

Figure A1: KEGG map (mmu04260) of the differential expression of cardiac muscle contraction (CMC) genes in: (a) the right atrium with respect to the left atrium, (b) left ventricle vs left atrium and (c) right ventricle vs right atrium. No significant difference was found between the expressions of CMC genes in the two ventricles. Genes with significant differences: actin alpha cardiac muscle 1 (*Actc1*), Na+/K+ transporting ATPases (*Atp1a2*, *Atp1a*), Ca<sup>++</sup> transporting ATPases (*Atp1b1*, *Atp1b2*), calcium channels (*Cacna1g*, *Cacna1h*, *Cacna2d1*, *Cacna2d2*), cytochromes c1 and b (*Cyc1*, *Cytb*), cytochrome c oxidases (*Cox2*, *Cox3*, *Cox4i1*, *Cox4i2*, *Cox5a*, *Cox5b*, *Cox6a2*, *Cox6a2*, *Cox6b1*, *Cox6b2*, *Cox6c*, *Co7a1*, *Cox7b*, *Cox7c*, *Cox8b*), FXYD domain-containing ion transport regulator 2 (*Fxyd2*), myosins (*Myh6*, *Myh7*, *Myl2*, *Myl3*,

*Myl4*), solute carrier family 8 (sodium/calcium exchanger) member 1 (*Slc8a1*), tropomyosin 1, alpha (*Tpm1*) and troponins (*Tnnc1*, *Tnnt1*).

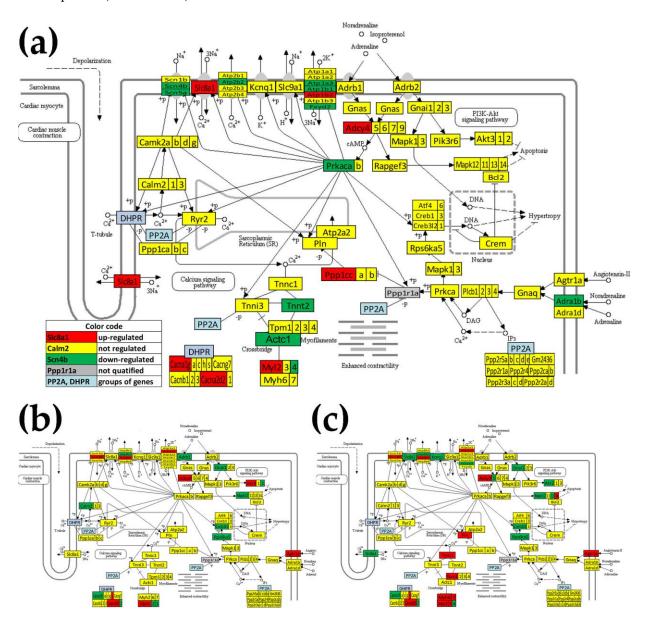


Figure A2: KEGG map (mmu04261) of the differential expression of adrenergic signaling in cardiomyocytes (ASC) genes in: (a) the right atrium with respect to the left right atrium; (b) the left ventricle with respect to the left atrium; (c) the right ventricle with respect to the right atrium. No gene was differentially expressed between the two ventricles. Genes with significant differences: actin, alpha, cardiac muscle 1 (*Actc1*), adenylate cyclases (*Adcy4*, *Adcy5*, *Adcy9*), adrenergic receptor, alpha 1b (*Adra1b*), angiotensin (*Agt*), angiotensin II receptor, type 1a (*Agtr1a*), thymoma viral proto-oncogenes (*Akt2*, *Akt3*), Na\*/K\*-transporting ATPases (*Atp1a2*, *ATP1a3*, *ATP1b1*, *Atp1b3*), Ca²\*-transporting ATPases (*Atp2b2*, *Atp2b3*), calcium channels (*Cacna1g*, *Cacna1h*, *Cacna1s*, *Cacna2d1*), calmodulin 2 (*Calm2*), cAMP responsive element binding protein 3-like 1 (*Creb3l2*), FXYD domain-containing ion transport regulator 2 (*Fxyd2*), guanine nucleotide binding protein (G protein), alpha inhibiting 1 (*Gnai1*), potassium voltage-gated

channel subfamily Q member 1 (*Kcnq1*), mitogen-activated protein kinases (*Mapk12*, *Mapk13*, *Mapk14*), myosins (*Myh6*, *Myh7*, *Myl2*, *Myl3*, *Myl4*), phospholamban (*Pln*), protein phosphatases (*Ppp1cc*, *Ppp1r1b*), protein kinase, cAMP dependent, catalytic, alpha (*Prkaca*), *Rps6ka5*, sodium channels (*Scn4b*, *Scn5g*), solute carrier family 8 (sodium/calcium exchanger) member 1 (*Slc8a1*), troponins (*Tnnc1*, *Tnnt2*) and tropomyosin 1 alpha (*Tpm1*).

**Table S1**. Ratios of RV/LV and RA/LA gene expression in our study for 12 genes encoding subunits of cardiac ion channels and transporters

Gene	Protein	RV/ LV expression ratio	RA / LA expression ratio
Scn5a	Cardiac fast voltage-dependent Na+ channel main subunit Nav1.5	0.712	0.636
Kcnd2	Cardiac fast transient outward K+ channel main subunit Kv4.2	1.501	0.694
Kcna4	Cardiac slow transient outward K+ channel main subunit Kv1.4	1.232	0.953
Clcn2	Voltage-gated chloride channel CIC-2	1.055	0.707
Cacna1c	Cardiac L-type Ca <sup>2+</sup> channel main subunit Cav1.2	1.087	0.832
Kcnj2	Cardiac inward rectifier K⁺ channel main subunit Kir2.1	1.179	0.963
Kcna5	Cardiac ultrarapid delayed rectifier K+ channel main subunit Kv1.5	0.891	1.018
Kcnh2	Cardiac rapid delayed rectifier K+ channel main subunit Kv11.1	1.103	1.253
Kcnq1	Cardiac slow delayed rectifier K+ channel main subunit Kv7.1	0.865	1.117
Atp2a2	Cardiac sarco/endoplasmic reticuluml Ca <sup>2+</sup> pump main subunit SERCA2	1.199	1.036
Atp1a1	Cardiac Na $^{+}$ /K $^{+}$ pump catalytic subunit $\alpha$ 1	0.973	0.890
Slc8a1	Cardiac Na <sup>+</sup> /Ca <sup>2+</sup> antiport exchanger NCX1 main sunbunit	0.895	5.269