

**Part A. PERSONAL INFORMATION**

<b>CV date</b>	November 2020
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First and Family name	Jose Luis de la Pompa Minguez	
Social Security, Passport, ID nur	50302612W	
Researcher numbers	Researcher ID	<a href="http://www.researcherid.com/rid/F-9719-2014">http://www.researcherid.com/rid/F-9719-2014</a>
	Orcid code	<a href="http://orcid.org/0000-0001-6761-7265">http://orcid.org/0000-0001-6761-7265</a>

**A.1. Current position**

Post/ Professional Category	Full Professor (since 01/01/2009)	
Name of Institution	Centro Nacional de Investigaciones Cardiovasculares (CNIC)	
	Department/Center:	Vascular Biology
	Full Address	Melchor Fernández Almagro 3, 28002 Madrid
	Email Address	jlpompa@cnic.es
	Phone Number	+34620936633
UNESCO Code	2415 Molecular Biology; 2407 Cell Biology; 2409 Genetics, 3207 Pathology	
Key Words	Signaling, cardiomyopathies, valvular disease, AVB, development, NOTCH, trabeculation, valves	

**A.2. Education**

Year	Institution	Title
1985	University: Complutense de Madrid, Spain	MSc in Biology
1990	University: Autónoma de Madrid, Spain	PhD in Genetics

**A.3. JCR articles, h Index, thesis supervised**

- Total number of papers and citations: 92 papers, 13,280 citations (149.21 per article)
- Number of citations during the last five years (2015-2019): 617 citations/year
- Total number of publications in the first quartile (Q1): 88 of the 92 publications have an IF; 74 of them are in Q1 (84%); 57 in D1 (65%), and 42 (48%) are in the TOP 3 of their categories.
- H-index: 45 (Web of Science), 47 (Google Scholar)
- 97% of his publications are original articles and reviews and Dr. de la Pompa is main author in 45% of them.

*Data from Web of Science and JCR (September 2020)*

**Doctoral theses**

Thesis supervised: 12 // Thesis in preparation: 5

**Part B. CV SUMMARY (max. 3500 characters, including spaces)**

**Research:** In our laboratory we study the role that intercellular signaling has in the regulation of the developmental processes that give rise to the adult heart and how its alteration causes congenital heart diseases, in particular cardiomyopathies and valve disease. Our experimental models are mouse and zebrafish and we use a genetic approach, that is, we generate mice or fish carrying mutations in genes of interest, we study their phenotype using the required molecular and functional techniques and, when possible, we validate our results in human cell samples or models. A small subgroup within the laboratory studies the function of different signals in the cardiac regeneration of zebrafish, in order to generate knowledge of potential utility in humans. In recent years we have demonstrated the crucial importance of the NOTCH signaling pathway for the formation and morphogenesis of heart valves, and ventricular walls. In the latter case, we have demonstrated the causal relationship between MIB1 mutations, a NOTCH pathway gene, and non-compacted cardiomyopathy (LVNC, see Publications).

**Training and career:** Doctoral thesis (1990, UAM), A. Ferrús (Cajal Institute, CSIC), study of the development of the nervous system and muscles in Drosophila. Postdoctoral studies with R. Zeller at EMBL (Heidelberg, 1990-94) in the study of chicken limb development, and T. W. Mak (Ontario Cancer Institute and Amgen Institute, Toronto, Canada, 1994-1999), role of tumor suppressor genes and the NOTCH pathway in the regulation of cell proliferation, differentiation and pattern formation in murine development. Interest in cardiac

development after generating and characterizing a mutant mouse for the *Nfatc1* gene, which shows valvular development defects. Group leader at EMBL (Monterotondo, Rome, Italy, 1999) and Associate Professor at CADB (Rochester, NY, USA, 2000). 2001: Head of the Molecular Oncology Department of the Oncology Research Institute of Barcelona;

Our group pioneered the study of the role of NOTCH in the formation of heart valves. In 2004, the group moved to the CNB-CSIC (Madrid) after obtaining an assistant professor position at CSIC. Promotion to Associate Professor in 2007. 2009: Incorporation to CNIC as Senior Researcher (Full Professor). 2011-2014: Coordinator of the Cardiovascular Developmental Biology Program.

## Part C. RELEVANT MERITS

### C.1. Selected Publications in the last 10 years

#### C1.1. Publications as Main Author:

1. MacGrogan D, Martínez-Poveda B, Desvignes JP, Fernandez-Friera L, Gomez MJ, Gil Vilariño E, Callejas Alejano S, García-Pavía P, Solis J, Lucena J, Salgado D, Collod-Bérout G, Faure E, Théron A, Torrents J, Avierinos JF, Montes L, Dopazo A, Fuster V, Ibáñez B, Sánchez-Cabo F, Zaffran S, DE LA POMPA JL. Identification of a peripheral blood gene signature predicting aortic valve calcification. *Physiol Genomics*. 2020. Oct 12. PMID: 33044885.
2. Grivas D, González-Rajal Á, Guerrero Rodríguez C, Garcia R, **DE LA POMPA JL**. Loss of Caveolin-1 and caveolae leads to increased cardiac cell stiffness and functional decline of the adult zebrafish heart. *Sci Rep*. 2020 Jul 30;10(1):12816.
3. Travisano I, Oliveira VL, Prados B, Grego-Bessa J, Piñeiro-Sabarís R, Bou V, Gómez MJ, Sánchez-Cabo F, MacGrogan D, **DE LA POMPA JL**. Coronary arterial development is regulated by a Dll4-Jag1-EphrinB2 signaling cascade *eLife*. 2019; 8: e49977.
4. Torregrosa-Carrión R, Luna-Zurita L, García-Marqués F, D'Amato G, Piñeiro-Sabarís R, Bonzón-Kulichenko E, Vázquez J, **DE LA POMPA JL**. NOTCH Activation Promotes Valve Formation by Regulating the Endocardial Secretome. *Mol Cell Proteomics*. 2019 Sep; 18(9): 1782–1795
5. MacGrogan D, Münch J, **DE LA POMPA JL**. Notch and interacting signalling pathways in cardiac development, disease, and regeneration. *Nat Rev Cardiol*. 2018 Nov;15(11):685-704:
6. Papoutsis, T, Luna Zurita, L, Prados B, Zaffran S, **DE LA POMPA JL**,. Bmp2 and Notch cooperate to pattern the embryonic endocardium. *Development* . 2018 May. 2018 Jul 2;145(13). pii: dev163378
7. Münch J, Grivas D, González-Rajal Á, Torregrosa-Carrión R, **DE LA POMPA JL**. Notch signaling restricts inflammation and serpinel expression in the dynamic endocardium of the regenerating zebrafish heart. *Development*. 2017 144(8):1425-1440.
8. MacGrogan D, D'Amato G, Travisano S, Martinez-Poveda B, Luxán G, Del Monte-Nieto G, Papoutsis T, Sbroggio M, Bou V, Gomez-Del Arco P, Gómez MJ, Zhou B, Redondo JM, Jiménez-Borreguero LJ, **DE LA POMPA JL**. Sequential Ligand-Dependent Notch Signaling Activation Regulates Valve Primordium Formation and Morphogenesis. *Circ Res*. 2016 118(10):1480-97.
9. D'Amato G, Luxán G, del Monte-Nieto G, Martínez-Poveda B, Torroja C, Walter W, Bochter MS, Benedito R, Cole S, Martinez F, Hadjantonakis AK, Uemura A, Jiménez-Borreguero LJ, **DE LA POMPA JL**. Sequential Notch activation regulates ventricular chamber development. *Nat Cell Biol*. 2016. 18(1):7-20.
10. Nus M, Martínez-Poveda B, MacGrogan D, Chevre R, Amato G, Sbroggio M, Rodríguez C, Martínez-González J, Andrés V, Hidalgo A, **DE LA POMPA JL**. Endothelial Jag1-RBPJ signalling promotes inflammatory leucocyte recruitment and atherosclerosis. *Cardiovasc Res*. 2016 112, 568-580.
11. Cortegano I, Melgar-Rojas P, Luna-Zurita L, Siguero-Álvarez M, Marcos MA, Gaspar ML, **DE LA POMPA JL**. Notch1 regulates progenitor cell proliferation and differentiation during mouse yolk sac hematopoiesis. *Cell Death Differ*. 2014 21(7):1081-94.
12. Luxán G, Casanova JC, Martínez-Poveda B, Prados B, D'Amato G, MacGrogan D, Gonzalez-Rajal A, Dobarro D, Torroja C, Martinez F, Izquierdo-García JL, Fernández-Friera L, Sabater-Molina M, Kong YY, Pizarro G, Ibáñez B, Medrano C, García-Pavía P, Gimeno JR, Monserrat L, Jiménez-Borreguero LJ, **DE**

- LA POMPA JL.** Mutations in the NOTCH pathway regulator MIB1 cause left ventricular non-compaction cardiomyopathy. *Nat Med.* 2013. 19(2):193-201.
13. **DE LA POMPA JL,** Epstein JA. Coordinating tissue interactions: Notch signaling in cardiac development and disease. *Dev Cell.* 2012 22(2):244-54.
  14. del Monte G, Casanova JC, Guadix JA, MacGrogan D, Burch JB, Pérez-Pomares JM, **DE LA POMPA JL.** Differential Notch signaling in the epicardium is required for cardiac inflow development and coronary vessel morphogenesis. *Circ Res.* 2011. 108(7):824-36.
  15. Luna-Zurita L, Prados B, Grego-Bessa J, Luxán G, del Monte G, Benguría A, Adams RH, Pérez-Pomares JM, **DE LA POMPA JL.** Integration of a Notch-dependent mesenchymal gene program and Bmp2-driven cell invasiveness regulates murine cardiac valve formation. *J Clin Invest.* 2010. 120(10):3493-507.

### **C1.2 Additional selected publications:**

16. Neri T, Hiriart E, van Vliet PP, Faure E, Norris RA, Farhat B, Jagla B, Lefrancois J, Sugi Y, Moore-Morris T, Zaffran S, Faustino RS, Zambon AC, Desvignes JP, Salgado D, Levine RA, **DE LA POMPA JL,** Terzic A, Evans SM, Markwald R, Pucéat M. Human pre-valvular endocardial cells derived from pluripotent stem cells recapitulate cardiac pathophysiological valvulogenesis. *Nature communications* 2019; 10: 1929
17. Andrés-Delgado L, Ernst A, Galardi Castilla, M ; Bazaga, D ; Peralta, M ; Munch, J ; Rosa González, JM Marqués, I ; Tessadori, F; **DE LA POMPA JL;** Vermont, J ; Mercader, NV . Actin dynamics and the Bmp pathway drive apical extrusion of proepicardial cells *Development.* 2019 DOI: 10.1242/dev.174961
18. García-León MJ, Fuentes P, **DE LA POMPA JL,** Toribio ML. Dynamic regulation of NOTCH1 activation and Notch ligand expression in human thymus development. *Development.* 2018 Aug 13;145(16). pii: dev165597.
19. Eley L, Alqahtani AM, MacGrogan D, Richardson RV, Murphy L, Salguero-Jimenez A, Sintés Rodríguez San Pedro M, Tiurma S, McCutcheon L, Gilmore A, **DE LA POMPA JL,** Chaudhry B, Henderson DJ. A novel source of arterial valve cells linked to bicuspid aortic valve without raphe in mice. *Elife.* 2018 Jun 29;7. pii: e34110.
20. Del Monte-Nieto, G, Ramialison M, Adam AAS, Wu B, Aharonov A, D'Uva G, Bourke LM, Pitulescu ME, Chen H, **DE LA POMPA JL,** Shou W, Adams RH, Harten SK, Tzahor E, Zhou B, Harvey RP. Control of cardiac jelly dynamics by NOTCH1 and NRG1 defines the building plan for trabeculation. *Nature.* 2018 May; 557(7705):439-445.
21. Nus M, Sage AP, Lu Y, Masters L, Lam BYH, Newland S, Weller S, Tsiantoulas D, Raffort J, Marcus D, Finigan A, Kitt L, Figg N, Schirmbeck R, Kneilling M, Yeo GSH, Binder CJ, **DE LA POMPA JL,** Mallat Z. Marginal zone B cells control the response of follicular helper T cells to a high-cholesterol diet. *Nat Med.* 2017 23(5):601-610.
22. Gómez-Del Arco P, Perdiguero E, Yunes-Leites PS, Acín-Pérez R, Zeini M, Garcia-Gomez A, Sreenivasan K, Jiménez-Alcázar M, Segalés J, López-Maderuelo D, Ornés B, Jiménez-Borreguero LJ, D'Amato G, Enshell-Seijffers D, Morgan B, Georgopoulos K, Islam AB, Braun T, **DE LA POMPA JL,** Kim J, Enriquez JA, Ballestar E, Muñoz-Cánoves P, Redondo JM. The Chromatin Remodeling Complex Chd4/NuRD Controls Striated Muscle Identity and Metabolic Homeostasis. *Cell Metab.* 2016 23(5):881-92.
23. Maraver A, Fernandez-Marcos PJ, Cash TP, Mendez-Pertuz M, Dueñas M, Maietta P, Martinelli P, Muñoz-Martin M, Martínez-Fernández M, Cañamero M, Roncador G, Martínez-Torrecedrera JL, Grivas D, **DE LA POMPA JL,** Valencia A, Paramio JM, Real FX, Serrano M. NOTCH pathway inactivation promotes bladder cancer progression. *J Clin Invest.* 2015 125(2):824-30.
24. VanDusen NJ, Casanovas J, Vincentz JW, Firulli BA, Osterwalder M, Lopez-Rios J, Zeller R, Zhou B, Grego-Bessa J, **DE LA POMPA JL,** Shou W, Firulli AB. Hand2 is an essential regulator for two Notch-dependent functions within the embryonic endocardium. *Cell Rep.* 2014 9(6):2071-83.
25. Rayon T, Menchero S, Nieto A, Xenopoulos P, Crespo M, Cockburn K, Cañon S, Sasaki H, Hadjantonakis AK, **DE LA POMPA JL,** Rossant J, Manzanares M. Notch and hippo converge on Cdx2 to specify the trophoblast lineage in the mouse blastocyst. *Dev Cell.* 2014 30(4):410-22.
26. Ferjentsik Z, Hayashi S, Dale JK, Bessho Y, Herreman A, De Strooper B, del Monte G, **DE LA POMPA JL,** Maroto M. Notch is a critical component of the mouse somitogenesis oscillator and is essential for the formation of the somites. *PLoS Genet.* 2009 5(9): e1000662.

27. González-García S, García-Peydró M, Martín-Gayo E, Ballestar E, Esteller M, Bornstein R, **DE LA POMPA JL**, Ferrando AA, Toribio ML. CSL-MAML-dependent Notch1 signaling controls T lineage-specific IL-7R $\alpha$  gene expression in early human thymopoiesis and leukemia. *J Exp Med*. 2009;206(4):779-91.

## C.2. Research projects and grants (selection)

1. Mecanismos moleculares del desarrollo y la enfermedad de las cámaras y las válvulas cardíacas. 01/06/2020-31/12/2023. PID2019-104776RB-I00. IP: **JL de la Pompa**. Dotación: 399.300 €.
2. Red de Terapia Celular. Instituto de Salud Carlos III. Ref.: RD16/0011/0021. 2017-2021  
IP: **JL. de la Pompa**. Coordinador: J.M. Moraleta Jiménez. Dotación: 154.913 €
3. CIBER Cardiovascular. **CIBER**. Instituto de Salud Carlos III. Ref.: CB16/11/00399. 2017-2018. IP: **JL. de la Pompa**. Coordinador: F. Fernández-Avilés. Dotación: 58.000 €/año
4. Modulating the endothelium during coronary vascular development and in cardiovascular disease Ref: 11-2016-IGP JL de la Pompa 01/07/2017 – 31/12/2019 IP: **JL de la Pompa** Dotación: 149.896 €
5. Señalización en el desarrollo cardíaco y la patología ventricular y valvular. **MEC**. Ref.: SAF2016-78370-R. 2017 – 2019. IP: **JL de la Pompa**. Dotación: 484.000 €.
6. Investigación de los interactores genéticos y mecanísticos en cardiomiopatía familiar mediante el modelado avanzado de enfermedades. Funding agency: Fundación La Marató. Duración: 2016-2019. **PI: J.L. de la Pompa**. Dotación: 150.000€/3 años. Coordinator: A Raya.
7. Uncovering genetic and mechanistic interactors in familial cardiomyopathy through advanced disease modelling. Funding agency: MINECO Red de excelencia Temática. ref: SAF2015-71863-REDT. Duration: 2015-2017. **PI and coordinator: J.L. de la Pompa**. Dotación: 35.000 €
8. The NOTCH signaling pathway in Left Ventricular Non-Compaction (LVNC) cardiomyopathy: genetic studies and in vivo and in vitro modeling. **Fundación BBVA**. Ref.: BIO14\_298. 2015-2017. IP: **J.L. de la Pompa**. Dotación: 150.000 €/3 años
9. Señalización intercelular en el desarrollo, la homeostasis y la enfermedad cardiovascular. Funding agency: **MINECO**, ref: SAF2013-45543-R. Duration: 2014-2016. **PI: J.L. de la Pompa**. Dotación: 480.000 €/3 años
10. Investigación, desarrollo, producción y aplicación de medicamentos de terapia celular en enfermedades cardiovasculares. Red Terapia Celular. Agency: **Instituto de Salud Carlos III**, ref.RD12/0019/0003, 2013-2016, **PI: JL. De la Pompa, Coordinator: J.M. Moraleta Jiménez**. Dotación: 161.000,00 €/ 4 años
11. Red de Enfermedades Cardiovasculares. Agency: **Instituto de Salud Carlos III**, ref. RD12/0042/0005, 2013-2016, **PI: JL. De la Pompa, Coordinator: F. Fernández Avilés**. Dotación: 280.455,68 €/4 años
12. CardioNeT- International Training Network on the Cellular and Molecular Bases of Heart Homeostasis and Repair. Agency: **European Union**, ref. 28600, 2012-2015. **PI: JL de la Pompa** Dotación: 366.136,95 €
13. Integración de señales durante el desarrollo y la homeostasis cardiovascular. Agency: **MICINN**, ref. SAF2010-17555, 2011-2013. **PI: JL de la Pompa** Dotación: 471.900,00 €
14. Etiology of aortic valve disease, mouse models and cell therapy. Agency: Foundation pour la Recherche Médicale "Physiopathologie cardiovasculaire", ref. DPC2011 1123002, 2012-2014. **PI: JL de la Pompa**. Coordinator: S Zaffran Dotación: 75.000,00 €
15. Red Temática de Terapia Celular. Agency: **Instituto de Salud Carlos III**, ref.RD06/0010/1013, 2008-2013. **PI: JL de la Pompa, Coordinator: Javier García Sancho**. Dotación: 195.500,00 €
16. Prevención y tratamiento del daño miocardio asociado a la enfermedad cardiovascular (RECAVA II) Agency: **Instituto de Salud Carlos III**, ref. RD06/0014/0038, 2007-2013. **PI: J.L. de la Pompa, Coordinator: Francisco Fernández Avilés**. Dotación: 330.000,00 €

### **C.3. Prizes, patents and other distinctions**

2010-14 // 2018-2021: Member of the ESC Working Group on Developmental Anatomy and Pathology.  
2011-2014: Coordinator of the Developmental Biology Program, CNIC.  
20/02/2020. Patent: *In vitro* Method for the diagnosis and/or prognosis of calcific aortic valve disease or subclinical aortic valve calcification. Patent No. 20382121.0-1118.

### **C.4. Ad-hoc reviewer of scientific articles**

*Nature, Nature Medicine, Nature Cell Biology, Nature Communications, Cell, Dev Cell, Development, Dev Biol, Mol Cell Biol, Proc. Natl. Acad. Sci. USA; Eur Heart J, Circulation; Circulation Research; ATVB; Cell Reports, PLoS One, Mechanisms of Development, eLIFE*

### **C.5. Organization of Scientific Meetings (selection)**

-2014: Chair of the 2014 Weinstein Conference on Cardiovascular Development, Madrid, Spain  
-2010: Organizer of the workshop “New insights into cell & tissue interactions in cardiovascular development and disease”. CNIC.  
- 2010. Organizer of the NotchIT Theoretical and Practical Courses Overview of model systems in developmental biology & Developmental analysis of heart development: from theory to practice (Theory + Practical). CNIC.

### **C.6. Participation in evaluation committees**

Ad hoc member of the experts evaluating panel of the National Plan. Since 2004.  
Ad hoc member of the evaluation committee of the Juan de la Cierva Program. 2007 and 2017.  
Ad hoc member of the evaluation committee of the European Research Council (ERC, Starting and Consolidator).  
Member of the evaluation committee of the University of Marseille (France). 2015.  
Ad hoc project reviewer for the National Evaluation Agency (ANEP), areas of Biology and Biomedicine. Since 2001  
Ad hoc project reviewer for the British Heart Foundation (BHF)  
Ad project reviewer for the Portuguese Research Agency. 2016.  
Ad hoc project reviewer for the Israeli Research Agency. 2015.  
Ad hoc project reviewer for Cancer Research UK. 2015.  
Ad hoc project reviewer for the French Research Agency (ANR). Since 2013.