

CV Date	12/12/2025
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## Part A. PERSONAL INFORMATION

First Name	Miguel		
Family Name	Chillón Rodríguez		
Sex	Male	Date of Birth	12/01/1966
ID number Social Security, Passport	38078288V		
URL Web	https://vhir.vallhebron.com/ca/recerca/terapia-genica-al-sistema-nervios		
Email Address	miguel.chillon@vhir.org		
Open Researcher and Contributor ID (ORCID)	0000-0003-0840-2111		

### A.1. Current position

Job Title	Investigador. Jefe Grupo Investigación		
Starting date	2015		
Institution	FUNDACIO INSTITUT DE RECERCA DE L'HOSPITAL UNIV. VALL D'HEBRON		
Department / Centre	eCORE Advanced Therapies / VHIR		
Country	Spain	Phone Number	(+34) 935814199
Keywords	Molecular mechanism of disease; Gene therapy; Dna therapy		

### A.2. Previous positions (Research Career breaks included)

Period	Job Title / Name of Employer / Country
2024 - 2027	Gestor Biotecnología / Agencia Estatal de Investigación (Ministerio de Ciencia e Innovación)
2016 - 2022	Co-Chair Europeo de la Plataforma Terapias Avanzadas / EATRIS
2010 - 2018	Miembro del Consejo de Dirección / Nanotherapix SL
2016 - 2017	Miembro del Consejo de Dirección / Kogenix Therapeutics
2000 -	Investigador postdoctoral Reincorporado / Universitat Autònoma de Barcelona
1997 -	Investigador postdoctoral EMBO / Genethon III, França
1994 -	Investigador postdoctoral HHMI / Howard Hughes Medical Institute (HHMI). University of Iowa, USA

### A.3. Education

Degree/Master/PhD	University / Country	Year
Biología molecular y genética	Universitat de Barcelona	1994
Biología	Universitat de Barcelona	1988

## Part C. RELEVANT ACCOMPLISHMENTS

### C.1. Most important publications in national or international peer-reviewed journals, books and conferences

AC: corresponding author. (n° x / n° y): position / total authors. If applicable, indicate the number of citations

- Scientific paper.** A. Brao, A. Sánchez, I. Rodríguez J. del Rey, Silvia Lope-Piedrafita, E. Prat, V. Nunes, M. Chillón, , R. Estévez, and A. Bosch. 2025. Gene therapy rescues brain edema and motor function in a mouse model of megalencephalic leukoencephalopathy with subcortical cysts. *Molecular Therapy*. 33-4, pp.1434-33-1448.

- 2 **Scientific paper.** J. Roig-Soriano, A. Edo, S. Verdés, C. Martín-Alonso, C. Sánchez-de-Diego; L. Rodríguez-Estevez, A.L. Serrano, C.R. Abraham, A. Bosch; F. Ventura, B.A. Jordan, P. Muñoz-Cánoves; M. Chillón. 2025. Long-term effects of s-KL treatment in wild-type mice, enhancing longevity, physical well-being, and neurological resilience. *Molecular Therapy*. 33-4, pp.1449-1465.
- 3 **Scientific paper.** J. Esandi; P. Renault; M. Dolores Capilla-López; R. Blanch; A. Edo; D. Ramirez-Gomez; A. Bosch; B. Almolda; C.A. Saura; J. Giraldo; M. Chillón. 2025. HEBE: a novel chimeric chronokine for ameliorating memory deficits in Alzheimer's disease. *Biomedicine and Pharmacotherapy*. February, pp.117815.
- 4 **Scientific paper.** V. Noé, S. Valiuska, J.M. Rojas, P. Nogales-Altozano, A. Aviñó, R. Eritja, M. Chillón,; N. Sevilla and C.J. Ciudad. 2024. Polypurine Reverse Hoogsten hairpins as a therapeutic tool for SARS-CoV-2 infection. *Journal of Biological Chemistry*. Oct, pp.107884.
- 5 **Scientific paper.** M. Bunuales, A. Garduno, M. Chillon, A. Bosch, M. Gonzalez-Aparicio, M. Espelosin,; M. Garcia-Gomara, AJ. Rico, A. Garcia-Osta, M. Cuadrado-Tejedor,; JL. Lanciego, R. Hernandez-Alcoceba,. 2024. Characterization of brain transduction capability of a BBB-penetrant, peptide-displaying AAV vector in mice, rats and non-human primates. *Gene Therapy*. 31(9-10), pp.455-466.
- 6 **Scientific paper.** Michael Q. Fitzgerald, Tiffany Chu, Francesca Puppo, Rebeca Blanch, Miguel Chillón; Shankar Subramaniam, Alysson Muotri. 2024. Protocol for Generation of Semi-guided Cortical Organoids with Complex Neural Oscillations. *Nature Protocols*. 19(9), pp.2712-2738.
- 7 **Scientific paper.** Marianna TP Favaro, Patricia Alamo, Nerea Roher, Miguel Chillon, Jara Lascorz,; Merce Márquez, José L. Corchero, Rosa Mendoza, Carlos Martínez-Torró,; Neus Ferrer-Miralles, Luis CS Ferreira, Ramón Manges, Esther Vázquez; Eloi Parladé, Antonio Villaverde. 2024. Zinc-Assisted Microscale Granules Made of the SARS-CoV-2 Spike Protein Trigger Neutralizing, Antivirus Antibody Responses. *ACS Materials Letters*. 6, pp.954-962.
- 8 **Scientific paper.** J. Roig-Soriano; C. Sánchez-de-Diego; J. Esandi-Jauregui; S. Verdés; C. R. Abraham; A. Bosch; F. Ventura; M. Chillon. 2023. Differential toxicity profile of secreted and processed  $\alpha$ -Klotho expression over mineral metabolism and bone microstructure. *Scientific Reports*. 13-1, pp.4211-4219.
- 9 **Scientific paper.** Júlia Companys-Aleman, Joan Roig-Soriano, Andrea L. Turcu, Miguel Chillón, Santiago Vázquez, Christ. 2022. Optimized NMDA receptor antagonist exhibits hippocampal pro-neurogenic effects in aged SAMP8 mice. *NeuroReport*. 33-14, pp.623-628.
- 10 **Scientific paper.** Ángel Edo, Laura Calvo-Barreiro, Herena Eixarch, Assumpció Bosch, Miguel Chillón, and Carmen Espejo. 2022. Therapeutic effect of IL21 blockage by gene therapy in Experimental Autoimmune Encephalomyelitis. *Neurotherapeutics*.
- 11 **Scientific paper.** J. Roig-Soriano, C. Griñán-Ferré, J.F. Espinosa-Parrilla, C. R. Abraham, A. Bosch, M. Pallàs, M. Chi. 2022. AAV-mediated expression of  $\alpha$ Klotho isoforms rescues relevant aging hallmarks in senescent SAMP8 mice. *Aging Cell*. 4, pp.e13581.
- 12 **Scientific paper.** Marc Leal-Julià, Jorge J. Vilches, Andrea Onieva, Sergi Verdés, Ángela Sánchez, Miguel Chillón, Xavi. 2022. Proteomic quantitative study of dorsal root ganglia and sciatic nerve in type 2 diabetic mice. *Molecular Metabolism*. 55, pp.101408.
- 13 **Scientific paper.** 2021. A Transgenic Model Reveals the Role of Klotho in Pancreatic Cancer Development and Paves the Way for New Klotho-Based Therapy. *Cancers*. 13-24, pp.6297.
- 14 **Scientific paper.** E. Aubets , M. Chillon , C. J Ciudad , V. Noé. 2021. PolyPurine Reverse Hoogsteen Hairpins work as RNA species for gene silencing. *International Journal of Molecular Sciences*. 22-18, pp.10025.
- 15 **Scientific paper.** 2021. Specific expression of Glial-Derived Neurotrophic Factor in muscles a gene therapy strategy for Amyotrophic Lateral Sclerosis. *Neurotherapeutics*. 18(2), pp.1113-1126.
- 16 **Scientific paper.** M Vogel-González, M Talló-Parra, V Herrera-Fernández, G Pérez-Vilaró, M Chillón, X Nogués-Solan, S G. 2021. Low zinc levels at admission associates with poor clinical outcomes in SARS-CoV-2 infection. *Nutrients*. 13-2, pp.1-13.

- 17 Scientific paper.** 2020. Cerebellar Astrocyte Transduction as Gene Therapy for Megalencephalic Leukoencephalopathy. *Neurotherapeutics*. Oct;17(4), pp.2041-2053.
- 18 Review.** C. Griñán-Ferré, V. Izquierdo, A. Bellver-Sanchis, R. Corpás, J. Roig-Soriano, M. Chillón, C. Andres. 2021. The pleiotropic neuroprotective effects of resveratrol: from antioxidant to epigenetic inheritance modulator. *Aging Research Reviews*. 67.

### C.3. Research projects and contracts

- 1 Project.** NEUROAGE: Innovació en Envelliment Saludable i Malalties Neurodegeneratives. Xarxes d'R+D+I d'AGAUR. 2025. 01/01/2026-31/12/2028.
- 2 Project.** The European Rare Diseases Research Alliance (ERDERA). 01/09/2024-31/08/2028. 125.755 €.
- 3 Project.** MLC Advanced Gene therapy: Next-step Evaluation and Translation (MAGNET). European Leukodystrophy Association. 01/01/2026-31/12/2027. 200.000 €.
- 4 Project.** ISCI. REDES DE INVESTIGACIÓN COOPERATIVA ORIENTADAS A RESULTADOS EN SALUD (RICORS). Instituto de Salud Carlos III. 01/01/2025-31/12/2027. 140.239 €.
- 5 Project.** Doctorado Industrial UAB-Asphalion. (Universitat Autònoma de Barcelona). 01/08/2024-30/07/2027. 37.800 €.
- 6 Project.** Cornerstone for developing next-generation drugs for healthy aging. Agència de Gestió d'Ajuts Universitaris i Recerca (AGAUR).. 01/10/2025-31/03/2027. 84.000 €.
- 7 Project.** Towards an effective and safe therapy for hormonal-deficiency osteoporosis based on klotho protein. CaixaImpulse. 15/10/2024-14/10/2026. 150.000 €.
- 8 Project.** Therapeutical modulation of the microglia-neuronal interaction by chronokines to treat chronic brain inflammation associated with aging. ( $\mu$ -4-WELL-AGING). MICINN. Beatriz Almolda. (UAB). 01/09/2023-31/08/2026. 125.000 €.
- 9 Project.** Gene therapy for diseases involving the Central Nervous System-TherCNS. Agencia de Gestió d'Ajuts Universitaris i de Recerca (AGAUR).. Assumpcio Bosch. (UAB). 01/03/2023-28/02/2026. 60.000 €.
- 10 Project.** Red española de adenovirus: desde la Biología básica a la Nanobiomedicina. MICINN: Acciones de dinamización "Redes de Excelencia" (RED2022-134221-T). Miguel Chillón. 01/06/2023-31/05/2025. 20.000 €.
- 11 Project.** Estudio y desarrollo de la primera plataforma tecnológica de ensayos para virus adenoasociados en terapia génica. Instituto de Salud Carlos III. Miguel Chillón. (VHIR). 01/04/2023-31/03/2025. 296.571 €.
- 12 Project.** Gene therapy to treat Megalencephalic Leukodystrophy with subcortical cysts (MLC). European Leukodystrophy Association. (ELA 2022-00412). Assumpcio Bosch. 01/03/2023-28/02/2025. 189.654 €.
- 13 Project.** TECNIO:Unidad Produccion de Vectores (UPV). Direcció General de Recerca, Generalitat Catalunya. (Universitat Autònoma Barcelona). 01/01/2023-31/12/2024. 36.554,73 €.
- 14 Project.** REDES DE INVESTIGACIÓN COOPERATIVA ORIENTADAS A RESULTADOS EN SALUD (RICORS). RD21/0017/0008. (Universitat Autònoma de Barcelona). 01/12/2021-30/11/2024. 163.225 €.
- 15 Project.** Study of the effects of the chronokine Klotho in maintenance of myelin sheaths in a non-human primate model of aging. IALBA Synchrotron. Beatriz Almolda. (UAB). 01/09/2023-28/02/2024. 67.264,8 €.
- 16 Project.** AC20/00051, Personalized gene therapy for MECP2 using CRISPR/Cas9 technology together with AAV administration in 3D cell cultures and KI mice. European Joint Programme-Rare Diseases and ISC-III EJP RD JTC 2020.. Miguel Chillón Rodríguez. (FUNDACIO INSTITUT DE RECERCA DE L'HOSPITAL UNIV. VALL D'HEBRON). 01/01/2021-31/12/2023.
- 17 Project.** Plataforma personalizada para el análisis de fármacos antiepilépticos. Miguel Chillón. (Universitat Autònoma de Barcelona). 01/10/2022-30/09/2023. 20.000 €.
- 18 Project.** PTA2019-017896-I, Unidad de Producción de Vectores (UPV): Personal Técnico de Apoyo.. Ministerio de Ciencia e Innovación. Miguel Chillón Rodríguez. (Universitat Autònoma de Barcelona). 01/09/2020-31/08/2023. 36.000 €.

- 19 Project.** PID2019-104034RB-I00, Molecular and functional characterization of new recombinant chimeric chronokines. Implications for cognitive decline associated with aging.. Proyectos I+D+i Retos Sociedad.. (Universitat Autònoma de Barcelona). 01/07/2020-30/06/2023. 121.000 €.
- 20 Project.** A long-lasting anti-Covid-19 subcutaneous vaccine through a novel, industrially competitive and biologically safe nanomimetic concept (INVITA). Programa PANDEMIAS-2020. (Universitat Autònoma de Barcelona). 01/05/2021-30/04/2023.
- 21 Project.** RTC2019006879-1, Desarrollo de nuevas terapias genéticas basadas en inteinas. Retos Colaboración.. (Universitat Autònoma de Barcelona). 01/01/2020-30/06/2022. 1.161.549 €.
- 22 Project.** Desarrollo de una terapia génica para el tratamiento de las formas genéticas del Síndrome Nefrótico (AAV-Crb2). (FUNDACIO INSTITUT DE RECERCA DE L'HOSPITAL UNIV. VALL D'HEBRON). 01/05/2020-30/04/2022. 697.130 €.
- 23 Project.** Recombinant HEBE: A chimeric Chronokine to rejuvenate the Brain. Programa proof of Concept. Convocatoria 2020. (Universitat Autònoma de Barcelona). 01/04/2021-31/03/2022. 20.000 €.
- 24 Project.** Una terapia innovadora contra el SARS-CoV-2 basada en ARN circulares (CIRCO-3). Juana Diez. (Universitat Autònoma de Barcelona). 01/06/2020-31/05/2021. 198.000 €.
- 25 Contract.** Valorization of s-Klotho for Alzheimer'd Disease Klotho Neurosciences. 01/12/2025-01/12/2027. 90.000 €.
- 26 Contract.** Terapia Génica para Deficiencia ADSL Fundación ANTIAN. 15/12/2023-15/12/2026. 150.000 €.
- 27 Contract.** Terapia Génica para Encefalopatía GNB1 Fundación Gen Rebelde. 01/12/2020-01/12/2024. 375.000 €.
- 28 Contract.** Terapia Genica para SPG52 Fundacion La lucha de Abril. 01/06/2020-01/06/2025. 450.000 €.

#### **C.4. Activities of technology / knowledge transfer and results exploitation**

- 1 Miguel Chillon. EP23382593.4. klotho fusion protein and uses thereof 15/06/2023. UAB, ICREA, VHIR.
- 2 EP22383171.0. Secreted splicing variant of Klotho for extending lifespan 02/12/2022. UAB, ICREA, VHIR.
- 3 EP22383173.6. Secreted splicing variant of Klotho for treating muscle disorders 02/12/2022. UAB, ICREA, VHIR; UPF.
- 4 EP22382421.0. Nucleic acid constructs and vectors for podocyte specific expression 02/05/2022. UAB, ICREA, VHIR, Ninevah.
- 5 Assumpcio Bosch; Sergi Verdes; Mireia Herrando; Xavier Navarro; Miguel Chillon. US-63/330.684. Treatment of neuromuscular diseases via gene therapy that expresses klotho protein United States of America. 13/04/2022. UAB, ICREA, VHIR, CIBERNED.
- 6 Joan Roig; Miguel Chillon; Assumpcio Bosch; Merce Pallas; Crsitian Griñan. EP21382465.9. Secreted splicing variant of Klotho for treating bone disorders 21/05/2021. UAB, ICREA, UB, VHIR.