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Núria Montserrat· ***Curriculum Vitae***  
**January 10<sup>th</sup>, 2022**

## PERSONAL DATA

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Name: **Núria Montserrat**  
Date of Birth: **June 9<sup>th</sup>, 1978**  
Place of Birth: **Barcelona (Spain)**  
Nationality: **Spanish**



## CURRENT POST

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**ICREA Research Professor**  
**Senior Group Leader**

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**Link to research web site URL or to full list of publications:**

<https://www.ncbi.nlm.nih.gov/pubmed/?term=nuria+montserrat>; [Montserrat laboratory](#)

## RESUME OF RESEARCH EXPERIENCE

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I became interested in organ regeneration and stem cells during my master and PhD training that finished in 2006. The same year I got a Postdoctoral fellowship from the Fundação para a Ciência e Tecnologia (Portugal). In 2007 I was hired as a post-doctoral researcher at the Hospital of Santa Creu i Sant Pau in Barcelona. In 2008 I moved to the Center of Regenerative Medicine of Barcelona (CMRB), under the direction of Dr. Juan Carlos Izpisua supported by a Juan de la Cierva fellowship. There, I participated in developing strategies for the generation and banking of new induced pluripotent stem cells (iPSCs). In 2010 I first co-authored how to reprogram cord blood stem cells for the first time (Nature Protocols, 2010). Then, I reasoned that iPSCs could be obtained by means of safe strategies with new factors. The work resulted in a high-impact publication in Cell Stem Cell (2013), in where I am the first co-author.

I also collaborated in other projects aimed to characterize the genomic integrity of human iPSCs (Nature 2012) as well as in the differentiation of iPSCs towards different lineages (Stem Cells 2011; Nature 2012; Nature Methods 2012, Nature Cell Biology 2013, Nature Communications 2014). I have also participated in the generation of platforms for the study of disease progression by means of iPSCs (Nature 2012, Nature Communications 2014). Always fascinated to understand the nature of regeneration and developmental processes, I then co-authored how the reactivation of endogenous pathways could be artificially reactivated and promote heart regeneration in mammals (Cell Stem Cell, 2014).

My background in the fields organ regeneration and somatic reprogramming helped me to develop a massive project for the induction of endogenous programs regenerating the mammalian kidney that was selected for funding from the European Research Council (ERC), within the call of ERC Starting Grant (call 2014). In January 2015 I became Junior Group Leader at the Institute of Bioengineering of Catalonia (IBEC) and Ramon y Cajal (first ranked candidate, 100/100 points in Biomedicine area) to build my own research group. Since then, I have led different works on the application of the organoid technology to study tissue development and human disease which have been published in Nature Materials, Cell, Biomaterials, among others. I have co-led the first work on the generation of vascularized kidney organoids and more recently I have also led the first proof of concept for the use of kidney organoids to understand and target SARS-CoV-2 infection identifying a clinical grade compound blocking viral entrance in human cells in the framework of an international collaboration. Our Cell paper has been highlighted as a Research Highlight in both Nature Reviews Nephrology and in the Nature journal, also attracting remarkable attention (more

than 200 national press releases, and 30 radio/television) being awarded as the “Best biomedical research publication 2020” (“*Constantes y Vitales*” Prize). I have recently led the first work on the identification of metabolic regulators protecting the renal tubule from acute injury exploiting kidney organoid technology (Cell Metabolism, 2020).

In sum, from 2015, my work has attracted more than 11 M€ of direct competitive funding and around 1.2 M€ in personnel related grants, from both Spanish and European institutions. In December 2020, the ERC has recognized all these efforts and I have been awarded with the prestigious ERC-Consolidator Grant to study the interplay between mechanobiology and metabolism during kidney development and disease. All these efforts have been recently recognized by the prestigious EMBO, with the EMBO Young Investigator award in December 2020 and the National Young Talent Research Award from the Catalan Foundation for Research and Innovation (2020). Overall, I have published a total of 71 papers. My h-index is 36 (Google Scholar). I have supervised 19 Master students (from international universities), 2 PhD students and I am currently supervising 5 PhD students. From January 2019 I became ICREA Research Professor and Senior Group Leader at the Institute of Bioengineering of Catalonia (IBEC). I have combined my research activities with those related to Deputy Director (first at the CMRB from 2012-2012) and nowadays at IBEC (2018-nowadays). I have been recently appointed as coordinator of the platform in biobanking and biomodels from the Instituto de Salud Carlos III (January 2021).

Of equal importance I have been always committed to science dissemination and encouraging the scientific career to scholars and minority groups (including elder people). In this regard, I have performed more than 200 science communication activities to general public (including media and newspapers and elected as Commissioner in the first and second City and Science Biennial in Barcelona (2019 and 2021). I review at international agencies (ERC, MRC, FWO, ANRS, EISMEA/European Innovation Council and SMEs Executive Agency) and referee for Nature Materials, Nature Methods, Cell Stem Cell, Cell, Stem Cell Reports, among others. My collaborators in UK, France, Germany, US, CH, Singapore, Luxembourg, Japan, Saudi Arabia, Italy, and Spain have allowed me to establish a world-wide network sharing my passion towards regenerative medicine.

From 2012-2017 I have got three kids. Valentina (2012), Sofia (2014) and David (2017). Being always able to balance my personal life with these and other personal circumstances. Indeed, I have resolved important steps in my career during all these years (ERC Starting Grant 2014, Group Leader Position in IBEC 2015, publication of different works in the field of regenerative medicine and bioengineering of high impact factor-*see next sections of this CV*). Overall, my personality and strong motivation have always guide me when I have got difficult times (my second child was diagnosed with a hemiparesis needing a lot of extra-care by the time I was preparing my ERC defence, and the Group Leader position, among others). I am confident that my personal circumstances in the last years have made me stronger and proved to me that my passion towards science and leadership will make me overcome any difficulties that may arise along the way.

## EDUCATION

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- 2006 PhD in Biology. Faculty of Biology, University of Barcelona (UB), Spain. PhD Supervisors: Dr. Gutiérrez and Dr. Navarro (European PhD, *cum laude*).
- 2002 Master of Science in Experimental Biology. Faculty of Biology, UB, Spain.
- 2001 Honours Degree in Biology. Faculty of Biology, UB, Spain.

## CURRENT POSITIONS

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2019 – now ICREA Research Professor & Senior Group Leader: Pluripotency for organ regeneration. Institute for Bioengineering of Catalonia (IBEC), Spain.

## PREVIOUS POSITIONS

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- 2015 – 2018 Junior Group Leader, Pluripotency for organ regeneration, IBEC, Spain
- 2011 – 2014 Research Associate, CMRB, Spain. Supervisor: Dr. Izpisúa
- 2008 – 2011 Postdoctoral researcher, (Juan de la Cierva), CMRB, Spain. Supervisor: Dr. Izpisúa
- 2007 – 2008 Postdoctoral researcher, Hospital Santa Creu i Sant Pau, Spain. Supervisor: Dr. Prat
- 2006 – 2007 Postdoctoral researcher (Fellowship from Fundação para a Ciência e Tecnologia, FCT). Supervisors: Dr. Valente (CIIMAR, Portugal) and Dr. Gutiérrez Fruitós (UB, Spain)

## FELLOWSHIPS AND AWARDS

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- 2020 ERC Consolidator Grant
- 2020 Premio Constantes Vitales – Best biomedical publication 2020 (ATRESMEDIA and AXA Foundation)
- 2020 National Young Talent Research Award from the Catalan Foundation for Research and Innovation
- 2020 EMBO Young Investigator
- 2019 Award in “*Basic Nephrology 2019*” from Íñigo Álvarez de Toledo Foundation
- 2019 ICREA Professor, Catalan Institution for Research and Advanced Studies (ICREA), Spain
- 2015 – 2020 ERC Starting Grant
- 2015 – 2019 Ramon y Cajal Fellowship (score 100/100, first ranked candidate), Ministry of Economy and Competitiveness (MINECO), Spain.
- 2008 – 2011 Juan de la Cierva Postdoctoral Competitive Fellowship, MINECO, Spain.
- 2006 – 2007 Competitive Postdoctoral Fellowship, Fundação para a Ciência e Tecnologia de Portugal
- 2002 – 2006 Predoctoral Fellowship, Ministry of Science and Technology, Spain

## MANAGEMENT EXPERIENCE

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**From January 2021: Coordinator of the Platform Biobanks and Biomodels from the Institute of Health Carlos III.** Coordination of more than 40 units in Spain with activities related to biobanking and the generation/services in biomodels (organoids and animal services) as well as 3D bioprinting. Planning and execution of strategic research and service initiatives together with research plans to increase clinical oriented research support to academia and industry at both national and international level.

**From September 2018: Deputy Director of Clinical Translation and Innovation at IBEC.** Conduction and promotion of research activities from IBEC for their future clinical translation. Organization of meetings, planning and execution of strategic research initiatives together with research plans to increase clinical oriented research support.

**September 2012 - January 2014: Deputy Director of Center of Regenerative Medicine in Barcelona.** Co-supervision of pre-doctoral and post-doctoral fellows and scientific technical platforms, preparation of international/national grant proposals, conduction of outreach and promotion activities of the center, organization of meetings, implementation of website information, planning and execution of strategic research initiatives together with business plans to increase sponsored research support. I combined these tasks together with a position of Staff Scientist. In that period CMRB was under the direction of Dr. Izpisúa Belmonte.

## RESEARCH OUTPUTS

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71 research papers	h-index: 37 (Google Scholar)	8012 Citations (Google Scholar)
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## 10 SELECTED PUBLICATIONS:

1	Garreta E, Kamm R, Chuva de Sousa Lopes SM, Lancaster MA, Weiss R, Trepas X, Hyun I, <b>Montserrat N*</b> . Rethinking organoid technology through bioengineering. <i>Nature Materials</i> . 2020 Nov 16. doi: 10.1038/s41563-020-00804-4. (*corresponding author). <u>Impact factor: 39,235</u>
2	Dhillon P, Park J, Hurtado Del Pozo C, Li L, Doke T, Huang S, Zhao J, Kang HM, Shrestha R, Balzer MS, Chatterjee S, Prado P, Han SY, Liu H, Sheng X, Dierickx P, Batmanov K, Romero JP, Prósper F, Li M, Pei L, Kim J, <b>Montserrat N*</b> , Susztak K* (2021). The Nuclear Receptor ESRRB Protects from Kidney Disease by Coupling Metabolism and Differentiation. <i>Cell Metabolism</i> . ;33(2):379-394.e8. doi: 10.1016/j.cmet.2020.11.011 (*co-correspondency). <u>Impact factor: 27,29</u>
3	Monteil V, Kwon H, Prado P, Hagelkrüys A, Wimmer RA, Stahl M, Leopoldi A, Garreta E, Hurtado Del Pozo C, Prósper F, Romero JP, Wirnsberger G, Zhang H, Slutsky AS, Conder R, <b>Montserrat N*</b> , Mirazimi A*, Penninger JM* (2020). Inhibition of SARS-CoV-2 Infections in Engineered Human Tissues Using Clinical-Grade Soluble Human ACE2. <i>Cell</i> . 2020 May 14;181(4):905-913.e7. doi: 10.1016/j.cell.2020.04.004 (*co-correspondency). <u>Impact factor:41,582</u> Highlighted as Editor's comment:

	<ul style="list-style-type: none"> <li>• <i>Francois Alhenc-Gelas, Tilman B Drueke. Blockade of SARS-CoV-2 infection by recombinant soluble ACE2. Kidney Int 2020 Jun;97(6):1091-1093.</i></li> <li>• <i>Susan J. Allison. SARS-CoV-2 infection of kidney organoids prevented with soluble human ACE2. Nature Reviews Nephrology volume 16, page316(2020)</i></li> <li>• <i>Mini organs reveal how the coronavirus ravages the body. Nature <a href="https://www.nature.com/articles/d41586-020-01864-x">https://www.nature.com/articles/d41586-020-01864-x</a></i></li> </ul>
4	<p>Garreta E, Prado P, Tarantino C, Oria R, Fanlo L, Martí E, Zalvidea D, Trepát X, Roca-Cusachs P, Gavaldà-Navarro A, Cozzuto L, Campistol JM, Izpisua Belmonte JC, Hurtado del Pozo C, <b>Montserrat N*</b> (2019). Fine tuning the extracellular environment accelerates the derivation of kidney organoids from human pluripotent stem cells. <i>Nature Materials</i>; 18: 397-405. (<b>*corresponding author</b>). <u>Impact factor: 39,235</u></p> <p>Highlighted as <i>Editor's comment</i> in Highlighted as Editor's comment and News and Views in:</p> <ul style="list-style-type: none"> <li>• <i>Allison SJ. A materials approach for kidney organoids. Nat Rev Nephrol. 2019 Mar 5. doi: 10.1038/s41581-019-0139-2</i></li> <li>• <i>Chuva de Sousa Lopes SM. Accelerating maturation of kidney organoids. Nat Materials. 2019 Apr;18(4):303-304. doi: 10.1038/s41563-019-0326-3.</i></li> </ul>
5	<p>Garreta E, Oria R, Tarantino C, Pla-Roca M, Prado P, Fernández-Avilés F, Campistol JM, Samitier J, <b>Montserrat N*</b> (2017). Tissue engineering by decellularization and 3D bioprinting <i>Materials Today</i>, 20: 166-178, (<b>* corresponding author</b>). <u>Impact factor: 21,695.</u></p>
6	<p>Garreta E, de Oñate L, Fernández-Santos ME, Oria R, Tarantino C, Climent AM, Samitier M, Marco A, Martínez E, Valls-Margarit M, Matesanz R, Taylor DA, Fernández Avilés F, Izpisúa Belmonte JC, <b>Montserrat N*</b> (2016). Myocardial commitment from human pluripotent stem cells: rapid production of human heart grafts. <i>Biomaterials</i>, 98: 64-78. (<b>*corresponding author</b>). <u>Impact factor: 8,402.</u></p>
7	<p>Aguirre A*, <b>Montserrat N*</b>, Zacchigna S, Nivet E, Hishida T, Krause MN, Kurian L, Ocampo A, Vázquez-Ferrer E, Rodríguez-Esteban C, Kumar S, Moresco JJ, Yates JR 3rd, Campistol JM, Sancho-Martinez I, Giacca M, Izpisúa Belmonte JC (2014). In vivo activation of a conserved microRNA program induces mammalian heart regeneration. <i>Cell Stem Cell</i>; 15(5):589-604. (<b>*sharing first co-authorship</b>). <u>Impact factor: 22,268.</u></p>
8	<p>Xia Y, Nivet E, Sancho-Martinez I, Gallegos T, Suzuki K, Okamura D, Wu MZ, Dubova I, Esteban CR, <b>Montserrat N</b>, Campistol JM, Izpisúa Belmonte JC (2013). Directed differentiation of human pluripotent cells to ureteric bud kidney progenitor-like cells. <i>Nature Cell Biology</i>;15(12):1507-15. <u>Impact factor: 20,058.</u></p>
9	<p><b>Montserrat N</b>, Nivet E, Sancho-Martinez I, Hishida T, Kumar S, Miquel L, Cortina C, Hishida Y, Xia Y, Esteban CR, Izpisúa Belmonte JC (2013). Reprogramming of human fibroblasts to pluripotency with lineage specifiers. <i>Cell Stem Cells</i>; 5;13(3): 341-50. <u>Impact factor: 22,151.</u></p>
10	<p>Giorgetti A, <b>Montserrat N*</b>, Rodríguez-Piza I, Azqueta C, Veiga A, Izpisúa Belmonte JC (2010). Generation of induced pluripotent stem cells from human cord blood cells with only two factors: Oct4 and Sox2. <i>Nature Protocols</i>;5(4):811-20. (<b>*sharing first co-authorship</b>). <u>Impact factor: 11,334</u></p>

## OTHER PUBLICATIONS

1. Berishvili E, Casiraghi F, Amarelli C, Scholz H, Piemonti L, Berney T, **Montserrat N**. Mini-organs forum: how to advance organoid technology to organ transplant community. *Transpl Int*. 2021 Sep;34(9):1588-1593. doi: 10.1111/tri.13988. **Impact factor: 3,782**
2. Calistri A, Luganini A, Moggetti B, Elder E, Sibille G, Conciatori V, Del Vecchio C, Sainas S, Boschi D, **Montserrat N**, Mirazimi A, Lolli ML, Gribaudo G, Parolin C (2021). The New Generation hDHODH Inhibitor MEDS433 Hinders the In Vitro Replication of SARS-CoV-2 and Other Human Coronaviruses. *Microorganisms*. 2021 Aug 14;9(8):1731. doi: 10.3390/microorganisms9081731. **Impact factor:4.167**
3. Monteil V, Dyczynski M, Lauschke VM, [...], **Nuria Montserrat**, Penninger JM, Mirazimi A. Human soluble ACE2 improves the effect of remdesivir in SARS-CoV-2 infection. *EMBO Mol Med*. 2020 Nov 12:e13426. doi: 10.15252/emmm.202013426. **Impact factor: 10.280**.
4. Lovell-Badge R, Anthony E, Barker RA, Bubela T, Brivanlou AH, Carpenter M, Charo RA, Clark A, Clayton E, Cong Y, Daley GQ, Fu J, Fujita M, Greenfield A, Goldman SA, Hill L, Hyun I, Isasi R, Kahn J, Kato K, Kim JS, Kimmelman J, Knoblich JA, Mathews D, **Montserrat N**, Mosher J, Munsie M, Nakauchi H, Naldini L, Naughton G, Niakan K, Ogbogu U, Pedersen R, Rivron N, Rooke H, Rossant J, Round J, Saitou M, Sipp D, Steffann J, Sugarman J, Surani A, Takahashi J, Tang F, Turner L, Zettler PJ, Zhai X (2021). ISSCR Guidelines for Stem Cell Research and Clinical Translation: The 2021 update. *Stem Cell Reports*. 2021 Jun 8;16(6):1398-1408. doi: 10.1016/j.stemcr.2021.05.012. **Impact factor: 7.765**
5. Alexander Zoufaly, Marko Poglitsch, Judith H Aberle, Wolfgang Hoepler, Tamara Seitz , Marianna Traugott, Alexander Grieb, Erich Pawelka, Hermann Laferl, Christoph Wenisch, Stephanie Neuhold, Doris Haider, Karin Stiasny, Andreas Berghaler, Elisabeth Puchhammer-Stoeckl, Ali Mirazimi, **Nuria Montserrat** , Haibo Zhang, Arthur S Slutsky, Josef M Penninger (2020). Human recombinant soluble ACE2 in severe COVID-19. *Lancet Resp Medicine*. [https://doi.org/10.1016/S2213-2600\(20\)30418-5](https://doi.org/10.1016/S2213-2600(20)30418-5). **Impact factor: 25.094**
6. Lynch CJ, Bernad R, Martínez-Val A, Shahbazi MN, Nóbrega-Pereira S, Calvo I, Blanco-Aparicio C, Tarantino C, Garreta E, Richart-Ginés L, Alcazar N, Graña-Castro O, Gómez-Lopez G, Aksoy I, Muñoz-Martín M, Martínez S, Ortega S, Prieto S, Simboeck E, Camasses A, Stephan-Otto Attolini C, Fernandez AF, Sierra MI, Fraga MF, Pastor J, Fisher D, Montserrat N, Savatier P, Muñoz J, Zernicka-Goetz M, Serrano M (2020). Global hyperactivation of enhancers stabilizes human and mouse naive pluripotency through inhibition of CDK8/19 Mediator kinases. *Nat Cell Biol*;22(10):1223-1238. **Impact factor: 20.042**
7. Kyndiah A, Leonardi F, Tarantino C, Cramer T, Millan-Solsona R, Garreta E, **Montserrat N**, Mas-Torrent M, Gomila G (2020). Bioelectronic Recordings of Cardiomyocytes with Accumulation Mode Electrolyte Gated Organic Field Effect Transistors. *Biosens Bioelectron*. 15;150:111844. **Impact factor: 10.257**
8. Cilloni D, Petiti J, Campia V, Podestà M, Squillario M, **Montserrat N**, Bertaina A, Sabatini F, Carturan S, Berger M, Saglio F, Bandini G, Bonifazi F, Fagioli F, Moretta L, Saglio G, Verri A, Barla A, Locatelli F, Frassoni F (2020). Transplantation Induces Profound Changes in the Transcriptional Asset of Hematopoietic Stem Cells: Identification of Specific Signatures Using Machine Learning Techniques. *J Clin Med*. 2020 Jun 1;9(6):1670.

9. Hoogduijn MJ, **Montserrat N**, van der Laan LJW, Dazzi F, Perico N, Kastrup J, Gilbo N, Ploeg RJ, Roobrouck V, Casiraghi F, Johnson CL, Franquesa M, Dahlke MH, Massey E, Hosgood S, Reinders MEJ (2020). The emergence of regenerative medicine in organ transplantation: 1st European Cell Therapy and Organ Regeneration Section meeting. *Transpl Int*;33(8):833-840.
10. Sample M, Boulicault M, Allen C, Bashir R, Hyun I, Levis M, Lowenthal C, Mertz D, **Montserrat N**, Palmer MJ, Saha K, Zartman J (2019). Multi-cellular engineered living systems: building a community around responsible research on emergence. *Biofabrication*, 11(4):043001. **Impact factor: 8.213**
11. Hurtado Del Pozo C, Garreta E, Izpisúa Belmonte JC, **Montserrat N** (2018). Modeling epigenetic modifications in renal development and disease with organoids and genome editing. *Dis Model Mech.*;11(11). **Impact factor: 4.398**
12. Latorre E, Kale S, Casares L, Gómez-González M, Uroz M, Valon L, Nair RV, Garreta E, **Montserrat N**, Del Campo A, Ladoux B, Arroyo M, Trepas X (2018). Active superelasticity in three-dimensional epithelia of controlled shape. *Nature* 563 (7730):203-208.
13. Forty years of IVF. Niederberger C, Pellicer A, Cohen J, Gardner DK, Palermo GD, O'Neill CL, Chow S, Rosenwaks Z, Cobo A, Swain JE, Schoolcraft WB, Frydman R, Bishop LA, Aharon D, Gordon C, New E, Decherney A, Tan SL, Paulson RJ, Goldfarb JM, Brännström M, Donnez J, Silber S, Dolmans MM, Simpson JL, Handyside AH, Munné S, Eguizabal C, **Montserrat N**, Izpisua Belmonte JC, Trounson A, Simon C, Tulandi T, Giudice LC, Norman RJ, Hsueh AJ, Sun Y, Laufer N, Kochman R, Eldar-Geva T, Lunenfeld B, Ezcurra D, D'Hooghe T, Fauser BCJM, Tarlatzis BC, Meldrum DR, Casper RF, Fatemi HM, Devroey P, Galliano D, Wikland M, Sigman M, Schoor RA, Goldstein M, Lipshultz LI, Schlegel PN, Hussein A, Oates RD, Brannigan RE, Ross HE, Pennings G, Klock SC, Brown S, Van Steirteghem A, Rebar RW, LaBarbera AR (2018). *Fertil Steril*;110(2):185-324. **Impact factor: 4.803**
14. Hernandez-Benitez R, Martinez-Martinez ML, Lajara J, Magistretti P, **Montserrat N**, Izpisua Belmonte JC (2018). At the Heart of Genome Editing and Cardiovascular Diseases. *Circ Res*. 2018;123(2):221-223. **Impact factor: 13.965**
15. Garreta E, Sanchez S, Lajara J, **Montserrat N**, Belmonte JCI (2018). Roadblocks in the Path of iPSC to the Clinic. *Curr Transplant Rep*;5(1):14-18. . Impact factor: ---.
16. Garreta E, **Montserrat N**, Belmonte JCI (2018). Kidney organoids for disease modeling. *Oncotarget*;9(16):12552-12553 Garreta E, González F, **Montserrat N** (2018). Studying kidney disease using tissue and genome engineering in human pluripotent stem cells. *Nephron*, 138: 48-59 (2018). **Impact factor: 1,939.**
17. Garreta, E., **Montserrat N.**, Belmonte J.C (2018). Kidney organoids for disease modelin. *Oncotarget*, 9: 12552-12553. **Impact factor: 5,168.**
18. Garreta E, Prado P., Belmonte J.C, **Montserrat N.**(2017). Non-coding microRNAs for cardiac regeneration: Exploring novel alternatives to induce heart healing. *Non-coding RNA Research*, Volume 2, Issue 2, June 2017, Pages 93-99. Impact factor: ---.
19. **Montserrat N\***, Garreta E, Izpisua Belmonte JC (2016). Regenerative strategies for kidney engineering. *FEBS J*. doi: 10.1111/febs.1370 (\* **corresponding author**). **Impact factor: 3,902.**



20. Vélez EJ, Lutfi E, Azizi S, **Montserrat N**, Riera-Codina M, Capilla E, Navarro I, Gutiérrez (2015). Contribution of in vitro myocytes studies to understanding fish muscle physiology. *J. Comp Biochem Physiol B Biochem Mol Biol.* pii: S1096-4959(15)00215-8. doi: 10.1016/j.cbpb.2015.12.003. **Impact factor: 1,757.**
21. Wu MZ, Chen SF, Nieh S, Benner C, Ger LP, Jan CI, Ma L, Chen CH, Hishida T, Chang HT, Lin YS, **Montserrat N**, Gascon P, Sancho-Martinez I, Izpissua Belmonte JC (2015). Hypoxia Drives Breast Tumor Malignancy through a TET-TNF $\alpha$ -p38-MAPK Signaling Axis. *Cancer Res.* 75(18): 3912-24. **Impact factor: 8,556.**
22. Reddy P, Ocampo A, Suzuki K, Luo J, Bacman SR, Williams SL, Sugawara A, Okamura D, Tsunekawa Y, Wu J, Lam D, Xiong X, **Montserrat N**, Esteban CR, Liu GH, Sancho-Martinez I, Manau D, Civico S, Cardellach F, Del Mar O'Callaghan M, Campistol J, Zhao H, Campistol JM, Moraes CT, Izpissua Belmonte JC (2015). Selective elimination of mitochondrial mutations in the germline by genome editing. *Cell*; 161(3):459-69. **Impact factor: 28,710.**
23. Vélez EJ, Lutfi E, Azizi S, **Montserrat N**, Riera-Codina M, Capilla E, Navarro I, Gutiérrez J. Contribution of in vitro myocytes studies to understanding fish muscle physiology (2015). *Comp Biochem Physiol B Biochem Mol Biol.* S1096-4959(15)00215-8. **Impact factor: 1,651.**
24. Hansson ML, Albert S, González Somermeyer L, Peco R, Mejía-Ramírez E, **Montserrat N**, Izpissua Belmonte JC. Efficient delivery and functional expression of transfected modified mRNA in human embryonic stem cell-derived retinal pigmented epithelial cells (2015). *J BiolChem*; 290(9): 5661-72. Impact factor: ---.
25. Liu GH, Suzuki K, Li M, Qu J, **Montserrat N**, Tarantino C, Gu Y, Yi F, Xu X, Zhang W, Ruiz S, Plongthongkum N, Zhang K, Masuda S, Nivet E, Tsunekawa Y, Soligalla RD, Goebel A, Aizawa E, Kim NY, Kim J, Dubova I, Li Y, Ren R, Benner C, del Sol A, Bueren J, Trujillo JP, Surralles J, Cappelli E, Dufour C, Esteban CR, Izpissua Belmonte JC (2014). Modelling Fanconi anemia pathogenesis and therapeutics using integration-free patient-derived iPSCs. *Nat Commun*; 5: 4330. **Impact factor: 11,470.**
26. Xu XL, Yang JP, Fu LN, Ren RT, Yi F, Suzuki K, Liu K, Ding ZC, Qu J, Zhang WQ, Li Y, Yuan TT, Yuan GH, Sui LN, Guan D, Duan SL, Pan HZ, Wang P, Zhu XP, **Montserrat N**, Li M, Bai RJ, Liu L, Izpissua Belmonte JC, Liu GH (2014). Direct reprogramming of porcine fibroblasts to neural progenitor cells. *Protein Cell*; 5 (1): 4-7. **Impact factor: 3,247.**
27. Gu Y, Liu GH, Plongthongkum N, Benner C, Yi F, Qu J, Suzuki K, Yang J, Zhang W, Li M, **Montserrat N**, Crespo I, Del Sol A, Esteban CR, Zhang K, Izpissua Belmonte JC (2014). Global DNA methylation and transcriptional analyses of human ESC-derived cardiomyocytes. *Protein Cell*;5 (1):59-68. **Impact factor: 3,247.**
28. Zhang K, Liu GH, Yi F, **Montserrat N**, Hishida T, Esteban CR, Izpissua Belmonte JC (2014). Direct conversion of human fibroblasts into retinal pigment epithelium-like cells by defined factors. *Protein Cell*5(1): 48-58. **Impact factor: 3,247.**
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## BOOK CHAPTERS

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1. Garreta, E., Marco, A., Eguizábal, C., Tarantino, C., Samitier, M., Badiola, M., Gutiérrez, J., Samitier, J. and **Montserrat, N.** Pluripotent stem cells and skeletal muscle differentiation: Challenges and immediate applications. In: The Plasticity of Skeletal Muscle: From Molecular Mechanism to Clinical Applications (ed. Sakuma, K.). Springer Nature Singapore (\* **corresponding author**). ([https://doi.org/10.1007/978-981-10-3292-9\\_1](https://doi.org/10.1007/978-981-10-3292-9_1)).
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4. **Montserrat N**, Aran B and Izpisúa Belmonte JC. (2012) Cellules Mare Embrionaries: Què en sabem després de trenta anys d'investigacio? Treballs de la SCB 63: 215-233
5. **Núria Montserrat**, Juan Carlos Izpisúa Belmonte. Plucked hair: how to get stem cells and induced pluripotent stem cells for future clinical applications. Human Health Handbooks no. 1. Volume 1, 2012.Pages 180-196. ISBN: 978-90-8686-728-8
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## RESEARCH GRANTS

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### MOST RELEVANT COMPETITIVE RESEARCH GRANTS

**Project ID:** RD21/0017/0018

**Name of PI:** Nuria Montserrat

**Project title:** RICORS TERA V – Advanced Therapies

**Funding Agency:** Institute of Health Carlos III

**Duration:** 2022-2025

**Budget:** 245.448,50 €

**Project ID:** GA- 101002478

**Name of PI:** Nuria Montserrat

**Project title:** ENGINORG: Engineering kidney organoids to study the interplay between Tissue Mechanics and Metabolism: from development to disease.

**Funding Agency:** European Research Council (ERC Consolidator Grant).

**Duration:** 2021-2025

**Budget:** 1.999.937,50€

**Project ID:** 202125

**Name of PI:** Nuria Montserrat

**Project title:** SYSTORG: Exploiting organoid model systems to explore systemic conditions worsening COVID19: merging cellular and genetic engineering

**Funding Agency:** TV3-Proyectos de recerca La Marató TV

**Duration:** 2021-2024

**Budget:** 132.500 €

**Project ID:** PID2020-119929RB-I00

**Name of PI:** Nuria Montserrat

**Project title:** CAKUTORG: Desarrollando nuevas estrategias para entender y tratar las anomalías congénitas del riñón y del tracto urinario mediante organoides

**Funding Agency:** Ministry of Science and Innovation

**Duration:** 2021-2025

**Budget:** 266.200,00€

**Project ID:** PLEC2021-008127,

**Project title:** CARDIOPRINT: Biofabricación avanzada multifunción en 3D para la generación de tejido cardiaco terapéutico a escala humana diseñado por ordenador

**Funding Agency:** Ministry of Science and Innovation

**Head researcher:** Dr. Núria Montserrat (Partner)

**Duration:** 2021-2025

**Budget:** 130.574€

**Project reference:** GA 964342

**Project title:** ECaBox "Eyes in a Care Box": Regenerating human retina from resuscitated cadaveric eyes

**Funding entity:** European Commission (H2020-FETOPEN-2018-2019-2020-01)

**Head researcher:** Dr. Núria Montserrat (Partner)

**Period:** 2021-2025

**Budget:** 232.960€

**Project title:** Identifying SARS-CoV-2- host cell interactions exploiting CRISPR/Cas9 engineered human organoids: through the development of specific therapies against COVID19

**Funding entity:** Fundación BBVA (Extraordinary SARS-CoV2 Call)

**Head researcher:** Dr. Núria Montserrat (Coordinator)

**Period:** 2020-2022

**Budget:** 250.000€

**Project reference:** COV20/00278

**Project title:** ACE2-ORG: Development of a human cellular platform unveiling Angiotensin-converting enzyme 2 (ACE2)-SARS-CoV-2 interactions

**Funding entity:** Institute of Health Carlos III (Extraordinary SARS-CoV-2 Call)

**Head researcher:** Dr. Núria Montserrat (Coordinator)

**Period:** 2020-2021

**Budget:** 189.000€

**Project reference:** GA 101005026

**Project title:** MAD-CoV2: Modern approaches for developing antivirals against SARS-CoV 2

**Funding entity:** European Commission (H2020-JTI-IMI2-2020-21-single-stage)

**Head researcher:** Dr. Núria Montserrat (Partner)

**Period:** 2020-2024

**Budget:** 499.862,50€

**Project reference:** GA 874827

**Project title:** BRAV3: Computational biomechanics and bioengineering 3D printing to develop a personalized regenerative biological ventricular assist device to provide lasting functional support to damaged hearts

**Funding entity:** European Commission (H2020, SC1-BHC-07-2019)

**Head researcher:** Dr. Núria Montserrat (Partner)

**Period:** 2020-2024

**Budget:** 740.000€

**Project reference:** 201910

**Project title:** Identification of Kidney Cancer progression targets and biomarkers through CRISPR-engineered organoids and xenograft mouse models

**Funding entity:** Fundació La Marató de TV3

**Head researcher:** Dr. Núria Montserrat (Partner)

**Period:** 2020-2023

**Budget:** 175.000€

**Project reference:** 20366

**Project title:** R2U-Tox-Assay: Ready-to-use Toxicity Screening Assay based on iPS-Technologies

**Funding entity:** EIT-Health (Call for Proposals 2020)

**Head researcher:** Dr. Núria Montserrat (Partner)

**Period:** 2020-2022

**Budget:** 344.965€

**Project reference:** 001-P-001646

**Project title:** BASE3D

**Funding entity:** Catalan Government / ERDF

**Head researcher:** Dr. Núria Montserrat (Partner)

**Period:** 2019-2021

**Budget:** 241.025€ (IBEC)

**Project reference:** EIN2019-103295

**Project title:** MECHANOORG: How to integrate mechanical and metabolic cues in kidney organoids for human disease modelling

**Funding entity:** Spanish Ministry of Science, Innovation and Universities (Europa Investigación)

**Head researcher:** Dr. Núria Montserrat

**Period:** 2019-2020

**Budget:** 10.000€

**Project reference:** HR17-00231

**Project title:** REPIRE: Regenerating photoreceptors in human retinal organoids to establish a treatment for Retinitis Pigmentosa

**Funding entity:** La Caixa Foundation (Health Research 2017)

**Head researcher:** Dr. Núria Montserrat (Partner)

**Period:** 2018-2021

**Budget:** 147.950€

**Project reference:** LABAE16006

**Project title:** Generation of Isogenic Models of Clear Cell Renal Cell Carcinoma (ccRCC) using CRISPR-engineered Kidney Organoids, for the identification of diagnostic biomarkers

**Funding entity:** Fundación Asociación Española Contra el Cáncer

**Head researcher:** Dr. Núria Montserrat

**Period:** 2017-2020

**Budget:** 300.000€

**Project reference:** SAF2017-89782-R

**Project title:** How to model Diabetic Nephropathy: resetting the epigenome in experimentally-induced diabetic kidney organoids

**Head researcher:** Nuria Montserrat

**Funding institution:** Ministerio de Economía y Competitividad (MINECO)

**Duration:** 2018-2020

**Budget:** 281.000 €

**Project title:** Modeling Diabetic Nephropathy targeting DNA methylation: engineering the epigenome in kidney organoids

**Funding entity:** European Foundation for the Study of Diabetes – EFSD/Boehringer Ingelheim European Research Programme in Microvascular Complications of Diabetes

**Head researcher:** Dr. Núria Montserrat

**Period:** 2018-2019

**Budget:** 99.000€

**Project reference:** SAF2017-89782-R

**Project title:** How to model Diabetic Nephropathy: resetting the epigenome in experimentally-induced diabetic kidney organoids

**Head researcher:** Nuria Montserrat

**Funding institution:** Ministerio de Economía y Competitividad (MINECO)

**Duration:** 2018-2020

**Budget:** 281.000 €

**Project reference:** SAF2015-72617-EXP

**Project title:** Reprogramming and tisular regeneration by means of extracellular vesicles from human induced pluripotent stem cells

**Head researcher:** Nuria Montserrat

**Funding institution:** Ministerio de Economía y Competitividad (MINECO)

**Duration:** 2018-2020

**Budget:** 40.000 €



**Name of the project:** Senior Fellow Ramon y Cajal  
**Funding body:** Ministerio de Economía y Competitividad  
**Funding period:** 01/11/2015-31/10/2020  
**Grant number:** RyC 2014-16242  
**PI:** Dr. Núria Montserrat  
**Budget:** 208.600 €

**Project reference:** SAF2014-59778-R  
**Project title:** Desarrollo de nuevas estrategias para el tratamiento de la enfermedad renal  
**Head(s) researcher(s):** Nuria Montserrat  
**Funding institution:** MINECO  
**Duration:** 01/01/2015 - 31/12/2017  
**Total amount:** 140.000 €

**Project reference:** StG-2014-640525  
**Project title:** How to regenerate the mammalian kidney (REGMAMKID)  
**Head(s) researcher(s):** Núria Montserrat  
**Funding institution:** European Research Council  
**Duration:** 01/11/2015 – 31/10/2020  
**Total amount:** 1.499.604 €

**Project reference:** 121430  
**Project title:** Regenerative medicine for Fanconi anemia: generation of disease-free patient-specific iPSC cells, and iPSC-derived hematopoietic progenitors and platelets.  
**Funding institution:** Fundació La Marató de TV3  
**Head(s) researcher(s):** Núria Montserrat Pulido (Project coordinator)  
**Duration:** 01/01/2013 - 30/06/2016  
**Total amount:** 199.914, 80€

**Project reference:** PLE2009-0147  
**Project title:** Terapias regenerativas con células madre para el fallo cardiaco  
**Head(s) researcher(s):** Núria Montserrat (14/01/2014-31/12/2014), Juan C. Izpisúa (01/11/2009-13/01/2014)  
**Funding institution:** MICINN, MINECO, PLAN E  
**Duration:** 01/11/2009 - 13/01/2014  
**Total amount:** 2.306.213 €

**Project Reference:** PLE2009-0164  
**Project title:** Creación de una plataforma nacional para la derivación y manipulación de células iPS en condiciones GMP con fines terapéuticos.  
**Head(s) researcher(s):** Núria Montserrat (14/01/2014-31/12/2014), Juan C. Izpisúa (01/11/2009-13/01/2014)  
**Funding institution:** MICINN, MINECO, PLAN E  
**Duration:** 01/11/2009 - 31/12/2014  
**Total amount:** 1.800.000 €

**Project Reference:** JDCC2007-130-389  
**Project title:** Post-Doctoral Fellow Juan de la Cierva  
**Funding body:** Ministerio de Economía y Competitividad  
**Duration:** 03/03/2008-02/03/2011  
**Budget:** 99.000 €

## COLLABORATIONS

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My research is boosted by strong collaborations with prestigious world-recognized clinicians: Dr. Zacchigna-Intl. Centre for Genetic Engineering and Biotechnology Trieste; Dr. K. Susztak-Perelman School of Medicine at the Univ. Pennsylvania; Dr. J.M. Campistol-Managing Director from H. Clinic in Barcelona; Dr. P. Luño, Director Nephrology and Kidney Transplant at H. Gregorio Marañón; Dr. A. Alcaraz, Chief Urology Dept. at H. Clinic in Barcelona; Dr. F. Avilés- Chief Dept. Cardiology, H. General Universitario Gregorio Marañón, among others. I also rely on strong connections with leading scientists in the field of iPSCs genome editing for human disease modeling: Prof. Josef Penninger-Life Science Institute, University British Columbia; Dr. Izpisua Belmonte-Salk Institute for Biological Studies, San Diego; organoid engineering: Dr. David Long-University College of London; Prof. Xavier Trepas-ICREA Research Professor at IBEC; human disease modeling of viral infectious diseases: Prof. Ali Mirazimi-Karolinska Institute, Prof. Dr. Friedemann Weber-Justus-Liebig University; Dr. Megan Stanifer-University of Florida; bioengineering ethics: Dr. Hyun-Harvard Medical School; Dr. Amy Hinterberger- King's College London.

## INVITED TALKS to established international conferences and seminars

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I have communicated my work through more than **200 invited talks** in international conferences, colloquium and seminars in renowned institutions and universities. I highlight the following invited talks (last 3 years):

**Congress:** The European Association for the Study of Diabetes-57th EASD Annual Meeting (29/09/2021, online conference).

**Role:** Keynote speaker

**Title:** Stem cells and organoids: new avenues in diabetic nephropathy research

**Congress:** 19th Congress of the European Society for Organ Transplantation ESOT (18/09/2019, Copenhagen, Denmark)

**Role:** Keynote speaker

**Title:** How our practice for treating organ failure will look like at the ESOT Congress of 2039. The scientist's perspective

**Congress:** World Economic Forum, Annual Meeting of the New Champions (02/07/2019, Dalian, China)

**Role:** Invited Speaker

**Title:** Harnessing stem cells for organ regeneration

**Congress:** 10th Congress of the International Pediatric Transplant Association (04/05/2019, Vancouver, Canada)

**Role:** Keynote speaker

**Title:** Interspecies chimerism and organ generation: from miracle to reality

**Congress:** American Society of Nephrology. Kidney Week 2018 (24/10/2018, San Diego, US)

**Role:** Invited Speaker

**Title:** Engineering kidney organoids from human pluripotent stem cells: challenges and opportunities

**Workshop:** Workshop on Multi-Cellular Engineered Living Systems (2-4/08/2018, Chicago, US)

**Role:** Invited Speaker

**Title:** Engineering kidney organoids from human pluripotent stem cells: challenges and opportunities

## MEDIA APPEARANCES

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The impact of my work has attracted the attention not only of the scientific community but also the general media. With >200 appearances (TVE1, La2, Tele5, LaSexta, BTV and Tv3; TV) and radio (Racc 1, Cadena Ser and Onda Cero) or newspapers (El Mundo, El País, La Vanguardia, Ara, ABC) among others. Our manuscript exploiting our kidney organoid platforms to model COVID19 has been cited by 131 newspapers, more than 700 citations online (equivalent to 1.7 Million € in advertising). Of note, I was selected Commissioner of the first and second City and Science Biennial in Barcelona city where I organized >15 activities (i.e., 2 Nobel Laureates in colloquiums, round tables, scientific presentations; overall attracting > 20.000 visitors in 8 days). I have also participated and organized outreach activities for scholars, including seminars and mentoring sessions. I was also selected to participate in an annual event organized by El País (newspaper) to give an inspirational talk in front of 1200 scholars, the speech was also reproduced in streaming.

## ORGANISATION OF SCIENTIFIC MEETINGS

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2021 Co-organizer, Winter School *EMBL-IBEC Engineering Multicellular systems*. Topics: Organoid engineering, synthetic embryos and applications (*audience 150 persons*). Barcelona, 8-11<sup>th</sup>, 2022.

2021 Organizer, HUMAN PLURIPOTENT STEM CELLS: towards the development of applications in personalized medicine. Online course, December 9<sup>th</sup>, 2021.

2021 Co-organizer, 2022 *Keystone Symposia on Engineering Multi-Cellular Living Systems/Organoids as Tools for Fundamental Discovery and Translation*. Topics: Organoid engineering, synthetic embryos and applications in regenerative medicine (*audience 300 persons*). April 3-6<sup>th</sup>, Keystone, Colorado (US), 2022.

2020 Co-organizer, Winter School *EMBL-IBEC Engineering Multicellular systems*. Topics: Organoid engineering, synthetic embryos and applications (*audience 150 persons*). Barcelona, 9-11<sup>th</sup>, 2020.

2019 Co-organizer 7<sup>th</sup> *International Conference on Stem Cell Engineering*. Topics: Organoid engineering, synthetic embryos and applications in morphogenesis (*audience 90 persons*). Barcelona, 10-13<sup>th</sup> December.

2019 Co-organizer, Technical meeting from the National Network in Cell Therapy (TERCEL). Topic: Biofabrication, Spanish Health Ministry, Madrid, Spain (*audience 250 persons*).

2018-2019 Selected Commissioner (together with other 5 experts) of the Biennial Science and City of Barcelona (*audience 11,000 persons in 4 days*).

2018 Organizer, hPSCs course: Reprogramming, Differentiation and Molecular Genetics. IBEC, Spain .

## OTHER SCIENTIFIC ACHIEVEMENTS

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### TEACHING AND TRAINING/SUPERVISION EXPERIENCE

**Supervisor of Master Students:** I have already supervised 19 Masters students from international universities since 2014, including: the University of Barcelona (11), University Pompeu Fabra (3), Universidad Miguel Hernández (1) Université Pierre et Marie Curie (1), University Rennes 1 (1), University Oporto (1), CIATEJ México (1).

**PhD students (finished):**

Thesis Title: Research on Cardiac Differentiation from Human Pluripotent Stem Cells: How to get beating cells in a dish; PhD student: Lorena de Oñate; University issuing the qualification: Universidad Pompeu Fabra; Mark: Excellent Cum Laude; Date of reading: 30/11/2015. Dr. de Oñate is currently performing her postdoc at the University of Berkley with the 2020 Chemistry Nobel Laureate Jennifer Doudna.

Thesis Title: Developing new strategies to understand human kidney development and target human disease; PhD student: Patricia Prado. University issuing the qualification: Universidad Pompeu Fabra; Mark: Excellent Cum Laude; Date of reading: 07/04/2021. Dr. Prado is currently performing her postdoc at Montserrat Laboratory at IBEC and will soon join Novartis.

**Supervisor of PhD Students (currently ongoing):** Currently I am supervising five PhD students (University of Barcelona and University Pompeu Fabra). The official dates for thesis defense are:

Lucía Selfa (La Caixa InPhinit Program fellow): 1/02/2022-University Pompeu Fabra

Andrés Marco (La Caixa PhD Program fellow): 1/03/2022-University Pompey Fabra

Zarina Nauryzgalievya (La Caixa InPhinit Program fellow): expected date late 2024

Maria Gallo (FPI Fellow, Ministry of Science and Innovation): expected late 2023

Gaia Amato (Hired in the framework of the ERC Consolidator Grant): expected date late 2024

**Member of thesis tribunal:** Evaluator and President of thesis committees from 2013 (10).

**Teacher** of Animal Physiology, Comparative Endocrinology and Human Physiology at the Faculty of Biology, University of Barcelona during different time periods from 2001-2006.

**Invited Professor** to several master programs of regenerative medicine (University of Barcelona and University CEU San Pablo, Spain).

**REVIEWER EXPERIENCE**

**Current reviewer** ERC (StG and AdG programs), MRC, Austrian Academy of Sciences, FWO and ANR agencies among others since 2014. EISMEA/European Innovation Council and SMEs Executive Agency since 2021.

**Current reviewer** from the Comisión de Garantías para la Donación y Utilización de Células y Tejidos Humanos y del régimen del Registro de Proyectos de Investigación from the Ministry of Science and Innovation (From 2014) and ANECA (from 2006).

**Current reviewer** in Cell Stem Cells, Nature Materials, Nature Methods, Stem Cell Research, Experimental Biology and Medicine, Cell Research, Stem Cell Reports, and General and Comparative Endocrinology (Top Reviewer of the year 2009), among others

**MEMBERSHIPS OF SCIENTIFIC SOCIETIES**

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- 2019 – now European Society of Organ Transplantation (Selected as Deputy Editor of the official journal of this society-Transplant International and leader of the Task Group Force in Regenerative Medicine in the same journal).
- 2017 – now Transnational AllianCe for regenerative Therapies in Cardiovascular Syndromes.
- 2017 – now European Foundation for the Study of Diabetes.

- 2016 – now European Society of Cardiology (Selected in Cardio-Renal Study & Cardiac Biology Groups).
- 2016 – now Cell Therapy Network (TERCEL) from the Spanish Ministry of Health.