

<b>Part A. PERSONAL INFORMATION</b>		<b>CV date</b>	11/01/2023
First name	Elisa		
Family name	Martí Gorostiza		
Gender (*)	Female	Birth date	11/01/1961
ID number	42064032E		
e-mail	<a href="mailto:emgbmc@ibmb.csic.es">emgbmc@ibmb.csic.es</a>	URL Web	
Open Researcher and Contributor ID (ORCID) (*)	0000-0001-5839-7133		

**A.1. Current position**

Position	CSIC Research Professor, Principal Investigator		
Initial date	2009		
Institution	Consejo Superior de Investigaciones Científicas (CSIC)		
Department/Center	Instituto de Biología Molecular de Barcelona (IBMB)		
Country	Spain	Teleph nº	934034972
Key words	Developmental Neurobiology, Cell Biology, Tissue Engineering		

**A.2. Previous positions**

Period	Position/Institution/Country/Interruption cause
2006-2009	CSIC Staff Scientist (level2) “ <i>Investigador Científico</i> ”, IBMB-CSIC
2001-2006	CSIC Staff Scientist (level1) “ <i>Científico Titular</i> ”, IBMB-CSIC
1998-2001	Reincorporation Postdoctoral Scientist (MEC), Instituto Cajal-CSIC, Spain
1994-1998	Postdoctoral Scientist, Dept Cell&Mol Biology, Harvard University

**A.3. Education**

PhD, Licensed, Graduate	University/Country	Year
PhD in Cell Biology	RPMS London University/Univ de La Laguna	1988
Licensed in Biology	Univ de La Laguna	1982

**Part B. CV SUMMARY**

I am a Research Professor at IBMB\_CSIC. I have a long standing interest in Developmental Neurobiology, with the particular aim to understand the formation of the Spinal Cord. I initiated my career in the field of Developmental Neurobiology as a doctorate student at the Royal Postgraduate Medical School (RPMS), London University and the University of La Laguna, Spain, where I set the grounds to identify patterns, conserved along evolution, for the generation of cell diversity in the developing Spinal Cord. During my postdoctoral training at Harvard University, I established the morphogenetic role of Sonic Hedgehog (Shh) in the generation of cell diversity in the developing Spinal Cord. <https://www.nature.com/articles/375322a0>. These studies set the foundations to establish my independent research group in Barcelona (IBMB-CSIC) in 2002.

Our team is recognized by our contributions in understanding the genetic networks and cellular events that regulate Neural Development. In the laboratory we address fundamental questions related to the long road required for building a nervous system during embryonic development, and the accidents that might result in congenital neural developmental disease and malformations. We are particularly recognized by our extensive characterization of the multiple Shh activities, but our research work has also extended to other signalling pathways (Wnt, BMP, TGF $\beta$ ). We take advantage of technological developments including tissue engineering combined with advanced microscopy and quantitative imaging that, together with gene editing, allowed following cell and tissue behaviour in vivo to an unprecedented level of detail, to model the formation of the human brain and spinal cord, as well as their developmental disorders.

Along these years I have reconciled my research activity with that of scientific management at the IBMB where I have been deputy director (2006-2009) and (2011-2014), and I am currently the Institute Director. At the Spanish National Agency for Research (AEI), where I have been deputy of Neurobiology and Development (Fundamental and Systems Biology, BFS 2015-2018), and with the science publishing where I am a member of the Editorial Board of Developmental Neurobiology and of the Frontiers in Cell and Developmental Biology. Since 2019, I am member of the Scientific Advisory Board of the Institute of Biomedical Technologies, ULL, Spain, and of the IdiPAZ, Hospital la Paz Institute for Health Research, Madrid, Spain. In the last years I have organized two EMBO Workshops in 2023 and 2014. In 2021, I was elected EMBO Member.



## Part C. RELEVANT MERITS

### C.1. Publications (selected from the last 10 years, from a total 65):

**0.-** Lucía Fanlo-Escudero, Soledad Gómez-González, Irene Sangrador, Emmanuel L. Gautier, Susana Usieto, Elena Rebollo, Mònica Vila-Ubach, Àngel M. Carcaboso, Toni Celià-Terrassa, Cinzia Lavarino, **Elisa Martí**, Gwenvael Le Dréau. (2022) Neural crest-related NXP1/ $\alpha$ -NRXN signalling opposes neuroblastoma malignancy by inhibiting metastasis. **Oncogene** (ONC-2022-00576; 2<sup>nd</sup> Rev) **bioRxiv 2021.11.26.470092**; doi: <https://doi.org/10.1101/2021.11.26.470092>

**1.-** Jose Blanco-Ameijeiras, Pilar Lozano-Fernandez, **Elisa Martí** (2022) Centrosome maturation: in tune with the cell cycle. **J. Cell Science** Jan 15;135(2): jcs259395. doi: 10.1242/jcs.259395. Epub 2022 Jan 28 <https://pubmed.ncbi.nlm.nih.gov/35088834/>

**2.-** Elena Gonzalez-Gobartt, José Blanco-Ameijeiras, Susana Usieto, Guillaume Allio, Bertrand Bénazéraf and **Elisa Martí** (2021) Cell intercalation driven by SMAD3 underlies secondary neural tube formation **Developmental Cell** 56, 1147–1163 April 19, 2021 10.1016/j.devcel.2021.03.023 <https://pubmed.ncbi.nlm.nih.gov/33878300/>

**Highlighted in Faculty Opinions** <https://facultyopinions.com/prime/739971343#eval793585539>

**3.-** Murielle Saade, Diego S Ferrero, José Blanco-Ameijeiras, Elena Gonzalez-Gobartt, Victor M Ruiz-Arroyo, Elena Martínez-Sáez, Santiago Ramón y Cajal, Nuria Verdaguer and **Elisa Martí** (2020) Multimerization of Zika Virus-NS5 causes a ciliopathy and forces premature neurogenesis. **Cell Stem Cell** 2020 Oct 27;S1934-5909(20)30496-3. doi: 10.1016/j.stem.2020.10.002.

<https://pubmed.ncbi.nlm.nih.gov/33147489/>

**Highlighted in Nature Review Microbiol** <https://www.nature.com/articles/s41579-020-00481-9>

**4.-** Najas S, Pijuan I, Esteve-Codina A, Usieto S, Martinez JD, Zwijsen A, Arbonés ML, **Martí E**, Le Dréau G (2020) A SMAD1/5-YAP signalling module drives radial glia self-amplification and growth of the developing cerebral cortex. **Development**. 2020 Jul 13;147(13): dev187005. doi: 10.1242/dev.187005 <https://dev.biologists.org/content/147/13/dev187005>

**5.-** Gonzalez-Gobartt E, Allio G, Bénazéraf B, **Martí Elisa** (2020) In Vivo Analysis of the Mesenchymal -to-Epithelial Transition During Chick Secondary Neurulation. **Methods Mol Biol**. 2021; 2179:183-197. doi: 10.1007/978-1-0716-0779-4\_16.

[https://link.springer.com/protocol/10.1007%2F978-1-0716-0779-4\\_16](https://link.springer.com/protocol/10.1007%2F978-1-0716-0779-4_16)

**6.-** Elena Garreta, Patricia Prado, Carolina Tarantino, Roger Oria, Lucia Fanlo, **Elisa Martí**, Dobryna Zalvidea, Xavier Trepas, Pere Roca-Cusachs, Aleix Gavalda-Navarro, Luca Cozzuto, Josep Maria Campistol, Juan Carlos Izpisua Belmonte, Carmen Hurtado del Pozo, Nuria Montserrat (2019) Fine tuning the extracellular environment accelerates the derivation of kidney organoids from human pluripotent stem cells. **Nature Materials** Apr;18(4):397-405. doi: 10.1038/s41563-019-0287-6. <https://www.nature.com/articles/s41563-019-0287-6>

**7.-** Murielle Saade, Jose Blanco-Ameijeiras, Elena Gonzalez-Gobartt, and **Elisa Martí** (2018) A centrosomal view of CNS growth. **Development** 145: dev170613 doi: 10.1242/dev.170613.

<http://dev.biologists.org/content/145/21/dev170613>

**8.-** Gwenvael Le Dréau, René Escalona, Raquel Fueyo, Antonio Herrera, Juan D Martínez, Susana Usieto, Anghara Menendez, Sebastián Pons, Marian A Martinez-Balbas, and **Elisa Martí** (2018) E proteins sharpen neurogenesis by modulating proneural bHLH transcription factors activity in an E-box-dependent manner. **Elife** Aug 10;7. pii: e37267. doi: 10.7554/eLife.37267

<https://elifesciences.org/articles/37267> **eLife Digest** <https://doi.org/10.7554/eLife.37267.002>

**9.-** Murielle Saade, Elena Gonzalez-Gobartt, Rene Escalona, Susana Usieto and **Elisa Martí** (2017) Shh-mediated centrosomal recruitment of PKA promotes symmetric proliferative neuroepithelial cell division. **Nature Cell Biology** 19, 493–503 (2017) doi:10.1038/ncb3512

<http://www.nature.com/ncb/journal/v19/n5/abs/ncb3512.html>



10.- Demian Burguera , Yamile Marquez , Claudia Racioppi , Jon Permanyer , Antonio Torres, Rosaria Esposito, Beatriz Albuixech , Lucía Fanlo , Ylenia d'Agostino , Enrique Navas-Perez , Ana Riesg<sup>Y</sup>, Claudia Cuomo , Giovanna Benvenuto, Lionel A. Christiaen, **Elisa Martí**, Salvatore D'Aniello, Antonietta Spagnuolo, Filomena Ristoratore, Maria Ina Arnone, Jordi Garcia-Fernàndez, Manuel Irimia (2017) Evolutionary recruitment of flexible Esrp-dependent splicing programs into diverse embryonic morphogenetic processes. **Nat Commun** Nov 27;8(1):1799. doi: 10.1038/s41467-017-01961-y. <https://www.nature.com/articles/s41467-017-01961-y>

11.- M Angeles Rabadán, Antonio Herrera, Lucia Fanlo, Susana Usieto, Carlos Carmona-Fontaine, Elias H. Barriga, Roberto Mayor, Sebastián Pons and Elisa Martí (2016) Delamination of neural crest cells requires transient and reversible Wnt inhibition mediated by DACT1/2. **Development**, 143(12):2194-205. doi: 10.1242/dev.134981. <http://dev.biologists.org/content/143/12/2194.long>

12.- Gwenvael Le Dréau, Murielle Saade, Irene Gutierrez-Vallejo and **Elisa Martí** (2014) The strength of SMAD1/5 activity determines stem cell fate in the developing spinal cord. **J Cell Biol.** 204 (4) 591-605) doi: 10.1083/jcb.201307031. **Cover picture** <http://jcb.rupress.org/content/204/4.cover.pdf> **Highlighted in JCB, “Career guidance for stem cells”** J Cell Biol 2014 204:463. doi:10.1083/jcb.2044if <http://jcb.rupress.org/content/204/4/591.abstract>

13.- Antonio Herrera, Murielle Saade, Anghara Menendez, **Elisa Martí** and Sebastian Pons (2014) Pre-neoplastic growth caused by sustained Wnt/ $\beta$ -Catenin depends on the localization and activation of aPKC at the apical pole of neuroepithelial cells. **Nat Commun** 5:4168. doi: 10.1038/ncomms5168. <http://www.ncbi.nlm.nih.gov/pubmed/24942669>

14.- Murielle Saade, Irene Gutierrez, Gwenvael Le Dreau, M Angeles Rabadán, David G. Miguez, Javier Buceta and **Elisa Martí** (2013) Sonic hedgehog signaling switches the mode of division in the developing nervous system. **Cell Reports** 4(3):492-503. doi: 10.1016/j.celrep.2013.06.038. **Highlighted in F1000** <http://f1000.com/prime/718050366#recommendations-content> <http://www.ncbi.nlm.nih.gov/pubmed/23891002>

15.- David G. Míguez, Estel Gil-Guiñón, Sebastián Pons and **Elisa Martí** (2013) Smad2 and Smad3 cooperate and antagonize simultaneously in vertebrate neurogenesis **J Cell Sci.** 126(Pt 23):5335-43. doi: 10.1242/jcs.130435. <http://jcs.biologists.org/content/126/23/5335.long>

## C.2. Congress

### As Organizer (selected from the last 10 years):

2022.- EMBO Workshop on “Hedgehog signalling: From Molecular Structure to Developmental Biology and Human Diseases” which will be held in April 2023

2014.- EMBO Workshop on “Development and regeneration of the Spinal Cord”, September <http://events.embo.org/coming-soon/index.php?EventID=w14-50>

2012.- 8<sup>TH</sup> FENS FORUM OF NEUROSCIENCE, Barcelona July 14-18, Member of the Satellite Symposiums Organizing Committee

### As Invited Speaker (selected from the last 10 years):

2022.- Invited Speaker at Foster Talks, Department of Physiology, Development and Neuroscience at the University of Cambridge 24/05/2022

2020.- XIII Meeting of SEBD, Bilbao

2020.- EMBO WORKSHOP “Neuromesodermal progenitors in development and regeneration”

2020.- Key Note Speaker at the Developmental Biology section of Societat Catalana de Biologia.

2017.- CNRS GDR 3604 Avian models, 26/27 June 2017, Paris <http://www.gdr3604.cnrs.fr/>

2017.- EMBO WORKSHOP “Cell Polarity and Membrane Dynamics”, San Feliu de Guixols, Spain

2015.- 3rd Meeting of the SPBD - jointly with SEBD and BSDB, Algarve, Portugal Oct2015

2015.- Gordon Research Conference (GRC) *Neural Crest and Cranial Placodes*, Bentley University

2014.- Cold Spring Harbour Laboratories (CSHL) AVIAN MODEL SYSTEMS, March 5/8

2013.- Fundación Areces International Symposium, Building up the brain, Madrid

2012.- IX Meeting of SEBD 2012, Granada October 2012

2011.- XXXIV SEBBM MEETING, Barcelona September 2011

2010.- EMBO WORKSHOP: Hedgehog signaling: from developmental biology to anti-cancer drugs FR-St. Jean Cap Ferrat, 27-31 March 2010

### C.3. Selected Research Projects (Finaced)

- 1.- REF: PID2019-104134GB-I00 UNDERSTANDING THE MOLECULAR MECHANISMS REGULATING EMBRYONIC GROWTH OF THE CENTRAL NERVOUS SYSTEM  
IP **Elisa Martí Gorostiza** (290.000€+FPI)
- 2.- REF: MaratoTV3 2018 “DE L'ESTRUCTURA ALS MECANISMES PELS QUALS EL VIRUS ZIKA PROVOCA NEUROPATIES CONGÉNITES” IP; Nuria Verdaguez (**co-IP Elisa Martí Gorostiza**) (200.000€)
- 3.- REF RED2018-102553-T REDEVNEURAL 3.0: UN ENFOQUE INTEGRADOR PARA ENTENDER LA LOGICA DEL DESARROLLO NEURAL” IP **Elisa Martí Gorostiza** (coordinadora; Paola Bovolenta CBMSO-CSIC) (32.000€)
- 4.- REF BFU2016-77498-P “CONTROL GENETICO DELA FORMACION Y CRECIMIENTO DE LA MEDULA ESPINAL, UN MODELO PARA ESTUDIAR DEFECTOS DEL NEURODESARROLLO” IP: **Elisa Martí Gorostiza** (300.000€+FPI)
- 5.- REF AECC Cancer Infantil 2016 “CARACTERIZACIÓN DEL SISTEMA NXPH/NRXN COMO MARCADOR DE CELULAS MADRE DE NEUROBLASTOMA Y POSIBLE DIANA TERAPEUTICA” IP: **Elisa Martí Gorostiza** (150.000 €)
- 6.- REF: BFU2016-81887-REDT: “REDEVNEURAL: UN ENFOQUE INTEGRADOR PARA ENTENDER LA LOGICA DEL DESARROLLO NEURAL” IP **Elisa Martí Gorostiza** (coordinadora; Paola Bovolenta CBMSO-CSIC) (28.000€)
- 7.- REF: BFU2013-46477-P “DESARROLLO DE LA MEDULA ESPINAL, UN MODELO PARA ESTUDIAR FORMACION DE ORGANOS, BIOLOGIA DE CELULAS MADRE Y TRANSICION EPITELIO MESENQUIMA”. IP **Elisa Martí Gorostiza** (370.000€+FPI)
- 8.- REF: BFU2014-55738-REDT “GENERANDO DIVERSIDAD NEURAL” IP **Elisa Martí Gorostiza** (Coordinadora: Paola Bovolenta, CBMSO-CSIC) 32.000€
- 9.- REF: BFU2010-18959 “DESARROLLO TEMPRANO DEL SISTEMA NERVIOSO DE VERTEBRADOS CONTROL GENETICO DE LA IDENTIDAD Y LA MORFOLOGIA CELULAR” IP **Elisa Martí Gorostiza** (390.000€+FPI)
10. - REF: FP7-PEOPLE-2009-RG “NONLINEAR MECHANISMS OF SPATIAL SYMMETRY BREAKING IN LIVING SYSTEMS” IP (**Elisa Martí Gorostiza**, David Gomez Miguez) 100.000€
11. REF: MEC CONSOLIDER CSD2007-00008 “FROM GENES TO SHAPE: ANALYSIS OF MORPHOGENESIS IN DROSOPHILA AND VERTEBRATES” IP **Elisa Martí Gorostiza** (Coordinador: Ginés Morata) SubGroupo 135.000€
13. REF: Fundación La Caixa BM05-52-0 “ESTUDIO DE LA SEÑALIZACIÓN CELULAR EN LA DIFERENCIACIÓN DE MOTONEURONAS ESPINALES DEL DESARROLLO EMBRIONARIO A LA BIOLOGÍA DE CÉLULAS MADRE” IP **Elisa Martí Gorostiza** 175,000€
14. REF: QLRT-2002-01141 «GENETIC MECHANISMS THAT DETERMINE NEURONAL PROGENITOR IDENTITY IN THE VENTRAL SPINAL CORD” IP **Elisa Martí Gorostiza** (coordinador Stavros Malas) SubGrupo 213,686€

### C.4. Contracts, technological or transfer merits

- 1.- Pat° US6576237B1 (2000) Philip W. Ingham, Andrew P. McMahon, Clifford J. Tabin, David A. Bumcrot, **Elisa Marti-Gorostiza** “Vertebrate Tissue Pattern-Inducing proteins, and uses related thereto”
- 2.- Pat° EP21382092.1 (2021) **Elisa Marti-Gorostiza, Gwenvael Le Dreau and Lucia Fanlo Escudero**. “Methods and compositions for the treatment of Neuroblastoma malignancies