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FIGURES LEGENDS AND CREDITS BY RESEARCH AREA

VASCULAR PATHOPHYSIOLOGY

Figure 1- Transverse view of an E9.5 mutant heart with defective ventricular development that will cause embryonic death by E11.0. The myocardium in ventricles and atria is stained with an antibody against smooth muscle actin (red), and nuclei are stained with DAPI (blue). (José Luis de la Pompa)

Figure 2 – PET/CT of gene-modified minipigs with atherosclerosis, showing the accumulation of the PET tracer sodium fluoride in atherosclerotic lesions in vivo. (Jacob Bentzon)

Figure 3 - PET analysis of the tracer sodium fluoride in atherosclerotic lesions ex vivo. (Jacob Bentzon)

Figure 4- H&E staining of transverse section of an E16.5 mutant mouse heart carrying a mutation identified in pedigrees of a family with non-compaction cardiomyopathy. The mutant phenotype recapitulates the features of noncompaction. Note the thin ventricular walls and the persistent trabeculae that have not undergone compaction. (José Luis de la Pompa)

Figure 5- Decreased brain metabolism in middle-aged hypertensive individuals. 3D brain statistical parametric maps, with colored areas indicating the association between the presence of hypertension and reduced glucose uptake, independently of other cardiovascular risk factors. The correlation analysis included baseline plasma glucose as a covariate together with the following principal component factors: age, sex, systolic blood pressure, total cholesterol, HDL cholesterol, smoking, hypertension, and diabetes. The color bar represents the magnitude of voxel significance (P-value). Only clusters with k>100 statistically significant voxels were considered. L, left; R, right; A, anterior; P, posterior. (Marta Cortés Canteli, Valentin Fuster)

Figure 6- Confocal image of kidney (left) and liver (right) from Lmnaflox/flox SM22αCre mice, showing expression of lamin A/C (white), smooth muscle a-actin (red), CD31 (Green), and DAPI (blue). (Vicente Andrés)

CELL AND DEVELOPMENTAL BIOLOGY

Figure 1- Whole-mount imaging, 3D reconstruction, and electron microscopy of mouse heart tissue, with individual cardiomyocytes in red and surrounding cardiac macrophages in green. The images illustrate the close immune-cell–cardiomyocyte interactions in the heart, whose functional significance we are trying to understand. (Andrés Hidalgo)

Figure 2 - siRNA "custom" collection dispensing service for High Content Screening in the Cellomics Unit. The Freedom EVO robotic pipetting platform (TECAN, Switzerland) performs automated liquid handling and cherrypicking from genome-wide source siRNA libraries, as well as custom siRNA plate spotting. (María Montoya).

Figure 3 - Electron microscopy image of a cell plasma membrane, showing caveolar ´rossettes´. (Miguel Ángel del Pozo)

Figure 4 - Cell-scale analysis of heart tube formation in an optical section of a mouse embryo at embryonic day E8.0 (ventral view). The image shows mesodermal cell membranes (green), dTomato-positive transgenic cells (red), and nuclei (DAPI, blue). The image was acquired with a Leica SP8 Navigator confocal microscope and deconvolved using Huygens Professional 19.10. The image resolution of the image allows for very precise quantitative studies at single-cell level. (Miguel Torres)

Figure 5- Artistic rendering of individual channels from the previous image – Fig. 4. (Miguel Torres)

Figure 6 - Mouse embryo at gestation day E8.3. Cardiomyocytes (labeled with an antibody against α-Smooth Muscle Actin, red) form the linear heart tube at this stage. A nuclear reporter for Notch activity outlines the developing vasculature (green). Cell nuclei were counterstained with the nuclear marker DAPI (blue). (Miguel Torres)

Figure 7 - Confocal microscopy image of adipocytes differentiated in vitro, stained for lipid droplets (BODIPY 493/503 stain, green), actin cytoskeleton (phalloidin, red), and nuclei (DAPI, blue). (Miguel Ángel del Pozo)

MYOCARDIAL PATHOPHYSIOLOGY

Figure 1- Electron microscopy image of a lipid-filled peritoneal tissue resident macrophage. (Mercedes Ricote)

Figure 2 - Excised heart of an LQT8 knockin pig ready for isolation of cardiomyocytes. (Silvia Priori)

Figure 3- Termination of persistent atrial fibrillation (AF) upon instantaneous amplitude modulation and instantaneous frequency modulation (iAM/iFM)-based guidance to localize specific atrial areas driving the overall arrhythmia. (David Filgueiras)

Figure 4 - Characterization of cardiac macrophages in CX3CR1GFP/+ mice after myocardial infarction. The images show 30µm maximum intensity projections of cardiac macrophages labeled with GFP (green), CD68 (red), and DAPI (blue) at 3 (left) and 7 (right) days after injury. (Mercedes Ricote)

Figure 5 - LQT8 human IPSC-derived myocytes Simultaneous recording of voltage and calcium. (Silvia Priori)