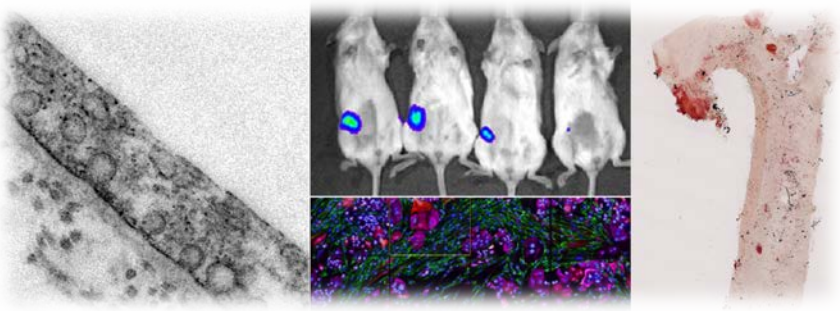
4 year-funded PhD position to study cell and organismal mechanobiology



Mechanical forces have recently emerged as key components of cell behaviour and tissue homeostasis. As such, mechanobiology underpins most major health challenges, i.e. ***cancer*** and ***cardiovascular disease*** (CVD). The stiffness of a tumour and its surrounding stroma correlates with its aggressiveness and might constitute a major target for diagnosis and treatment. Blood flow patterns determine that certain regions of the arterial tree are preferential sites for the initiation of atherosclerotic lesions, while others are largely protected even in individuals at very advanced stages of the disease. However, we still have a very limited understanding of the general molecular and cellular principles governing these reciprocal ties between living systems and mechanical forces.

The Mechanoadaptation and Caveolae Biology group (CNIC, Madrid) has opened a four-year predoctoral research position, associated to a SAF-R 2017 research grant (former FPI fellowship programme) under the title "*Multiscale characterization of caveolae-YAP/TAZ-driven mechanotransduction networks linking mechanical forces with disease*". We seek highly motivated candidates with an interest in unraveling basic novel questions as to i) how living cells and tissues adapt to mechanical forces; and ii) how these systems contribute to the physiopathology of cancer and CVD. The candidate should possess a degree in Biomedical Sciences with a strong academic record; a Master degree completed by the *expected* application deadline (potentially September-October 2018) is required. Previous experience in extracellular matrix biology and proteomics, or mouse model research, will be positively valued.

Our research programme is multidisciplinary, bridging basic molecular, cell biology, and biophysics with established models of disease (pancreatic, lung & breast cancer metastasis and atherosclerosis). The successful candidate will therefore have the opportunity to receive a solid, broad training in specialized cell culture systems, state-of-the-art microscopy and proteomics, as well as work with mouse models of disease and experimental surgery.

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Web site: https://www.cnic.es/es/investigacion/mecanoadaptacion-biologia-caveolas

The scientific report of the group can be downloaded from https://www.cnic.es/es/scientific-report

RECENT SELECTED PUBLICATIONS:

S Minguet; [...] MA del Pozo. "*Caveolin-1-dependent BCR nanoscale organization prevents B cell malfunction and autoimmunity*". (2017) ***Nat. Immunol.*** (10):1150-1159

A Echarri, MA del Pozo. "*Caveolae - mechanosensitive membrane invaginations linked to actin filaments*". (2015) ***J Cell Sci***. Aug 1;128(15):2747-58

I Navarro-Lérida, [...] MA del Pozo. "*Rac1 nucleocytoplasmic shuttling drives nuclear shape changes and tumor invasion*". (2015). ***Dev Cell*** 32:318-334.

R Strippoli, [...] MA del Pozo. "*Caveolin-1 deficiency induces a MEK-ERK1/2-Snail-1-dependent epithelial-mesenchymal transition and fibrosis during peritoneal dialysis*". (2015) ***EMBO Mol Med***. Mar;7(3):357

RG Parton, **MA del Pozo.** *"Caveolae as plasma membrane sensors, protectors and organizers"* (2013) ***Nat Rev Mol Cell Biol.*** Feb;14(2):98-112

I Navarro-Lérida, [...] MA del Pozo "*A palmitoylation switch mechanism regulates Rac1 function and membrane organization"* (2012) ***EMBO J*** Feb 1;31(3):534-51

A Echarri, MA del Pozo "*Caveolae.*" (2012) ***Curr Biol*** Feb 21;22(4):R114-6

JG Goetz, [...] MA del Pozo "*Biomechanical remodeling of the microenvironment by stromal caveolin-1 favors tumor invasion and metastasis*" (2011) ***Cell*** Jul 8;146(1):148-63