del-sistema-nervioso-agresivo-en-ninos-y-adultos>

Europapress-<https://www.europapress.es/euskadi/noticia-investigacion-cic-biogune-identifica-posible-diana-terapeutica-cancer-agresivo-sistema-nervioso-20200630174058.html>

La Vanguardia-<https://www.lavanguardia.com/vida/20200630/482035529668/descubren-vias-contracancer-del-sistema-nervioso-agresivo-en-ninos-y-adultos.html>

Deia- <https://www.deia.eus/vivir-on/salud/2020/06/30/investigacion-vasca-abre-via-cancer/1049009.html>

El Nuevo Diario-<https://elnuevodiario.com.do/tag/marta-palomo-irigoyen/>

Quiosco-<http://quiosco.com.do/descubren-vias-contra-cancer-del-sistema-nervioso-agresivo-en-ninos-y-adultos/98876>

EurekAlert! AAAS-<https://www.eurekalert.org/news-releases/462934>

Ciberisiii-<https://www.ciberisiii.es/noticias/descubren-nuevas-dianas-terapeuticas-para-la-esteatosis-hepatica-metabolica-y-el-carcinoma-hepatocelular-asociado>

Other Skills

Languages

Basque (Native).....C1 level certificate

Spanish (Native)

English (Advanced).....B2 level certificate

Catalan (Advanced, spoken)

German (Basics, spoken).....A1 certificate

Italian (Basics, spoken)

Technical skills

Cell culture: Rat and mouse primary Schwann cells, rat/murine dorsal root ganglia (DRG)-Schwann cell co-cultures, cancer (MPNST) cell lines, mouse primary keratinocytes, human keratinocyte and fibroblast cell lines.

Tissue culture: *Ex vivo* rat and mice sciatic nerves and brachial plexus.

In vivo experimental procedures: Xenograft mouse models, experimental lung metastasis assay by tail vein injection, nerve degeneration/regeneration by nerve injury, bone marrow transplantation, drug/inhibitor intraperitoneal injection and oral gavage.

Microscopy: Scanning Electron, Transmission Electron, Confocal, Fluorescence.

Other **molecular biology** techniques of interest: Nanoparticle Tracking Analysis, Flow cytometry, CHIPseq, ATACseq, polysome extraction, nascent protein analysis with O-Propargyl Puromycin, gene silencing by siRNA and shRNA, enzyme-linked immunosorbent assay, western blot, quantitative real-time polymerase chain reaction.

Expertise in **BSL-2** laboratory: Bacteria cultures (*Borrelia burgdorferi*, *Mycobacterium tuberculosis*, *Acinetobacter baumannii* and *Rhodococcus equi* pathogens; *Lactobacillus plantarum*, *L. casei* and *L. rhamnosus*), production of lentivirus and adenovirus.

Software, programs

GraphPad Prism, OriginLab, MSigDB, Gene Set Enrichment v3.0, SPSS, Swiss-Prot, Ensembl, BLAST.