

Region from RNAseq	Transcript	Specific to OFT within heart?	Expressed outside of the heart?	Novel marker to OFT?	Published expression in OFT	Published expression in heart outside of the OFT
Outflow Tract (OFT)	<i>ACTA2</i>	no	yes	no	Expressed in 56 hours post fertilisation (hpf) zebrafish OFT ¹	Expressed in inflow and outflow tract in Hamburger Hamilton ² (HH) stage 15 chick embryos ³
OFT	<i>FGF8</i>	yes	yes	yes		mRNA detected in embryonic day (E)8.5-9 mouse splanchnic mesoderm ⁴ . <i>fgf8/ace</i> is expressed throughout the zebrafish ventricle at 36hpf ⁵ . <i>FGF8</i> mRNA is not detected in the HH16 chick embryo OFT ⁶
OFT	<i>GDF3/</i> <i>cVg1</i>	yes	yes	yes		Expressed in prospective ventricle in HH13 chick ⁷
OFT	<i>HPGDS</i>	yes	yes	yes		
OFT	<i>CR385930</i> <i>/ LBH- LIKE</i>	yes	yes	yes		
OFT	<i>MSX2</i>	yes	yes	no	Detected in E9.5 mouse OFT ⁸	
OFT	<i>OLFML2B</i>	no	yes	no		
OFT	<i>PRSS23</i>	yes	yes	yes		mRNA detected in the zebrafish atrium, ventricle and atrioventricular canal at 48hpf ⁹
OFT	<i>RASSF5</i>	no	yes	no		
OFT	<i>SPRY2</i>	no	yes	no	Expressed in splanchnic mesoderm and OFT in E8.5 mouse embryos ¹⁰	
OFT	<i>PKIG</i>	no	yes	no		
Region from RNAseq	Transcript	Specific to RV within heart?	Expressed outside of the heart at HH12?	Novel marker to RV?	Published expression in RV	Published expression in heart outside of the RV
Right ventricle (RV)	<i>AMY2A</i>	no	yes	no		
RV	<i>BMP10</i>	yes	no	yes		Transcripts detected throughout the prospective ventricle at HH10, and in OFT, Vs, and embryonic atria in HH14 chick embryos ¹¹ . Expressed in E9.0 mouse ventricle and bulbus cordis (OFT region) ¹²

RV	<i>DRAXIN</i>	yes	yes	yes	Expressed in the rostral part of the prospective ventricle in HH15 chick heart ¹³	
RV	<i>FBXL22</i>	no	yes	no		
RV	<i>NPPA</i> / <i>NPPB</i>	no	no	no	<i>NPPB</i> ¹⁴ expressed in prospective ventricle of E8.5 mouse and the rostral part of the HH12-13 chick prospective ventricle ^{7, 15}	Expressed throughout stage 32 <i>Xenopus</i> heart tube ¹⁶
RV	<i>TGFBI</i>	yes	yes	yes		mRNA is expressed in E10.0-10.5 mouse OFT and endocardial cushions of the AV canal ^{17, 18}
RV	<i>TIMP3</i>	no	yes	no		
Region from RNAseq	Transcript	Specific to LV within heart?	Expressed outside of the heart at HH12?	Novel marker to LV?	Published expression in LV	Published expression in heart outside of the LV
Left ventricle (LV)	<i>ADCYAP1</i> / <i>PACAP</i>	no	no	no		
LV	<i>EMILIN2</i>	yes	no	no	<i>emilin2b</i> is expressed in the zebrafish ventricle at 40hpf ¹⁹ . Expression is detected in the E10.5 mouse ventricle ²⁰	<i>emilin2a</i> is expressed in the zebrafish atrium at 48hpf ¹⁹
LV	<i>HS6ST3</i>	yes	yes	yes		
LV	<i>MB</i>	yes	no	no	Detected in E9.5 mouse ventricles ²¹ and 48hpf zebrafish heart ²² but regionalisation is not clear in either	
LV	<i>MGAT3</i>	yes	yes	yes		
LV	<i>PLBD1</i>	no	yes	yes		
LV	<i>ZNF106</i>	no	yes	yes		
Region from RNAseq	Transcript	Specific to Vs within heart?	Expressed outside of the heart at HH12?	Novel marker to Vs?	Published expression in Vs	Published expression in heart outside of the Vs
Ventricles (Vs)	<i>CMYA5</i>	no	yes	no		Expressed in both the atria and ventricles of E10.5 mouse ²³
Vs	<i>EXFABP</i>	no	yes	no		
Vs	<i>IRX4</i>	yes	no	no	Expression is detected in prospective ventricles of HH9+ chick ²⁴ and E8.5 mouse embryos ²⁵	

Vs	<i>KCNH6/ERG</i>	no	yes	no	Weak expression detected in HH11 quail heart ²⁶ but regionalisation is not clear	
Vs	<i>LDB3</i>	no	no	no		
Vs	<i>LOX</i>	no	yes	no	Expressed in E11.5 mouse ventricle ²⁷	
Vs	<i>LYPD1</i>	no	yes	no		
Vs	<i>MYH15/VMHC1</i>	no	no	no	A <i>MYH15/VMHC1</i> specific mRNA in situ hybridisation probe is restricted to the prospective ventricle of HH12 chick embryos ²⁸ . Zebrafish <i>vmhc</i> is detected in the 24-48hpf prospective ventricle ^{29, 30}	mRNA in situ hybridisation probes that recognise both <i>MYH15/VMHC1</i> and <i>MYH7b</i> are detected throughout the HH12 chick heart ^{28, 31, 32} .
Vs	<i>MYL1/MLC3f</i>	no	yes	no		Expressed in both the ventricle and inflow region (atria and sinus venosus) at E8.5 in mouse embryos ³³
Vs	<i>MYL3/MLC1V</i>	no	no	no		Expression is detected throughout the E8.0 mouse heart tube and in atria and ventricles at E9.5 ³⁴
Vs	<i>PLN</i>	no	no	no	Expressed in HH15 chick ventricle ³⁵ but regionalisation is not clear	
Vs	<i>PLPPR1</i>	no	yes	no		
Vs	<i>SORBS2</i>	no	yes	no		
Vs	<i>SSPN</i>	no	yes	no		
Vs	<i>TNNI2</i>	no	yes	no		
Vs	<i>VCAM1</i>	no	yes	no	Protein is detected in the prospective ventricle of E8.75 mouse embryos ³⁶	
Region from RNAseq	Transcript	Specific to At. within heart?	Expressed outside of the heart at HH12?	Novel marker to At?	Published expression in At.	Published expression in heart outside of the At.
Atria (At)	<i>ADM</i>	no	no	no		Protein is detected in both the atria and ventricles of E9 mouse embryos ³⁷
At	<i>BORCS8</i>	no	yes	no		
At	<i>FAM3B</i>	no	yes	no		
At	<i>GJD2</i>	no	no	no		
At	<i>MYH7/AMHC1</i>	yes	no	no	Expressed in prospective atria in HH14 chick embryos ³² . <i>MHCa/Myh6</i> in mouse is expressed in the caudal part of the E8.0 heart tube (atrioventricular junction) ³⁴ . Zebrafish <i>amhc</i> is expressed in the prospective atrium at 24-48hpf ²⁹	By E9.5 in mouse embryos, <i>MHCa/Myh6</i> transcripts are also detected in the ventricle as well as the atrium ³⁴

At	<i>RSPO3</i>	yes	yes	no	<i>RSPO3</i> transcripts are detected in the caudal pole of the E8.5 mouse heart ³⁸ , but it's localisation to the atria is unclear	By E9.5-E10.5 of mouse heart development expression is observed in the atrioventricular canal and OFT ³⁸
At	<i>SOD3</i>	yes	no	yes		
At	<i>STBD1</i>	yes	yes	yes		
At	<i>TUFT1</i>	yes	yes	yes		
At	<i>UGT1A1</i>	no	yes	no		
At	<i>VIM</i>	yes	yes	no	Protein detected in HH12 chick myocardium, but regionalisation is unclear ³⁹	Protein detected in atrial myocardium but also OFT endocardium and epicardium in HH21 chick heart ⁴⁰
At	<i>WNT6</i>	yes	yes	yes		Expressed in the atrioventricular junction in chick embryos at HH17 ⁴¹ . XWnt6 protein is detected in the endocardium at stage 32, and in atrial and ventricular myocardium, as well as the epicardium, in stage 38-42 <i>Xenopus</i> embryos ⁴² .
Region from RNAseq	Transcript	Specific to En. within heart?	Expressed outside of the heart at HH12?	Novel marker to En?	Published expression in En.	Published expression in heart outside of the En.
Endo-cardium (En)	<i>BHMT</i>	yes	yes	yes		
En	<i>EDN1</i>	yes	yes	yes		<i>Edn1</i> expressed in OFT of E10.0 mouse heart ⁴³
En	<i>FOXO1</i>	no	yes	no		Protein is detected in the myocardium as well as the endocardium of E10.5 mouse embryos ⁴⁴
En	<i>HEG1</i>	no	yes	no	Expressed in E10.5 mouse endocardium ⁴⁵	
En	<i>IQSEC1</i>	no	yes	no		
En	<i>KLF2</i>	yes	no	no	Expression is detected in the endocardium of E8.5 mouse embryos ⁴⁶	
En	<i>NFATC1</i>	yes	yes	no	Expressed in the endocardium of E8.5 mouse embryos ⁴⁷	In addition to the endocardium, expression is detected in the vitelline vein (sinus venosus) region of E8.5 mouse embryos ⁴⁷
En	<i>NPC2</i>	yes	no	yes		
En	<i>PLVAP</i>	yes	yes	yes		
En	<i>POSTN</i>	no	yes	no	Expression starts to be detectable in the RV endocardium from HH17 in chick embryos ⁴⁸	Expressed in E10.0-10.5 mouse embryo OFT and endocardial cushions of the AV canal ^{17, 18}
En	<i>RARRES1</i>	yes	yes	yes		
En	<i>STAB1</i>	yes	yes	no	Endocardial expression is detected in E10.0-5 mouse embryos ^{17, 18}	

En	<i>TAL1</i>	no	yes	no		<i>TAL1</i> is detected in blood Islands and blood cells at HH10-11, and in endothelial cells of the aorta at ~HH18, but localisation in the heart is not clear ^{49, 50}
En	<i>TIE1</i>	yes	yes	no	Expressed in HH12 chick endothelial cells and endocardium ⁵¹ and the endocardium in 48hpf zebrafish embryos ⁵²	
Region from RNAseq	Transcript	Specific to RDM?	Expressed outside of the heart at HH12?	Novel marker to RDM?	Published expression in RDM	Published expression in heart outside of the RDM
Rostral dorsal meso-cardium (RDM)	<i>ANXA1</i>	yes	yes	yes		
RDM	<i>BMP4</i>	no	yes	no	<i>BMP4</i> expression is detected in the RDM in HH16 chick embryos ⁶ . <i>Bmp4</i> transcripts are present in the dorsal mesocardium of E9.5 mouse embryos ⁵³	In addition to the RDM, <i>BMP4</i> is detected in the caudal dorsal mesocardium and is continuous with the splanchnic mesoderm in HH16 chick embryos ⁶ . <i>XBmp4</i> transcripts are detected throughout the heart tube at stage 32 and in the dorsal presumptive atrium and ventricle at stage 35 ⁵⁴ . In 24hpf zebrafish embryos, <i>bmp4</i> is expressed on the left side of the atrium and ventricle ⁵⁵
RDM	<i>CCDC3</i>	no	yes	no		
RDM	<i>EBF3</i>	no	yes	no		
RDM	<i>ISL1</i>	no	yes	no	Expression is detected in the RDM of HH13 chick embryos ⁵⁶	Expression is detected in both RDM and CDM of HH13 chick embryos ⁵⁶ . Expressed in the splanchnic mesoderm of E8.5 mouse embryos ⁵⁷ .
RDM	<i>KAZALD1</i>	no	yes	no		
RDM	<i>LOC417741</i>	no	yes	no		
RDM	<i>LUM</i>	no	yes	no		
RDM	<i>PKDCCB</i>	no	yes	no		
RDM	<i>PROM1</i>	no	yes	no		
RDM	<i>SIX1</i>	no	yes	no		<i>Six1</i> transcripts are detected in the splanchnic mesoderm of E8.5 mouse embryos ⁵⁸
RDM	<i>SLIT2</i>	no	yes	no		
RDM	<i>TNC</i>	yes	yes	yes		<i>Tnc</i> is observed in the E9.5 mouse proepicardium ⁵⁹

Region from RNAseq	Transcript	Specific to CDM?	Expressed outside of the heart at HH12?	Novel marker to CDM?	Published expression in CDM	Published expression in heart outside of the CDM
Caudal dorsal meso-cardium (CDM)	<i>APCDD1</i>	no	yes	no		
CDM	<i>FOXF2</i>	no	yes	no		mRNA detected in hindgut splanchnic mesoderm at E8.5, and foregut and hindgut splanchnic mesoderm at E9.5 in mouse embryos ⁶⁰
CDM	<i>HOXA1</i>	no	yes	no		<i>Hoxa1</i> transcripts are detected in the splanchnic mesoderm adjacent to the CDM in E8.5 mouse embryos ⁶¹
CDM	<i>HOXA2</i>	no	yes	no		
CDM	<i>LINGO1</i>	no	yes	no		
CDM	<i>MYCN</i>	no	yes	no		Detected in the myocardium of E9.5 mouse embryos ⁶² and HH20 chick embryos ⁶³
CDM	<i>NGFR</i>	no	yes	no		
CDM	<i>PTCH2</i>	no	yes	no		Expressed in the splanchnic mesoderm and dorsal mesocardia of E8.5-9.5 mouse embryos ⁶⁴
CDM	<i>SMOC2</i>	no	yes	no		Smoc2 protein is detected in E14.5 mouse atrial and ventricular myocardium ⁶⁵
CDM	<i>STRA6</i>	no	yes	no		
Region from RNAseq	Transcript	Specific to DM?	Expressed outside of the heart at HH12?	Novel marker to DM?	Published expression in DM	Published expression in heart outside of the DM
Dorsal meso-cardium (DM)	<i>ER81/ETV1</i>	no	yes	no		
DM	<i>IRX1</i>	no	yes	no		<i>Ir1</i> mRNA expression first detected in E10.5-11.5 mouse ventricular septum ⁶⁶

DM	<i>IRX3</i>	no	yes	no		<i>Irx3</i> expression is first detected in E9.5 mouse ventricles ⁶⁶
DM	<i>LIX1</i>	no	yes	no		
DM	<i>RDH10</i>	no	yes	no		
DM	<i>SALL4</i>	no	yes	no		
DM	<i>WNT5A</i>	no	yes	no		Detected in the ventricle of HH20 chick embryos ⁶⁷ . <i>Wnt5a</i> transcripts are observed in the OFT and RV myocardium in E8.5 mouse embryos ⁶⁸
Region from RNAseq	Transcript	Specific to PEs?	Expressed outside of the heart at HH12?	Novel marker to PE?	Published expression in PEs	Published expression in heart outside of the PEs
Proepi-cardium (PE)	<i>FGFR2</i>	yes	yes	no	<i>FGFR2</i> mRNA is detected in the RPE of HH17-18 chicken embryos ⁶⁹ (by this stage the LPE has degenerated ^{69,70})	
PE	<i>FGFR3</i>	yes	yes	yes		<i>FGFR3</i> mRNA not detected in the RPE of HH17-18 chicken embryos ⁶⁹
PE	<i>GAL</i>	yes	yes	yes		
PE	<i>HBAA</i>	no	yes	yes		
PE	<i>HBM /HBAD</i>	no	yes	no		
PE	<i>HBZ</i>	no	yes	no		
PE	<i>MAB21L1</i>	yes	yes	yes		<i>MAB21L1</i> transcripts are not detected in mouse embryonic heart ⁷¹
PE	<i>MSX1</i>	yes	yes	no	Transcripts are detected in the epicardium of HH23 chick embryos ⁷²	Expressed in endocardial cushions of the atrioventricular canal in HH15 chick embryos ⁷²
PE	<i>WT1</i>	yes	yes	no		Found to be expressed only in RPE of HH13 chick embryos ⁷³
Region from RNAseq	Transcript	Specific to LPE?	Expressed outside of the heart at HH12?	Novel marker to LPE?	Published expression in LPE	Published expression in heart outside of the LPE
Left	<i>ANXA2</i>	no	yes	no		Expression is detected in the endocardium of HH15 chick embryos ⁷⁴ . mRNA is

proepi-cardium (LPE)						detected in the proepicardium of HH19-20 chick embryos ⁷⁵ (by this stage the LPE has degenerated ^{69,70}).
LPE	<i>APOC3</i>	no	yes	no		
LPE	<i>HOXB4</i>	no	yes	no		
LPE	<i>HOXB5</i>	no	yes	no		
LPE	<i>LHX2</i>	no	yes	no		<i>LHX2</i> expression is detected in the caudal pole of the HH18-20 chick heart ⁷⁶ , although localisation is unclear. <i>LHX2</i> localises to the E9.5 mouse PE ⁷⁷ . Transcripts are not detected in <i>Xenopus</i> PE at stages 32-46 ⁷⁸ .
LPE	<i>LMO2</i>	no	yes	no		<i>LMO2</i> is detected in blood Islands at HH10-11 endothelial cells of the aorta at ~HH18 ^{49,50} , but localisation in the heart is not clear
LPE	<i>PAMR1</i>	no	yes	no		
LPE	<i>RBP4A</i>	no	no	no		
LPE	<i>SST</i>	yes	yes	yes		
Region from RNAseq	Transcript	Specific to RPE?	Expressed outside of the heart at HH12?	Novel marker to RPE?	Published expression in RPE	Published expression in heart outside of the RPE
Right proepi-cardium (RPE)	<i>AGPAT2</i>	no	yes	no		
RPE	<i>GEM</i>	no	yes	no		
RPE	<i>LSP1</i>	no	yes	no	mRNA is detected in the proepicardium of HH19-20 chick embryos ⁷⁵	Expression is detected in cardiac fibroblasts in E14.5 mouse embryos ⁷⁹
RPE	<i>OPRM1</i>	no	yes	no		
RPE	<i>TBX18</i>	no	yes	no	<i>TBX18</i> is detected in the RPE of HH11-13 chick embryos ⁷³	Transcripts are detected in both the right and the left PE in HH11-12 chick embryos ⁸⁰ and in E8.5 mouse embryos ⁷⁰ . In another study, <i>TBX18</i> is not only detected in the RPE but also throughout the prospective atrial region in HH11-13 chick embryos ⁷³ .
RPE	<i>TENM4</i>	yes	yes	yes		mRNA expression in E8.5 mouse embryos is detected in the head folds, posterior somites and presomitic mesoderm ⁸¹

Region from RNAseq	Transcript	Specific to LPC?	Expressed outside of the heart at HH12?	Novel marker to LPC?	Published expression in LPC	Published expression in heart outside of the LPC
Left pace-maker (LPC)	<i>ADAMTS3</i>	yes?	yes	yes		
LPC	<i>GUCA2A</i>	no	yes	no		
LPC	<i>TTR</i>	yes?	yes	yes		Detected in endoderm of the anterior intestinal portal in HH8-14 chick embryos ^{82, 83} and in the myocardium of HH14 chick embryos ⁸³ , although regionalisation is unclear.
Region from RNAseq	Transcript	Specific to RPC?	Expressed outside of the heart at HH12?	Novel marker to RPC at HH12?	Published expression in RPC	Published expression in heart outside of the RPC
Right pace-maker (RPC)	<i>CENPW</i>	no	yes	no		
RPC	<i>PVALB</i>	yes	no	yes		
RPC	<i>SHOX2</i>	yes	no	yes		Initially expressed in the E8.5 mouse sinus venosus eventually restricting to the right dorsal atria (SAN region) ⁸⁴ . Detected in the sinus venosus region of HH19 chick embryos ⁸⁵ . <i>shox2</i> is detected in the 48hpf zebrafish sinoatrial region ⁸⁶
Region from RNAseq	Transcript	Specific to Left-RPC?	Expressed outside of the heart at HH12?	Novel marker to Left-RPC?	Published expression in Left-RPC	Published expression in heart outside of the Left-RPC
Left-RPC	<i>JAG1</i>	no	yes	no		<i>Jag1</i> expression is detected in the E10.5 mouse pharyngeal endoderm and mesenchyme, OFT ⁸⁷ , atria and RV ⁸⁸
Left-RPC	<i>RAI14</i>	no	yes	no		

Region from RNAseq	Transcript	Specific to PCs?	Expressed outside of the heart at HH12?	Novel marker to PCs?	Published expression in PC	Published expression in heart outside of the PC
Pace-makers (PCs)	<i>FGB</i>	no	yes	no		
Region from RNAseq	Transcript	Specific to SV?	Expressed outside of the heart at HH12?	Novel marker to SV?	Published expression in SV	Published expression in heart outside of the SV
Sinus venosus (SV)	<i>MSI2</i>	no	yes	no		
SV	<i>TNR</i>	no	yes	no		

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