PERSONAL DATA

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

CURRENT POST

Senior Group Leader
Institute for Bioengineering of Catalonia +34 934031391
Baldiri Reixac, 15-21. 08028 Barcelona, Spain nmontserrat@ibecbarcelona.eu
Link to research web site URL or to full list of publications:
https://www.ncbi.nlm.nih.gov/pubmed/?term=nuria+montserratl**; Montserrat laboratory**

RESUME OF RESEARCH EXPERIENCE

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 Fundaçao para a Ciência e Tecnología (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 Izpsiúa 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 from 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 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 that nowadays is under clinical trial in COVID19 patients. 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 almost 10 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, still not public). Overall, I have received published a total 70 papers. My h-index is 37. I have supervised 17 Master students (from international universities), 1 PhD 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 (first edition in 2019 got 11.000 visitors; second edition to be held in June, 2021). I review at international agencies (ERC, MRC, FWO and ANRS) and referees for General and Comparative Endocrinology, Stem Cell Reports, and 5 more. 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 5 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

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	Honors Degree in Biology. Faculty of Biology, UB, Spain

CURRENT POSITIONS

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

PREVIOUS POSITIONS

2015 – 2018	Junior Group Leader, Pluripotency for organ regeneration, IBEC, Spain
2011 – 2014	Research Associate, CMRB, Spain. Supervisior: Dr. Izpisúa
2008 – 2011	Postdoctoral researcher, (Juan de la Cierva), CMRB, Spain. Supervisior: Dr. Izpisúa
2007 – 2008	Postdoctoral researcher, Hospital Santa Creu i Sant Pau, Spain. Supervisor: Dr. Prat

2006 – 2007 Postdoctoral researcher (Fellowship from Fundaçao para a Ciência e Tecnología, FCT). Supervisors: Dr. Valente (CIIMAR, Portugal) and Dr. Gutiérrez Fruitós (UB, Spain)

FELLOWSHIPS AND AWARDS

2020 ERC Consolidator Grant
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 – 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, Fundaçao para a Ciência e Tecnología de Portugal
2002 – 2006 Predoctoral Fellowship, Ministry of Science and Technology, Spain

MANAGEMENT EXPERIENCE

January 2021-: Coordinator of the Platform Biobanks and Biomodels from the Institute of Health Carlos III. Coordination of 39 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.

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.

MAJOR COLLABORATIONS

World-recognized clinicians in the **renal field**: Dr. Susztak – University of Pennsylvania (US); Dr. Ortiz (Chief Nephrology, Hospital Fundación Jiménez Díaz, Madrid; Scientific coordinator ERA-EDTA); **Genome editing**: Dr. Huangfu – Memorial Sloan Kettering Cancer Center (US); Dr. Izpisua Belmonte – Salk Institute for Biological Studies (US). **Kidney development**: Prof. Davies (University of Edinburgh); Dr. Hohenstein (University of Leiden), Dr. Vainio (University of Oulu, Finland). **Biomedical engineering**: Dr. Kamm and Dr. Weiss Massachusetts Institute of Technology (US); Dr. Trepat – IBEC (Spain). **Disease** modeling and COVID19: Josef Penninger-Life Science Institute, University British Columbia (Canada), Ali Mirazimi-Karolinska Institutet (Sweden). **Ethics engineering**: Dr. Hyun (Harvard University, US).

RESEARCH OUTPUTS

PUBLICATIONS

1. Park J, Dhillon P, Hurtado C, […], **Nuria Monserrat***, Katalin Susztak*. Renal proximal tubule cell state and metabolism are coupled by nuclear receptors. Cell Metabolism. Cell Metab. 2020 Dec 1:S1550-4131(20)30606-9. doi: 10.1016/j.cmet.2020.11.011. **(*co-correspondency). Impact factor: 20.605**

2. 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**.

3. 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 Bergthaler, 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. **Impact factor: 25.094**

4. 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, Martinez 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**

5. Monteil V, Kwon H, Prado P, Hagelkrüys A, Wimmer RA, Stahl M, Leopoldi A, Garreta E, Hurtado Del Pozo C, Prosper F, Romero JP, Wirnsberger G, Zhang H, Slutsky AS, Conder R, **Montserrat N***, **Mirazimi A***, **Penninger JM***. Inhibition of SARS-CoV-2 Infections in Engineered Human Tissues Using Clinical-Grade Soluble Human ACE2. Cell. 2020 May 14;181(4):905-913.e7. doi: 10.1016/j.cell.2020.04.004 **(*co-correspondency**). **Impact factor: 38.637**
   Highlighted as Editor's comment:
   - *Francois Alhenc-Gelas, Tilman B Drueke. Blockade of SARS-CoV-2 infection by recombinant soluble ACE2. Kidney Int 2020 Jun;97(6):1091-1093.*
   - *Susan J. Allison. SARS-CoV-2 infection of kidney organoids prevented with soluble human ACE2. Nature Reviews Nephrology volume 16, page316(2020)*
   - *Mini organs reveal how the coronavirus ravages the body. Nature https://www.nature.com/articles/d41586-020-01864-x*

6. 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**

7. 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.

8. 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.

9. Garreta E, Prado P, Tarantino C, Oria R, Fanlo L, Martí E, Zalvidea D, Trepat X, Roca-Cusachs P, Gavaldà-Navarro A, Cozzuto L, Campistol JM, Izpisua Belmonte JC, Hurtado del Pozo C, **Montserrat N** (2019). Fine tuning the extracellular environment accelerates the derivation of kidney organoids from human pluripotent stem cells. Nature Materials, 18: 397-405. **Impact factor: 39,235.**

   Highlighted as Editor's comment and News and Views in:

   - *Allison SJ. A materials approach for kidney organoids. Nat Rev Nephrol. 2019 Mar 5. doi: 10.1038/s41581-019-0139-2*
   - *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.*

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. 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, Trepat X (2018). Active superelasticity in three-dimensional epithelia of controlled shape. Nature.;563(7730):203-208. **Impact factor: 41.577**

12. 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**

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):12552-12553Garreta 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: 12552-1253. **Impact factor: 5,168.**

18. Garreta E, Oria R, Tarantino C, Pla-Roca M, Prado P, Fernández-Avilés F, Campistol JM, Samitier J, **Montserrat N** (2017). Tissue engineering by decellularization and 3D bioprinting Materials Today, 20: 166-178**, Impact factor: 21,695.**

19. 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: ---.

20. Elena Garreta, Lorena de Oñate, M. Eugenia Fernández-Santos, Roger Oria, Carolina Tarantino, Andreu M Climent, Mireia Samitier, M.S; Andrés Marco, M.S; Elena Martínez, Maria Valls-Margarit, Rafael Matesanz, Doris A Taylor, Francisco Fernández Avilés, Juan Carlos Izpisúa Belmonte, **Nuria Montserrat** (2016). Myocardial commitment from human pluripotent stem cells: rapid production of human heart grafts. Biomaterials, 98: 64-78**. Impact factor: 8,402.**

21. **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.**

22. 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.**

23. 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, Izpisua Belmonte JC (2015). Hypoxia Drives Breast Tumor Malignancy through a TET-TNFα-p38-MAPK Signaling Axis. Cancer Res. 75(18): 3912-24. **Impact factor: 8,556**.

24. 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, Izpisúa Belmonte JC (2015). Selective elimination of mitochondrial mutations in the germline by genome editing. Cell; 161(3):459-69. **Impact factor: 28,710**.

25. 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.**

26. Hansson ML, Albert S, González Somermeyer L, Peco R, Mejía-Ramírez E, **Montserrat N**, Izpisúa 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: ---.

27. Aguirre A*, **Montserrat N***, Zacchigna S, Nivet E, Hishida T, Krause MN, Kurian L, Ocampo A, Vázquez-Ferrer E, Rodriguez-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. Cell Stem Cell; 15(5):589-604. (***sharing first co-authorship**). **Impact factor: 22,268**.

28. 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, Goebl 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, Izpisúa Belmonte JC (2014). Modelling Fanconi anemia pathogenesis and therapeutics using integration-free patient-derived iPSCs. Nat Commun; 5: 4330. **Impact factor: 11,470**.

29. 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, Izpisúa Belmonte JC, Liu GH (2014). Direct reprogramming of porcine fibroblasts to neural progenitor cells. Protein Cell; 5 (1): 4-7. **Impact factor: 3,247**.

30. 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, Izpisúa Belmonte JC (2014). Global DNA methylation and transcriptional analyses of human ESC-derived cardiomyocytes. Protein Cell;5 (1):59-68. **Impact factor: 3,247**.

31. Zhang K, Liu GH, Yi F, **Montserrat N**, Hishida T, Esteban CR, Izpisúa Belmonte JC (2014). Direct conversion of human fibroblasts into retinal pigment epithelium-like cells by defined factors. Protein Cell5(1): 48-58. **Impact factor: 3,247**.

32. Xia Y, Nivet E, Sancho-Martinez I, Gallegos T, Suzuki K, Okamura D, Wu MZ, Dubova I, Esteban CR, **Montserrat N**, Campistol JM, Izpisúa Belmonte JC (2013). Directed differentiation of human pluripotent cells to ureteric bud kidney progenitor-like cells. Nat Cell Biol. 2013;15(12):1507-15. **Impact factor: 20,058**.

33. Elena Martínez, Josep Samitier, **Nuria Montserrat**, Carmen Cortina, Ana Lagunas, Verónica Hortigüela, Alberto García Castaño. (2013) Protein patterning on hydrogels by direct microcontact printing: application to cardíac differentiation. RSC Advances. 55, pp. 29120 - 29123. **Impact factor: 3,840**.

34. Marti M, **Montserrat N**, Pardo C, Mulero L, Miquel-Serra L, Cavaco Rodrigues AM, Andrés Vaquero J, Kuebler B, Morera C, Barrero MJ, Izpisúa Belmonte JC. M-cadherin-mediated intercellular interactions activate satellite cell division (2013). J Cell Sci.;126(Pt 22):5116-31. **Impact factor: 5,877.**

35. **Montserrat N**, 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. Cell Stem Cell; 5;13(3): 341-50. **Impact factor: 22,151**.

36. Zhang K, Liu GH, Yi F, **Montserrat N**, Hishida T, Rodriguez Esteban C, Izpisúa Belmonte JC (2013). Direct conversion of human fibroblasts into retinal pigment epithelium-like cells by defined factors. Protein Cell 5(1): 48-58. **Impact factor: 2,851.**

37. Nivet E, Liu GH, **Montserrat N**, Izpisúa Belmonte JC (2013). Resetting Parkinson's disease patient-derived cells to unveil new pathological marks; Med Sci (Paris) 29(4): 353-5. Impact factor: ---.

38. Ruiz S, Gore A, Li Z, Panopoulos AD, **Montserrat N**, Fung HL, Giorgetti A, Bilic J, Batchelder EM, Zaehres H, Schöler HR, Zhang K, Izpisúa Belmonte JC (2013). Analysis of protein-coding mutations in hiPSCs and their possible role during somatic cell reprogramming. Nat Commun; 4: 1382. **Impact factor: 11,470**.

39. Eguizabal C, **Montserrat N,** Veiga A, Izpisúa Belmonte JC (2013). Dedifferentiation, transdifferentiation, and reprogramming: future directions in regenerative medicine. Semin Reprod Med;31(1):82-94. **Impact factor: 3,000**.

40. Kurian L, Sancho-Martinez I, Nivet E, Aguirre A, Moon K, Pendaries C, Volle-Challier C, Bono F, Herbert JM, Pulecio J, Xia Y, Li M, **Montserrat N**, Ruiz S, Dubova I, Rodriguez C, Denli AM, Boscolo FS, Thiagarajan RD, Gage FH, Loring JF, Laurent LC, Izpisúa Belmonte JC (2013). Conversion of human fibroblasts to angioblast-like progenitor cells. Nat Methods ;10(1): 77-83. **Impact factor: 25,953**.

41. Masuda S; **Montserrat N**; Okamura D; Suzuki K; Izpisua Belmonte JC. (2012) Cardiosphere-derived cells for heart regeneration. Lancet. 379, pp. 2425 - 2426. **Impact factor: 39,207**.

42. Sergio Ruiz; Athanasia D Panopoulos; **Nuria Montserrat**; Marie-Christine Multon; Aurélie Daury; Corinne Rocher; Emmanuel Spanakis; Erika M Batchelder; Cécile Orsini; Jean-François Deleuze; Juan Carlos Izpisua Belmonte. (2012). Generation of a drug-inducible reporter system to study cell reprogramming in human cells. The Journal of biological chemistry. 287 - 48, pp. 40767 - 40845. **Impact factor: 4,651.**

43. Liu GH, Qu J, Suzuki K, Nivet E, Li M, **Montserrat N**, Yi F, Xu X, Ruiz S, Zhang W, Wagner U, Kim A, Ren B, Li Y, Goebl A, Kim J, Soligalla RD, Dubova I, Thompson J, Yates J 3rd, Esteban CR, Sancho-Martinez I, Izpisúa Belmonte JC (2012). Progressive degeneration of human neural stem cells caused by pathogenic LRRK2. Nature; 491(7425):603-7. **Impact factor: 38,597**.

44. **Montserrat N**, Ramirez-Bajo MJ, Xia Y, Sancho-Martinez I, Moya-Rull D, Miquel-Serra L, Yang S, Nivet E, Cortina C, Gonzalez F, Izpisúa Belmonte JC, Campistol JM. (2012) Generation of induced pluripotent stem cells from human renal proximal tubular cells with only two transcription factors: OCT4 and SOX2. J Biol Chem. 287(29): 24131-8. **Impact factor: 4,651**.

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61. **Montserrat N**, Pedro Gómez-Requeni, Giovanni Bellini, Encarnación Capilla, Jaume Pérez-Sánchez, Isabel Navarro and Joaquim Gutiérrez. (2007) Distinct role of insulin and IGF-I and its receptors in white skeletal muscle during the compensatory growth of gilthead sea bream (Sparus aurata). Aquaculture Volume 267, Issues 1-4, 3 188-198**. Impact factor: 1,735.**

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BOOK CHAPTERS

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).

2. Xia, Y**., Montserrat, N**., Campistol, J. M., Izpisua Belmonte, J. C., Remuzzi, G. and Williams, D. F. Lineage reprogramming toward kidney regeneration. In: Kidney Transplantation, Bioengineering and Regeneration (ed. Orlando, G., Remuzzi, G. and Williams, D. F.). London, UK, Academic Press: 1167-1175 (2017).
3. de Oñate, L., Garreta, E., Tarantino, C., Martínez, E., Capilla, E., Navarro, I., Gutiérrez, J., Samitier, J., Campistol, J.M., Muñoz-Cánovas, P., **Montserrat, N.,** (2015). Research on skeletal muscle diseases using pluripotent stem cells InTech (DOI: 10.5772/60902), 333-357 (*** corresponding author**)

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

6. Alessandra Giorgetti, **Nuria Montserrat,** Juan Carlos Izpisua Belmonte. Induced Pluripotent Stem Cells (iPSC) from Cord Blood CD133+ Cells Using Oct4 and Sox2. Human Embryonic and Induced Pluripotent Stem Cells. Lineage-Specific Differentiation Protocols. Springer Protocols Handbooks, 2012ISBN: 978-1-61779-266-3 (Print) 978-1-61779-267-0.

RESEARCH GRANTS

MOST RELEVANT COMPETITIVE RESEARCH GRANTS

Project ID: GA- 101002478
Name of PI: Nuria Montserrat
Project title: Engineering kidney organoids to study the interplay between Tissue Mechanics and Metabolism: from development to disease
Funding Agency: ERC Consolidator Grant.
Duration: 2021-2025
Budget: 1.999.937,50€

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: 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: 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: 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: 360.000€

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: 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: 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: 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 reference: SAF2015-72617-EXP
Project title: Reprogramming and tisular regenaration 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 iPS 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 €

INVITED TALKS to established international conferences and seminars

I have communicated my work through more than **100 invited talks** in international conferences, colloquium and seminars in renowned institutions and universities. I highlight the following invited talks (last 2 years):
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

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). Only from 2016 to 2019 the audience reached, just at national (Spain) press was more than 4,7 Million people (equivalent to 300k€ in advertising). Of note, I was selected 1 out the 5 Commissioners of first 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 > *11.000 visitors* in 4 days I have also participated and organized outreach activities for scholars, including seminars and mentoring sessions. I have been recently 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.

OTHER SCIENTIFIC ACHIEVEMENTS

Teaching and training/supervision experience

Supervisor of Master Students: Currently I am supervising one Master Students from the University of Barcelona. Date of Master defense estimated on July 2018.I have already supervised 6 Masters in Biomedicine and Genetics.

Supervisor of PhD Students: Currently I am supervising four PhD students from the University Pompeu Fabra in Barcelona. Date of Thesis defense estimated on July 2019 and January 2020.

Director of the thesis: "Generation of hESCs/iPSCs reporter cell lines for cardiac differentiation". University: Universitat Pompeu Fab**ra. Student: Lorena de Oñate. Lecture date: 30/11/2015**

Member of thesis tribunal: Evaluator and President of thesis commitees from 2013.

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 reviewer to ERC Advance Grant, MRC, FWO and ANR agencies among others since 2014.

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 Experimental Biology and Medicine, Cell Research, Stem Cell Reports, and General and Comparative Endocrinology (Top Reviewer of the year 2009), among others

Others

Coordinator of a committee for the generation of protocols for iPS derivation in the national Network of Cell Therapy "TerCel" from the Ministerio de Sanidad (from December 2013).

Collaborator with Pharmaceutical Industry Sanofi-Aventis within the Regenerative Medicine Program (2010-2012).

OTHER SKILLS

Languages: English (written and spoken very fluently), French (written and spoken fluently), Spanish (native) and Catalan (native).