

Supplementary Table 1: Included curated genes per cardiomyopathy			
GENE*	ARVC	DCM	HCM
<i>ACTC1</i>		Moderate	Definitive
<i>ACTN2</i>		Moderate	
<i>BAG3</i>		Definitive	
<i>CSRP3</i>			Moderate
<i>DES</i>	Moderate	Definitive	
<i>DSC2</i>	Definitive		
<i>DSG2</i>	Definitive		
<i>DSP</i>	Definitive	Strong	
<i>FLNC</i>		Definitive	
<i>JPH2</i>		Moderate	Moderate
<i>JUP</i>	Definitive		
<i>LMNA</i>		Definitive	
<i>MYBPC3</i>			Definitive
<i>MYH7</i>		Definitive	Definitive
<i>MYL2</i>			Definitive
<i>MYL3</i>			Definitive
<i>NEXN</i>		Moderate	
<i>PKP2</i>	Definitive		
<i>PLN</i>	Moderate	Definitive	
<i>RBM20</i>		Definitive	
<i>SCN5A</i>		Definitive	
<i>TMEM43</i>	Definitive		
<i>TNNC1</i>		Definitive	Moderate
<i>TNNI3</i>		Moderate	Definitive
<i>TNNT2</i>		Definitive	Definitive
<i>TPM1</i>		Moderate	Definitive
<i>TTN</i>		Definitive	
<i>VCL</i>		Moderate	

* ARVC genes are curated by James et al (2021), DCM genes by Jordan et al (2021) and HCM genes by Ingles et al (2019). Pathogenicity is classified as moderate, strong and definitive.

Abbreviations:

ACTC1 : Actin Alpha Cardiac Muscle 1; *ACTN2* : Alpha-actinin 2;
ARVC: Arrhythmogenic right ventricular cardiomyopathy; *BAG3* : BAG Cochaperone 3;
CSRP3 : Cysteine And Glycine Rich Protein 3; DCM: Dilated cardiomyopathy; *DES* : Desmin;
DSC2 : Desmocollin 2; *DSG2* : Desmoglein 2; *DSG2* : Desmoglein 2; *DSP* : desmoplakin; *FLNC* : Filamin-C;
HCM: Hypertrophic cardiomyopathy; *JPH2* : Juncctophilin 2; *JUP* : Junction Plakoglobin;
LMNA : Lamin A/C; *MYBPC3* : Myosin Binding Protein C3; *MYH7* : Myosin Heavy Chain 7;
MYL2 : Myosin Light Chain 2; *MYL3* : Myosin Light Chain 3; *NEXN* : Nexilin F-Actin Binding Protein;
PKP2 : Plakophilin 2; *PLN* : phospholamban; *RBM20* : RNA Binding Motif Protein 20;
SCN5A : Sodium Voltage-Gated Channel Alpha Subunit 5; *TMEM43* :Transmembrane Protein 43;
TNNC1 : Troponin C1, Slow Skeletal And Cardiac Type; *TNNI3* : Troponin I3, Cardiac Type;
TNNT2 : Troponin T2, Cardiac Type; *TPM1* : Tropomyosin 1; *TTN* : Titin; *VCL* : Vinculin.

Supplementary Table 2: Disease definitions

PHENOTYPE	FIELD NAMES	VALUES (ICD10 OR OTHER CODING)
Diabetes	Diagnoses ICD10	E10*; E11*; E12*; E13*; E14*
	Underlying (primary) cause of death: ICD10	
	Contributory (secondary) causes of death: ICD10	
	External causes ICD10	
	Diagnoses main ICD10	
	Diagnoses secondary ICD10	
	Non-cancer illness code self-reported	1220; 1222; 1223
	Diabetes diagnosed by doctor	1
	Medication for cholesterol blood pressure or diabetes(, or take exogenous hormones)	3
Hypertension	Diagnoses ICD10	I10; I15*
	Underlying (primary) cause of death: ICD10	
	Contributory (secondary) causes of death: ICD10	
	External causes ICD10	
	Diagnoses main ICD10	
	Diagnoses secondary ICD10	
	Non-cancer illness code self-reported	1065; 1072
	Medication for cholesterol blood pressure or diabetes(, or take exogenous hormones)	2
Hypercholesterolaemia	Diagnoses ICD10	E780
	Underlying (primary) cause of death: ICD10	
	Contributory (secondary) causes of death: ICD10	
	External causes ICD10	
	Diagnoses main ICD10	
	Diagnoses secondary ICD10	
	Non-cancer illness code self-reported	1473
	Medication for cholesterol blood pressure or diabetes(, or take exogenous hormones)	1
Ever smoked	Smoking status	1; 2
Family heart disease	Illnesses of father	1
	Illnesses of mother	
	Illnesses of siblings	
Cardiac problem	Non-cancer illness code self-reported	1066
Heart failure	Diagnoses ICD10	I110; I130; I132; I50*
	Underlying (primary) cause of death: ICD10	
	Contributory (secondary) causes of death: ICD10	
	External causes ICD10	
	Diagnoses main ICD10	
	Diagnoses secondary ICD10	
	Non-cancer illness code self-reported	1076
Cardiomyopathy	Diagnoses ICD10	I42*
	Underlying (primary) cause of death: ICD10	
	Contributory (secondary) causes of death: ICD10	
	External causes ICD10	
	Diagnoses main ICD10	
	Diagnoses secondary ICD10	
	Non-cancer illness code self-reported	1079
Dilated cardiomyopathy	Diagnoses ICD10	I420
	Underlying (primary) cause of death: ICD10	
	Contributory (secondary) causes of death: ICD10	
	External causes ICD10	
	Diagnoses main ICD10	
	Diagnoses secondary ICD10	
Hypertrophic cardiomyopathy	Diagnoses ICD10	I421; I422
	Underlying (primary) cause of death: ICD10	
	Contributory (secondary) causes of death: ICD10	
	External causes ICD10	
	Diagnoses main ICD10	
	Diagnoses secondary ICD10	
	Non-cancer illness code self-reported	1588
Ventricular arrhythmias	Diagnoses ICD10	I470; I472; I490; I493
	Underlying (primary) cause of death: ICD10	
	Contributory (secondary) causes of death: ICD10	
	External causes ICD10	
	Diagnoses main ICD10	
	Diagnoses secondary ICD10	
Atrial arrhythmias	Diagnoses ICD10	I48*; I471; I491
	Underlying (primary) cause of death: ICD10	
	Contributory (secondary) causes of death: ICD10	
	External causes ICD10	
	Diagnoses main ICD10	
	Diagnoses secondary ICD10	
	Non-cancer illness code self-reported	1471; 1483; 1487
Heart arrhythmia	Non-cancer illness code self-reported	1077
Chronic ischemic heart disease	Diagnoses ICD10	I25*
	Underlying (primary) cause of death: ICD10	
	Contributory (secondary) causes of death: ICD10	
	External causes ICD10	
	Diagnoses main ICD10	
	Diagnoses secondary ICD10	

PHENOTYPE	FIELD NAMES	VALUES (ICD10 OR OTHER CODING)
Acute myocardial infarction	Diagnoses ICD10 Underlying (primary) cause of death: ICD10 Contributory (secondary) causes of death: ICD10 External causes ICD10 Diagnoses main ICD10 Diagnoses secondary ICD10	I21*; I22*; I248; I249
	Non-cancer illness code self-reported	1075
Cardiac arrest	Diagnoses ICD10 Underlying (primary) cause of death: ICD10 Contributory (secondary) causes of death: ICD10 External causes ICD10 Diagnoses main ICD10 Diagnoses secondary ICD10	I46*
	Non-cancer illness code self-reported	1074
Conduction disorders	Diagnoses ICD10 Underlying (primary) cause of death: ICD10 Contributory (secondary) causes of death: ICD10 External causes ICD10 Diagnoses main ICD10 Diagnoses secondary ICD10	I44*; I45*
	Non-cancer illness code self-reported	1078; 1488; 1489; 1490; 1584; 1585; 1586; 1587
Valvular disease	Diagnoses ICD10 Underlying (primary) cause of death: ICD10 Contributory (secondary) causes of death: ICD10 External causes ICD10 Diagnoses main ICD10 Diagnoses secondary ICD10	I34*; I35*; I36*; I37*; I05*; I06*; I07*; I08*
	Non-cancer illness code self-reported	1078; 1488; 1489; 1490; 1584; 1585; 1586; 1587
Congenital heart disease	Diagnoses ICD10 Underlying (primary) cause of death: ICD10 Contributory (secondary) causes of death: ICD10 External causes ICD10 Diagnoses main ICD10 Diagnoses secondary ICD10	Q20*; Q21*; Q22*; Q23*; Q24*; Q25*; Q26*
	Non-cancer illness code self-reported	1112; 1113; 1114; 1115; 1121
Pulmonary obstructive disease	Diagnoses ICD10 Underlying (primary) cause of death: ICD10 Contributory (secondary) causes of death: ICD10 External causes ICD10 Diagnoses main ICD10 Diagnoses secondary ICD10	J44*; J43*; I26*; I27*
	Non-cancer illness code self-reported	1112; 1113; 1114; 1115; 1121
All-cause mortality	Date of Death	Any non-missing value
Cardiovascular death	Underlying (primary) cause of death: ICD10 Contributory (secondary) causes of death: ICD10	I*

* indicates starting with previously indicated code.

Supplementary Table 3: Extensive baseline table

	Controls G-					ARVC G+				
n (%)	Overall 9,972 (100)	Diagnosed 87 (0.8)	Non-Diagnosed 9,885 (99.2)	Missing	Overall 347 (100)	Diagnosed 4 (1.2)	Non-Diagnosed 343 (98.8)	Missing		
Sex = Female (%)	5,436 (54.5)	35 (40.2)	5,401 (54.6)	0	187 (53.9)	2 (50.0)	185 (53.9)	0		
Age (median [IQR])	57.00 [49.00, 63.00]	62.00 [56.00, 66.00]	57.00 [49.00, 63.00]	0	57.00 [50.00, 64.00]	55.50 [52.25, 58.50]	57.00 [50.00, 64.00]	0		
Ethnicity (%)				1				0.6		
Asian	1,076 (10.9)	5 (5.8)	1,071 (10.9)		10 (2.9)	0 (0.0)	10 (2.9)			
Black	164 (1.7)	3 (3.5)	161 (1.6)		7 (2.0)	1 (25.0)	6 (1.8)			
Chinese	56 (0.6)	1 (1.2)	55 (0.6)		11 (3.2)	0 (0.0)	11 (3.2)			
Mixed	132 (1.3)	2 (2.3)	130 (1.3)		1 (0.3)	0 (0.0)	1 (0.3)			
Other	160 (1.6)	1 (1.2)	159 (1.6)		5 (1.4)	0 (0.0)	5 (1.5)			
White	8,288 (83.9)	74 (86.0)	8,214 (83.9)		311 (90.1)	3 (75.0)	308 (90.3)			
CARDIOVASCULAR RISK FACTORS										
BMI (median [IQR])	26.73 [24.15, 29.82]	28.83 [25.33, 32.20]	26.71 [24.15, 29.80]	0.5	26.40 [24.03, 30.32]	29.29 [27.22, 32.45]	26.36 [24.02, 30.18]	0.3		
Diabetes (%)	914 (9.2)	21 (24.1)	893 (9.0)	0	35 (10.1)	1 (25.0)	34 (9.9)	0		
Hypertension (%)	3,420 (34.3)	60 (69.0)	3,360 (34.0)	0	116 (33.4)	3 (75.0)	113 (32.9)	0		
Mean systolic blood pressure (median [IQR])	135.50 [124.00, 149.00]	144.00 [130.00, 155.50]	135.50 [124.00, 149.00]	0.1	136.00 [124.00, 147.50]	128.25 [120.62, 134.38]	136.25 [124.00, 147.50]	0.3		
Mean diastolic blood pressure (median [IQR])	82.00 [75.00, 88.50]	84.00 [76.50, 91.50]	81.50 [75.00, 88.50]	0.1	81.50 [75.00, 87.88]	82.00 [77.38, 85.25]	81.50 [75.00, 88.00]	0.3		
Hypercholesterolaemia (%)	2,416 (24.2)	34 (39.1)	2,382 (24.1)	0	86 (24.8)	3 (75.0)	83 (24.2)	0		
Total cholesterol (median [IQR])	5.61 [4.86, 6.38]	5.23 [4.39, 6.10]	5.61 [4.87, 6.38]	4.3	5.51 [4.82, 6.40]	4.97 [4.50, 5.78]	5.51 [4.83, 6.40]	4.6		
HDL (median [IQR])	1.38 [1.16, 1.65]	1.29 [1.13, 1.56]	1.38 [1.16, 1.65]	11.3	1.38 [1.16, 1.64]	1.48 [1.30, 1.65]	1.38 [1.16, 1.64]	9.2		
LDL (median [IQR])	3.50 [2.92, 4.09]	3.22 [2.54, 3.81]	3.50 [2.92, 4.09]	4.6	3.39 [2.87, 4.04]	3.06 [2.71, 3.58]	3.40 [2.88, 4.04]	4.6		
Ever Smoked (%)	4,132 (41.4)	50 (57.5)	4,082 (41.3)	0	161 (46.4)	2 (50.0)	159 (46.4)	0		
MET minutes per week for walking (median [IQR])	693.00 [297.00, 1,386.00]	528.00 [255.75, 1,608.75]	693.00 [297.00, 1,386.00]	19.8	693.00 [297.00, 1,386.00]	569.25 [247.50, 952.88]	693.00 [297.00, 1,386.00]	19.3		
MET minutes per week for moderate activity (median [IQR])	480.00 [120.00, 1,200.00]	480.00 [100.00, 1,680.00]	480.00 [120.00, 1,200.00]	19.8	480.00 [120.00, 1,200.00]	900.00 [640.00, 1,140.00]	480.00 [120.00, 1,200.00]	19.3		
MET minutes per week for vigorous activity (median [IQR])	240.00 [0.00, 960.00]	0.00 [0.00, 820.00]	240.00 [0.00, 960.00]	19.8	320.00 [0.00, 960.00]	1,060.00 [540.00, 1,410.00]	320.00 [0.00, 960.00]	19.3		
TOTAL MET minutes per week (median [IQR])	1,773.00 [810.00, 3,452.50]	1,367.50 [478.50, 3,834.00]	1,776.50 [810.00, 3,450.00]	19.8	2,001.00 [922.50, 3,550.50]	2,529.25 [1,517.50, 3,412.88]	1,969.00 [922.50, 3,550.50]	19.3		
Family heart disease (%)	4,458 (44.7)	34 (39.1)	4,424 (44.8)	0	179 (51.6)	4 (100.0)	175 (51.0)	0		
CARDIAC DISEASES/OUTCOMES										
Cardiac problem (%)	41 (0.4)	2 (2.3)	39 (0.4)	0	3 (0.9)	0 (0.0)	3 (0.9)	0		
Heart failure (%)	182 (1.8)	74 (85.1)	108 (1.1)	0	9 (2.6)	2 (50.0)	7 (2.0)	0		
Cardiomyopathy (%)	37 (0.4)	26 (29.9)	11 (0.1)	0	3 (0.9)	3 (75.0)	0 (0.0)	0		
Dilated cardiomyopathy (%)	14 (0.1)	8 (9.2)	6 (0.1)	0	2 (0.6)	2 (50.0)	0 (0.0)	0		
Hypertrophic cardiomyopathy (%)	8 (0.1)	7 (8.0)	1 (0.0)	0	1 (0.3)	1 (25.0)	0 (0.0)	0		
Ventricular arrhythmias (%)	33 (0.3)	3 (3.4)	30 (0.3)	0	7 (2.0)	1 (25.0)	6 (1.7)	0		
Atrial arrhythmias (%)	191 (1.9)	19 (21.8)	172 (1.7)	0	7 (2.0)	0 (0.0)	7 (2.0)	0		
Heart arrhythmia (%)	54 (0.5)	2 (2.3)	52 (0.5)	0	6 (1.7)	1 (25.0)	5 (1.5)	0		
Chronic Ischemic heart disease (%)	725 (7.3)	0 (0.0)	725 (7.3)	0	35 (10.1)	0 (0.0)	35 (10.2)	0		
Acute myocardial infarction (%)	298 (3.0)	1 (1.1)	297 (3.0)	0	15 (4.3)	0 (0.0)	15 (4.4)	0		
Cardiac arrest (%)	34 (0.3)	1 (1.1)	33 (0.3)	0	0 (0.0)	0 (0.0)	0 (0.0)	0		
Angina pectoris (%)	312 (3.1)	2 (2.3)	310 (3.1)	0	16 (4.6)	0 (0.0)	16 (4.7)	0		
Conduction disorders (%)	151 (1.5)	10 (11.5)	141 (1.4)	0	8 (2.3)	0 (0.0)	8 (2.3)	0		
Valvular disease (%)	241 (2.4)	23 (26.4)	218 (2.2)	0	11 (3.2)	1 (25.0)	10 (2.9)	0		
Congenital heart disease (%)	28 (0.3)	3 (3.4)	25 (0.3)	0	2 (0.6)	0 (0.0)	2 (0.6)	0		
Pulmonary obstructive disease (%)	494 (5.0)	24 (27.6)	470 (4.8)	0	25 (7.2)	0 (0.0)	25 (7.3)	0		
Cardiovascular death (%)	181 (1.8)	13 (14.9)	168 (1.7)	0	11 (3.2)	0 (0.0)	11 (3.2)	0		
All-cause mortality (%)	513 (5.1)	27 (31.0)	486 (4.9)	0	19 (5.5)	0 (0.0)	19 (5.5)	0		
ECG MEASUREMENTS										
n (%)	1,062 (10.6)	4 (4.6)	1,058 (10.7)		32 (9.2)	0 (0.0)	32 (9.3)			
P duration (median [IQR])	100.00 [90.00, 108.00]	90.00 [82.00, 111.00]	100.00 [90.00, 108.00]	89.8	100.00 [93.50, 111.50]	NA	100.00 [93.50, 111.50]	90.8		
P axis (median [IQR])	55.00 [40.25, 67.00]	47.00 [47.00, 47.00]	55.00 [40.00, 67.00]	93.1	54.00 [42.25, 61.50]	NA	54.00 [42.25, 61.50]	94.8		
PQ interval (median [IQR])	160.00 [145.50, 178.00]	188.00 [188.00, 188.00]	160.00 [145.00, 178.00]	93.1	171.00 [147.00, 183.00]	NA	171.00 [147.00, 183.00]	94.8		
QRS duration (median [IQR])	86.00 [80.00, 94.00]	93.00 [89.50, 97.00]	86.00 [80.00, 94.00]	89.4	88.00 [81.50, 96.00]	NA	88.00 [81.50, 96.00]	90.8		
R axis (median [IQR])	34.00 [7.00, 58.00]	-48.00 [-48.00, -48.00]	34.00 [7.50, 58.00]	92.9	23.50 [-1.75, 50.00]	NA	23.50 [-1.75, 50.00]	94.8		
QT interval (median [IQR])	417.00 [402.00, 433.00]	511.00 [511.00, 511.00]	417.00 [402.00, 432.50]	92.9	429.50 [403.25, 440.00]	NA	429.50 [403.25, 440.00]	94.8		
T axis (median [IQR])	40.00 [23.00, 55.25]	92.00 [92.00, 92.00]	40.00 [23.00, 55.00]	92.9	35.50 [20.25, 54.25]	NA	35.50 [20.25, 54.25]	94.8		
CMR MEASUREMENTS										
n (%)	990 (9.9)	4 (4.6)	986 (10.0)		33 (9.5)	0 (0.0)	33 (9.6)			
RVEDVi (median [IQR])	80.18 [70.62, 90.27]	79.28 [79.28, 79.28]	80.19 [70.61, 90.27]	91	79.14 [73.73, 92.49]	NA	79.14 [73.73, 92.49]	91.1		
RVESVi (median [IQR])	32.89 [27.38, 39.68]	20.93 [20.93, 20.93]	32.90 [27.42, 39.70]	91	35.16 [29.98, 38.70]	NA	35.16 [29.98, 38.70]	91.1		
RVSVi (median [IQR])	46.55 [40.92, 52.84]	58.35 [58.35, 58.35]	46.53 [40.91, 52.81]	91	48.22 [41.97, 52.24]	NA	48.22 [41.97, 52.24]	91.1		
RVFV (median [IQR])	58.38 [54.19, 62.76]	73.60 [73.60, 73.60]	58.37 [54.19, 62.74]	91	58.30 [53.30, 62.06]	NA	58.30 [53.30, 62.06]	91.1		
RVPER (median [IQR])	388.72 [316.56, 465.82]	446.55 [446.55, 446.55]	388.66 [316.54, 465.97]	91	405.50 [291.73, 489.37]	NA	405.50 [291.73, 489.37]	91.1		
RVFPR (median [IQR])	300.61 [245.17, 364.00]	373.24 [373.24, 373.24]	300.34 [245.12, 363.44]	91	302.85 [225.65, 375.82]	NA	302.85 [225.65, 375.82]	91.1		
RVPAFR (median [IQR])	282.95 [222.68, 360.32]	547.72 [547.72, 547.72]	282.86 [222.56, 360.07]	91	274.74 [213.71, 343.90]	NA	274.74 [213.71, 343.90]	91.1		
RVEDVi (median [IQR])	74.33 [66.34, 83.11]	64.68 [59.39, 69.33]	74.37 [66.38, 83.15]	91.9	80.77 [73.11, 88.68]	NA	80.77 [73.11, 88.68]	91.6		
RVESVi (median [IQR])	30.02 [25.12, 35.70]	26.43 [25.24, 28.39]	30.02 [25.13, 35.72]	91.9	31.74 [25.91, 39.55]	NA	31.74 [25.91, 39.55]	91.6		
RVFV (median [IQR])	44.03 [39.34, 50.28]	38.25 [31.00, 44.09]	44.05 [39.37, 50.30]	91.9	46.82 [43.25, 50.82]	NA	46.82 [43.25, 50.82]	91.6		
RVFV (median [IQR])	59.47 [55.29, 63.52]	59.14 [51.51, 63.31]	59.48 [55.29, 63.52]	91.9	59.69 [56.59, 66.23]	NA	59.69 [56.59, 66.23]	91.6		
RVPER (median [IQR])	373.80 [302.29, 452.71]	284.40 [256.83, 364.56]	373.81 [302.44, 453.27]	91.9	407.32 [307.20, 455.45]	NA	407.32 [307.20, 455.45]	91.6		
RVFPR (median [IQR])	321.31 [259.23, 385.16]	201.74 [189.85, 229.92]	321.49 [259.95, 385.63]	91.9	346.24 [280.79, 422.04]	NA	346.24 [280.79, 422.04]	91.6		
RVPAFR (median [IQR])	233.66 [167.35, 306.30]	363.87 [208.97, 466.86]	233.50 [167.46, 305.08]	91.9	208.66 [158.63, 298.40]	NA	208.66 [158.63, 298.40]	91.6		
RVEDMi (median [IQR])	41.88 [36.52, 48.62]	45.76 [34.02, 48.75]	41.85 [36.55, 48.61]	91.9	42.81 [36.04, 48.38]	NA	42.81 [36.04, 48.38]	91.6		
RVMVR (median [IQR])	0.56 [0.50, 0.62]	0.70 [0.56, 0.70]	0.56 [0.50, 0.62]	91.9	0.55 [0.49, 0.60]	NA	0.55 [0.49, 0.60]	91.6		
RVEDV/RVEDV (median [IQR])	0.93 [0.86, 1.03]	0.93 [0.93, 0.93]	0.93 [0.86, 1.03]	92.2	0.94 [0.90, 1.05]	NA	0.94 [0.90, 1.05]	91.6		
RVESV/RVESV (median [IQR])	0.91 [0.80, 1.04]	1.15 [1.15, 1.15]	0.91 [0.80, 1.04]	92.2	0.91 [0.82, 1.00]	NA	0.91 [0.82, 1.00]	91.6		
peakEcc (median [IQR])	-22.70 [-24.98, -20.43]	-21.60 [-21.61, -21.59]	-22.72 [-24.98, -20.42]	93.7	-22.87 [-26.90, -21.63]	NA	-22.87 [-26.90, -21.63]	94.2		
TPKEcc (median [IQR])	331.31 [309.83, 354.66]	325.97 [321.27, 330.67]	331.31 [309.75, 354.68]	93.7	326.90 [318.45, 363.83]	NA	326.90 [318.45, 363.83]	94.2		
peakEI2Ch (median [IQR])	-21.19 [-23.34, -18.93]	-23.89 [-23.89, -23.89]	-21.17 [-23.32, -18.93]	93.8	-21.37 [-23.84, -19.31]	NA	-21.37 [-23.84, -19.31]	93.9		
TPKEI2Ch (median [IQR])	349.86 [321.84, 379.10]	388.50 [388.50, 388.50]	349.86 [321.81, 379.08]	93.9	346.80 [321.44, 370.50]	NA	346.80 [321.44, 370.50]	93.9		
peakEI4Ch (median [IQR])	-23.30 [-25.97, -21.37]	-21.40 [-21.40, -21.40]	-23.30 [-25.99, -21.37]	93.9	-24.25 [-26.79, -21.39]	NA	-24.25 [-26.79, -21.39]	93.7		
TPKEI4Ch (median [IQR])	357.53 [327.07, 397.64]	360.78 [360.78, 360.78]	357.30 [326.96, 397.81]	93.9	354.30 [328.00, 406.56]	NA	354.30 [328.00, 406.56]	93.9		
Wall thickness segment 1 (median [IQR])	7.65 [6.81, 8.50]	7.04 [5.94, 8.14]	7.65 [6.81, 8.49]	93.2	7.05 [6.26, 8.57]	NA	7.05 [6.26, 8.57]	94.2		
Wall thickness segment 2 (median [IQR])	6.75 [5.75, 7.91]	7.50 [6.70, 8.31]	6.75 [5.74, 7.90]	93.2	6.81 [5.24, 7.75]	NA	6.81 [5.24, 7.75]	94.2		
Wall thickness segment 3 (median [IQR])	6.05 [5.17, 6.96]	7.60 [6.78, 8.42]	6.05 [5.17, 6.95]	93.2	5.58 [4.74, 7.16]	NA	5.58 [4.74, 7.16]	94.2		
Wall thickness segment 4 (median [IQR])	6.54 [5.82, 7.22]	8.31 [7.66, 9.97]	6.54 [5.81, 7.21]	93.2	6.06 [5.49, 6.76]	NA	6.06 [5.49, 6.76]	94.2		
Wall										

Supplementary Table 3: Extensive baseline table

	Controls G-					DCM G+				
n (%)	Overall 9,972 (100)	Diagnosed 87 (0.8)	Non-Diagnosed 9,885 (99.2)	Missing	Overall 800 (100)	Diagnosed 25 (3.1)	Non-Diagnosed 775 (96.9)	Missing		
Sex = Female (%)	5,436 (54.5)	35 (40.2)	5,401 (54.6)	0	450 (56.2)	15 (60.0)	435 (56.1)	0		
Age (median [IQR])	57.00 [49.00, 63.00]	62.00 [56.00, 66.00]	57.00 [49.00, 63.00]	0	58.00 [50.75, 64.00]	62.00 [53.00, 66.00]	57.00 [50.00, 63.00]	0		
Ethnicity (%)				1				0.6		
Asian	1,076 (10.9)	5 (5.8)	1,071 (10.9)		8 (1.0)	1 (4.0)	7 (0.9)			
Black	164 (1.7)	3 (3.5)	161 (1.6)		12 (1.5)	1 (4.0)	11 (1.4)			
Chinese	56 (0.6)	1 (1.2)	55 (0.6)		2 (0.3)	0 (0.0)	2 (0.3)			
Mixed	132 (1.3)	2 (2.3)	130 (1.3)		4 (0.5)	0 (0.0)	4 (0.5)			
Other	160 (1.6)	1 (1.2)	159 (1.6)		9 (1.1)	0 (0.0)	9 (1.2)			
White	8,288 (83.9)	74 (86.0)	8,214 (83.9)		760 (95.6)	23 (92.0)	737 (95.7)			
CARDIOVASCULAR RISK FACTORS										
BMI (median [IQR])	26.73 [24.15, 29.82]	28.83 [25.33, 32.20]	26.71 [24.15, 29.80]	0.5	26.92 [24.06, 29.90]	27.69 [24.21, 30.90]	26.92 [24.06, 29.88]	0.4		
Diabetes (%)	914 (9.2)	21 (24.1)	893 (9.0)	0	62 (7.8)	1 (4.0)	61 (7.9)	0		
Hypertension (%)	3,420 (34.3)	60 (69.0)	3,360 (34.0)	0	287 (35.9)	18 (72.0)	269 (34.7)	0		
Mean systolic blood pressure (median [IQR])	135.50 [124.00, 149.00]	144.00 [130.00, 155.50]	135.50 [124.00, 149.00]	0.1	136.00 [124.00, 149.00]	136.50 [129.50, 149.50]	135.75 [124.00, 149.00]	0.1		
Mean diastolic blood pressure (median [IQR])	82.00 [75.00, 88.50]	84.00 [76.50, 91.50]	81.50 [75.00, 88.50]	0.1	81.50 [75.00, 89.00]	80.50 [77.00, 88.50]	81.50 [74.50, 89.00]	0.1		
Hypercholesterolaemia (%)	2,416 (24.2)	34 (39.1)	2,382 (24.1)	0	211 (26.4)	13 (52.0)	198 (25.5)	0		
Total cholesterol (median [IQR])	5.61 [4.86, 6.38]	5.23 [4.39, 6.10]	5.61 [4.87, 6.38]	4.3	5.61 [4.90, 6.33]	5.20 [4.79, 6.24]	5.62 [4.93, 6.34]	4.2		
HDL (median [IQR])	1.38 [1.16, 1.65]	1.29 [1.13, 1.56]	1.38 [1.16, 1.65]	11.3	1.40 [1.17, 1.65]	1.47 [1.29, 1.69]	1.40 [1.17, 1.65]	11.9		
LDL (median [IQR])	3.50 [2.92, 4.09]	3.22 [2.54, 3.81]	3.50 [2.92, 4.09]	4.6	3.46 [2.93, 4.09]	3.23 [2.65, 4.02]	3.47 [2.94, 4.09]	4.2		
Ever Smoked (%)	4,132 (41.4)	50 (57.5)	4,082 (41.3)	0	371 (46.3)	11 (44.0)	360 (46.5)	0		
MET minutes per week for walking (median [IQR])	693.00 [297.00, 1,386.00]	528.00 [255.75, 1,608.75]	693.00 [297.00, 1,386.00]	19.8	577.50 [255.75, 1,386.00]	478.50 [206.25, 767.25]	577.50 [264.00, 1,386.00]	21.1		
MET minutes per week for moderate activity (median [IQR])	480.00 [120.00, 1,200.00]	480.00 [100.00, 1,680.00]	480.00 [120.00, 1,200.00]	19.8	480.00 [120.00, 1,200.00]	400.00 [50.00, 795.00]	480.00 [120.00, 1,200.00]	21.1		
MET minutes per week for vigorous activity (median [IQR])	240.00 [0.00, 960.00]	0.00 [0.00, 820.00]	240.00 [0.00, 960.00]	19.8	240.00 [0.00, 960.00]	40.00 [0.00, 540.00]	240.00 [0.00, 960.00]	21.1		
TOTAL MET minutes per week (median [IQR])	1,773.00 [810.00, 3,452.50]	1,367.50 [478.50, 3,834.00]	1,776.50 [810.00, 3,450.00]	19.8	1,695.00 [783.75, 3,536.00]	1,050.50 [681.75, 2,846.38]	1,706.00 [795.00, 3,539.00]	21.1		
Family heart disease (%)	4,458 (44.7)	34 (39.1)	4,424 (44.8)	0	380 (47.5)	9 (36.0)	371 (47.9)	0		
CARDIAC DISEASES/OUTCOMES										
Cardiac problem (%)	41 (0.4)	2 (2.3)	39 (0.4)	0	3 (0.4)	0 (0.0)	3 (0.4)	0		
Heart failure (%)	182 (1.8)	74 (85.1)	108 (1.1)	0	36 (4.5)	16 (64.0)	20 (2.6)	0		
Cardiomyopathy (%)	37 (0.4)	26 (29.9)	11 (0.1)	0	22 (2.8)	16 (64.0)	6 (0.8)	0		
Dilated cardiomyopathy (%)	14 (0.1)	8 (9.2)	6 (0.1)	0	9 (1.1)	7 (28.0)	2 (0.3)	0		
Hypertrophic cardiomyopathy (%)	8 (0.1)	7 (8.0)	1 (0.0)	0	7 (0.9)	6 (24.0)	1 (0.1)	0		
Ventricular arrhythmias (%)	33 (0.3)	3 (3.4)	30 (0.3)	0	13 (1.6)	5 (20.0)	8 (1.0)	0		
Atrial arrhythmias (%)	191 (1.9)	19 (21.8)	172 (1.7)	0	34 (4.2)	6 (24.0)	28 (3.6)	0		
Heart arrhythmia (%)	54 (0.5)	2 (2.3)	52 (0.5)	0	12 (1.5)	2 (8.0)	10 (1.3)	0		
Chronic Ischemic heart disease (%)	725 (7.3)	0 (0.0)	725 (7.3)	0	73 (9.1)	0 (0.0)	73 (9.4)	0		
Acute myocardial infarction (%)	298 (3.0)	1 (1.1)	297 (3.0)	0	27 (3.4)	1 (4.0)	26 (3.4)	0		
Cardiac arrest (%)	34 (0.3)	1 (1.1)	33 (0.3)	0	6 (0.8)	1 (4.0)	5 (0.6)	0		
Angina pectoris (%)	312 (3.1)	2 (2.3)	310 (3.1)	0	30 (3.8)	0 (0.0)	30 (3.9)	0		
Conduction disorders (%)	151 (1.5)	10 (11.5)	141 (1.4)	0	18 (2.2)	3 (12.0)	15 (1.9)	0		
Valvular disease (%)	241 (2.4)	23 (26.4)	218 (2.2)	0	37 (4.6)	9 (36.0)	28 (3.6)	0		
Congenital heart disease (%)	28 (0.3)	3 (3.4)	25 (0.3)	0	3 (0.4)	1 (4.0)	2 (0.3)	0		
Pulmonary obstructive disease (%)	494 (5.0)	24 (27.6)	470 (4.8)	0	47 (5.9)	7 (28.0)	40 (5.2)	0		
Cardiovascular death (%)	181 (1.8)	13 (14.9)	168 (1.7)	0	24 (3.0)	5 (20.0)	19 (2.5)	0		
All-cause mortality (%)	513 (5.1)	27 (31.0)	486 (4.9)	0	56 (7.0)	8 (32.0)	48 (6.2)	0		
ECG MEASUREMENTS										
n (%)	1,062 (10.6)	4 (4.6)	1,058 (10.7)		87 (10.9)	0 (0.0)	87 (11.2)			
P duration (median [IQR])	100.00 [90.00, 108.00]	90.00 [82.00, 111.00]	100.00 [90.00, 108.00]	89.8	99.00 [86.00, 106.00]	NA	99.00 [86.00, 106.00]	90		
P axis (median [IQR])	55.00 [40.25, 67.00]	47.00 [47.00, 47.00]	55.00 [40.00, 67.00]	93.1	49.00 [36.50, 61.00]	NA	49.00 [36.50, 61.00]	92.6		
PQ interval (median [IQR])	160.00 [145.50, 178.00]	188.00 [188.00, 188.00]	160.00 [145.00, 178.00]	93.1	164.00 [145.00, 176.00]	NA	164.00 [145.00, 176.00]	92.6		
QRS duration (median [IQR])	86.00 [80.00, 94.00]	93.00 [89.50, 97.00]	86.00 [80.00, 94.00]	89.4	84.00 [78.00, 92.00]	NA	84.00 [78.00, 92.00]	89.1		
R axis (median [IQR])	34.00 [17.00, 58.00]	-48.00 [-48.00, -48.00]	34.00 [17.50, 58.00]	92.9	26.00 [-3.50, 50.00]	NA	26.00 [-3.50, 50.00]	92.1		
QT interval (median [IQR])	417.00 [402.00, 433.00]	511.00 [511.00, 511.00]	417.00 [402.00, 432.50]	92.9	420.00 [404.00, 435.00]	NA	420.00 [404.00, 435.00]	92.1		
T axis (median [IQR])	40.00 [23.00, 55.25]	92.00 [92.00, 92.00]	40.00 [23.00, 55.00]	92.9	42.00 [25.50, 57.00]	NA	42.00 [25.50, 57.00]	92.1		
CMR MEASUREMENTS										
n (%)	990 (9.9)	4 (4.6)	986 (10.0)		87 (10.9)	0 (0.0)	87 (11.2)			
RVEDVI (median [IQR])	80.18 [70.62, 90.27]	79.28 [79.28, 79.28]	80.19 [70.61, 90.27]	91	76.54 [69.50, 84.81]	NA	76.54 [69.50, 84.81]	90.2		
RVESVI (median [IQR])	32.89 [27.38, 39.68]	20.93 [20.93, 20.93]	32.90 [27.42, 39.70]	91	32.21 [27.10, 37.43]	NA	32.21 [27.10, 37.43]	90.2		
RVSVI (median [IQR])	46.55 [40.92, 52.84]	58.35 [58.35, 58.35]	46.53 [40.91, 52.81]	91	44.50 [40.74, 51.29]	NA	44.50 [40.74, 51.29]	90.2		
RVEF (median [IQR])	58.38 [54.19, 62.76]	73.60 [73.60, 73.60]	58.37 [54.19, 62.74]	91	59.31 [52.99, 62.59]	NA	59.31 [52.99, 62.59]	90.2		
RVPER (median [IQR])	388.72 [316.56, 465.82]	446.55 [446.55, 446.55]	388.66 [316.54, 465.97]	91	361.23 [290.07, 443.94]	NA	361.23 [290.07, 443.94]	90.2		
RVFPR (median [IQR])	300.61 [245.17, 364.00]	373.24 [373.24, 373.24]	300.34 [245.12, 363.44]	91	295.78 [220.42, 343.17]	NA	295.78 [220.42, 343.17]	90.2		
RVPAFR (median [IQR])	282.95 [222.68, 360.32]	547.72 [547.72, 547.72]	282.86 [222.56, 360.07]	91	275.01 [224.94, 344.91]	NA	275.01 [224.94, 344.91]	90.2		
RVEDVI (median [IQR])	74.33 [66.34, 83.11]	64.68 [59.39, 69.33]	74.37 [66.38, 83.15]	91.9	77.32 [68.06, 86.15]	NA	77.32 [68.06, 86.15]	91.4		
RVESVI (median [IQR])	30.02 [25.12, 35.70]	26.43 [25.24, 28.39]	30.02 [25.13, 35.72]	91.9	31.69 [26.19, 39.84]	NA	31.69 [26.19, 39.84]	91.4		
RVSVI (median [IQR])	44.03 [39.34, 50.28]	38.25 [31.00, 44.09]	44.05 [39.37, 50.30]	91.9	43.18 [37.50, 49.11]	NA	43.18 [37.50, 49.11]	91.4		
RVFPR (median [IQR])	59.14 [55.29, 63.52]	59.14 [51.51, 63.31]	59.48 [55.29, 63.52]	91.9	57.34 [52.60, 62.80]	NA	57.34 [52.60, 62.80]	91.4		
RVPAFR (median [IQR])	373.80 [302.29, 452.71]	284.40 [256.83, 364.56]	373.81 [302.44, 453.27]	91.9	339.21 [258.97, 430.85]	NA	339.21 [258.97, 430.85]	91.4		
RVFPR (median [IQR])	321.31 [259.23, 385.16]	201.74 [189.85, 229.92]	321.49 [259.95, 385.63]	91.9	314.20 [258.81, 366.77]	NA	314.20 [258.81, 366.77]	91.4		
RVPAFR (median [IQR])	233.66 [167.35, 306.30]	363.87 [208.97, 466.86]	233.50 [167.46, 305.08]	91.9	253.35 [178.90, 330.36]	NA	253.35 [178.90, 330.36]	91.4		
RVEDVI (median [IQR])	41.88 [36.52, 48.62]	45.76 [34.02, 48.75]	41.85 [36.55, 48.61]	91.9	42.96 [36.56, 46.70]	NA	42.96 [36.56, 46.70]	91.4		
RVSVI (median [IQR])	0.56 [0.50, 0.62]	0.70 [0.56, 0.70]	0.56 [0.50, 0.62]	91.9	0.54 [0.49, 0.59]	NA	0.54 [0.49, 0.59]	91.4		
RVFPR (median [IQR])	0.93 [0.86, 1.03]	0.93 [0.93, 0.93]	0.93 [0.86, 1.03]	92.2	1.00 [0.91, 1.08]	NA	1.00 [0.91, 1.08]	91.8		
RVESVI (median [IQR])	0.91 [0.80, 1.04]	1.15 [1.15, 1.15]	0.91 [0.80, 1.04]	92.2	1.02 [0.89, 1.19]	NA	1.02 [0.89, 1.19]	91.8		
peakEcc (median [IQR])	-22.70 [-24.98, -20.43]	-21.60 [-21.61, -21.59]	-22.72 [-24.98, -20.42]	93.7	-22.67 [-24.40, -19.13]	NA	-22.67 [-24.40, -19.13]	92.8		
TPKEcc (median [IQR])	331.31 [309.83, 354.66]	325.97 [321.27, 330.67]	331.31 [309.75, 354.68]	93.7	334.71 [320.31, 360.48]	NA	334.71 [320.31, 360.48]	92.8		
peakEI2Ch (median [IQR])	-21.19 [-23.34, -18.93]	-23.89 [-23.89, -23.89]	-21.17 [-23.32, -18.93]	93.8	-20.29 [-22.24, -17.98]	NA	-20.29 [-22.24, -17.98]	93		
TPKEI2Ch (median [IQR])	349.86 [321.84, 379.10]	388.50 [388.50, 388.50]	349.86 [321.81, 379.08]	93.9	353.29 [331.00, 381.68]	NA	353.29 [331.00, 381.68]	93		
peakEI4Ch (median [IQR])	-23.30 [-25.97, -21.37]	-21.40 [-21.40, -21.40]	-23.30 [-25.99, -21.37]	93.9	-22.30 [-24.57, -19.76]	NA	-22.30 [-24.57, -19.76]	93		
TPKEI4Ch (median [IQR])	357.53 [327.07, 397.64]	360.78 [360.78, 360.78]	357.30 [326.96, 397.81]	93.9	354.80 [325.41, 392.55]	NA	354.80 [325.41, 392.55]	93.1		
Wall thickness segment 1 (median [IQR])	7.65 [6.81, 8.50]	7.04 [5.94, 8.14]	7.65 [6.81, 8.49]	93.2	7.44 [6.78, 8.21]	NA	7.44 [6.78, 8.21]	93.4		
Wall thickness segment 2 (median [IQR])	6.75 [5.75, 7.91]	7.50 [6.70, 8.31]	6.75 [5.74, 7.90]	93.2	6.03 [5.31, 7.39]	NA	6.03 [5.31, 7.39]	93.4		
Wall thickness segment 3 (median [IQR])	6.05 [5.17, 6.96]	7.60 [6.78, 8.42]	6.05 [5.17, 6.95]	93.2	6.10 [4.85, 6.66]	NA	6.10 [4.85, 6.66]	93.4		
Wall thickness segment 4 (median [IQR])	6.54 [5.82, 7.22]	8.31 [7.66, 8.97]	6.54 [5.81, 7.21]	93.2	6.57 [5.89, 6.99]	NA	6.57 [5.89, 6.99]	93.4		

Supplementary Table 3: Extensive baseline table

	Controls G-					HCM G+				
n (%)	Overall 9,972 (100)	Diagnosed 87 (0.8)	Non-Diagnosed 9,885 (99.2)	Missing	Overall 1,346 (100)	Diagnosed 35 (2.6)	Non-Diagnosed 1,311 (97.4)	Missing		
Sex = Female (%)	5,436 (54.5)	35 (40.2)	5,401 (54.6)	0	720 (53.5)	20 (57.1)	700 (53.4)	0		
Age (median [IQR])	57.00 [49.00, 63.00]	62.00 [56.00, 66.00]	57.00 [49.00, 63.00]	0	56.00 [49.00, 63.00]	59.00 [51.00, 66.00]	56.00 [49.00, 63.00]	0		
Ethnicity (%)				1				1.3		
Asian	1,076 (10.9)	5 (5.8)	1,071 (10.9)		251 (18.9)	3 (8.6)	248 (19.2)			
Black	164 (1.7)	3 (3.5)	161 (1.6)		22 (1.7)	0 (0.0)	22 (1.7)			
Chinese	56 (0.6)	1 (1.2)	55 (0.6)		1 (0.1)	0 (0.0)	1 (0.1)			
Mixed	132 (1.3)	2 (2.3)	130 (1.3)		28 (2.1)	0 (0.0)	28 (2.2)			
Other	160 (1.6)	1 (1.2)	159 (1.6)		26 (2.0)	0 (0.0)	26 (2.0)			
White	8,288 (83.9)	74 (86.0)	8,214 (83.9)		1,001 (75.3)	32 (91.4)	969 (74.9)			
CARDIOVASCULAR RISK FACTORS										
BMI (median [IQR])	26.73 [24.15, 29.82]	28.83 [25.33, 32.20]	26.71 [24.15, 29.80]	0.5	26.56 [23.88, 29.76]	26.54 [23.30, 31.10]	26.56 [23.90, 29.72]	1		
Diabetes (%)	914 (9.2)	21 (24.1)	893 (9.0)	0	154 (11.4)	4 (11.4)	150 (11.4)	0		
Hypertension (%)	3,420 (34.3)	60 (69.0)	3,360 (34.0)	0	475 (35.3)	23 (65.7)	452 (34.5)	0		
Mean systolic blood pressure (median [IQR])	135.50 [124.00, 149.00]	144.00 [130.00, 155.50]	135.50 [124.00, 149.00]	0.1	135.00 [123.50, 148.50]	135.50 [125.00, 154.25]	135.00 [123.50, 148.00]	0.2		
Mean diastolic blood pressure (median [IQR])	82.00 [75.00, 88.50]	84.00 [76.50, 91.50]	81.50 [75.00, 88.50]	0.1	81.50 [75.50, 89.00]	81.50 [75.50, 91.25]	81.50 [75.50, 89.00]	0.2		
Hypercholesterolaemia (%)	2,416 (24.2)	34 (39.1)	2,382 (24.1)	0	369 (27.4)	12 (34.3)	357 (27.2)	0		
Total cholesterol (median [IQR])	5.61 [4.86, 6.38]	5.23 [4.39, 6.10]	5.61 [4.87, 6.38]	4.3	5.60 [4.80, 6.38]	5.58 [4.73, 6.46]	5.60 [4.80, 6.37]	4.5		
HDL (median [IQR])	1.38 [1.16, 1.65]	1.29 [1.13, 1.56]	1.38 [1.16, 1.65]	11.3	1.37 [1.14, 1.63]	1.32 [1.23, 1.58]	1.37 [1.14, 1.63]	12.1		
LDL (median [IQR])	3.50 [2.92, 4.09]	3.22 [2.54, 3.81]	3.50 [2.92, 4.09]	4.6	3.48 [2.87, 4.09]	3.38 [2.67, 4.43]	3.48 [2.88, 4.07]	4.8		
Ever Smoked (%)	4,132 (41.4)	50 (57.5)	4,082 (41.3)	0	543 (40.3)	12 (34.3)	531 (40.5)	0		
MET minutes per week for walking (median [IQR])	693.00 [297.00, 1,386.00]	528.00 [255.75, 1,608.75]	693.00 [297.00, 1,386.00]	19.8	693.00 [307.72, 1,386.00]	495.00 [198.00, 1,386.00]	693.00 [330.00, 1,386.00]	19.6		
MET minutes per week for moderate activity (median [IQR])	480.00 [120.00, 1,200.00]	480.00 [100.00, 1,680.00]	480.00 [120.00, 1,200.00]	19.8	480.00 [120.00, 1,200.00]	400.00 [160.00, 840.00]	480.00 [120.00, 1,200.00]	19.6		
MET minutes per week for vigorous activity (median [IQR])	240.00 [0.00, 960.00]	0.00 [0.00, 820.00]	240.00 [0.00, 960.00]	19.8	160.00 [0.00, 930.00]	240.00 [0.00, 480.00]	160.00 [0.00, 960.00]	19.6		
TOTAL MET minutes per week (median [IQR])	1,773.00 [810.00, 3,452.50]	1,367.50 [478.50, 3,834.00]	1,776.50 [810.00, 3,450.00]	19.8	1,762.00 [848.12, 3,490.25]	1,255.00 [693.00, 3,426.00]	1,773.00 [853.00, 3,492.00]	19.6		
Family heart disease (%)	4,458 (44.7)	34 (39.1)	4,424 (44.8)	0	623 (46.3)	15 (42.9)	608 (46.4)	0		
CARDIAC DISEASES/OUTCOMES										
Cardiac problem (%)	41 (0.4)	2 (2.3)	39 (0.4)	0	5 (0.4)	0 (0.0)	5 (0.4)	0		
Heart failure (%)	182 (1.8)	74 (85.1)	108 (1.1)	0	33 (2.5)	15 (42.9)	18 (1.4)	0		
Cardiomyopathy (%)	37 (0.4)	26 (29.9)	11 (0.1)	0	27 (2.0)	21 (60.0)	6 (0.5)	0		
Dilated cardiomyopathy (%)	14 (0.1)	8 (9.2)	6 (0.1)	0	1 (0.1)	1 (2.9)	0 (0.0)	0		
Hypertrophic cardiomyopathy (%)	8 (0.1)	7 (8.0)	1 (0.0)	0	20 (1.5)	14 (40.0)	6 (0.5)	0		
Ventricular arrhythmias (%)	33 (0.3)	3 (3.4)	30 (0.3)	0	8 (0.6)	4 (11.4)	4 (0.3)	0		
Atrial arrhythmias (%)	191 (1.9)	19 (21.8)	172 (1.7)	0	32 (2.4)	6 (17.1)	26 (2.0)	0		
Heart arrhythmia (%)	54 (0.5)	2 (2.3)	52 (0.5)	0	4 (0.3)	0 (0.0)	4 (0.3)	0		
Chronic Ischemic heart disease (%)	725 (7.3)	0 (0.0)	725 (7.3)	0	93 (6.9)	0 (0.0)	93 (7.1)	0		
Acute myocardial infarction (%)	298 (3.0)	1 (1.1)	297 (3.0)	0	36 (2.7)	2 (5.7)	34 (2.6)	0		
Cardiac arrest (%)	34 (0.3)	1 (1.1)	33 (0.3)	0	5 (0.4)	0 (0.0)	5 (0.4)	0		
Angina pectoris (%)	312 (3.1)	2 (2.3)	310 (3.1)	0	56 (4.2)	0 (0.0)	56 (4.3)	0		
Conduction disorders (%)	151 (1.5)	10 (11.5)	141 (1.4)	0	26 (1.9)	6 (17.1)	20 (1.5)	0		
Valvular disease (%)	241 (2.4)	23 (26.4)	218 (2.2)	0	41 (3.0)	8 (22.9)	33 (2.5)	0		
Congenital heart disease (%)	28 (0.3)	3 (3.4)	25 (0.3)	0	4 (0.3)	0 (0.0)	4 (0.3)	0		
Pulmonary obstructive disease (%)	494 (5.0)	24 (27.6)	470 (4.8)	0	57 (4.2)	4 (11.4)	53 (4.0)	0		
Cardiovascular death (%)	181 (1.8)	13 (14.9)	168 (1.7)	0	18 (1.3)	3 (8.6)	15 (1.1)	0		
All-cause mortality (%)	513 (5.1)	27 (31.0)	486 (4.9)	0	62 (4.6)	6 (17.1)	56 (4.3)	0		
ECG MEASUREMENTS										
n (%)	1,062 (10.6)	4 (4.6)	1,058 (10.7)		138 (10.3)	5 (14.3)	133 (10.1)			
P duration (median [IQR])	100.00 [90.00, 108.00]	90.00 [82.00, 111.00]	100.00 [90.00, 108.00]	89.8	100.00 [90.00, 108.00]	100.00 [86.00, 102.00]	100.00 [90.00, 108.00]	90		
P axis (median [IQR])	55.00 [40.25, 67.00]	47.00 [47.00, 47.00]	55.00 [40.00, 67.00]	93.1	53.00 [36.00, 63.00]	70.00 [66.00, 70.00]	52.00 [36.00, 62.00]	92.9		
PQ interval (median [IQR])	160.00 [145.50, 178.00]	188.00 [188.00, 188.00]	160.00 [145.00, 178.00]	93.1	161.00 [147.50, 172.50]	190.00 [186.00, 199.00]	160.00 [146.00, 172.00]	92.9		
QRS duration (median [IQR])	86.00 [80.00, 94.00]	93.00 [89.50, 97.00]	86.00 [80.00, 94.00]	89.4	84.00 [80.00, 93.50]	100.00 [102.00, 104.00]	84.00 [80.00, 92.00]	89.7		
R axis (median [IQR])	34.00 [17.00, 58.00]	-48.00 [-48.00, -48.00]	34.00 [7.50, 58.00]	92.9	39.00 [10.00, 52.75]	2.00 [-1.00, 24.00]	39.00 [11.50, 53.50]	92.7		
QTc interval (median [IQR])	417.00 [402.00, 433.00]	511.00 [511.00, 511.00]	417.00 [402.00, 432.50]	92.9	414.50 [402.00, 429.00]	435.00 [428.50, 456.50]	414.00 [402.00, 428.50]	92.7		
T axis (median [IQR])	40.00 [23.00, 55.25]	92.00 [92.00, 92.00]	40.00 [23.00, 55.00]	92.9	45.00 [31.25, 60.75]	49.00 [43.00, 96.00]	45.00 [30.50, 60.50]	92.7		
CMR MEASUREMENTS										
n (%)	990 (9.9)	4 (4.6)	986 (10.0)		134 (10.0)	4 (11.4)	130 (9.9)			
RVEDVi (median [IQR])	80.18 [70.62, 90.27]	79.28 [79.28, 79.28]	80.19 [70.61, 90.27]	91	77.30 [67.73, 90.71]	79.56 [77.34, 90.20]	77.12 [67.27, 90.71]	90.4		
RVESVi (median [IQR])	32.89 [27.38, 39.68]	20.93 [20.93, 20.93]	32.90 [27.42, 39.70]	91	31.72 [26.22, 37.33]	34.80 [30.85, 43.04]	31.40 [26.20, 37.28]	90.4		
RVSVi (median [IQR])	46.55 [40.92, 52.84]	58.35 [58.35, 58.35]	46.53 [40.91, 52.81]	91	46.03 [40.94, 54.04]	47.41 [45.02, 51.27]	45.77 [40.64, 54.04]	90.4		
RVEF (median [IQR])	58.38 [54.19, 62.76]	73.60 [73.60, 73.60]	58.37 [54.19, 62.74]	91	56.21 [51.68, 60.89]	56.21 [51.68, 60.89]	55.56 [54.80, 63.99]	90.5		
RVPER (median [IQR])	388.72 [316.56, 465.82]	446.55 [446.55, 446.55]	388.66 [316.54, 465.97]	91	389.50 [310.19, 475.79]	391.94 [296.40, 448.92]	389.50 [310.19, 475.79]	90.4		
RVPAFR (median [IQR])	300.61 [245.17, 364.00]	373.24 [373.24, 373.24]	300.34 [245.12, 363.44]	91	285.88 [232.85, 336.38]	363.12 [334.18, 386.47]	278.68 [230.83, 334.67]	90.4		
RVPAFRi (median [IQR])	282.95 [222.68, 360.32]	547.72 [547.72, 547.72]	282.86 [222.56, 360.07]	91	299.05 [236.43, 365.16]	263.66 [225.50, 297.24]	300.15 [236.43, 366.42]	90.4		
LVEDVi (median [IQR])	74.33 [66.34, 83.11]	64.68 [59.39, 69.33]	74.37 [66.38, 83.15]	91.9	74.50 [64.57, 84.89]	85.13 [83.78, 87.08]	72.35 [64.32, 84.59]	91.2		
LVESVi (median [IQR])	30.02 [25.12, 35.70]	26.43 [25.23, 35.72]	30.02 [25.13, 35.72]	91.9	30.31 [24.10, 35.20]	43.58 [39.30, 47.19]	29.37 [24.09, 34.83]	91.2		
LVSVi (median [IQR])	44.03 [39.34, 50.28]	38.25 [31.00, 44.09]	44.05 [39.37, 50.30]	91.9	44.17 [38.21, 49.98]	44.56 [42.26, 45.10]	44.07 [38.21, 50.19]	91.2		
LVEF (median [IQR])	59.47 [55.29, 63.52]	59.14 [51.51, 63.31]	59.48 [55.29, 63.52]	91.9	59.55 [55.96, 63.53]	51.02 [47.77, 53.26]	59.73 [56.25, 63.62]	91.2		
LVPER (median [IQR])	373.80 [302.29, 452.71]	284.40 [256.83, 364.56]	373.81 [302.44, 453.27]	91.9	340.46 [266.40, 459.49]	350.17 [311.46, 380.66]	340.46 [264.60, 460.79]	91.2		
LVPAFR (median [IQR])	321.31 [259.23, 385.16]	201.74 [189.85, 229.92]	321.49 [259.95, 385.63]	91.9	320.26 [252.40, 371.17]	315.79 [273.86, 360.98]	320.26 [248.52, 371.17]	91.2		
LVPAFRi (median [IQR])	233.66 [167.35, 306.30]	363.87 [208.97, 466.86]	233.50 [167.46, 305.08]	91.9	241.27 [165.31, 316.89]	213.93 [135.78, 272.60]	241.27 [167.29, 321.53]	91.2		
LVEDVi (median [IQR])	41.88 [36.52, 48.62]	45.76 [34.02, 48.75]	41.85 [36.55, 48.61]	91.9	42.87 [35.12, 49.47]	49.63 [46.84, 53.17]	42.41 [34.89, 49.27]	91.2		
LVPMVR (median [IQR])	0.56 [0.50, 0.62]	0.70 [0.56, 0.70]	0.56 [0.50, 0.62]	91.9	0.56 [0.50, 0.64]	0.58 [0.55, 0.61]	0.56 [0.50, 0.64]	91.2		
LVEDV/RVEDV (median [IQR])	0.93 [0.86, 1.03]	0.93 [0.93, 0.93]	0.93 [0.86, 1.03]	92.2	0.94 [0.86, 1.03]	1.07 [0.99, 1.08]	0.94 [0.86, 0.99]	91.3		
LVESV/RVESV (median [IQR])	0.91 [0.80, 1.04]	1.15 [1.15, 1.15]	0.91 [0.80, 1.04]	92.2	0.90 [0.82, 1.05]	1.28 [1.14, 1.30]	0.90 [0.82, 1.02]	91.3		
peakEcc (median [IQR])	-22.70 [-24.98, -20.43]	-21.60 [-21.61, -21.59]	-22.72 [-24.98, -20.42]	93.7	-22.82 [-24.98, -20.60]	-20.32 [-20.51, -20.27]	-22.91 [-25.19, -20.88]	93.5		
TPKEcc (median [IQR])	331.31 [309.83, 354.66]	325.97 [321.27, 330.67]	331.31 [309.75, 354.68]	93.7	332.34 [308.14, 354.02]	347.73 [320.45, 364.22]	331.96 [308.15, 353.59]	93.5		
peakEI2Ch (median [IQR])	-21.19 [-23.34, -18.93]	-23.89 [-23.89, -23.89]	-21.17 [-23.32, -18.93]	93.8	-20.99 [-23.36, -19.01]	-20.63 [-20.99, -20.19]	-21.54 [-23.50, -18.88]	93.5		
TPKEI2Ch (median [IQR])	349.86 [321.84, 379.10]	388.50 [388.50, 388.50]	349.86 [321.81, 379.08]	93.9	355.54 [320.85, 381.68]	403.20 [386.90, 420.80]	353.10 [320.40, 379.60]	93.5		
peakEI4Ch (median [IQR])	-23.30 [-25.97, -21.37]	-21.40 [-21.40, -21.40]	-23.30 [-25.99, -21.37]	93.9	-23.82 [-26.50, -21.90]	-20.87 [-22.20, -19.79]	-24.05 [-26.93, -22.28]	94.1		
TPKEI4Ch (median [IQR])	357.53 [327.07, 397.64]	360.78 [360.78, 360.78]	357.30 [326.96, 397.81]	93.9	350.13 [318.54, 395.01]	403.22 [378.52, 407.61]	349.20 [318.54, 390.16			

Supplementary Table 3: Extensive baseline table

	Controls G-				strict HCM G+			
n (%)	Overall 9,972 (100)	Diagnosed 87 (0.8)	Non-Diagnosed 9,885 (99.2)	Missing	Overall 801 (100)	Diagnosed 32 (4.0)	Non-Diagnosed 769 (96.0)	Missing
Sex = Female (%)	5,436 (54.5)	35 (40.2)	5,401 (54.6)	0	445 (55.6)	19 (59.4)	426 (55.4)	0
Age (median [IQR])	57.00 [49.00, 63.00]	62.00 [56.00, 66.00]	57.00 [49.00, 63.00]	0	58.00 [50.00, 63.00]	60.00 [52.75, 66.00]	58.00 [50.00, 63.00]	0
Ethnicity (%)				1				0.6
Asian	1,076 (10.9)	5 (5.8)	1,071 (10.9)		14 (1.8)	0 (0.0)	14 (1.8)	
Black	164 (1.7)	3 (3.5)	161 (1.6)		18 (2.3)	0 (0.0)	18 (2.4)	
Chinese	56 (0.6)	1 (1.2)	55 (0.6)		1 (0.1)	0 (0.0)	1 (0.1)	
Mixed	132 (1.3)	2 (2.3)	130 (1.3)		6 (0.8)	0 (0.0)	6 (0.8)	
Other	160 (1.6)	1 (1.2)	159 (1.6)		3 (0.4)	0 (0.0)	3 (0.4)	
White	8,288 (83.9)	74 (86.0)	8,214 (83.9)		754 (94.7)	32 (100.0)	722 (94.5)	
CARDIOVASCULAR RISK FACTORS								
BMI (median [IQR])	26.73 [24.15, 29.82]	28.83 [25.33, 32.20]	26.71 [24.15, 29.80]	0.5	26.56 [23.84, 29.85]	26.25 [23.37, 30.57]	26.58 [23.85, 29.79]	0.4
Diabetes (%)	914 (9.2)	21 (24.1)	893 (9.0)	0	60 (7.5)	3 (9.4)	57 (7.4)	0
Hypertension (%)	3,420 (34.3)	60 (69.0)	3,360 (34.0)	0	291 (36.3)	21 (65.6)	270 (35.1)	0
Mean systolic blood pressure (median [IQR])	135.50 [124.00, 149.00]	144.00 [130.00, 155.50]	135.50 [124.00, 149.00]	0.1	136.00 [123.50, 150.50]	138.50 [128.12, 156.50]	136.00 [123.50, 150.00]	0.1
Mean diastolic blood pressure (median [IQR])	82.00 [75.00, 88.50]	84.00 [76.50, 91.50]	81.50 [75.00, 88.50]	0.1	81.50 [75.00, 89.50]	83.00 [74.88, 92.12]	81.50 [75.00, 89.00]	0.1
Hypercholesterolaemia (%)	2,416 (24.2)	34 (39.1)	2,382 (24.1)	0	195 (24.3)	11 (34.4)	184 (23.9)	0
Total cholesterol (median [IQR])	5.61 [4.86, 6.38]	5.23 [4.39, 6.10]	5.61 [4.87, 6.38]	4.3	5.63 [4.86, 6.42]	5.75 [5.03, 6.51]	5.63 [4.85, 6.41]	4.6
HDL (median [IQR])	1.38 [1.16, 1.65]	1.29 [1.13, 1.56]	1.38 [1.16, 1.65]	11.3	1.40 [1.18, 1.68]	1.33 [1.24, 1.64]	1.40 [1.18, 1.68]	13
LDL (median [IQR])	3.50 [2.92, 4.09]	3.22 [2.54, 3.81]	3.50 [2.92, 4.09]	4.6	3.50 [2.90, 4.11]	3.47 [2.98, 4.46]	3.50 [2.90, 4.10]	4.9
Ever Smoked (%)	4,132 (41.4)	50 (57.5)	4,082 (41.3)	0	361 (45.1)	11 (34.4)	350 (45.5)	0
MET minutes per week for walking (median [IQR])	693.00 [297.00, 1,386.00]	528.00 [255.75, 1,608.75]	693.00 [297.00, 1,386.00]	19.8	693.00 [330.00, 1,386.00]	495.00 [214.50, 1,386.00]	693.00 [330.00, 1,386.00]	18
MET minutes per week for moderate activity (median [IQR])	480.00 [120.00, 1,200.00]	480.00 [100.00, 1,680.00]	480.00 [120.00, 1,200.00]	19.8	480.00 [160.00, 1,200.00]	400.00 [140.00, 900.00]	480.00 [160.00, 1,200.00]	18
MET minutes per week for vigorous activity (median [IQR])	240.00 [0.00, 960.00]	0.00 [0.00, 820.00]	240.00 [0.00, 960.00]	19.8	240.00 [0.00, 960.00]	240.00 [0.00, 540.00]	240.00 [0.00, 960.00]	18
TOTAL MET minutes per week (median [IQR])	1,773.00 [810.00, 3,452.50]	1,367.50 [478.50, 3,834.00]	1,776.50 [810.00, 3,450.00]	19.8	1,895.00 [924.00, 3,626.00]	1,253.00 [711.50, 3,606.00]	1,942.50 [925.50, 3,622.50]	18
Family heart disease (%)	4,458 (44.7)	34 (39.1)	4,424 (44.8)	0	389 (48.6)	14 (43.8)	375 (48.8)	0
CARDIAC DISEASES/OUTCOMES								
Cardiac problem (%)	41 (0.4)	2 (2.3)	39 (0.4)	0	4 (0.5)	0 (0.0)	4 (0.5)	0
Heart failure (%)	182 (1.8)	74 (85.1)	108 (1.1)	0	25 (3.1)	13 (40.6)	12 (1.6)	0
Cardiomyopathy (%)	37 (0.4)	26 (29.9)	11 (0.1)	0	25 (3.1)	20 (62.5)	5 (0.7)	0
Dilated cardiomyopathy (%)	14 (0.1)	8 (9.2)	6 (0.1)	0	0 (0.0)	0 (0.0)	0 (0.0)	0
Hypertrophic cardiomyopathy (%)	8 (0.1)	7 (8.0)	1 (0.0)	0	19 (2.4)	14 (43.8)	5 (0.7)	0
Ventricular arrhythmias (%)	33 (0.3)	3 (3.4)	30 (0.3)	0	8 (1.0)	4 (12.5)	4 (0.5)	0
Atrial arrhythmias (%)	191 (1.9)	19 (21.8)	172 (1.7)	0	25 (3.1)	6 (18.8)	19 (2.5)	0
Heart arrhythmia (%)	54 (0.5)	2 (2.3)	52 (0.5)	0	52 (6.5)	0 (0.0)	52 (6.8)	0
Chronic Ischemic heart disease (%)	725 (7.3)	0 (0.0)	725 (7.3)	0	22 (2.7)	2 (6.2)	20 (2.6)	0
Acute myocardial infarction (%)	298 (3.0)	1 (1.1)	297 (3.0)	0	4 (0.5)	0 (0.0)	4 (0.5)	0
Cardiac arrest (%)	34 (0.3)	1 (1.1)	33 (0.3)	0	15 (1.9)	5 (15.6)	10 (1.3)	0
Angina pectoris (%)	312 (3.1)	2 (2.3)	310 (3.1)	0	29 (3.6)	8 (25.0)	21 (2.7)	0
Conduction disorders (%)	151 (1.5)	10 (11.5)	141 (1.4)	0	3 (0.4)	0 (0.0)	3 (0.4)	0
Valvular disease (%)	241 (2.4)	23 (26.4)	218 (2.2)	0	36 (4.5)	3 (9.4)	33 (4.3)	0
Congenital heart disease (%)	28 (0.3)	3 (3.4)	25 (0.3)	0	3 (0.4)	0 (0.0)	3 (0.4)	0
Pulmonary obstructive disease (%)	494 (5.0)	24 (27.6)	470 (4.8)	0	32 (4.0)	0 (0.0)	32 (4.2)	0
Cardiovascular death (%)	181 (1.8)	13 (14.9)	168 (1.7)	0	10 (1.2)	3 (9.4)	7 (0.9)	0
All-cause mortality (%)	513 (5.1)	27 (31.0)	486 (4.9)	0	45 (5.6)	5 (15.6)	40 (5.2)	0
ECG MEASUREMENTS								
n (%)	1,062 (10.6)	4 (4.6)	1,058 (10.7)		85 (10.6)	5 (15.6)	80 (10.4)	
P duration (median [IQR])	100.00 [90.00, 108.00]	90.00 [82.00, 111.00]	100.00 [90.00, 108.00]	89.8	100.00 [90.00, 106.00]	100.00 [86.00, 102.00]	100.00 [90.50, 106.00]	89.6
P axis (median [IQR])	55.00 [40.25, 67.00]	47.00 [47.00, 47.00]	55.00 [40.00, 67.00]	93.1	50.00 [36.00, 65.50]	70.00 [66.00, 70.00]	48.00 [35.75, 64.25]	92.1
PQ interval (median [IQR])	160.00 [145.50, 178.00]	188.00 [188.00, 188.00]	160.00 [145.00, 178.00]	93.1	164.00 [145.00, 174.00]	190.00 [186.00, 199.00]	163.00 [143.50, 172.00]	92.1
QRS duration (median [IQR])	86.00 [80.00, 94.00]	93.00 [89.50, 97.00]	86.00 [80.00, 94.00]	89.4	86.00 [80.00, 92.00]	100.00 [102.00, 104.00]	85.00 [80.00, 92.00]	89.4
R axis (median [IQR])	34.00 [17.00, 58.00]	-48.00 [-48.00, -48.00]	34.00 [17.50, 58.00]	92.9	38.50 [19.75, 55.00]	2.00 [-17.00, 24.00]	39.00 [13.00, 55.00]	92
QT interval (median [IQR])	417.00 [402.00, 433.00]	511.00 [511.00, 511.00]	417.00 [402.00, 432.50]	92.9	417.00 [402.00, 432.50]	435.00 [428.50, 456.50]	414.00 [401.00, 429.00]	92
T axis (median [IQR])	40.00 [23.00, 55.25]	92.00 [92.00, 92.00]	40.00 [23.00, 55.00]	92.9	45.00 [30.75, 61.25]	49.00 [43.00, 96.00]	45.00 [30.00, 61.00]	92
CMR MEASUREMENTS								
n (%)	990 (9.9)	4 (4.6)	986 (10.0)		84 (10.5)	4 (12.5)	80 (10.4)	
RVEDVI (median [IQR])	80.18 [70.62, 90.27]	79.28 [79.28, 79.28]	80.19 [70.61, 90.27]	91	77.46 [68.84, 93.43]	79.56 [77.34, 90.20]	77.39 [67.84, 93.43]	89.9
RVESVI (median [IQR])	32.89 [27.38, 39.68]	20.93 [20.93, 20.93]	32.90 [27.42, 39.70]	91	31.40 [26.87, 37.04]	34.80 [30.85, 43.04]	31.35 [26.22, 36.21]	89.9
RVSVI (median [IQR])	46.55 [40.92, 52.84]	58.35 [58.35, 58.35]	46.53 [40.91, 52.81]	91	47.18 [41.46, 55.77]	47.41 [45.02, 51.27]	47.18 [41.46, 55.77]	89.9
RVEF (median [IQR])	58.38 [54.19, 62.76]	73.60 [73.60, 73.60]	58.37 [54.19, 62.74]	91	59.99 [56.00, 63.95]	56.21 [51.67, 60.89]	59.99 [56.46, 64.04]	89.9
RVPER (median [IQR])	388.72 [316.56, 465.82]	446.55 [446.55, 446.55]	388.66 [316.54, 465.97]	91	398.00 [333.00, 478.60]	391.95 [296.40, 448.95]	398.00 [333.00, 478.60]	89.9
RVPAFR (median [IQR])	300.61 [245.17, 364.00]	373.24 [373.24, 373.24]	300.34 [245.12, 363.44]	91	294.17 [243.48, 338.50]	363.15 [334.20, 386.48]	278.70 [243.13, 334.41]	89.9
RVPAFR (median [IQR])	282.95 [222.68, 360.32]	547.72 [547.72, 547.72]	282.86 [222.56, 360.07]	91	302.92 [251.30, 369.30]	263.65 [225.50, 297.22]	307.70 [254.50, 378.30]	89.9
LVEDVI (median [IQR])	74.33 [66.34, 83.11]	64.68 [59.39, 69.33]	74.37 [66.38, 83.15]	91.9	78.88 [67.38, 87.06]	85.13 [83.78, 87.08]	77.40 [66.41, 87.06]	90.9
LVESVI (median [IQR])	30.02 [25.12, 35.70]	26.43 [25.23, 35.72]	30.02 [25.13, 35.72]	91.9	31.28 [25.63, 37.04]	43.58 [39.30, 47.19]	31.22 [25.36, 35.84]	90.9
LVEF (median [IQR])	44.03 [39.34, 50.28]	38.25 [31.00, 44.09]	44.05 [39.37, 50.30]	91.9	45.49 [39.66, 51.78]	44.56 [42.26, 45.10]	45.74 [39.66, 52.12]	90.9
LVPEF (median [IQR])	59.47 [55.29, 63.52]	59.14 [51.51, 63.31]	59.48 [55.29, 63.52]	91.9	58.64 [55.31, 62.35]	51.02 [47.77, 53.27]	58.91 [55.57, 62.38]	90.9
LVPER (median [IQR])	373.80 [302.29, 452.71]	284.40 [256.83, 364.56]	373.81 [302.44, 453.27]	91.9	351.29 [253.70, 463.30]	350.15 [311.48, 380.62]	351.29 [253.00, 463.30]	90.9
LVPAFR (median [IQR])	321.31 [259.23, 385.16]	201.74 [189.85, 229.92]	321.49 [259.95, 385.63]	91.9	336.70 [260.80, 380.00]	315.75 [273.85, 360.95]	336.70 [259.70, 383.50]	90.9
LVPAFR (median [IQR])	233.66 [167.35, 306.30]	363.87 [208.97, 466.96]	233.50 [167.46, 305.08]	91.9	254.63 [181.10, 323.00]	213.90 [135.76, 272.58]	254.63 [182.20, 323.97]	90.9
LVEDMI (median [IQR])	41.88 [36.52, 48.62]	45.76 [34.02, 48.75]	41.85 [36.55, 48.61]	91.9	45.21 [37.68, 50.86]	49.64 [46.84, 53.17]	44.67 [37.47, 49.86]	90.9
LVPMVR (median [IQR])	0.56 [0.50, 0.62]	0.70 [0.56, 0.70]	0.56 [0.50, 0.62]	91.9	0.57 [0.50, 0.65]	0.58 [0.55, 0.61]	0.57 [0.50, 0.65]	90.9
LVEDV/RVEDV (median [IQR])	0.93 [0.86, 1.03]	0.93 [0.93, 0.93]	0.93 [0.86, 1.03]	92.2	0.95 [0.86, 1.05]	1.07 [0.99, 1.08]	0.95 [0.86, 1.03]	91
LVESV/RVESV (median [IQR])	0.91 [0.80, 1.04]	1.15 [1.15, 1.15]	0.91 [0.80, 1.04]	92.2	0.96 [0.86, 1.10]	1.27 [1.14, 1.30]	0.96 [0.86, 1.09]	91
peakEcc (median [IQR])	-22.70 [-24.98, -20.43]	-21.60 [-21.61, -21.59]	-22.72 [-24.98, -20.42]	93.7	-22.59 [-24.30, -20.60]	-20.32 [-20.51, -20.27]	-22.78 [-24.41, -20.88]	92.1
TPKEcc (median [IQR])	331.31 [309.83, 354.66]	325.97 [321.27, 330.67]	331.31 [309.75, 354.68]	93.7	332.34 [309.34, 354.95]	347.70 [320.45, 364.20]	331.96 [309.94, 354.92]	92.1
peakEI2Ch (median [IQR])	-21.19 [-23.34, -18.93]	-23.89 [-23.89, -23.89]	-21.17 [-23.32, -18.93]	93.8	-20.32 [-22.79, -18.60]	-20.63 [-20.98, -20.28]	-20.28 [-22.92, -18.55]	92.1
TPKEI2Ch (median [IQR])	349.86 [321.84, 379.10]	388.50 [388.50, 388.50]	349.86 [321.81, 379.08]	93.9	364.20 [334.60, 384.50]	403.20 [386.90, 420.80]	362.52 [333.25, 382.95]	92.1
peakEI4Ch (median [IQR])	-23.30 [-25.97, -21.37]	-21.40 [-21.40, -21.40]	-23.30 [-25.99, -21.37]	93.9	-23.56 [-26.34, -21.77]	-20.87 [-22.20, -19.78]	-23.57 [-26.50, -22.22]	93
TPKEI4Ch (median [IQR])	357.53 [327.07, 397.64]	360.78 [360.78, 360.78]	357.30 [326.96, 397.81]	93.9	350.13 [323.33, 395.18]	403.25 [378.53, 407.65]	348.81 [323.33, 390.17]	93
Wall thickness segment 1 (median [IQR])	7.6							

Supplementary Table 4: Detailed information of all included SNPs

SNP	GRCh37	Gene	rsID	Accession ClinVar	Canonical SPDI	N ARVC	N DCM	N HCM	MAF	Origin	Molecular Consequence	Amino acid change	Nucleotide change
11:47332274:D:25	11:47353825	MYBPC3	rs36212066	VCV000177677	NC_000011.10:47332274:GAGAGGGAGGG	NA	NA	303	7.66E-04	VKGL	NA	NA	3628-41 3628-17del
1:201359245:G:A	1:201328373	TNNT2	rs121964857	VCV000012411	NC_000001.11:201359244:G:A	NA	NA	242	6.03E-04	VKGL	Missense	Arg278Cys	862C>T
11:47342698:G:A	11:47364249	MYBPC3	rs375882485	VCV000042540	NC_000011.10:47342697:G:A	NA	NA	88	2.19E-04	VKGL	Missense	Arg502Trp	1504C>T
12:32802557:C:G	12:32955491	PKP2	rs193922674	VCV000006756	NC_000012.12:32802556:C:G	46	NA	NA	1.15E-04	ClinVar	Splice acceptor	NA	2014-1G>C
7:128856810:G:A	7:128496864	FLNC	rs778922568	VCV0000472173	NC_000007.14:128856809:G:A	NA	42	NA	1.05E-04	VKGL	Missense	Gly2484Ser	7450G>A
12:32802499:D:5	12:32955434-32955438	PKP2	rs397517021	VCV000689321	NC_000012.12:32802499:GGTGTG:G	40	NA	NA	9.97E-05	ClinVar	Frameshift	His689fs	2066 2070del
11:47350077:C:T	11:47371628	MYBPC3	rs397516050	VCV000042752	NC_000011.10:47350076:C:T	NA	NA	34	8.47E-05	VKGL	Missense	Gly148Arg	442G>A
14:23417573:A:G	14:23886782	MYH7	rs727503244	VCV000164289	NC_000014.9:23417572:A:G	NA	34	34	8.47E-05	VKGL	Missense	Leu1428Ser	4283T>C
2:219425699:G:A	2:220290421	DES	rs121913005	VCV000626715	NC_000002.12:219425698:C:A	NA	31	NA	7.73E-05	VKGL	Missense	Thr442Asn	1325C>A
11:47342574:T:A	11:47364125	MYBPC3	rs397515916	VCV000042556	NC_000011.10:47342573:T:A	NA	NA	28	6.98E-05	ClinVar	NA	NA	1624+4A>T
12:32878134:C:T	12:33031068	PKP2	rs1085307949	VCV000427088	NC_000012.12:32878133:C:T	28	NA	NA	6.98E-05	VKGL	Missense	Ser249Asn	746G>A
11:47343314:C:T	11:47364865	MYBPC3	NA	VCV000188544	NC_000011.10:47343313:C:T	NA	NA	26	6.48E-05	ClinVar	NA	NA	1224-52G>A
14:23414007:C:T	14:23883216	MYH7	rs753392652	VCV000378215	NC_000014.9:23414006:C:T	NA	NA	24	6.23E-05	ClinVar	Synonymous	Ala1885=	5655G>A
14:23422292:G:A	14:23891501	MYH7	rs45611033	VCV000177753	NC_000014.9:23422291:G:A	NA	24	24	5.98E-05	ClinVar	Missense	Arg1045Cys	3133C>T
17:41757751:C:A	17:39914003	JUP	rs200327969	VCV000180376	NC_000017.11:41757750:C:A	24	NA	NA	5.98E-05	VKGL	Missense	Val603Leu	1807G>T
11:47343117:G:A	11:47364668	MYBPC3	rs368770848	VCV000042516	NC_000011.10:47343116:G:A	NA	NA	23	5.73E-05	VKGL	Missense	Arg419Cys	1255C>T
11:19188286:A:G	11:19209833	CSRP3	rs104894205	VCV000008778	NC_000011.10:19188285:A:G	NA	NA	21	5.23E-05	VKGL	Missense	Leu44Pro	131T>C
11:47342578:C:G	11:47364129	MYBPC3	rs121909374	VCV000008608	NC_000011.10:47342577:C:G	NA	NA	21	5.23E-05	ClinVar	Missense	Glu542Gln	1624G>C
11:47346276:C:T	11:47367827	MYBPC3	rs397515881	VCV000042499	NC_000011.10:47346275:C:T	NA	NA	20	4.98E-05	VKGL	Missense	Gly341Ser	1021G>A
2:178528273:C:T	2:179393000	TTN	rs112188483	VCV000196723	NC_000002.12:178528272:C:T	NA	20	NA	4.98E-05	ClinVar	Splice donor	NA	107377+1G>A
14:23428957:C:T	14:23898166	MYH7	rs397516106	VCV000177921	NC_000014.9:23428956:C:T	NA	NA	19	4.74E-05	VKGL	Missense	Asp469Asn	1405G>A
3:38550326:C:T	3:38591817	SCN5A	rs762981322	VCV000021549	NC_000003.12:38550325:C:T	NA	19	NA	4.74E-05	VKGL	Missense	Val2015Met	6043G>A
12:32896580:D:4	12:33049514	PKP2	rs397516997	VCV000045028	NC_000012.12:32896580:CTGCTCTG:CTG	18	NA	NA	4.49E-05	VKGL	Frameshift	Thr50fs	148 151del
11:47351507:T:C	11:47373058	MYBPC3	rs376395543	VCV000042644	NC_000011.10:47351506:T:C	NA	NA	17	4.24E-05	ClinVar	Splice acceptor	NA	26-2A>G
2:178579702:G:A	2:17944429	TTN	rs574660186	VCV000180573	NC_000002.12:178579701:G:A	NA	17	NA	4.24E-05	ClinVar	Nonsense	Arg22499Ter	67495C>T
11:47337534:C:T	11:47359085	MYBPC3	rs2856655	VCV000008617	NC_000011.10:47337533:C:T	NA	NA	16	3.99E-05	ClinVar	Missense	Arg820Gln	2459G>A
18:31089461:C:T	18:28669424	DSC2	rs758527425	VCV000372720	NC_000018.10:31089460:C:T	15	NA	NA	3.74E-05	VKGL	Missense	Arg203His	608G>A
2:178613938:C:T	2:179478665	TTN	rs869312070	VCV000223309	NC_000002.12:178613937:C:T	NA	15	NA	3.74E-05	ClinVar	Splice acceptor	NA	22151-1G>A
14:23427746:T:C	14:23896955	MYH7	rs727504238	VCV000177625	NC_000014.9:23427745:T:C	NA	14	14	3.49E-05	ClinVar	Missense	His576Arg	1727A>G
1:156135268:C:T	1:156105059	LMNA	rs59885338	VCV000014498	NC_000001.11:156135267:C:T	NA	13	NA	3.24E-05	VKGL	Missense	Arg298Cys	892C>T
11:47337729:I:1	11:47359280	MYBPC3	rs397515963	VCV000042619	NC_000011.10:47337729:C:CC	NA	NA	13	3.24E-05	ClinVar	Frameshift	Trp792fs	2373dup
14:23425316:C:T	14:23894525	MYH7	rs3218716	VCV000042901	NC_000014.9:23425315:C:T	NA	13	13	3.24E-05	ClinVar	Missense	Ala797Thr	2389G>A
18:31087815:T:C	18:28667778	DSC2	rs397514042	VCV000016850	NC_000018.10:31087814:T:C	13	NA	NA	3.24E-05	VKGL	Splice acceptor	NA	631-2A>G
19:55154821:G:A	19:55666189	TNNI3	rs730881068	VCV000181575	NC_000019.10:55154820:G:A	NA	13	13	3.24E-05	VKGL	Nonsense	Arg98Ter	292C>T
19:55154094:C:T	19:55665462	TNNI3	rs397516354	VCV000043389	NC_000019.10:55154093:C:T	NA	12	12	2.99E-05	ClinVar	Missense	Arg162Gln	485G>A
3:38562422:C:A	3:38603913	SCN5A	rs199473220	VCV000067838	NC_000003.12:38562421:C:A	NA	12	NA	2.99E-05	ClinVar	Missense	Gly1318Val	3953G>T
10:119669881:C:T	10:121429393	BAG3	rs387906874	VCV000030396	NC_000010.11:119669880:C:T	NA	11	NA	2.74E-05	VKGL	Missense	Arg71Trp	211C>T
2:178777234:D:5	2:179641961	TTN	rs756433029	VCV000202501	NC_000002.12:178777234:TTTCATTTC:TT	NA	11	NA	2.74E-05	VKGL	Frameshift	Met1575fs	4724 4728del
1:156134823:C:T	1:156104614	LMNA	rs370134870	VCV000264626	NC_000001.11:156134822:C:T	NA	10	NA	2.49E-05	VKGL	Missense	Arg220Cys	658C>T
11:47342718:C:T	11:47364269	MYBPC3	rs200411226	VCV000164113	NC_000011.10:47342717:C:T	NA	NA	10	2.49E-05	ClinVar	Missense	Arg495Gln	1484G>A
11:47348541:C:G	11:47370092	MYBPC3	rs397516068	VCV000042784	NC_000011.10:47348540:C:G	NA	NA	10	2.49E-05	ClinVar	Missense	Val219Leu	655G>C
2:178620285:G:T	2:179485012	TTN	rs368200299	VCV000223308	NC_000002.12:178620284:G:T	NA	10	NA	2.49E-05	ClinVar	Nonsense	Cys15412Ter	46236C>A
3:38613773:G:A	3:38655264	SCN5A	rs199473072	VCV000068032	NC_000003.12:38613772:G:A	NA	10	NA	2.49E-05	ClinVar	Missense	Arg225Trp	673C>T
6:7585760:C:G	6:7585993	DSP	NA	VCV000924608	NC_000006.12:7585759:C:G	NA	10	NA	2.49E-05	VKGL	Missense	Ser2833Cys	8498C>G
11:47342854:G:A	11:47364405	MYBPC3	rs730880540	VCV000180935	NC_000011.10:47342853:G:A	NA	NA	9	2.24E-05	VKGL	Missense	Ser478Leu	1433C>T
11:47348424:C:T	11:47369975	MYBPC3	rs397516074	VCV000042792	NC_000011.10:47348423:C:T	NA	NA	9	2.24E-05	ClinVar	Missense	Glu258Lys	772G>A
12:110913140:G:A	12:111350944	MYL2	rs397516404	VCV000043471	NC_000012.12:110913139:G:A	NA	NA	9	2.24E-05	VKGL	Missense	Arg120Trp	358C>T
19:55154095:G:A	19:55665463	TNNI3	rs368861241	VCV0000161396	NC_000019.10:55154094:G:A	NA	NA	9	2.24E-05	ClinVar	Missense	Arg162Trp	484C>T
2:178534401:A:G	2:179399128	TTN	rs375159973	VCV000405075	NC_000002.12:178534400:A:G	NA	9	NA	2.24E-05	VKGL	Missense	Trp34072Arg	102214T>C
2:178579850:T:G	2:179444577	TTN	rs753948675	VCV000242425	NC_000002.12:178579849:T:G	NA	9	NA	2.24E-05	ClinVar	Splice acceptor	NA	67349-2A>C
1:156135956:G:A	1:156105747	LMNA	rs59301204	VCV000048098	NC_000001.11:156135955:G:A	NA	8	NA	1.99E-05	VKGL	Missense	Arg331Gln	992G>A
1:201364327:G:A	1:201333455	TNNT2	rs483352832	VCV000132943	NC_000001.11:201364326:G:A	NA	8	7	1.99E-05	VKGL	Missense	Arg154Trp	460C>T
1:201365620:D:2	1:201334748	TNNT2	NA	VCV000925600	NC_000001.11:201365620:CTCTCTCTC:CTC	NA	8	8	1.99E-05	VKGL	Frameshift	Arg94fs	282 283del
11:47342719:G:C	11:47364270	MYBPC3	rs397515905	VCV000042537	NC_000011.10:47342718:G:C	NA	NA	8	1.99E-05	ClinVar	Missense	Arg495Gly	1483C>T
12:110919133:C:T	12:111356937	MYL2	rs104894368	VCV000014065	NC_000012.12:110919132:C:T	NA	NA	8	1.99E-05	ClinVar	Missense	Glu22Lys	64G>A
12:32878545:T:A	12:33031479	PKP2	rs786204389	VCV000188654	NC_000012.12:32878544:T:A	8	NA	NA	1.99E-05	ClinVar	Splice acceptor	NA	337-2A>T
2:178531668:G:A	2:179396395	TTN	rs991187915	VCV000667024	NC_000002.12:178531667:G:A	NA	8	NA	1.99E-05	ClinVar	Nonsense	Gln34983Ter	104947C>T
3:38551513:G:A	3:38593004	SCN5A	rs199473282	VCV000067932	NC_000003.12:38551512:G:A	NA	8	NA	1.99E-05	ClinVar	Missense	Thr1619Met	4856C>T
3:52453993:G:A	3:52488009	TNNC1	rs267607125	VCV000012443	NC_000003.12:52453992:G:A	NA	7	7	1.75E-05	ClinVar	Missense	Ala8Val	23C>T

SNP	GRCh37	Gene	rsID	Accession ClinVar	Canonical SPDI	N ARVC	N DCM	N HCM	MAF	Origin	Molecular Consequence	Amino acid change	Nucleotide change
1:147346379:C:T	1:147367930	MYBPC3	rs397516083	VCV000042807	NC_000011.10:47346378:C:T	NA	NA	7	1.74E-05	ClinVar	NA	NA	927-9G>A
2:178562716:G:A	2:179427443	TTN	NA	VCV000864799	NC_000002.12:178562715:G:A	NA	7	NA	1.74E-05	ClinVar	Nonsense	Arg27806Ter	83416C>T
1:236727715:C:T	1:236891015	ACTN2	rs1253211384	VCV000660714	NC_000001.11:236727714:C:T	NA	6	NA	1.50E-05	VKGL	Nonsense	Arg192Ter	574C>T
1:147339792:T:C	1:147361343	MYBPC3	rs397515937	VCV000042585	NC_000011.10:47339791:T:C	NA	NA	6	1.50E-05	ClinVar	Splice acceptor	NA	1928-2A>G
12:32796108:C:T	12:32949042	PKP2	rs111517471	VCV000006757	NC_000012.12:32796107:C:T	6	NA	NA	1.50E-05	ClinVar	Splice donor	NA	2357+1G>A
12:32822616:1:1	12:32975550-32975551	PKP2	rs397517010	VCV000045047	NC_000012.12:32822616:A:AA	6	NA	NA	1.50E-05	ClinVar	Frameshift	Val564fs	1689dup
12:32878981:A:T	12:33031915	PKP2	rs763639737	VCV000202026	NC_000012.12:32878980:A:T	6	NA	NA	1.50E-05	ClinVar	Nonsense	Leu92Ter	275T>A
14:23416057:G:A	14:23885266	MYH7	rs397516232	VCV000043043	NC_000014.9:23416056:G:A	NA	NA	6	1.50E-05	VKGL	Missense	Arg1634Cys	4900C>T
14:23424840:G:A	14:23894049	MYH7	rs138049878	VCV000161326	NC_000014.9:23424839:G:A	NA	6	6	1.50E-05	ClinVar	Missense	Arg870Cys	2608C>T
14:23428631:C:T	14:23897840	MYH7	rs121913651	VCV000014119	NC_000014.9:23428630:C:T	NA	NA	6	1.50E-05	VKGL	Missense	Glu483Lys	1447G>A
18:31070724:A:G	18:28650690	DSC2	rs1064793731	VCV000419220	NC_000018.10:31070723:A:G	6	NA	NA	1.50E-05	ClinVar	Splice donor	NA	2250+2T>C
2:178582209:C:G	2:179446936	TTN	rs1553627403	VCV000466651	NC_000002.12:178582208:C:G	NA	6	NA	1.50E-05	ClinVar	Splice acceptor	NA	66161-1G>C
2:178684990:C:T	2:179549717	TTN	rs371725574	VCV000194146	NC_000002.12:178684989:C:T	NA	6	NA	1.50E-05	VKGL	Splice acceptor	NA	32471-1G>A
20:44160293:G:A	20:42788933	JPH2	rs387906898	VCV000030457	NC_000020.11:44160292:G:A	NA	NA	6	1.50E-05	ClinVar	Missense	Ser165Phe	494C>T
11:19188281:T:G	11:19209828	CSR3	rs137852765	VCV000008781	NC_000011.10:19188280:T:G	NA	NA	5	1.25E-05	VKGL	Missense	Ser46Arg	136A>C
11:47333189:C:G	11:47354740	MYBPC3	rs373746463	VCV000042707	NC_000011.10:47333188:C:G	NA	NA	5	1.25E-05	ClinVar	NA	NA	3330+5G>T
11:47341219:C:T	11:47362770	MYBPC3	rs368482358	VCV000180951	NC_000011.10:47341218:C:T	NA	NA	5	1.25E-05	VKGL	Missense	Val60Ile	1816G>A
11:47341991:C:T	11:47363542	MYBPC3	rs727503195	VCV000164098	NC_000011.10:47341990:C:T	NA	NA	5	1.25E-05	VKGL	Missense	Arg597Gln	1790G>A
11:47342611:C:G	11:47364162	MYBPC3	rs397515912	VCV000042550	NC_000011.10:47342610:C:G	NA	NA	5	1.25E-05	ClinVar	Missense	Gly531Arg	1591G>C
14:23417598:G:A	14:23886807	MYH7	rs145213771	VCV000043003	NC_000014.9:23417597:G:A	NA	5	5	1.25E-05	ClinVar	Missense	Arg1420Trp	4258C>T
14:23418304:G:A	14:23887513	MYH7	rs45451303	VCV000178082	NC_000014.9:23418303:G:A	NA	5	5	1.25E-05	VKGL	Missense	Arg1359Cys	4075C>T
14:23424112:T:C	14:23893321	MYH7	rs267606908	VCV000014125	NC_000014.9:23424111:T:C	NA	5	5	1.25E-05	ClinVar	Missense	Asp906Gly	2717A>G
14:23429037:C:T	14:23898246	MYH7	rs730880870	VCV000181342	NC_000014.9:23429036:C:T	NA	5	5	1.25E-05	VKGL	Missense	Arg442His	1325G>A
19:55156638:1:1	19:55668006	TNNI3	rs772607683	VCV000419596	NC_000019.10:55156638:TTTTTT:TTTTTT	NA	5	5	1.25E-05	VKGL	Frameshift	Ser39fs	114dup
2:178560865:G:A	2:179425592	TTN	NA	VCV000853671	NC_000002.12:178560864:G:A	NA	5	NA	1.25E-05	ClinVar	Nonsense	Arg28423Ter	85267C>T
2:178574530:G:A	2:179439257	TTN	rs397517689	VCV000047301	NC_000002.12:178574529:G:A	NA	5	NA	1.25E-05	ClinVar	Nonsense	Arg23868Ter	17160C>T
2:178589849:G:A	2:179454576	TTN	rs72646846	VCV000047175	NC_000002.12:178589848:G:A	NA	5	NA	1.25E-05	ClinVar	Nonsense	Arg20626Ter	61876C>T
2:178767782:G:A	2:179632509	TTN	rs146572907	VCV0000282852	NC_000002.12:178767781:G:A	NA	5	NA	1.25E-05	VKGL	Nonsense	Arg3150Ter	9448C>T
2:219423821:G:A	2:220288543	DES	rs112224037	VCV000639517	NC_000002.12:219423820:G:A	5	5	NA	1.25E-05	ClinVar	Splice donor	NA	1288+1G>A
6:7569211:G:A	6:7569444	DSP	NA	VCV000956247	NC_000006.12:7569210:G:A	5	5	NA	1.25E-05	VKGL	Missense	Cys482Tyr	1445G>A
6:7579922:1:7	6:7580155-7580156	DSP	rs1554108152	VCV000199923	NC_000006.12:7579922:GAAATCGA:GAA	5	NA	NA	1.25E-05	ClinVar	Frameshift	Asp1248fs	3735_3741dup
1:156134454:C:T	1:156104245	LMNA	rs267607626	VCV000066906	NC_000001.11:156134453:C:T	NA	4	NA	9.97E-06	VKGL	Missense	Arg189Trp	565C>T
1:156136311:C:T	1:156106102	LMNA	rs1064793731	VCV000242002	NC_000001.11:156136310:C:T	NA	4	NA	9.97E-06	VKGL	Missense	Arg419Cys	1255C>T
1:201361317:A:C	1:201330445	TNN2	rs730881110	VCV000181645	NC_000001.11:201361316:A:C	NA	4	4	9.97E-06	VKGL	Missense	Phe258Val	772T>G
10:110812459:C:T	10:112572217	RBM20	rs794729150	VCV000202065	NC_000010.11:110812458:C:T	NA	4	NA	9.97E-06	VKGL	Nonsense	Arg688Ter	2062C>T
11:47337544:G:A	11:47359095	MYBPC3	rs727503188	VCV000164078	NC_000011.10:47337543:G:A	NA	NA	4	9.97E-06	ClinVar	Missense	Arg817Trp	2449C>T
11:47342750:C:T	11:47364301	MYBPC3	rs375347534	VCV000042533	NC_000011.10:47342749:C:T	NA	NA	4	9.97E-06	VKGL	Na	NA	1458-6G>A
12:110911176:C:G	12:111348980	MYL2	rs199474813	VCV000031768	NC_000012.12:110911175:C:G	NA	NA	4	9.97E-06	ClinVar	Splice acceptor	NA	403-1G>C
12:32878217:G:T	12:33031151	PKP2	rs767987619	VCV000201976	NC_000012.12:32878216:G:T	4	NA	NA	9.97E-06	ClinVar	Nonsense	Tyr221Ter	663C>A
14:23415651:C:T	14:23884860	MYH7	rs193922390	VCV000036642	NC_000014.9:23415650:C:T	NA	4	4	9.97E-06	ClinVar	Missense	Arg1712Gln	5135G>A
14:23418348:C:T	14:23887557	MYH7	rs797045097	VCV000208597	NC_000014.9:23418347:C:T	NA	NA	4	9.97E-06	VKGL	Missense	Arg1344Gln	4031G>A
14:23424876:G:A	14:23894085	MYH7	rs2754158	VCV000164324	NC_000014.9:23424875:G:A	NA	4	4	9.97E-06	ClinVar	Missense	Arg858Cys	2572C>T
18:31086694:G:A	18:28666657	DSC2	rs397517404	VCV000222557	NC_000018.10:31086693:G:A	4	NA	NA	9.97E-06	VKGL	Missense	Thr275Met	824C>T
18:31498254:G:A	18:29078217	DSG2	rs1021457619	VCV000657863	NC_000018.10:31498253:G:A	4	NA	NA	9.97E-06	ClinVar	Missense	Met11Ile	3G>A
19:55151881:C:T	19:55663249	TNNI3	rs104894727	VCV000012422	NC_000019.10:55151880:C:T	NA	NA	4	9.97E-06	ClinVar	Missense	Asp196Asn	586G>A
2:178539559:G:A	2:179404286	TTN	rs869312085	VCV000223329	NC_000002.12:178539558:G:A	NA	4	NA	9.97E-06	ClinVar	Nonsense	Arg32836Ter	98506C>T
2:178584726:G:A	2:179449453	TTN	rs1432889079	VCV000466649	NC_000002.12:178584725:G:A	NA	4	NA	9.97E-06	ClinVar	Nonsense	Arg21639Ter	64915C>T
2:178590170:G:A	2:179454897	TTN	NA	VCV000202397	NC_000002.12:178590169:G:A	NA	4	NA	9.97E-06	ClinVar	Nonsense	Arg20519Ter	61555C>T
2:219418784:G:T	2:220283506	DES	rs62636490	VCV000804737	NC_000002.12:219418783:G:T	4	4	NA	9.97E-06	ClinVar	Nonsense	Glu108Ter	322G>T
3:38597737:G:T	3:38639228	SCN5A	rs199473153	VCV000067723	NC_000003.12:38597736:C:T	NA	4	NA	9.97E-06	ClinVar	Missense	Gly752Arg	2254G>A
3:38603999:G:A	3:38645490	SCN5A	rs1417036453	VCV000517279	NC_000003.12:38603998:G:A	NA	4	NA	9.97E-06	ClinVar	Nonsense	Arg535Ter	1603C>T
6:118558947:G:A	6:118880110	PLN	rs754782171	VCV000202037	NC_000006.12:118558946:G:A	NA	4	NA	9.97E-06	VKGL	Missense	Arg9His	26G>A
6:7565521:G:A	6:7565754	DSP	rs727504443	VCV000178282	NC_000006.12:7565520:G:A	4	4	NA	9.97E-06	ClinVar	Splice donor	NA	939+1G>A
6:7583758:C:T	6:7583991	DSP	rs141026028	VCV000199903	NC_000006.12:7583757:C:T	4	4	NA	9.97E-06	ClinVar	Nonsense	Arg2166Ter	6496C>T
6:7585028:D:4	6:7585261	DSP	NA	VCV000923199	NC_000006.12:7585028:AGTAAGTAAG:AG	4	NA	NA	9.97E-06	VKGL	Frameshift	Ser2591fs	7773_7776del
12:32843181:C:T	12:32996115	PKP2	rs1332615728	VCV000640418	NC_000012.12:32843180:C:T	3	NA	NA	7.50E-06	ClinVar	Splice donor	NA	1379-1976G>A
1:201359636:C:T	1:201328764	TNN2	rs121964861	VCV000012417	NC_000001.11:201359635:C:T	NA	3	NA	7.48E-06	ClinVar	Missense	Asp280Asn	838G>A
1:201361970:G:A	1:201331098	TNN2	rs863225120	VCV0000217496	NC_000001.11:201361969:G:A	NA	NA	3	7.48E-06	ClinVar	Missense	Ile221Thr	662T>C
11:47332075:G:A	11:47353626	MYBPC3	rs397516042	VCV000042744	NC_000011.10:47332074:G:A	NA	NA	3	7.48E-06	ClinVar	Nonsense	Arg1271Ter	3811C>T
11:47341204:C:T	11:47362755	MYBPC3	rs397515937	VCV000180955	NC_000011.10:47341203:C:T	NA	NA	3	7.48E-06	VKGL	Missense	Glu611Lys	1831G>A

SNP	GRCh37	Gene	rsID	Accession ClinVar	Canonical SPDI	N ARVC	N DCM	N HCM	MAF	Origin	Molecular Consequence	Amino acid change	Nucleotide change
11:47342611:C:T	11:47364162	MYBPC3	rs397515912	VCV000164109	NC_000011.10:47342610:C:T	NA	NA	3	7.48E-06	VKGL	Missense	Gly531Arg	1591G>A
11:47348486:T:G	11:47370037	MYBPC3	rs397516070	VCV000042787	NC_000011.10:47348485:T:G	NA	NA	3	7.48E-06	ClinVar	Missense	Tyr237Ser	710A>C
12:32850907:G:A	12:33003841	PKP2	rs372827156	VCV000045016	NC_000012.12:32850906:G:A	3	NA	NA	7.48E-06	ClinVar	Nonsense	Arg413Ter	1237C>T
14:23424817:C:A	14:23894026	MYH7	rs1060505018	VCV000417718	NC_000014.9:23424816:C:A	NA	NA	3	7.48E-06	ClinVar	Missense	Met877Ile	2631G>T
14:23424839:C:T	14:23894048	MYH7	rs36211715	VCV000014120	NC_000014.9:23424838:C:T	NA	3	3	7.48E-06	ClinVar	Missense	Arg870His	2609G>A
14:23424854:T:A	14:23894063	MYH7	rs758891557	VCV000454358	NC_000014.9:23424853:T:A	NA	NA	3	7.48E-06	ClinVar	Missense	Lys865Met	2594A>T
14:23425814:G:A	14:23895023	MYH7	rs121913630	VCV000014095	NC_000014.9:23425813:G:A	NA	3	3	7.48E-06	ClinVar	Missense	Arg723Cys	2167C>T
14:23427723:C:T	14:23896932	MYH7	rs121913626	VCV000042862	NC_000014.9:23427722:C:T	NA	3	3	7.48E-06	ClinVar	Missense	Gly584Ser	1750G>A
14:23429038:G:A	14:23898247	MYH7	rs148808089	VCV000177897	NC_000014.9:23429037:G:A	NA	3	3	7.48E-06	ClinVar	Missense	Arg442Cys	1324C>T
14:23429850:C:T	14:23899059	MYH7	rs397516088	VCV000042820	NC_000014.9:23429849:C:T	NA	3	3	7.48E-06	ClinVar	Missense	Ala355Thr	1063G>A
18:31074908:C:G	18:28654874	DSC2	NA	VCV000860937	NC_000018.10:31074907:C:G	3	NA	NA	7.48E-06	ClinVar	Splice acceptor	NA	1664-1G>C
18:31521213:I:I	18:29101176-29101177	DSG2	rs781532110	VCV000280230	NC_000018.10:31521213:TT:TTT	3	NA	NA	7.48E-06	ClinVar	Frameshift	Gly166fs	495dup
18:31521233:G:T	18:29101196	DSG2	rs199926617	VCV000577605	NC_000018.10:31521232:G:T	3	NA	NA	7.48E-06	VKGL	Missense	Leu171Phe	513G>T
18:31524549:T:A	18:29104512	DSG2	rs869025388	VCV00022562	NC_000018.10:31524548:T:A	3	NA	NA	7.48E-06	ClinVar	Missense	Asp264Glu	792T>A
18:31524744:I:I	18:29104707-29104708	DSG2	rs759944835	VCV000639905	NC_000018.10:31524744:A:AA	3	NA	NA	7.48E-06	ClinVar	Frameshift	Thr291fs	871dup
18:31541191:A:G	18:29121154	DSG2	rs397514038	VCV000016817	NC_000018.10:31541190:A:G	3	NA	NA	7.48E-06	ClinVar	Splice acceptor	NA	1880-2A>G
2:178546041:G:A	2:179410768	TTN	rs753334568	VCV000132137	NC_000002.12:178546040:G:A	NA	3	NA	7.48E-06	ClinVar	Missense	Pro31732Leu	95195C>T
2:178548460:G:A	2:179413187	TTN	rs72648250	VCV000223326	NC_000002.12:178548459:G:A	NA	3	NA	7.48E-06	ClinVar	Nonsense	Arg31056Ter	93166C>T
2:178563493:C:A	2:179428220	TTN	rs779874042	VCV000202416	NC_000002.12:178563492:C:A	NA	3	NA	7.48E-06	ClinVar	Nonsense	Glu27547Ter	82639G>T
2:178569267:C:T	2:179433994	TTN	rs756552975	VCV000379555	NC_000002.12:178569266:C:T	NA	3	NA	7.48E-06	ClinVar	Nonsense	Trp25622Ter	76865G>A
2:178569478:G:A	2:179434205	TTN	rs545954490	VCV000404828	NC_000002.12:178569477:G:A	NA	3	NA	7.48E-06	ClinVar	Nonsense	Arg25552Ter	76654C>T
2:178570804:G:A	2:179435531	TTN	rs794729382	VCV000202521	NC_000002.12:178570803:G:A	NA	3	NA	7.48E-06	ClinVar	Nonsense	Arg25110Ter	75328C>T
2:178575970:G:A	2:179440697	TTN	rs781540455	VCV000202402	NC_000002.12:178575969:G:A	NA	3	NA	7.48E-06	ClinVar	Nonsense	Arg23388Ter	70162C>T
2:178585291:G:A	2:179450018	TTN	rs768345594	VCV000223315	NC_000002.12:178585290:G:A	NA	3	NA	7.48E-06	ClinVar	Nonsense	Arg21485Ter	64453C>T
2:178588700:G:A	2:179453427	TTN	rs368452607	VCV000202518	NC_000002.12:178588699:G:A	NA	3	NA	7.48E-06	ClinVar	Nonsense	Arg21009Ter	63025C>T
2:178593338:G:A	2:179458065	TTN	rs1553649171	VCV000466646	NC_000002.12:178593337:G:A	NA	3	NA	7.48E-06	ClinVar	Nonsense	Arg19624Ter	58870C>T
2:178609756:G:A	2:179474483	TTN	NA	VCV001066907	NC_000002.12:178609755:G:A	NA	3	NA	7.48E-06	VKGL	Nonsense	Arg17223Ter	51667C>T
2:178733497:G:A	2:179598224	TTN	rs372277017	VCV000130662	NC_000002.12:178733496:G:A	NA	3	NA	7.48E-06	VKGL	Missense	Arg5266Ter	15796C>T
2:219421560:G:A	2:220286282	DES	rs1262288015	VCV000626714	NC_000002.12:219421559:G:A	NA	3	NA	7.48E-06	VKGL	Missense	Arg415Gln	1244G>A
2:219423817:C:T	2:220288539	DES	rs150974575	VCV000177872	NC_000002.12:219423816:C:T	3	3	NA	7.48E-06	ClinVar	Nonsense	Arg429Ter	1285C>T
6:118558994:C:T	6:118880157	PLN	rs761056344	VCV000202040	NC_000006.12:118558993:C:T	NA	3	NA	7.48E-06	VKGL	Missense	Arg25Cys	73C>T
6:7580388:C:T	6:7580621	DSP	rs770873593	VCV000199884	NC_000006.12:7580387:C:T	3	3	NA	7.48E-06	ClinVar	Nonsense	Arg1400Ter	4198C>T
6:7580547:C:T	6:7580780	DSP	rs1561698750	VCV000576091	NC_000006.12:7580546:C:T	3	3	NA	7.48E-06	ClinVar	Nonsense	Gln1453Ter	4357C>T
7:128845989:G:C	7:128486043	FLNC	rs781135153	VCV000420146	NC_000007.14:128845988:G:C	NA	3	NA	7.48E-06	ClinVar	Splice acceptor	NA	3791-1G>C
7:128846444:C:T	7:128486498	FLNC	NA	VCV000842060	NC_000007.14:128846443:C:T	NA	3	NA	7.48E-06	ClinVar	Nonsense	Arg1370Ter	4108C>T
12:32802499:G:A	12:32955433	PKP2	rs121434421	VCV000006755	NC_000012.12:32802498:G:A	2	NA	NA	4.99E-06	ClinVar	Nonsense	Arg691Ter	2071C>T
1:156135913:G:A	1:156105704	LMNA	rs56816490	VCV000048093	NC_000001.11:156135912:G:A	NA	2	NA	4.98E-06	ClinVar	Missense	Glu317Lys	949G>A
1:201359217:C:T	1:201328345	TNNT2	rs727504247	VCV000177636	NC_000001.11:201359216:C:T	NA	2	2	4.98E-06	ClinVar	Nonsense	Trp297Ter	890G>A
1:201363352:C:A	1:201332480	TNNT2	rs730881097	VCV000181612	NC_000001.11:201363351:C:A	NA	2	2	4.98E-06	VKGL	Missense	Ala182Ser	544G>T
1:77926827:G:T	1:78392512	NEXN	rs771262904	VCV000599095	NC_000001.11:77926826:G:T	NA	2	NA	4.98E-06	ClinVar	Nonsense	Glu2677Ter	799G>T
1:77942736:C:G	1:78408421	NEXN	rs794729086	VCV000201935	NC_000001.11:77942735:C:G	NA	2	NA	4.98E-06	ClinVar	Missense	Phe645Leu	1935C>G
10:119670037:C:T	10:121429549	BAG3	rs387906875	VCV000030397	NC_000010.11:119670036:C:T	NA	2	NA	4.98E-06	ClinVar	Nonsense	Arg123Ter	367C>T
10:119676479:C:T	10:121435991	BAG3	rs869248137	VCV000228322	NC_000010.11:119676478:C:T	NA	2	NA	4.98E-06	ClinVar	Nonsense	Arg309Ter	925C>T
11:47332105:C:T	11:47353656	MYBPC3	rs730880141	VCV000180414	NC_000011.10:47332104:C:T	NA	NA	2	4.98E-06	VKGL	Missense	Glu1261Lys	3781G>A
11:47332894:D:3	11:47354445	MYBPC3	rs730880674	VCV000181102	NC_000011.10:47332894:AGTAGTAG:AGT	NA	NA	2	4.98E-06	VKGL	NA	Tyr1136del	3404ACT[1]
11:47333552:C:T	11:47355103	MYBPC3	rs587782958	VCV000155808	NC_000011.10:47333551:C:T	NA	NA	2	4.98E-06	ClinVar	NA	NA	3190+5G>A
11:47335041:C:T	11:47356592	MYBPC3	rs397515991	VCV000042666	NC_000011.10:47335040:C:T	NA	NA	2	4.98E-06	VKGL	Splice donor	NA	2905+1G>A
11:47335120:G:A	11:47356671	MYBPC3	rs387907267	VCV000037039	NC_000011.10:47335119:G:A	NA	NA	2	4.98E-06	ClinVar	Nonsense	Arg943Ter	2827C>T
11:47335165:D:2	11:47356716	MYBPC3	rs727504265	VCV000177660	NC_000011.10:47335165:TGTGTG:GTGTG	NA	NA	2	4.98E-06	ClinVar	Frameshift	Trp927fs	2780-2781del
11:47336003:D:1	11:47357554	MYBPC3	rs397515979	VCV000181083	NC_000011.10:47336003:GGGGGG:GGGG	NA	NA	2	4.98E-06	ClinVar	Frameshift	Ser871fs	2610del
11:47342096:G:A	11:47363647	MYBPC3	rs730880694	VCV000656085	NC_000011.10:47342095:G:A	NA	NA	2	4.98E-06	VKGL	Missense	Ala562Val	1685C>T
11:47342697:C:T	11:47364248	MYBPC3	rs397515907	VCV000042541	NC_000011.10:47342696:C:T	NA	NA	2	4.98E-06	ClinVar	Missense	Arg502Gln	1505G>A
11:47347856:C:T	11:47369407	MYBPC3	rs397516073	VCV000042791	NC_000011.10:47347855:C:T	NA	NA	2	4.98E-06	ClinVar	Splice donor	NA	821+1G>A
11:47352622:C:T	11:47374173	MYBPC3	rs113709679	VCV000810740	NC_000011.10:47352621:C:T	NA	NA	2	4.98E-06	ClinVar	Splice donor	NA	25+1G>A
12:32802402:C:T	12:32955336	PKP2	rs794729116	VCV000202005	NC_000012.12:32802401:C:T	2	NA	NA	4.98E-06	ClinVar	Splice donor	NA	2167+1G>A
12:32821502:C:A	12:32974436	PKP2	rs397517015	VCV000045054	NC_000012.12:32821501:C:A	2	NA	NA	4.98E-06	ClinVar	Nonsense	Glu623Ter	1867G>T
12:32822502:I:19	12:32822502-32822503	PKP2	rs1555142971	VCV000523703	NC_000012.12:32822502:AATACTTTGTTG	2	NA	NA	4.98E-06	ClinVar	Nonsense	Gly602Ter	1785-1803dup
12:32868965:G:A	12:33021899	PKP2	rs397516986	VCV00045010	NC_000012.12:32868964:G:A	2	NA	NA	4.98E-06	ClinVar	Nonsense	Gln378Ter	1132C>T
14:23415385:G:A	14:23884594	MYH7	rs727505294	VCV000180024	NC_000014.9:23415384:G:A	NA	2	2	4.98E-06	VKGL	Missense	Thr1760Met	5279C>T
14:23417670:G:A	14:23886879	MYH7	rs730880793	VCV000181246	NC_000014.9:23417669:G:A	NA	NA	2	4.98E-06	VKGL	Missense	Arg1396Trp	4186C>T

SNP	GRCh37	Gene	rsID	Accession ClinVar	Canonical SPDI	N ARVC	N DCM	N HCM	MAF	Origin	Molecular Consequence	Amino acid change	Nucleotide change
14:23418244:C:T	14:23887453	MYH7	rs397516202	VCV000042993	NC_000014.9:23418243:C:T	NA	2	2	4.98E-06	ClinVar	Missense	Ala1379Thr	4135G>A
14:23418313:C:T	14:23887522	MYH7	rs727503246	VCV0000164294	NC_000014.9:23418312:C:T	NA	NA	2	4.98E-06	ClinVar	Missense	Glu1356Lys	4066G>A
14:23424107:G:C	14:23893316	MYH7	rs121913631	VCV000014097	NC_000014.9:23424106:G:C	NA	2	2	4.98E-06	ClinVar	Missense	Leu908Val	2722C>G
14:23424909:T:C	14:23894118	MYH7	rs727504310	VCV000177757	NC_000014.9:23424908:T:C	NA	2	2	4.98E-06	ClinVar	Missense	Lys847Glu	2539A>G
14:23426045:C:T	14:23895254	MYH7	rs886039030	VCV000264068	NC_000014.9:23426044:C:T	NA	2	2	4.98E-06	ClinVar	Missense	Arg694His	2081G>A
14:23429255:C:T	14:23898464	MYH7	rs730880868	VCV000181339	NC_000014.9:23429254:C:T	NA	2	2	4.98E-06	VKGL	Missense	Val411Ile	1231G>A
14:23431602:C:T	14:23900811	MYH7	rs397516264	VCV000043100	NC_000014.9:23431601:C:T	NA	2	2	4.98E-06	ClinVar	Missense	Asp239Asn	715G>A
14:23431790:G:A	14:23900999	MYH7	rs397516259	VCV000181315	NC_000014.9:23431789:G:A	NA	NA	2	4.98E-06	VKGL	Missense	Arg204Cys	610C>T
15:63060899:G:A	15:63353098	TPM1	rs104894503	VCV000012456	NC_000015.10:63060898:G:A	NA	2	2	4.98E-06	ClinVar	Missense	Asp175Asn	523G>A
15:63061723:G:A	15:63353922	TPM1	rs199476315	VCV000031882	NC_000015.10:63061722:G:A	NA	NA	2	4.98E-06	ClinVar	Missense	Glu192Lys	574G>A
15:63061751:C:T	15:63353950	TPM1	rs730881141	VCV000181668	NC_000015.10:63061750:C:T	NA	NA	2	4.98E-06	VKGL	Missense	Thr201Met	602C>T
18:31519867:G:A	18:29099830	DSG2	rs121913006	VCV000016810	NC_000018.10:31519866:G:A	2	NA	NA	4.98E-06	ClinVar	Missense	Arg49His	146G>A
18:31524752:1:1	18:29104715-29104716	DSG2	rs1187924885	VCV000691669	NC_000018.10:31524752:AAAA:AAAAA	2	NA	NA	4.98E-06	ClinVar	Frameshift	Val295fs	882dup
18:31545783:T:G	18:29125746	DSG2	NA	VCV000943833	NC_000018.10:31545782:T:G	2	NA	NA	4.98E-06	ClinVar	Nonsense	Tyr799Ter	2397T>G
19:55154082:G:A	19:55665450	TNNI3	rs727504242	VCV000177630	NC_000019.10:55154081:G:A	NA	NA	2	4.98E-06	ClinVar	Missense	Ser166Phe	497C>T
19:55154145:C:T	19:55665513	TNNI3	rs397516349	VCV000043384	NC_000019.10:55154144:C:T	NA	2	2	4.98E-06	ClinVar	Missense	Arg145Gln	434G>A
19:55154146:G:A	19:55665514	TNNI3	rs104894724	VCV000012426	NC_000019.10:55154145:G:A	NA	2	2	4.98E-06	ClinVar	Missense	Arg145Trp	433C>T
2:178531788:G:A	2:179396515	TTN	NA	VCV000954597	NC_000002.12:178531787:G:A	NA	2	NA	4.98E-06	ClinVar	Nonsense	Arg34943Ter	104827C>T
2:178531962:G:A	2:179396689	TTN	rs1057518003	VCV000372824	NC_000002.12:178531961:G:A	NA	2	NA	4.98E-06	ClinVar	Nonsense	Arg34885Ter	104653C>T
2:178532670:G:A	2:179397397	TTN	rs995029896	VCV000570433	NC_000002.12:178532669:G:A	NA	2	NA	4.98E-06	ClinVar	Nonsense	Arg34649Ter	103945C>T
2:178532910:T:A	2:179397637	TTN	rs1553490574	VCV000499641	NC_000002.12:178532909:T:A	NA	2	NA	4.98E-06	ClinVar	Nonsense	Lys34569Ter	103705A>T
2:178534092:G:A	2:179398819	TTN	rs752697861	VCV000464497	NC_000002.12:178534091:G:A	NA	2	NA	4.98E-06	ClinVar	Nonsense	Arg34175Ter	102523C>T
2:178535508:G:A	2:179400235	TTN	rs766265889	VCV000625156	NC_000002.12:178535507:G:A	NA	2	NA	4.98E-06	ClinVar	Nonsense	Arg33703Ter	101107C>T
2:178537529:C:T	2:179400456	TTN	rs1260821931	VCV000488972	NC_000002.12:178537528:C:T	NA	2	NA	4.98E-06	ClinVar	Nonsense	Thr33629Ter	100886G>A
2:178542263:C:G	2:179406990	TTN	rs727505319	VCV000180058	NC_000002.12:178542262:C:G	NA	2	NA	4.98E-06	ClinVar	Splice donor	NA	97492+1G>C
2:178547518:D:5	2:179412245	TTN	rs769488730	VCV000202493	NC_000002.12:178547518:TTTAATT:TTT	NA	2	NA	4.98E-06	VKGL	Frameshift	p.Ile31368fs	94103_94107del
2:178568057:G:T	2:179432784	TTN	rs1553597198	VCV000535021	NC_000002.12:178568056:G:T	NA	2	NA	4.98E-06	ClinVar	Missense	Tyr26025Ter	78075C>A
2:178575154:G:A	2:179439881	TTN	rs1553612386	VCV000466655	NC_000002.12:178575153:G:A	NA	2	NA	4.98E-06	ClinVar	Nonsense	Arg23660Ter	70978C>T
2:178576691:G:A	2:179441418	TTN	rs878854328	VCV000238830	NC_000002.12:178576690:G:A	NA	2	NA	4.98E-06	ClinVar	Nonsense	Arg23185Ter	69553C>T
2:178592916:D:2	2:179457644-179457645	TTN	rs752948913	VCV000419310	NC_000002.12:178592916:AG:	NA	2	NA	4.98E-06	ClinVar	Frameshift	Pro19734fs	59201_59202del
2:178609289:G:A	2:179474016	TTN	rs926741242	VCV000405082	NC_000002.12:178609288:G:A	NA	2	NA	4.98E-06	ClinVar	Nonsense	Arg17341Ter	52021C>T
2:178612430:G:A	2:179477157	TTN	NA	VCV000862652	NC_000002.12:178612429:G:A	NA	2	NA	4.98E-06	ClinVar	Nonsense	Gln16699Ter	50095C>T
2:178617857:G:A	2:179482584	TTN	rs751746401	VCV000264517	NC_000002.12:178617856:G:A	NA	2	NA	4.98E-06	ClinVar	Nonsense	Arg15832Ter	47494C>T
2:178740646:G:T	2:179605373	TTN	rs370912401	VCV000047827	NC_000002.12:178740645:G:T	NA	2	NA	4.98E-06	VKGL	Nonsense	Ser4196Ter	12587C>A
2:178766474:G:A	2:179631201	TTN	rs757836789	VCV000288998	NC_000002.12:178766473:G:A	NA	2	NA	4.98E-06	VKGL	Nonsense	Arg3204Ter	9610C>T
2:219418497:C:T	2:220283219	DES	rs267607495	VCV000066412	NC_000003.12:219418496:C:T	2	2	NA	4.98E-06	ClinVar	Missense	Ser12Phe	35C>T
3:38566426:C:T	3:38607917	SCN5A	rs137854618	VCV000009401	NC_000003.12:38566425:C:T	NA	2	NA	4.98E-06	ClinVar	Missense	Asp1274Asn	3820G>A
6:7568443:C:T	6:7568676	DSP	rs397516915	VCV000044856	NC_000006.12:7568442:C:T	2	2	NA	4.98E-06	ClinVar	Nonsense	Arg425Ter	1273C>T
6:7579527:C:T	6:7579760	DSP	rs746877365	VCV000405247	NC_000006.12:7579526:C:T	2	2	NA	4.98E-06	ClinVar	Nonsense	Arg1113Ter	3337C>T
6:7579995:C:T	6:7580228	DSP	rs767643821	VCV000199881	NC_000006.12:7579994:C:T	2	2	NA	4.98E-06	ClinVar	Nonsense	Arg1269Ter	3805C>T
6:7582690:C:T	6:7582923	DSP	rs397516946	VCV000044928	NC_000006.12:7582689:C:T	2	NA	NA	4.98E-06	ClinVar	Nonsense	Gln1810Ter	5428C>T
7:128844045:C:T	7:128484099	FLNC	rs886037830	VCV000267288	NC_000007.14:128844044:C:T	NA	2	NA	4.98E-06	ClinVar	Nonsense	Arg991Ter	2971C>T
7:128846136:C:T	7:128486190	FLNC	rs766330686	VCV000579589	NC_000007.14:128846135:C:T	NA	2	NA	4.98E-06	ClinVar	Nonsense	Arg1313Ter	3937C>T
3:46860702:C:T	3:46902192	MYL3	rs199474703	VCV000031777	NC_000003.12:46860701:C:T	NA	NA	1	2.49E-06	ClinVar	Missense	Arg94His	281G>A
6:7584359:G:A	6:7584592	DSP	rs387906618	VCV000029672	NC_000006.12:7584358:G:A	NA	1	NA	2.49E-06	ClinVar	Missense	Arg2366His	7097G>A
2:178774206:C:T	2:179638933	TTN	NA	VCV000873434	NC_000002.12:178774205:C:T	NA	1	NA	2.49E-06	VKGL	Splice donor	NA	7057+1G>A
1:156134458:G:A	1:156104249	LMNA	rs267607571	VCV000066910	NC_000001.11:156134457:G:A	NA	1	NA	2.49E-06	ClinVar	Missense	Arg190Gln	569G>A
1:201361989:G:A	1:201331117	TNNI2	rs45586240	VCV000180554	NC_000001.11:201361988:G:A	NA	1	1	2.49E-06	VKGL	Missense	Arg215Trp	643C>T
1:201362016:G:A	1:201331144	TNNI2	NA	VCV000181625	NC_000001.11:201362015:G:A	NA	1	1	2.49E-06	ClinVar	Missense	Arg2067Trp	616C>T
1:201363349:G:A	1:201332477	TNNI2	rs727503512	VCV000228409	NC_000001.11:201363348:G:A	NA	1	1	2.49E-06	ClinVar	Missense	Arg183Trp	547C>T
1:201365291:G:A	1:201334419	TNNI2	rs397516457	VCV000043629	NC_000001.11:201365290:G:A	NA	1	1	2.49E-06	ClinVar	Missense	Arg104Leu	311G>T
1:201365638:A:T	1:201334766	TNNI2	rs121964855	VCV000012408	NC_000001.11:201365637:A:T	NA	1	1	2.49E-06	ClinVar	Missense	Ile89Asn	266T>A
10:110812573:C:T	10:112572331	RBM20	rs1393804220	VCV000538028	NC_000010.11:110812572:C:T	NA	1	NA	2.49E-06	VKGL	Nonsense	Arg726Ter	2176C>T
11:19188245:A:C	11:19209792	CSR3P	rs104894204	VCV000008777	NC_000011.10:19188244:A:C	NA	NA	1	2.49E-06	ClinVar	Missense	Cys58Gly	172T>G
11:47332189:G:A	11:47353740	MYBPC3	rs397516037	VCV000042735	NC_000011.10:47332188:G:A	NA	NA	1	2.49E-06	ClinVar	Nonsense	Gln1233Ter	3697C>T
11:47333923:T:C	11:47355474	MYBPC3	rs727503177	VCV000164052	NC_000011.10:47333922:T:C	NA	NA	1	2.49E-06	VKGL	Missense	Gln998Arg	2993A>G
11:47335081:D:2	11:47356632	MYBPC3	rs397515990	VCV000042663	NC_000011.10:47335081:AG:	NA	NA	1	2.49E-06	ClinVar	Frameshift	Pro955fs	2864_2865del
11:47337535:G:A	11:47359086	MYBPC3	rs775404728	VCV000195850	NC_000011.10:47337534:G:A	NA	NA	1	2.49E-06	VKGL	Missense	Arg820Trp	2458C>T
11:47341230:G:A	11:47362781	MYBPC3	rs730880551	VCV000180950	NC_000011.10:47341229:G:A	NA	NA	1	2.49E-06	ClinVar	Missense	Thr602Ile	1805C>T
11:47342882:D:1	11:47364433	MYBPC3	rs886037900	VCV000254153	NC_000011.10:47342882:CCCC.CCC	NA	NA	1	2.49E-06	VKGL	Frameshift	Gln469fs	1404del

SNP	GRCh37	Gene	rsID	Accession ClinVar	Canonical SPDI	N ARVC	N DCM	N HCM	MAF	Origin	Molecular Consequence	Amino acid change	Nucleotide change
11:47343019:A:G	11:47364570	MYBPC3	rs397515897	VCV000042525	NC_000011.10:47343018:A:G	NA	NA	1	2.49E-06	ClinVar	Splice donor	NA	1351+2T>C
11:47343147:T:C	11:47364698	MYBPC3	rs730880531	VCV000180925	NC_000011.10:47343146:T:C	NA	NA	1	2.49E-06	ClinVar	Splice acceptor	NA	1227-2A>G
11:47343342:C:T	11:47364893	MYBPC3	rs1025692267	VCV000693982	NC_000011.10:47343341:C:T	NA	NA	1	2.49E-06	ClinVar	NA	NA	1224-80G>A
11:47343505:G:A	11:47365056	MYBPC3	rs727504329	VCV000177796	NC_000011.10:47343504:G:A	NA	NA	1	2.49E-06	ClinVar	Nonsense	Gln404Ter	1210C>T
11:47346217:C:G	11:47367768	MYBPC3	rs730880632	VCV000181057	NC_000011.10:47346216:C:G	NA	NA	1	2.49E-06	ClinVar	Missense	Lys360Asn	1080G>C
11:47347661:G:T	11:47369212	MYBPC3	rs371711564	VCV000454335	NC_000011.10:47347660:G:T	NA	NA	1	2.49E-06	VKGL	Synonymous	Arg281=	841C>A
11:47347854:C:A	11:47369405	MYBPC3	rs727503213	VCV000228869	NC_000011.10:47347853:C:A	NA	NA	1	2.49E-06	VKGL	NA	NA	821+3G>T
12:32821487:D:1	12:32974421	PKP2	rs764817683	VCV000202022	NC_000012.12:32821487:GGGG:GGG	1	NA	NA	2.49E-06	VKGL	Frameshift	Lys628fs	1881del
12:32824163:C:G	12:32977097	PKP2	rs78897684	VCV000201989	NC_000012.12:32824162:C:G	1	NA	NA	2.49E-06	ClinVar	Splice acceptor	NA	1557-1G>C
12:32850771:D:4	12:33003705	PKP2	rs397516993	VCV000045020	NC_000012.12:32850771:TTTGT:TTT	1	NA	NA	2.49E-06	VKGL	Nonsense	Lys456_Gln457insTer	1369_1372del
12:32869034:G:A	12:33021968	PKP2	rs754912778	VCV000201977	NC_000012.12:32869033:G:A	1	NA	NA	2.49E-06	ClinVar	Nonsense	Arg355Ter	1063C>T
12:32878426:G:A	12:33031360	PKP2	NA	VCV000927573	NC_000012.12:32878425:G:A	1	NA	NA	2.49E-06	VKGL	Missense	Pro152Ser	454C>T
12:32878512:C:T	12:33031446	PKP2	rs760576804	VCV000196395	NC_000012.12:32878511:C:T	1	NA	NA	2.49E-06	ClinVar	Nonsense	Trp123Ter	368G>A
12:32879021:G:A	12:33031955	PKP2	rs121434420	VCV000006754	NC_000012.12:32879020:G:A	1	NA	NA	2.49E-06	ClinVar	Nonsense	Arg79Ter	235C>T
14:23415652:G:A	14:23884861	MYH7	rs121913650	VCV000014118	NC_000014.9:23415651:G:A	NA	1	1	2.49E-06	ClinVar	Missense	Arg1712Trp	5134C>T
14:23416129:C:T	14:23885338	MYH7	rs730880810	VCV000312894	NC_000014.9:23416128:C:T	NA	1	1	2.49E-06	VKGL	Missense	Glu1610Lys	4828G>A
14:23417174:G:A	14:23886383	MYH7	rs45544633	VCV000164284	NC_000014.9:23417173:G:A	NA	1	1	2.49E-06	ClinVar	Missense	Arg1500Trp	4498C>T
14:23417209:T:C	14:23886418	MYH7	NA	VCV000920179	NC_000014.9:23417208:T:C	NA	1	1	2.49E-06	VKGL	Missense	Tyr1488Cys	4463A>G
14:23418337:C:T	14:23887546	MYH7	rs1275262402	VCV000524974	NC_000014.9:23418336:C:T	NA	1	1	2.49E-06	VKGL	Missense	Glu1348Lys	4042G>A
14:23422267:C:T	14:23891476	MYH7	rs587782962	VCV000155814	NC_000014.9:23422266:C:T	NA	1	1	2.49E-06	ClinVar	Missense	Arg1053Gln	3158G>A
14:23423966:C:T	14:23893175	MYH7	rs886039204	VCV000264608	NC_000014.9:23423965:C:T	NA	NA	1	2.49E-06	VKGL	Missense	Asp955Asn	2863G>A
14:23426046:G:A	14:23895255	MYH7	rs727504240	VCV000177627	NC_000014.9:23426045:G:A	NA	NA	1	2.49E-06	VKGL	Missense	Arg694Cys	2080C>T
14:23427840:C:T	14:23897049	MYH7	rs564101364	VCV000264607	NC_000014.9:23427839:C:T	NA	1	1	2.49E-06	VKGL	Missense	Asp545Asn	1633G>A
14:23429279:G:A	14:23898488	MYH7	rs3218714	VCV000014102	NC_000014.9:23429278:G:A	NA	1	1	2.49E-06	ClinVar	Missense	Arg403Trp	1207C>T
14:23431426:G:A	14:23900635	MYH7	rs397516269	VCV000043106	NC_000014.9:23431425:A:G	NA	1	1	2.49E-06	ClinVar	Missense	Ile263Thr	788T>C
14:23431611:C:T	14:23900820	MYH7	rs397516261	VCV000043096	NC_000014.9:23431610:C:T	NA	1	1	2.49E-06	VKGL	Missense	Val236Ile	706G>A
15:34791163:C:T	15:35083364	ACTC1	rs121912673	VCV000018323	NC_000015.10:34791162:C:T	NA	1	1	2.49E-06	VKGL	Missense	Arg314His	941G>A
18:31070776:G:A	18:28650742	DSG2	rs769022411	VCV000568186	NC_000018.10:31070775:G:A	1	NA	NA	2.49E-06	ClinVar	Nonsense	Gln734Ter	2200C>T
18:31498297:G:A	18:29078260	DSG2	rs1568098570	VCV000567764	NC_000018.10:31498296:G:A	1	NA	NA	2.49E-06	ClinVar	Splice donor	NA	45+1G>A
18:31521244:G:C	18:29101207	DSG2	rs553299589	VCV000188450	NC_000018.10:31521243:G:C	1	NA	NA	2.49E-06	ClinVar	Splice donor	NA	523+1G>C
18:31522250:G:A	18:29102213	DSG2	rs750176752	VCV000410373	NC_000018.10:31522249:G:A	1	NA	NA	2.49E-06	ClinVar	Splice donor	NA	690+1G>A
18:31524554:G:G	18:29104517	DSG2	rs121913011	VCV000016815	NC_000018.10:31524553:A:G	1	NA	NA	2.49E-06	ClinVar	Missense	Asn266Ser	797A>G
18:31538849:C:T	18:29118812	DSG2	rs794728086	VCV000199810	NC_000018.10:31538848:C:T	1	NA	NA	2.49E-06	ClinVar	Nonsense	Gln584Ter	1750C>T
18:31538922:I:1	18:29118885-29118886	DSG2	rs1039633976	VCV000585217	NC_000018.10:31538922:GGG:GGGG	1	NA	NA	2.49E-06	ClinVar	Frameshift	Leu610fs	1826dup
19:55154157:C:T	19:55665525	TNNI3	rs397516347	VCV000043381	NC_000019.10:55154156:C:T	NA	1	1	2.49E-06	ClinVar	Missense	Arg141Gln	422G>A
2:178528367:G:A	2:179393094	TTN	rs1477669354	VCV000640886	NC_000002.12:178528366:G:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg35762Ter	107284C>T
2:178528797:G:A	2:179393524	TTN	rs565675340	VCV000242530	NC_000002.12:178528796:G:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg35652Ter	106954C>T
2:178529959:C:T	2:179394686	TTN	rs760915007	VCV000617573	NC_000002.12:178529958:C:T	NA	1	NA	2.49E-06	ClinVar	Splice donor	NA	106531+1G>A
2:178532100:G:A	2:179396827	TTN	rs1553488049	VCV000535030	NC_000002.12:178532099:G:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg34839Ter	104515C>T
2:178532202:G:A	2:179396929	TTN	rs750519430	VCV000290707	NC_000002.12:178532201:G:A	NA	1	NA	2.49E-06	VKGL	Nonsense	Arg34805Ter	104413C>T
2:178532844:G:A	2:179397571	TTN	NA	VCV000934781	NC_000002.12:178532843:G:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg34591Ter	103771C>T
2:178534619:C:T	2:179399346	TTN	rs869312068	VCV000223304	NC_000002.12:178534618:C:T	NA	1	NA	2.49E-06	ClinVar	Nonsense	Trp33999Ter	101996G>A
2:178535790:G:A	2:179400517	TTN	rs1057518195	VCV000373074	NC_000002.12:178535789:G:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg33609Ter	100825C>T
2:178536357:C:A	2:179401084	TTN	rs374920916	VCV000654634	NC_000002.12:178536356:C:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Glu33464Ter	100390G>T
2:178544357:G:A	2:179409084	TTN	NA	VCV001067228	NC_000002.12:178544356:G:A	NA	1	NA	2.49E-06	VKGL	Nonsense	Arg31958Ter	95872C>T
2:178546102:A:G	2:179410829	TTN	rs869320740	VCV000132133	NC_000002.12:178546101:A:G	NA	1	NA	2.49E-06	ClinVar	Missense	Cys31712Arg	95134T>C
2:178546476:G:A	2:179411203	TTN	rs869312121	VCV000223389	NC_000002.12:178546475:G:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg31619Ter	94855C>T
2:178549309:G:A	2:179414036	TTN	rs794729301	VCV000202424	NC_000002.12:178549308:G:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg30773Ter	92317C>T
2:178553039:C:T	2:179417766	TTN	rs1060500457	VCV000404812	NC_000002.12:178553038:C:T	NA	1	NA	2.49E-06	ClinVar	Nonsense	Trp29954Ter	898616G>A
2:178554094:G:A	2:179418821	TTN	rs886038916	VCV000263764	NC_000002.12:178554093:G:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg29673Ter	89017C>T
2:178559309:A:T	2:179424036	TTN	rs397517735	VCV000047458	NC_000002.12:178559308:A:T	NA	1	NA	2.49E-06	ClinVar	Splice donor	NA	86821+2T>A
2:178560055:I:1	2:179424782-179424783	TTN	rs1285329277	VCV000519013	NC_000002.12:178560055:TTTTTT:TTTTTT	NA	1	NA	2.49E-06	ClinVar	Frameshift	Ser28693fs	86076dup
2:178560364:G:A	2:179425091	TTN	rs748689777	VCV000488732	NC_000002.12:178560363:G:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg28590Ter	85768C>T
2:178563607:G:A	2:179428334	TTN	rs1575649368	VCV000667023	NC_000002.12:178563606:G:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg27509Ter	82525C>T
2:178563892:G:A	2:179428619	TTN	rs766840243	VCV000202415	NC_000002.12:178563891:G:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg27414Ter	82240C>T
2:178566838:G:A	2:179431565	TTN	rs774411587	VCV000466659	NC_000002.12:178566837:G:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg26432Ter	79294C>T
2:178570158:C:T	2:179434885	TTN	rs1553602546	VCV000518953	NC_000002.12:178570157:C:T	NA	1	NA	2.49E-06	ClinVar	Nonsense	Trp25325Ter	75974G>A
2:178570882:G:A	2:179435609	TTN	rs794729286	VCV000202406	NC_000002.12:178570881:G:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg25084Ter	75250C>T
2:178573462:D:1	2:179438190	TTN	rs727504531	VCV000178908	NC_000002.12:178573462:A:	NA	1	NA	2.49E-06	ClinVar	Frameshift	Asp24224fs	72669del
2:178577762:C:T	2:179442489	TTN	NA	VCV000958293	NC_000002.12:178577761:C:T	NA	1	NA	2.49E-06	ClinVar	Nonsense	Trp22888Ter	68664G>A

SNP	GRCh37	Gene	rsID	Accession ClinVar	Canonical SPDI	N ARVC	N DCM	N HCM	MAF	Origin	Molecular Consequence	Amino acid change	Nucleotide change
2:178584552:G:A	2:179449279	TTN	rs794729280	VCV000202399	NC_000002.12:178584551:G:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg21667Ter	64999C>T
2:178587418:C:T	2:179452145	TTN	NA	VCV000948116	NC_000002.12:178587417:C:T	NA	1	NA	2.49E-06	ClinVar	Splice acceptor	NA	63794-1G>A
2:178590230:G:A	2:179454957	TTN	rs869312112	VCV000223377	NC_000002.12:178590229:G:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg20499Ter	61495C>T
2:178593566:A:G	2:179458293	TTN	rs869312054	VCV000223287	NC_000002.12:178593565:A:G	NA	1	NA	2.49E-06	ClinVar	Splice donor	NA	58732+2T>C
2:178594198:G:A	2:179458925	TTN	rs768073446	VCV000432196	NC_000002.12:178594197:G:A	NA	1	NA	2.49E-06	VKGL	Nonsense	Arg19399Ter	58195C>T
2:178595636:G:A	2:179460363	TTN	NA	VCV000839183	NC_000002.12:178595635:G:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg19240Ter	57718C>T
2:178597751:G:A	2:179462478	TTN	rs72646831	VCV000047121	NC_000002.12:178597750:G:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg19111Ter	57331C>T
2:178599145:C:T	2:179463872	TTN	rs397517624	VCV000047113	NC_000002.12:178599144:C:T	NA	1	NA	2.49E-06	ClinVar	Splice donor	NA	56647+1G>A
2:178601739:G:A	2:179466466	TTN	NA	VCV000958943	NC_000002.12:178601738:G:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg18451Ter	55351C>T
2:178604269:G:A	2:179468996	TTN	rs747236787	VCV000579797	NC_000002.12:178604268:G:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg18140Ter	54418C>T
2:178605110:G:A	2:179469837	TTN	rs1553682168	VCV000466638	NC_000002.12:178605109:G:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg18023Ter	54067C>T
2:178605552:G:A	2:179470279	TTN	rs753333359	VCV000534995	NC_000002.12:178605551:G:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg17915Ter	53743C>T
2:178608700:I:A	2:179473427-179473428	TTN	rs794729323	VCV000202450	NC_000002.12:178608700:TCAATCA:TCAA	NA	1	NA	2.49E-06	ClinVar	Nonsense	Glu17437delinsAspTer	52307 52310dup
2:178610089:C:T	2:179474816	TTN	rs761807131	VCV000202384	NC_000002.12:178610088:C:T	NA	1	NA	2.49E-06	ClinVar	Splice donor	NA	51436+1G>A
2:178610090:G:A	2:179474817	TTN	rs906494713	VCV000691694	NC_000002.12:178610089:G:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Gln17146Ter	51436C>T
2:178612115:G:A	2:179476842	TTN	rs754866489	VCV000202379	NC_000002.12:178612114:G:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg16766Ter	50296C>T
2:178612355:G:A	2:179477082	TTN	rs794729265	VCV000202378	NC_000002.12:178612354:G:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg16724Ter	50170C>T
2:178614226:G:A	2:179478953	TTN	rs570046043	VCV000636978	NC_000002.12:178614225:G:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg16391Ter	49171C>T
2:178622684:G:A	2:179487411	TTN	rs727505350	VCV000180102	NC_000002.12:178622683:G:A	NA	1	NA	2.49E-06	VKGL	Nonsense	Arg14967Ter	44899C>T
2:178629441:G:A	2:179494168	TTN	rs770767998	VCV000223369	NC_000002.12:178629440:G:A	NA	1	NA	2.49E-06	VKGL	Nonsense	Arg14762Ter	44284C>T
2:178630250:G:A	2:179494977	TTN	rs140743001	VCV000202367	NC_000002.12:178630249:G:A	NA	1	NA	2.49E-06	VKGL	Nonsense	Arg14758Ter	44272C>T
2:178678746:C:T	2:179543473	TTN	rs1389908421	VCV000522785	NC_000002.12:178678745:C:T	NA	1	NA	2.49E-06	ClinVar	Splice donor	NA	33826+1G>A
2:178740125:G:A	2:179604852	TTN	rs267607158	VCV000012657	NC_000002.12:178740124:G:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Gln4370Ter	13108C>T
2:178770483:D:2	2:179635211-179635212	TTN	rs869312037	VCV000223266	NC_000002.12:178770483:CACA:CA	NA	1	NA	2.49E-06	ClinVar	Frameshift	Ala2770fs	8307 8308del
2:178786129:T:A	2:179650856	TTN	rs1554023044	VCV000518936	NC_000002.12:178786128:T:A	NA	1	NA	2.49E-06	ClinVar	Nonsense	Lys697Ter	2089A>T
2:219418463:A:G	2:220283185	DES	rs1057523274	VCV000388926	NC_000002.12:219418462:A:G	1	1	NA	2.49E-06	ClinVar	Missense	Met1Val	1A>G
6:118559037:T:G	6:118880200	PLN	rs111033560	VCV000013637	NC_000006.12:118559036:T:G	1	1	NA	2.49E-06	ClinVar	Nonsense	Leu39Ter	116T>G
6:7555797:C:T	6:7556030	DSP	rs768521444	VCV000451211	NC_000006.12:7555796:C:T	1	1	NA	2.49E-06	ClinVar	Nonsense	Arg84Ter	250C>T
6:7558155:C:T	6:7558388	DSP	NA	VCV000853704	NC_000006.12:7558154:C:T	1	1	NA	2.49E-06	ClinVar	Nonsense	Arg105Ter	313C>T
6:7559281:C:T	6:7559514	DSP	rs397516943	VCV000044922	NC_000006.12:7559280:C:T	1	1	NA	2.49E-06	ClinVar	Nonsense	Arg160Ter	478C>T
6:7568448:I:1	6:7568681-7568682	DSP	rs1561687796	VCV000565816	NC_000006.12:7568448:AAAA:AAAAA	1	NA	NA	2.49E-06	ClinVar	Frameshift	Ile428fs	1282dup
6:7568458:G:T	6:7568691	DSP	NA	VCV000857798	NC_000006.12:7568457:G:T	1	1	NA	2.49E-06	ClinVar	Nonsense	Glu430Ter	1288G>T
6:7568521:C:G	6:7568754	DSP	NA	VCV000948761	NC_000006.12:7568520:C:G	NA	1	NA	2.49E-06	ClinVar	Missense	Arg451Gly	1351C>G
6:7571554:C:T	6:7571787	DSP	rs876657638	VCV000228253	NC_000006.12:7571553:C:T	1	1	NA	2.49E-06	ClinVar	Nonsense	Gln625Ter	1873C>T
6:7574797:T:C	6:7575030	DSP	rs774514264	VCV000388661	NC_000006.12:7574796:T:C	1	1	NA	2.49E-06	ClinVar	Splice donor	NA	2436+2T>C
6:7579385:C:G	6:7579618	DSP	rs886039178	VCV000264512	NC_000006.12:7579384:C:G	1	1	NA	2.49E-06	ClinVar	Nonsense	Tyr1065Ter	3195C>G
6:7580370:C:T	6:7580603	DSP	rs140474226	VCV000162505	NC_000006.12:7580369:C:T	1	1	NA	2.49E-06	ClinVar	Nonsense	Gln1394Ter	4180C>T
6:7580721:C:T	6:7580954	DSP	rs397516940	VCV000044914	NC_000006.12:7580720:C:T	1	1	NA	2.49E-06	ClinVar	Nonsense	Gln1511Ter	4531C>T
6:7581402:C:T	6:7581635	DSP	rs794728124	VCV000199890	NC_000006.12:7581401:C:T	1	1	NA	2.49E-06	ClinVar	Nonsense	Arg1738Ter	5212C>T
6:7583740:C:T	6:7583973	DSP	rs777573018	VCV000199902	NC_000006.12:7583739:C:T	1	1	NA	2.49E-06	ClinVar	Nonsense	Arg2160Ter	6478C>T
6:7584904:C:T	6:7585137	DSP	NA	VCV000984931	NC_000006.12:7584903:C:T	1	1	NA	2.49E-06	ClinVar	Nonsense	Arg2548Ter	7642C>T
7:128841304:C:T	7:128481358	FLNC	rs770606675	VCV000421215	NC_000007.14:128841303:C:T	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg650Ter	1948C>T
7:128846396:C:T	7:128486450	FLNC	rs138193236	VCV000070588	NC_000007.14:128846395:C:T	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg1354Ter	4060C>T
7:128853750:C:T	7:128493804	FLNC	rs1186464414	VCV000539432	NC_000007.14:128853749:C:T	NA	1	NA	2.49E-06	VKGL	Missense	Arg2133Cys	6397C>T
7:128854661:C:T	7:128494715	FLNC	rs748416758	VCV000478129	NC_000007.14:128854660:C:T	NA	1	NA	2.49E-06	ClinVar	Nonsense	Arg2326Ter	6976C>T

Abbreviations:

ARVC: arrhythmicogenic right ventricular cardiomyopathy; DCM: dilated cardiomyopathy; HCM: hypertrophic cardiomyopathy; MAF: minor allele frequency; N: number of carriers.

Supplementary Table 5: Prevalence of all genes per cardiomyopathy				
Cardiomyopathy	Gene	N	Proportion	Prevalence
ARVC	<i>DES</i>	15	4.3	7.48E-05
	<i>DSC2</i>	42	12.1	2.09E-04
	<i>DSG2</i>	31	8.9	1.55E-04
	<i>DSP</i>	49	14.1	2.44E-04
	<i>JUP</i>	24	6.9	1.20E-04
	<i>PKP2</i>	185	53.3	9.22E-04
	<i>PLN</i>	1	0.3	4.98E-06
DCM	<i>ACTC1</i>	1	0.1	4.98E-06
	<i>ACTN2</i>	6	0.8	2.99E-05
	<i>BAG3</i>	15	1.9	7.48E-05
	<i>DES</i>	49	6.1	2.44E-04
	<i>DSP</i>	49	6.1	2.44E-04
	<i>FLNC</i>	56	7.0	2.79E-04
	<i>LMNA</i>	42	5.3	2.09E-04
	<i>MYH7</i>	158	19.8	7.87E-04
	<i>NEXN</i>	4	0.5	1.99E-05
	<i>PLN</i>	8	1.0	3.99E-05
	<i>RBM20</i>	5	0.6	2.49E-05
	<i>SCN5A</i>	59	7.4	2.94E-04
	<i>TNNC1</i>	7	0.9	3.49E-05
	<i>TNNI3</i>	35	4.4	1.74E-04
	<i>TNNT2</i>	32	4.0	1.59E-04
	<i>TPM1</i>	2	0.3	9.97E-06
	<i>TTN</i>	272	34.0	1.36E-03
HCM	<i>ACTC1</i>	1	0.1	4.98E-06
	<i>CSRP3</i>	27	2.0	1.35E-04
	<i>JPH2</i>	6	0.4	2.99E-05
	<i>MYBPC3</i>	723	53.6	3.60E-03
	<i>MYH7</i>	232	17.2	1.16E-03
	<i>MYL2</i>	21	1.6	1.05E-04
	<i>MYL3</i>	1	0.1	4.98E-06
	<i>TNNC1</i>	7	0.5	3.49E-05
	<i>TNNI3</i>	50	3.7	2.49E-04
	<i>TNNT2</i>	274	20.3	1.37E-03
	<i>TPM1</i>	6	0.4	2.99E-05

Abbreviations:

ACTC1: Actin Alpha Cardiac Muscle 1; *ACTN2*: Alpha-actinin 2;
ARVC: Arrhythmogenic right ventricular cardiomyopathy; *BAG3*: BAG Cochaperone 3;
CSRP3: Cysteine And Glycine Rich Protein 3; *DCM*: Dilated cardiomyopathy; *DES*: Desmin;
DSC2: Desmocollin 2; *DSG2*: Desmoglein 2; *DSP*: desmoplakin;
FLNC: Filamin-C; *HCM*: Hypertrophic cardiomyopathy; *JPH2*: Junctophilin 2;
JUP: Junction Plakoglobin; *LMNA*: Lamin A/C; *MYBPC3*: Myosin Binding Protein C3;
MYH7: Myosin Heavy Chain 7; *MYL2*: Myosin Light Chain 2; *MYL3*: Myosin Light Chain 3;
N: Number of individuals; *NEXN*: Nexilin F-Actin Binding Protein; *PKP2*: Plakophilin 2;
PLN: phospholamban; *RBM20*: RNA Binding Motif Protein 20;
SCN5A: Sodium Voltage-Gated Channel Alpha Subunit 5;
TNNC1: Troponin C1, Slow Skeletal And Cardiac Type; *TNNI3*: Troponin I3, Cardiac Type;
TNNT2: Troponin T2, Cardiac Type; *TPM1*: Tropomyosin 1; *TTN*: Titin.

Supplementary Table 6: Results of Fisher's Exact tests

	ARVC G+ vs G-				DCM G+ vs G-				HCM G+ vs G-			
	OR	95% LCI	95% UCI	p-value	OR	95% LCI	95% UCI	p-value	OR	95% LCI	95% UCI	p-value
CARDIOVASCULAR RISK FACTORS												
Diabetes	1.112	0.755	1.592	0.570	0.833	0.626	1.091	0.200	1.280	1.061	1.537	0.008
Hypertension	0.962	0.760	1.212	0.774	1.072	0.919	1.248	0.374	1.045	0.925	1.179	0.482
Hypercholesterolaemia	1.031	0.795	1.326	0.799	1.120	0.946	1.322	0.185	1.181	1.036	1.345	0.011
Ever Smoked	1.223	0.981	1.525	0.068	1.222	1.055	1.416	0.007	0.956	0.849	1.075	0.461
Family heart disease	1.318	1.058	1.643	0.012	1.119	0.966	1.296	0.130	1.066	0.949	1.197	0.280
CARDIAC DISEASE/OUTCOME												
Cardiac problem	2.112	0.416	6.672	0.183	0.912	0.180	2.868	1.000	0.903	0.278	2.289	1.000
Heart failure*	1.432	0.639	2.812	0.305	2.534	1.708	3.671	5.05E-06	1.352	0.899	1.977	0.135
Cardiomyopathy*	2.341	0.460	7.452	0.150	7.590	4.242	13.283	6.94E-11	5.495	3.206	9.306	8.76E-10
Phenotype positive†	1.325	0.351	3.547	0.550	3.664	2.236	5.813	4.88E-07	3.033	1.979	4.560	5.76E-07
Dilated cardiomyopathy*	4.122	0.453	18.056	0.099	8.090	3.078	20.130	2.08E-05	0.529	0.013	3.481	1.000
Hypertrophic cardiomyopathy*	3.599	0.081	26.974	0.265	10.989	3.383	34.746	4.60E-05	18.775	7.903	49.429	3.41E-13
Ventricular arrhythmias	6.198	2.297	14.376	3.27E-04	4.974	2.392	9.752	1.93E-05	1.801	0.717	3.987	0.143
Atrial arrhythmias	1.054	0.415	2.239	0.841	2.273	1.518	3.314	8.18E-05	1.247	0.826	1.830	0.250
Heart arrhythmia	3.231	1.128	7.573	0.015	2.796	1.356	5.321	0.003	0.547	0.144	1.488	0.310
Chronic ischemic heart disease*	1.431	0.971	2.052	0.059	1.281	0.981	1.652	0.058	0.947	0.748	1.186	0.695
Acute myocardial infarction	1.467	0.801	2.494	0.151	1.134	0.730	1.697	0.519	0.892	0.610	1.270	0.606
Cardiac arrest	0.000	0.000	3.299	0.630	2.209	0.756	5.343	0.118	1.090	0.332	2.808	0.804
Angina pectoris	1.497	0.835	2.506	0.120	1.206	0.795	1.772	0.344	1.344	0.987	1.803	0.049
Conduction disorders	1.535	0.645	3.137	0.260	1.497	0.859	2.464	0.136	1.281	0.807	1.960	0.242
Valvular disease	1.322	0.645	2.439	0.373	1.958	1.335	2.801	4.54E-04	1.269	0.883	1.782	0.163
Congenital heart disease	2.059	0.237	8.219	0.267	1.337	0.260	4.342	0.499	1.059	0.269	3.033	0.788
Pulmonary obstructive disease	1.490	0.940	2.266	0.078	1.198	0.860	1.634	0.240	0.848	0.629	1.125	0.280
Cardiovascular death	1.771	0.860	3.286	0.100	1.673	1.038	2.588	0.030	0.733	0.423	1.197	0.268
All cause mortality	1.068	0.629	1.713	0.712	1.388	1.023	1.852	0.032	0.890	0.668	1.169	0.428

* Used to define P+, therefore not included in some tests.

† Defined as diagnosis of cardiomyopathy, DCM, HCM or heart failure, in absence of chronic ischemic heart disease.

Abbreviations:

ARVC: arrhythmogenic right ventricular cardiomyopathy; DCM: dilated cardiomyopathy;

G+: carriers of likely pathogenic and pathogenic variants associated with one of the cardiomyopathies; HCM: hypertrophic cardiomyopathy;

LCI: lower limit confidence interval; UCI: upper limit confidence interval.

Supplementary Table 6: Results of Fisher's Exact tests

	strict HCM G+ vs G-				ARVC G+P- vs G-P-				DCM G+P- vs G-P-			
	OR	95% LCI	95% UCI	p-value	OR	95% LCI	95% UCI	p-value	OR	95% LCI	95% UCI	p-value
CARDIOVASCULAR RISK FACTORS												
Diabetes	0.802	0.601	1.055	0.124	1.108	0.749	1.594	0.566	0.860	0.645	1.130	0.296
Hypertension	1.093	0.938	1.273	0.246	0.954	0.752	1.205	0.728	1.032	0.882	1.207	0.694
Hypercholesterolaemia	1.006	0.846	1.193	0.932	1.006	0.772	1.298	0.949	1.081	0.909	1.281	0.361
Ever Smoked	1.160	1.000	1.344	0.048	1.228	0.983	1.533	0.066	1.233	1.062	1.432	0.006
Family heart disease	1.168	1.008	1.352	0.035	1.286	1.031	1.605	0.024	1.134	0.976	1.316	0.099
CARDIAC DISEASE/OUTCOME												
Cardiac problem	1.216	0.315	3.369	0.575	2.227	0.438	7.061	0.166	0.981	0.194	3.097	1.000
Heart failure*	1.733	1.086	2.661	0.015	NA	NA	NA	NA	NA	NA	NA	NA
Cardiomyopathy*	8.647	4.962	14.841	4.40E-13	NA	NA	NA	NA	NA	NA	NA	NA
Phenotype positive†	4.727	3.028	7.216	8.15E-11	NA	NA	NA	NA	NA	NA	NA	NA
Dilated cardiomyopathy*	0.000	0.000	3.756	0.619	NA	NA	NA	NA	NA	NA	NA	NA
Hypertrophic cardiomyopathy*	30.258	12.586	79.971	3.68E-16	NA	NA	NA	NA	NA	NA	NA	NA
Ventricular arrhythmias	3.038	1.208	6.738	0.010	5.846	1.976	14.398	0.001	3.426	1.352	7.682	0.005
Atrial arrhythmias	1.650	1.035	2.530	0.025	1.176	0.462	2.504	0.672	2.117	1.357	3.194	0.001
Heart arrhythmia	0.690	0.138	2.136	0.798	2.797	0.866	7.018	0.042	2.471	1.115	4.941	0.013
Chronic ischemic heart disease*	0.885	0.649	1.187	0.477	NA	NA	NA	NA	NA	NA	NA	NA
Acute myocardial infarction	0.917	0.562	1.425	0.828	1.476	0.806	2.511	0.149	1.121	0.715	1.689	0.586
Cardiac arrest	1.467	0.377	4.128	0.527	0.000	0.000	3.415	0.628	1.938	0.589	5.017	0.195
Angina pectoris	1.288	0.860	1.873	0.175	1.511	0.843	2.531	0.117	1.244	0.819	1.828	0.244
Conduction disorders	1.241	0.674	2.126	0.454	1.650	0.693	3.379	0.165	1.364	0.740	2.342	0.274
Valvular disease	1.517	0.987	2.253	0.045	1.332	0.624	2.527	0.351	1.662	1.072	2.491	0.017
Congenital heart disease	1.335	0.259	4.337	0.499	2.313	0.264	9.341	0.229	1.020	0.117	4.105	1.000
Pulmonary obstructive disease	0.903	0.620	1.279	0.611	1.575	0.993	2.398	0.040	1.090	0.762	1.522	0.600
Cardiovascular death	0.684	0.321	1.294	0.328	1.916	0.929	3.562	0.054	1.454	0.849	2.358	0.153
All cause mortality	1.097	0.783	1.505	0.562	1.134	0.668	1.820	0.611	1.277	0.920	1.738	0.123

* Used to define P+, therefore not included in some tests.

† Defined as diagnosis of cardiomyopathy, DCM, HCM or heart failure, in absence of chronic ischemic heart disease.

Abbreviations:

ARVC: arrhythmogenic right ventricular cardiomyopathy; DCM: dilated cardiomyopathy;

G+: carriers of likely pathogenic and pathogenic variants associated with one of the cardiomyopathies; HCM: hypertrophic cardiomyopathy;

LCI: lower limit confidence interval; UCI: upper limit confidence interval.

Supplementary Table 6: Results of Fisher's Exact tests								
	HCM G+P- vs G-P-				strict HCM G+P- vs G-P-			
	OR	95% LCI	95% UCI	p-value	OR	95% LCI	95% UCI	p-value
CARDIOVASCULAR RISK FACTORS								
Diabetes	1.301	1.075	1.566	0.006	0.806	0.599	1.067	0.148
Hypertension	1.022	0.903	1.155	0.733	1.051	0.897	1.228	0.528
Hypercholesterolaemia	1.179	1.032	1.344	0.014	0.991	0.830	1.179	0.965
Ever Smoked	0.968	0.859	1.090	0.591	1.187	1.022	1.380	0.023
Family heart disease	1.068	0.949	1.200	0.274	1.175	1.012	1.364	0.032
CARDIAC DISEASE/OUTCOME								
Cardiac problem	0.967	0.297	2.460	1.000	1.320	0.342	3.673	0.550
Heart failure*	NA	NA	NA	NA	NA	NA	NA	NA
Cardiomyopathy*	NA	NA	NA	NA	NA	NA	NA	NA
Phenotype positive†	NA	NA	NA	NA	NA	NA	NA	NA
Dilated cardiomyopathy*	NA	NA	NA	NA	NA	NA	NA	NA
Hypertrophic cardiomyopathy*	NA	NA	NA	NA	NA	NA	NA	NA
Ventricular arrhythmias	1.005	0.257	2.859	1.000	1.718	0.438	4.892	0.306
Atrial arrhythmias	1.143	0.723	1.741	0.504	1.431	0.836	2.319	0.156
Heart arrhythmia	0.579	0.152	1.577	0.403	0.741	0.148	2.296	0.797
Chronic ischemic heart disease*	NA	NA	NA	NA	NA	NA	NA	NA
Acute myocardial infarction	0.860	0.581	1.235	0.487	0.862	0.516	1.366	0.583
Cardiac arrest	1.143	0.348	2.954	0.799	1.561	0.401	4.405	0.339
Angina pectoris	1.378	1.011	1.849	0.038	1.341	0.894	1.950	0.136
Conduction disorders	1.071	0.632	1.724	0.713	0.910	0.425	1.734	1.000
Valvular disease	1.145	0.765	1.665	0.486	1.245	0.751	1.966	0.313
Congenital heart disease	1.207	0.305	3.503	0.770	1.545	0.298	5.079	0.451
Pulmonary obstructive disease	0.844	0.619	1.130	0.266	0.898	0.606	1.291	0.659
Cardiovascular death	0.669	0.365	1.141	0.163	0.531	0.210	1.125	0.105
All cause mortality	0.863	0.638	1.148	0.338	1.061	0.742	1.481	0.729

* Used to define P+, therefore not included in some tests.

† Defined as diagnosis of cardiomyopathy, DCM, HCM or heart failure, in absence of chronic ischemic heart disease.

Abbreviations:

ARVC: arrhythmogenic right ventricular cardiomyopathy; DCM: dilated cardiomyopathy;

G+: carriers of likely pathogenic and pathogenic variants associated with one of the cardiomyopathies; HCM: hypertrophic cardiomyopathy;

LCI: lower limit confidence interval; UCI: upper limit confidence interval.

Supplementary Table 7: P-values of Mann-Whitney U tests

	ARVC G+ vs G-	DCM G+ vs G-	HCM G+ vs G-	strict HCM* G+ vs G-
CARDIOVASCULAR RISK FACTORS				
BMI	0.990	0.812	0.271	0.621
Mean systolic blood pressure	0.774	0.901	0.258	0.508
Mean diastolic blood pressure	0.341	0.734	0.997	0.776
Total cholesterol	0.369	0.844	0.242	0.666
HDL	0.941	0.357	0.076	0.161
LDL	0.214	0.898	0.484	0.778
MET minutes per week for walking	0.545	0.055	0.233	0.017
MET minutes per week for moderate activity	0.950	0.913	0.578	0.155
MET minutes per week for vigorous activity	0.352	0.963	0.350	0.589
Total MET minutes per week	0.278	0.619	0.980	0.052
ECG MEASUREMENTS				
P duration	NA	NA	NA	NA
P axis	NA	NA	NA	NA
PQ interval	NA	NA	NA	NA
QRS duration	NA	NA	NA	NA
R axis	NA	NA	NA	NA
QTC interval	NA	NA	NA	NA
T axis	NA	NA	NA	NA
CMR MEASUREMENTS				
RVEDVi	NA	NA	NA	NA
RVESVi	NA	NA	NA	NA
RVSv	NA	NA	NA	NA
RVSVi	NA	NA	NA	NA
RVEF	NA	NA	NA	NA
RVPER	NA	NA	NA	NA
RVpFR	NA	NA	NA	NA
RVPAFR	NA	NA	NA	NA
LVEDVi	NA	NA	NA	NA
LVESVi	NA	NA	NA	NA
LVSv	NA	NA	NA	NA
LVSVi	NA	NA	NA	NA
LVEF	NA	NA	NA	NA
LVPER	NA	NA	NA	NA
LVpFR	NA	NA	NA	NA
LVPAFR	NA	NA	NA	NA
LVEDMi	NA	NA	NA	NA
LVMVR	NA	NA	NA	NA
LVEDV/RVEDV	NA	NA	NA	NA
LVESV/RVESV	NA	NA	NA	NA
peakEcc	NA	NA	NA	NA
TPKEcc	NA	NA	NA	NA
peakEII2Ch	NA	NA	NA	NA
TPKEII2Ch	NA	NA	NA	NA
peakEII4Ch	NA	NA	NA	NA
TPKEII4Ch	NA	NA	NA	NA
Wall thickness segment 1	NA	NA	NA	NA
Wall thickness segment 2	NA	NA	NA	NA
Wall thickness segment 3	NA	NA	NA	NA
Wall thickness segment 4	NA	NA	NA	NA
Wall thickness segment 5	NA	NA	NA	NA
Wall thickness segment 6	NA	NA	NA	NA
Wall thickness segment 7	NA	NA	NA	NA
Wall thickness segment 8	NA	NA	NA	NA
Wall thickness segment 9	NA	NA	NA	NA
Wall thickness segment 10	NA	NA	NA	NA
Wall thickness segment 11	NA	NA	NA	NA
Wall thickness segment 12	NA	NA	NA	NA
Wall thickness segment 13	NA	NA	NA	NA
Wall thickness segment 14	NA	NA	NA	NA
Wall thickness segment 15	NA	NA	NA	NA
Wall thickness segment 16	NA	NA	NA	NA
Global wall thickness	NA	NA	NA	NA
Septal wall thickness	NA	NA	NA	NA
Maximum wall thickness	NA	NA	NA	NA

* strict HCM group: HCM group after excluding carriers of the 3628-41_3628-17del *MYBPC3* and the Arg278Cys 862C>T *TNNT2* variant.

Abbreviations:

ARVC: arrhythmogenic right ventricular cardiomyopathy; BMI: body mass index; CMR: cardiac magnetic resonance imaging; DCM: dilated cardiomyopathy; ECG: Electrocardiography; EDVi: indexed end-diastolic volume; EDMi: indexed end-diastolic mass; EF: ejection fraction; ESVi: indexed end-systolic volume; G+: carriers of likely pathogenic and pathogenic variants associated with one of the cardiomyopathies; HCM: hypertrophic cardiomyopathy; HDL: high-density lipoprotein; LDL: low-density lipoprotein; LV: left ventricular; MET: metabolic equivalent of task; MVR: mass to volume ratio; PAFR: peak atrial filling rate; peakEcc: peak circumferential strain; peakEII2Ch: longitudinal strain analyzed in 2-chamber view; peakEII4Ch: longitudinal strain analyzed in 4-chamber view; PER: peak ejection rate; PFR: peak filling rate; RV: right ventricular; SVi: indexed stroke volume; TPKEcc: global time to peak circumferential strain; TPKEII2Ch: global time to longitudinal strain analyzed in 2-chamber view; TPKEII4Ch: global time to longitudinal strain analyzed in 4-chamber view.

Supplementary Table 7: P-values of Mann-Whitney U tests

	ARVC G+P- vs G-P-	DCM G+P- vs G-P-	HCM G+P- vs G-P-	strict HCM* G+P- vs G-P-
CARDIOVASCULAR RISK FACTORS				
BMI	0.945	0.800	0.317	0.712
Mean systolic blood pressure	0.917	0.913	0.257	0.608
Mean diastolic blood pressure	0.367	0.760	0.934	0.737
Total cholesterol	0.381	0.780	0.211	0.808
HDL	0.999	0.471	0.070	0.161
LDL	0.223	0.991	0.404	0.991
MET minutes per week for walking	0.500	0.084	0.189	0.010
MET minutes per week for moderate activity	0.989	0.965	0.605	0.137
MET minutes per week for vigorous activity	0.434	0.885	0.379	0.557
Total MET minutes per week	0.290	0.722	0.943	0.038
ECG MEASUREMENTS				
P duration	0.315	0.304	0.997	0.999
P axis	0.477	0.162	0.085	0.179
PQ interval	0.617	0.989	0.527	0.904
QRS duration	0.385	0.043	0.445	0.436
R axis	0.208	0.156	0.868	0.699
QTC interval	0.255	0.422	0.300	0.270
T axis	0.818	0.572	0.074	0.128
CMR MEASUREMENTS				
RVEDVi	0.780	0.058	0.177	0.722
RVESVi	0.707	0.287	0.051	0.118
RVSv	0.713	0.071	0.910	0.140
RVSVi	0.546	0.155	0.872	0.106
RVEF	0.950	0.765	0.025	0.015
RVPER	0.869	0.038	0.711	0.615
RVpFR	0.908	0.120	0.064	0.249
RVPAFR	0.661	0.385	0.192	0.025
LVEDVi	0.060	0.125	0.378	0.444
LVESVi	0.414	0.032	0.276	0.460
LVSv	0.100	0.509	0.889	0.214
LVSVi	0.052	0.430	0.921	0.318
LVEF	0.452	0.009	0.366	0.607
LVPER	0.465	0.023	0.190	0.420
LVpFR	0.114	0.436	0.567	0.485
LVPAFR	0.670	0.412	0.659	0.189
LVEDMi	0.800	0.738	0.928	0.188
LVMVR	0.295	0.061	0.784	0.559
LVEDV/RVEDV	0.360	0.001	0.533	0.747
LVESV/RVESV	0.904	0.000	0.585	0.027
peakEcc	0.319	0.107	0.643	0.812
TPKEcc	0.555	0.155	0.723	0.850
peakEII2Ch	0.751	0.019	0.751	0.179
TPKEII2Ch	0.616	0.701	0.978	0.314
peakEII4Ch	0.483	0.009	0.079	0.286
TPKEII4Ch	0.941	0.708	0.227	0.403
Wall thickness segment 1	0.211	0.439	0.740	0.029
Wall thickness segment 2	0.446	0.022	0.160	0.155
Wall thickness segment 3	0.268	0.144	0.450	0.254
Wall thickness segment 4	0.020	0.626	0.460	0.919
Wall thickness segment 5	0.110	0.132	0.189	0.745
Wall thickness segment 6	0.736	0.363	0.978	0.503
Wall thickness segment 7	0.234	0.435	0.539	0.826
Wall thickness segment 8	0.622	0.251	0.348	0.753
Wall thickness segment 9	0.087	0.438	0.850	0.303
Wall thickness segment 10	0.035	0.508	0.789	0.220
Wall thickness segment 11	0.083	0.484	0.482	0.502
Wall thickness segment 12	0.237	0.108	0.361	0.943
Wall thickness segment 13	0.974	0.828	0.987	0.575
Wall thickness segment 14	0.832	0.243	0.479	0.869
Wall thickness segment 15	0.988	0.277	0.571	0.748
Wall thickness segment 16	0.938	0.423	0.836	0.333
Global wall thickness	0.159	0.232	0.961	0.270
Septal wall thickness	0.229	0.071	0.523	0.174
Maximum wall thickness	0.210	0.621	0.166	0.008

* strict HCM group: HCM group after excluding carriers of the 3628-41_36

Abbreviations:

ARVC: arrhythmogenic right ventricular cardiomyopathy; BMI: body mass index; ECG: Electrocardiography; EDVi: indexed end-diastolic volume; EDMi: indexed end-diastolic mass; G+: carriers of likely pathogenic and pathogenic variants associated with HCM; G-P-: carriers of likely benign variants associated with HCM; LDL: low-density lipoprotein; LV: left ventricular; MET: metabolic equivalent of task; peakEcc: peak circumferential strain; peakEII2Ch: longitudinal strain analyzed in 2-chamber view; PER: peak ejection rate; PFR: peak filling rate; RV: right ventricular; SVi: indexed stroke volume; TPKEII2Ch: global time to longitudinal strain analyzed in 2-chamber view;

Supplementary Table 8: Results of Fisher's Exact tests when excluding overlapping genes																
	ARVC G+ vs G-				DCM G+ vs G- (without ARVC genes)				DCM G+ vs G- (without HCM genes)				HCM G+ vs G-			
	OR	95% LCI	95% UCI	p-value	OR	95% LCI	95% UCI	p-value	OR	95% LCI	95% UCI	p-value	OR	95% LCI	95% UCI	p-value
CARDIOVASCULAR RISK FACTORS																
Diabetes	1.136	0.741	1.684	0.530	0.819	0.602	1.095	0.194	0.835	0.595	1.147	0.293	1.682	1.348	2.083	4.20E-06
Hypertension	0.989	0.762	1.276	0.949	1.092	0.927	1.285	0.283	0.999	0.831	1.198	1.000	1.025	0.875	1.197	0.753
Hypercholesterolaemia	1.033	0.774	1.365	0.833	1.137	0.949	1.356	0.156	1.057	0.864	1.288	0.579	1.192	1.006	1.407	0.041
Ever Smoked	1.158	0.905	1.479	0.244	1.223	1.045	1.432	0.011	1.192	1.002	1.418	0.044	0.869	0.745	1.013	0.069
Family heart disease	1.386	1.086	1.770	0.007	1.134	0.969	1.327	0.114	1.074	0.902	1.277	0.434	1.010	0.869	1.173	0.910
CARDIAC DISEASE/OUTCOME																
Cardiac problem	2.604	0.513	8.240	0.120	1.052	0.208	3.309	0.762	1.291	0.255	4.065	0.511	1.262	0.327	3.497	0.563
Heart failure	1.169	0.420	2.628	0.650	2.600	1.713	3.837	8.40E-06	3.010	1.955	4.497	1.00E-06	1.504	0.903	2.386	0.097
Cardiomyopathy	0.956	0.023	5.708	1.000	7.963	4.354	14.167	1.70E-10	6.807	3.379	12.983	2.90E-07	5.681	2.936	10.526	5.20E-07
Dilated cardiomyopathy	2.531	0.060	16.741	0.342	8.290	3.003	21.263	4.40E-05	11.486	4.365	28.657	1.40E-06	0.923	0.022	6.079	1.000
Hypertrophic cardiomyopathy	0.000	0.000	20.787	1.000	10.856	3.095	35.820	1.40E-04	2.204	0.050	16.486	0.39	17.990	6.569	51.615	1.10E-08
Ventricular arrhythmias	7.664	2.835	17.818	9.50E-05	4.849	2.201	9.888	8.70E-05	5.415	2.368	11.317	7.10E-05	1.963	0.597	5.081	0.192
Atrial arrhythmias	1.113	0.400	2.499	0.663	2.313	1.507	3.444	1.40E-04	2.465	1.556	3.766	1.10E-04	1.015	0.554	1.727	0.892
Heart arrhythmia	2.642	0.690	7.242	0.075	2.685	1.213	5.356	0.008	3.639	1.706	7.089	0.001	0.477	0.056	1.815	0.435
Chronic ischemic heart disease	1.241	0.783	1.889	0.297	1.207	0.901	1.594	0.176	1.318	0.964	1.770	0.069	1.017	0.754	1.349	0.886
Acute myocardial infarction	1.443	0.728	2.600	0.215	1.163	0.728	1.780	0.490	1.005	0.573	1.653	0.900	0.863	0.517	1.368	0.659
Cardiac arrest	0.000	0.000	4.064	1.000	2.549	0.872	6.170	0.043	2.080	0.534	5.863	0.145	1.140	0.224	3.638	0.747
Angina pectoris	1.257	0.613	2.316	0.486	1.157	0.732	1.756	0.500	0.901	0.505	1.500	0.803	1.252	0.824	1.839	0.242
Conduction disorders	1.899	0.797	3.891	0.084	1.633	0.921	2.723	0.080	1.409	0.708	2.554	0.289	1.289	0.700	2.208	0.361
Valvular disease	1.179	0.498	2.394	0.558	2.016	1.345	2.937	0.001	1.866	1.173	2.852	0.006	1.074	0.640	1.708	0.716
Congenital heart disease	2.536	0.291	10.141	0.199	1.542	0.299	5.010	0.452	1.259	0.145	5.016	0.675	1.385	0.269	4.500	0.486
Pulmonary obstructive disease	1.704	1.051	2.643	0.026	1.205	0.845	1.677	0.280	1.112	0.739	1.618	0.551	0.695	0.450	1.033	0.081
Cardiovascular death	1.579	0.665	3.223	0.254	1.605	0.951	2.574	0.058	1.879	1.097	3.049	0.016	0.495	0.196	1.046	0.064
All cause mortality	1.036	0.567	1.756	0.891	1.432	1.037	1.940	0.022	1.290	0.888	1.826	0.145	0.643	0.413	0.961	0.032

Abbreviations:

ARVC: arrhythmogenic right ventricular cardiomyopathy; DCM: dilated cardiomyopathy; G+: carriers of likely pathogenic and pathogenic variants associated with one of the cardiomyopathies; HCM: hypertrophic cardiomyopathy;

LCI: lower limit confidence interval; UCI: upper limit confidence interval.

Supplementary Table 9: Outcome risk stratified by cardiomyopathy and gene

	ARVC G+ vs G-						DCM G+ vs G-						HCM G+ vs G-				
Phenotype	OR	95% LCI	95% UCI	p-value	Gene		OR	95% LCI	95% UCI	p-value	Gene		OR	95% LCI	95% UCI	p-value	Gene
Heart failure	8.270	0.900	36.898	0.030	DES		0.000	0.000	2031.506	1.000	ACTC1		0.000	0.000	2031.506	1.000	ACTC1
Cardiomyopathy	19.151	0.442	132.223	0.056			0.000	0.000	9000.382	1.000			0.000	0.000	9000.382	1.000	
Heart failure + Cardiomyopathy	7.476	0.814	33.321	0.036			0.000	0.000	1841.531	1.000			0.000	0.000	1841.531	1.000	
Phenotype positive	8.110	0.190	54.456	0.124			0.000	0.000	4144.720	1.000			0.000	0.000	4144.720	1.000	
Ventricular arrhythmias	0.000	0.000	88.063	1.000			0.000	0.000	9925.577	1.000			0.000	0.000	9925.577	1.000	
Atrial arrhythmias	3.657	0.086	24.275	0.253			0.000	0.000	1936.952	1.000			0.000	0.000	1936.952	1.000	
Heart arrhythmia	28.201	3.018	128.955	0.003			0.000	0.000	6442.674	1.000			0.000	0.000	6442.674	1.000	
Chronic ischemic heart disease	3.188	0.576	11.850	0.091			0.000	0.000	493.649	1.000			0.000	0.000	493.649	1.000	
Angina pectoris	2.211	0.052	14.617	0.380			0.000	0.000	1185.278	1.000			0.000	0.000	1185.278	1.000	
Cardiovascular death	3.863	0.091	25.642	0.241			0.000	0.000	2042.573	1.000			0.000	0.000	2042.573	1.000	
All-cause mortality	2.836	0.310	12.580	0.179		0.000	0.000	711.200	1.000		0.000	0.000	711.200	1.000			
Heart failure	1.312	0.032	7.822	0.540	DSG2		10.751	0.226	96.809	0.105	ACTN2		0.000	0.000	7.948	1.000	CSR3P3
Cardiomyopathy	0.000	0.000	25.853	1.000			0.000	0.000	235.208	1.000			0.000	0.000	41.147	1.000	
Heart failure + Cardiomyopathy	1.186	0.029	7.061	0.576			9.715	0.205	87.209	0.116			0.000	0.000	7.178	1.000	
Phenotype positive	0.000	0.000	10.646	1.000			0.000	0.000	97.932	1.000			0.000	0.000	16.960	1.000	
Ventricular arrhythmias	0.000	0.000	29.170	1.000			0.000	0.000	264.754	1.000			0.000	0.000	46.435	1.000	
Atrial arrhythmias	0.000	0.000	4.745	1.000			0.000	0.000	43.769	1.000			0.000	0.000	7.565	1.000	
Heart arrhythmia	4.479	0.109	27.435	0.207			0.000	0.000	159.535	1.000			0.000	0.000	27.753	1.000	
Chronic ischemic heart disease	0.638	0.075	2.468	0.767			2.551	0.054	22.836	0.365			0.491	0.012	2.995	0.719	
Angina pectoris	0.755	0.019	4.480	1.000			0.000	0.000	26.400	1.000			0.000	0.000	4.558	1.000	
Cardiovascular death	1.319	0.032	7.866	0.538			10.812	0.227	97.361	0.105			0.000	0.000	7.993	1.000	
All-cause mortality	0.922	0.108	3.572	1.000		3.687	0.078	33.037	0.272		0.000	0.000	2.709	0.399			
Heart failure	0.000	0.000	6.863	1.000	DSG2		8.270	0.900	36.898	0.030	BAG3		0.000	0.000	45.996	1.000	JPH2
Cardiomyopathy	0.000	0.000	35.539	1.000			41.175	4.362	192.166	0.002			0.000	0.000	235.208	1.000	
Heart failure + Cardiomyopathy	0.000	0.000	6.196	1.000			7.476	0.814	33.321	0.036			0.000	0.000	41.524	1.000	
Phenotype positive	0.000	0.000	14.641	1.000			17.455	1.885	78.723	0.008			0.000	0.000	97.932	1.000	
Ventricular arrhythmias	0.000	0.000	40.048	1.000			21.465	0.494	148.888	0.050			0.000	0.000	264.754	1.000	
Atrial arrhythmias	0.000	0.000	6.530	1.000			3.657	0.086	24.275	0.253			10.231	0.215	92.112	0.110	
Heart arrhythmia	0.000	0.000	23.957	1.000			13.101	0.305	89.207	0.080			0.000	0.000	159.535	1.000	
Chronic ischemic heart disease	2.453	0.733	6.515	0.072			0.911	0.022	6.004	1.000			2.551	0.054	22.836	0.365	
Angina pectoris	2.135	0.246	8.503	0.254			0.000	0.000	8.675	1.000			15.464	1.394	108.566	0.014	
Cardiovascular death	0.000	0.000	6.902	1.000			3.863	0.091	25.642	0.241			0.000	0.000	46.258	1.000	
All-cause mortality	1.272	0.147	5.051	0.673		1.317	0.031	8.689	0.548		0.000	0.000	15.706	1.000			
Heart failure	1.121	0.028	6.628	0.596	DSP		3.507	0.691	11.071	0.061	DES		1.609	0.966	2.554	0.047	MYBPC3
Cardiomyopathy	5.591	0.135	34.667	0.170			5.591	0.135	34.667	0.170			6.075	3.139	11.256	2.30E-07	
Heart failure + Cardiomyopathy	2.068	0.242	7.995	0.261			3.170	0.625	9.992	0.077			2.547	1.720	3.681	4.50E-06	
Phenotype positive	4.833	0.560	18.977	0.070			2.367	0.058	14.183	0.352			3.732	2.234	6.010	9.20E-07	
Ventricular arrhythmias	0.000	0.000	24.850	1.000			12.800	1.448	52.549	0.013			2.097	0.637	5.428	0.180	
Atrial arrhythmias	0.000	0.000	4.042	1.000			4.551	1.177	12.667	0.015			1.011	0.540	1.751	0.889	
Heart arrhythmia	0.000	0.000	14.836	1.000			7.811	0.897	31.194	0.031			0.509	0.060	1.939	0.588	
Chronic ischemic heart disease	2.126	0.803	4.798	0.088			1.780	0.617	4.218	0.169			1.030	0.757	1.375	0.824	
Angina pectoris	2.752	0.714	7.618	0.068			0.645	0.016	3.797	1.000			1.294	0.846	1.913	0.188	
Cardiovascular death	2.302	0.269	8.907	0.225			1.127	0.028	6.666	0.594			0.529	0.209	1.118	0.106	
All-cause mortality	0.785	0.092	3.011	1.000		1.202	0.238	3.761	0.740		0.660	0.420	0.995	0.043			
Heart failure	0.000	0.000	9.023	1.000	JUP		1.121	0.028	6.628	0.596	DSP		1.673	0.656	3.576	0.208	MYH7
Cardiomyopathy	0.000	0.000	46.694	1.000			5.591	0.135	34.667	0.170			9.583	3.810	21.218	6.60E-06	
Heart failure + Cardiomyopathy	0.000	0.000	8.143	1.000			2.068	0.242	7.995	0.261			3.360	1.814	5.798	1.20E-04	
Phenotype positive	0.000	0.000	19.247	1.000			4.833	0.560	18.977	0.070			5.116	2.338	10.038	6.80E-05	
Ventricular arrhythmias	0.000	0.000	52.650	1.000			0.000	0.000	24.850	1.000			2.618	0.303	10.344	0.189	
Atrial arrhythmias	0.000	0.000	8.586	1.000			0.000	0.000	4.042	1.000			1.829	0.769	3.740	0.094	
Heart arrhythmia	0.000	0.000	31.449	1.000			0.000	0.000	14.836	1.000			0.795	0.020	4.666	1.000	
Chronic ischemic heart disease	0.555	0.013	3.425	1.000			2.126	0.803	4.798	0.088			1.008	0.573	1.665	0.899	
Angina pectoris	1.346	0.033	8.345	0.534			2.752	0.714	7.618	0.068			1.395	0.653	2.648	0.337	
Cardiovascular death	0.000	0.000	9.074	1.000			3.527	0.695	11.134	0.061			0.949	0.254	2.506	1.000	
All-cause mortality	0.000	0.000	3.074	0.633		1.202	0.238	3.761	0.740		1.458	0.827	2.413	0.135			
Heart failure	1.502	0.476	3.637	0.395	PKP2		3.044	0.603	9.532	0.084	FLNC		0.000	0.000	10.428	1.000	MYL2
Cardiomyopathy	1.467	0.036	8.797	0.501			0.000	0.000	19.186	1.000			0.000	0.000	53.909	1.000	
Heart failure + Cardiomyopathy	1.638	0.586	3.700	0.281			2.751	0.545	8.603	0.105			0.000	0.000	9.415	1.000	
Phenotype positive	0.621	0.015	3.596	1.000			4.207	0.489	16.404	0.088			0.000	0.000	22.239	1.000	
Ventricular arrhythmias	11.900	4.383	27.862	6.40E-06			0.000	0.000	21.656	1.000			0.000	0.000	60.833	1.000	
Atrial arrhythmias	1.726	0.617	3.902	0.174			1.897	0.222	7.284	0.293			2.560	0.061	16.167	0.335	
Heart arrhythmia	3.044	0.603	9.522	0.084			0.000	0.000	12.921	1.000			0.000	0.000	36.379	1.000	
Chronic ischemic heart disease	1.298	0.734	2.157	0.315			0.981	0.257	2.678	1.000			1.343	0.151	5.582	0.663	
Angina pectoris	1.224	0.481	2.606	0.522			0.000	0.000	2.121	0.422			1.548	0.037	9.738	0.488	
Cardiovascular death	2.139	0.836	4.591	0.086			2.003	0.235	7.700	0.272			0.000	0.000	10.487	1.000	
All-cause mortality	1.172	0.571	2.169	0.612		2.634	1.001	5.884	0.025		0.922	0.022	5.787	1.000			
Heart failure	0.000	0.000	2031.506	1.000	PLN		1.312	0.032	7.822	0.540	LMNA		0.000	0.000	2031.506	1.000	MYL3
Cardiomyopathy	0.000	0.000	9000.382	1.000			0.000	0.000	25.853	1.000			0.000	0.000	9000.382	1.000	
Heart failure + Cardiomyopathy	0.000	0.000	1841.531	1.000			1.186	0.029	7.061	0.576			0.000	0.000	1841.531	1.000	
Phenotype positive	0.000	0.000	4144.720	1.000			0.000	0.000	10.646	1.000			0.000	0.000	4144.720	1.000	
Ventricular arrhythmias	0.000	0.000	9925.577	1.000			15.041	1.692	62.322	0.009			0.000	0.000	9925.577	1.000	
Atrial arrhythmias	0.000	0.000	1936.952	1.000			2.560	0.298	9.995	0.194			0.000	0.000	1936.952	1.000	
Heart arrhythmia	0.000	0.000	6442.674	1.000			14.115	2.708	46.576	0.002			0.000	0.000	6442.674	1.000	
Chronic ischemic heart disease	0.000	0.000	493.649	1.000			1.343	0.347	3.744	0.545			0.000	0.000	493.649	1.000	
Angina pectoris	0.000	0.000	1185.278	1.000			0.755	0.019	4.480	1.000			0.000				

	ARVC G+ vs G-					DCM G+ vs G-					HCM G+ vs G-				
Phenotype	OR	95% LCI	95% UCI	p-value	Gene	OR	95% LCI	95% UCI	p-value	Gene	OR	95% LCI	95% UCI	p-value	Gene
Heart failure						0.000	0.000	59.126	1.000		0.000	0.000	45.996	1.000	
Cardiomyopathy						0.000	0.000	301.276	1.000		0.000	0.000	235.208	1.000	
Heart failure + Cardiomyopathy						0.000	0.000	53.348	1.000		0.000	0.000	41.524	1.000	
Phenotype positive						0.000	0.000	125.163	1.000		0.000	0.000	97.932	1.000	
Ventricular arrhythmias						0.000	0.000	339.088	1.000		0.000	0.000	264.754	1.000	
Atrial arrhythmias						0.000	0.000	56.235	1.000	RBM20	0.000	0.000	43.769	1.000	TPM1
Heart arrhythmia						0.000	0.000	204.364	1.000		0.000	0.000	159.535	1.000	
Chronic ischemic heart disease						0.000	0.000	13.944	1.000		0.000	0.000	10.853	1.000	
Angina pectoris						0.000	0.000	33.910	1.000		0.000	0.000	26.400	1.000	
Cardiovascular death						0.000	0.000	59.466	1.000		0.000	0.000	46.258	1.000	
All-cause mortality						0.000	0.000	20.179	1.000		0.000	0.000	15.706	1.000	
Heart failure						0.927	0.023	5.440	1.000						
Cardiomyopathy						0.000	0.000	18.183	1.000						
Heart failure + Cardiomyopathy						0.838	0.021	4.912	1.000						
Phenotype positive						1.959	0.048	11.638	0.406						
Ventricular arrhythmias						5.191	0.126	32.118	0.182						
Atrial arrhythmias						0.883	0.022	5.177	1.000	SCN5A					
Heart arrhythmia						3.166	0.077	19.105	0.278						
Chronic ischemic heart disease						1.444	0.505	3.372	0.444						
Angina pectoris						0.000	0.000	2.010	0.265						
Cardiovascular death						0.000	0.000	3.525	0.629						
All-cause mortality						0.988	0.197	3.055	1.000						
Heart failure						8.961	0.194	74.405	0.122						
Cardiomyopathy						0.000	0.000	192.656	1.000						
Heart failure + Cardiomyopathy						8.097	0.175	67.326	0.133						
Phenotype positive						0.000	0.000	79.918	1.000						
Ventricular arrhythmias						0.000	0.000	216.918	1.000						
Atrial arrhythmias						0.000	0.000	35.791	1.000	TNNC1					
Heart arrhythmia						0.000	0.000	130.632	1.000						
Chronic ischemic heart disease						2.126	0.046	17.555	0.411						
Angina pectoris						5.158	0.112	42.747	0.200						
Cardiovascular death						0.000	0.000	37.806	1.000						
All-cause mortality						7.373	0.700	45.159	0.047						
Heart failure						0.000	0.000	6.036	1.000						
Cardiomyopathy						0.000	0.000	31.281	1.000						
Heart failure + Cardiomyopathy						0.000	0.000	5.451	1.000						
Phenotype positive						0.000	0.000	12.879	1.000						
Ventricular arrhythmias						8.852	0.212	56.217	0.112						
Atrial arrhythmias						1.506	0.037	9.076	0.493	TNNI3					
Heart arrhythmia						0.000	0.000	21.072	1.000						
Chronic ischemic heart disease						1.196	0.234	3.836	0.739						
Angina pectoris						2.902	0.566	9.356	0.097						
Cardiovascular death						1.591	0.039	9.594	0.475						
All-cause mortality						1.117	0.130	4.390	0.701						
Heart failure						1.735	0.042	10.530	0.447						
Cardiomyopathy						8.655	0.207	54.922	0.115						
Heart failure + Cardiomyopathy						3.240	0.373	12.920	0.137						
Phenotype positive						3.664	0.089	22.504	0.247						
Ventricular arrhythmias						0.000	0.000	38.788	1.000						
Atrial arrhythmias						1.652	0.040	10.021	0.463	TNNI2					
Heart arrhythmia						0.000	0.000	23.166	1.000						
Chronic ischemic heart disease						1.319	0.257	4.272	0.504						
Angina pectoris						0.999	0.024	6.034	1.000						
Cardiovascular death						3.605	0.414	14.395	0.116						
All-cause mortality						1.907	0.371	6.184	0.227						
Heart failure						0.000	0.000	287.327	1.000						
Cardiomyopathy						0.000	0.000	1454.551	1.000						
Heart failure + Cardiomyopathy						0.000	0.000	259.607	1.000						
Phenotype positive						0.000	0.000	604.765	1.000						
Ventricular arrhythmias						0.000	0.000	1644.031	1.000						
Atrial arrhythmias						0.000	0.000	273.509	1.000	TPM1					
Heart arrhythmia						0.000	0.000	987.049	1.000						
Chronic ischemic heart disease						0.000	0.000	67.908	1.000						
Angina pectoris						0.000	0.000	165.176	1.000						
Cardiovascular death						0.000	0.000	288.947	1.000						
All-cause mortality						0.000	0.000	98.466	1.000						
Heart failure						3.585	2.012	6.014	2.20E-05						
Cardiomyopathy						10.241	4.492	21.287	3.20E-07						
Heart failure + Cardiomyopathy						3.444	1.969	5.695	2.10E-05						
Phenotype positive						3.442	1.426	7.187	0.004						
Ventricular arrhythmias						4.494	1.148	12.764	0.016						
Atrial arrhythmias						3.200	1.766	5.433	1.20E-04	TTN					
Heart arrhythmia						2.741	0.716	7.515	0.068						
Chronic ischemic heart disease						1.178	0.728	1.823	0.477						
Angina pectoris						1.182	0.554	2.238	0.595						
Cardiovascular death						2.064	0.962	3.946	0.037						
All-cause mortality						1.229	0.699	2.027	0.404						

Abbreviations:

ACT1 : Actin Alpha Cardiac Muscle 1; ACTN2 : Alpha-actinin 2; ARVC: Arrhythmogenic right ventricular cardiomyopathy; BAG3 : BAG Cochaperone 3; CSRP3 : Cysteine And Glycine Rich Protein 3; DCM: Dilated cardiomyopathy; DES : Desmin; DSC2 : Desmocollin 2; DSG2 : Desmoglein 2; DSG2 : Desmoglein 2; DSP : desmoplakin; FLNC : Filamin-C; G+ : carriers of likely pathogenic and pathogenic variants associated with one of the cardiomyopathies; HCM: Hypertrophic cardiomyopathy; JPH2 : Junctophilin 2; JUP : Junction Plakoglobin; LCI: lower limit confidence interval; LMNA : Lamin A/C; MYBPC3 : Myosin Binding Protein C3; MYH7 : Myosin Heavy Chain 7; NEXN : Nexlin F-Actin Binding Protein; PKP2 : Plakophilin 2; PLN : phospholamban; RBM20 : RNA Binding Motif Protein 20; SCN5A : Sodium Voltage-Gated Channel Alpha Subunit 5; TNNC1 : Troponin C1, Slow Skeletal And Cardiac Type; TNNI3 : Troponin I3, Cardiac Type; TNNI2 : Troponin T2, Cardiac Type; TPM1 : Tropomyosin 1; TTN : Titin; UCI: upper limit confidence interval.

Supplementary Table 10: Extensive baseline table of P- CMR participants

	ARVC G+	DCM G+	HCM G+	Controls G-	Missing
n	33	87	130	986	
Sex = Female (%)	19 (57.6)	46 (52.9)	62 (47.7)	486 (49.3)	0
Age (median [IQR])	54.00 [50.00, 61.00]	55.00 [50.00, 59.50]	54.00 [48.00, 60.00]	55.00 [49.00, 60.00]	0
Ethnicity (%)					0
Asian	0 (0.0)	1 (1.1)	18 (13.8)	76 (7.7)	
Black	0 (0.0)	1 (1.1)	2 (1.5)	2 (0.2)	
Chinese	1 (3.0)	1 (1.1)	1 (0.8)	9 (0.9)	
Mixed	0 (0.0)	1 (1.1)	5 (3.8)	15 (1.5)	
Other	0 (0.0)	0 (0.0)	1 (0.8)	5 (0.5)	
White	32 (97.0)	83 (95.4)	103 (79.2)	879 (89.1)	
CARDIOVASCULAR RISK FACTORS					
BMI (median [IQR])	26.10 [24.23, 28.72]	26.27 [23.68, 29.11]	26.07 [23.82, 28.82]	25.84 [23.58, 28.62]	0
Diabetes (%)	2 (6.1)	7 (8.0)	12 (9.2)	78 (7.9)	0
Hypertension (%)	6 (18.2)	27 (31.0)	42 (32.3)	309 (31.3)	0
Mean systolic blood pressure (median [IQR])	131.00 [117.50, 141.00]	134.50 [120.75, 146.75]	133.00 [122.00, 146.50]	133.50 [122.00, 146.00]	0.2
Mean diastolic blood pressure (median [IQR])	79.50 [73.00, 86.50]	80.25 [74.50, 87.38]	81.50 [76.00, 87.50]	81.00 [74.50, 87.00]	0.2
Hypercholesterolaemia (%)	9 (27.3)	26 (29.9)	45 (34.6)	269 (27.3)	0
Total cholesterol (median [IQR])	5.39 [4.92, 6.09]	5.51 [4.76, 6.34]	5.66 [4.85, 6.48]	5.63 [4.94, 6.44]	3.5
HDL (median [IQR])	1.41 [1.12, 1.63]	1.42 [1.19, 1.61]	1.38 [1.14, 1.62]	1.40 [1.18, 1.71]	8.8
LDL (median [IQR])	3.31 [3.00, 4.02]	3.45 [2.87, 4.13]	3.58 [2.89, 4.24]	3.50 [3.00, 4.11]	3.7
Ever Smoked (%)	13 (39.4)	45 (51.7)	53 (40.8)	397 (40.3)	0
MET minutes per week for walking (median [IQR])	693.00 [309.38, 1,386.00]	462.00 [198.00, 1,188.00]	495.00 [247.50, 1,039.50]	594.00 [247.50, 1,188.00]	14.3
MET minutes per week for moderate activity (median [IQR])	360.00 [90.00, 880.00]	570.00 [240.00, 960.00]	360.00 [160.00, 840.00]	360.00 [120.00, 1,080.00]	14.3
MET minutes per week for vigorous activity (median [IQR])	240.00 [0.00, 1,110.00]	280.00 [0.00, 960.00]	320.00 [0.00, 960.00]	288.00 [0.00, 960.00]	14.3
Total MET minutes per week (median [IQR])	1,840.50 [1,113.00, 2,447.25]	1,483.00 [937.50, 3,097.50]	1,436.00 [793.00, 2,559.00]	1,737.00 [736.88, 3,352.50]	14.3
Family heart disease (%)	17 (51.5)	47 (54.0)	82 (61.2)	542 (54.7)	0
CARDIAC DISEASE/OUTCOME					
Cardiac problem (%)	0 (0.0)	1 (1.1)	1 (0.8)	6 (0.6)	0
Heart failure (%)	0 (0.0)	0 (0.0)	1 (0.8)	5 (0.5)	0
Cardiomyopathy (%)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0
Dilated cardiomyopathy (%)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0
Hypertrophic cardiomyopathy (%)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0
Ventricular arrhythmias (%)	0 (0.0)	0 (0.0)	0 (0.0)	2 (0.2)	0
Atrial arrhythmias (%)	0 (0.0)	5 (5.7)	3 (2.3)	12 (1.2)	0
Heart arrhythmia (%)	1 (3.0)	3 (3.4)	0 (0.0)	5 (0.5)	0
Chronic ischemic heart disease (%)	2 (6.1)	3 (3.4)	3 (2.3)	43 (4.4)	0
Acute myocardial infarction (%)	0 (0.0)	0 (0.0)	1 (0.8)	29 (2.9)	0
Cardiac arrest (%)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.1)	0
Angina pectoris (%)	1 (3.0)	2 (2.3)	6 (4.6)	18 (1.8)	0
Conduction disorders (%)	0 (0.0)	0 (0.0)	2 (1.5)	10 (1.0)	0
Valvular disease (%)	0 (0.0)	2 (2.3)	0 (0.0)	23 (2.3)	0
Congenital heart disease (%)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0
Pulmonary obstructive disease (%)	2 (6.1)	3 (3.4)	4 (3.1)	35 (3.5)	0
Cardiovascular death (%)	0 (0.0)	0 (0.0)	1 (0.8)	3 (0.3)	0
All cause mortality (%)	0 (0.0)	1 (1.1)	1 (0.8)	12 (1.2)	0
ECG MEASUREMENTS					
n (%)	29 (87.9)	80 (92.0)	110 (84.6)	856 (86.8)	0
P duration (median [IQR])	100.00 [92.00, 110.00]	98.00 [86.00, 106.00]	100.00 [90.00, 107.00]	100.00 [90.00, 108.00]	16.3
P axis (median [IQR])	54.00 [42.25, 61.50]	48.00 [36.00, 61.00]	49.00 [35.00, 62.50]	55.00 [41.00, 67.00]	37.4
PQ interval (median [IQR])	171.00 [147.00, 183.00]	165.00 [144.50, 176.00]	160.00 [146.00, 170.00]	160.00 [144.00, 178.00]	37.5
QRS duration (median [IQR])	88.00 [80.00, 94.00]	83.00 [78.00, 92.00]	84.00 [80.00, 92.00]	86.00 [80.00, 94.00]	13
R axis (median [IQR])	23.50 [-1.75, 50.00]	27.50 [-2.50, 50.00]	40.00 [13.00, 54.00]	35.50 [8.00, 58.00]	35.4
QTC interval (median [IQR])	429.50 [403.25, 440.00]	422.00 [405.50, 435.75]	414.00 [401.00, 429.00]	416.00 [402.00, 432.00]	35.4
T axis (median [IQR])	35.50 [20.25, 54.25]	42.00 [26.25, 57.00]	45.00 [31.00, 61.00]	40.00 [23.00, 55.75]	35.4
CMR MEASUREMENTS					
RVEDVi (median [IQR])	79.14 [73.73, 92.49]	76.54 [69.50, 84.81]	77.12 [67.27, 90.71]	80.19 [70.61, 90.27]	8.4
RVESVi (median [IQR])	35.16 [29.98, 38.71]	32.21 [27.10, 37.43]	31.40 [26.20, 37.28]	32.90 [27.42, 39.70]	8.4
RVSV (median [IQR])	87.13 [71.60, 106.86]	82.22 [69.02, 93.57]	86.09 [69.79, 105.70]	85.85 [72.77, 101.86]	8.4
RVSVi (median [IQR])	48.22 [41.97, 52.24]	44.50 [40.75, 51.29]	45.77 [40.64, 54.04]	46.53 [40.91, 52.81]	8.4
RVEF (median [IQR])	58.30 [53.30, 62.06]	59.31 [52.99, 62.59]	59.56 [54.80, 63.99]	58.37 [54.19, 62.74]	8.7
RVPER (median [IQR])	405.50 [291.70, 489.35]	361.23 [290.08, 443.96]	389.50 [310.20, 475.80]	388.65 [316.52, 465.95]	8.4
RVPAFR (median [IQR])	302.80 [225.65, 375.82]	295.76 [220.44, 343.18]	278.70 [230.80, 334.70]	300.30 [245.10, 363.40]	8.5
RVPAFR (median [IQR])	274.70 [213.70, 343.90]	275.00 [224.92, 344.91]	300.10 [236.43, 366.40]	282.86 [222.52, 360.08]	8.4
LVEDVi (median [IQR])	80.77 [73.11, 88.68]	77.32 [68.06, 86.15]	72.34 [64.33, 84.59]	74.37 [66.38, 83.15]	17.8
LVESVi (median [IQR])	31.74 [25.91, 39.55]	31.69 [26.19, 39.84]	29.37 [24.09, 34.83]	30.02 [25.13, 35.72]	17.8
LVSV (median [IQR])	91.46 [74.68, 102.10]	80.50 [68.12, 95.54]	82.92 [64.93, 100.22]	81.72 [70.11, 95.72]	17.6
LVSVi (median [IQR])	46.82 [43.25, 50.82]	43.18 [37.50, 49.11]	44.07 [38.21, 50.19]	44.06 [39.37, 50.29]	17.6
LVEF (median [IQR])	59.69 [56.59, 66.23]	57.34 [52.60, 62.80]	59.74 [56.25, 63.62]	59.48 [55.29, 63.52]	17.8
LVPER (median [IQR])	407.30 [307.20, 455.45]	339.21 [259.00, 430.80]	340.46 [264.61, 460.80]	373.80 [302.47, 453.27]	17.6
LVPFR (median [IQR])	346.20 [290.80, 422.04]	314.20 [258.81, 366.80]	320.25 [248.49, 371.20]	321.50 [259.92, 385.64]	17.6
LVPAFR (median [IQR])	208.70 [158.60, 298.40]	253.35 [178.90, 330.36]	241.28 [167.28, 321.50]	233.50 [167.46, 305.10]	17.7
LVEDMi (median [IQR])	42.81 [36.04, 48.38]	42.96 [36.56, 46.70]	42.41 [34.90, 49.27]	41.85 [36.55, 48.61]	17.7
LVMVR (median [IQR])	0.55 [0.49, 0.60]	0.54 [0.49, 0.59]	0.56 [0.50, 0.64]	0.56 [0.50, 0.62]	17.6
LVEDV/RVEDV (median [IQR])	0.94 [0.90, 1.05]	1.00 [0.91, 1.08]	0.94 [0.86, 0.99]	0.93 [0.86, 1.03]	20.3
LVESV/RVESV (median [IQR])	0.91 [0.82, 1.00]	1.02 [0.89, 1.19]	0.90 [0.82, 1.02]	0.91 [0.80, 1.04]	20.3
peakEcc (median [IQR])	-22.87 [-26.91, -21.63]	-22.67 [-24.40, -19.13]	-22.91 [-25.18, -20.88]	-22.72 [-24.98, -20.42]	36.2
TPKEcc (median [IQR])	326.90 [318.44, 363.82]	334.75 [320.35, 360.47]	331.96 [308.18, 353.62]	331.30 [309.75, 354.70]	36.4
peakEII2Ch (median [IQR])	-21.37 [-23.84, -19.31]	-20.29 [-22.24, -17.97]	-21.54 [-23.50, -18.88]	-21.17 [-23.32, -18.93]	37.3
TPKEII2Ch (median [IQR])	346.80 [321.40, 370.50]	353.30 [330.98, 381.65]	353.10 [320.40, 379.60]	349.88 [321.78, 379.08]	37.4
peakEII4Ch (median [IQR])	-24.25 [-26.79, -21.38]	-22.30 [-24.57, -19.76]	-24.05 [-26.94, -22.28]	-23.30 [-25.98, -21.37]	38.3
TPKEII4Ch (median [IQR])	354.30 [328.00, 406.60]	354.80 [325.40, 392.55]	349.21 [318.52, 390.17]	357.30 [326.94, 397.80]	38.6
Wall thickness segment 1 (median [IQR])	7.05 [6.25, 8.57]	7.44 [6.78, 8.21]	7.59 [6.72, 8.55]	7.65 [6.81, 8.49]	31.6
Wall thickness segment 2 (median [IQR])	6.81 [5.24, 7.75]	6.03 [5.31, 7.39]	7.06 [5.87, 8.21]	6.75 [5.74, 7.90]	31.6
Wall thickness segment 3 (median [IQR])	5.58 [4.74, 7.16]	6.10 [4.85, 6.66]	6.22 [5.04, 7.39]	6.05 [5.17, 6.95]	31.6
Wall thickness segment 4 (median [IQR])	6.06 [5.49, 6.76]	6.57 [5.89, 6.99]	6.47 [5.85, 6.92]	6.54 [5.81, 7.21]	31.6
Wall thickness segment 5 (median [IQR])	5.96 [5.48, 6.40]	6.08 [5.57, 6.50]	6.03 [5.57, 6.64]	6.20 [5.62, 6.96]	31.6

	ARVC G+	DCM G+	HCM G+	Controls G-	Missing
n	33	87	130	986	
Wall thickness segment 6 (median [IQR])	6.45 [6.15, 6.79]	6.58 [6.05, 7.01]	6.56 [5.93, 7.09]	6.55 [5.97, 7.31]	31.6
Wall thickness segment 7 (median [IQR])	5.52 [5.21, 6.06]	5.56 [5.28, 6.14]	5.75 [5.21, 6.19]	5.73 [5.29, 6.31]	31.7
Wall thickness segment 8 (median [IQR])	6.97 [6.44, 7.28]	6.90 [6.27, 7.47]	6.89 [6.16, 7.49]	7.01 [6.28, 7.75]	31.7
Wall thickness segment 9 (median [IQR])	6.96 [6.18, 7.46]	7.18 [6.64, 7.85]	7.21 [6.38, 8.20]	7.38 [6.48, 8.25]	31.7
Wall thickness segment 10 (median [IQR])	5.88 [5.33, 6.23]	6.28 [5.90, 6.89]	6.18 [5.44, 7.00]	6.24 [5.60, 6.96]	31.7
Wall thickness segment 11 (median [IQR])	5.42 [4.96, 5.81]	5.56 [5.08, 6.08]	5.53 [5.02, 6.37]	5.62 [5.10, 6.32]	31.7
Wall thickness segment 12 (median [IQR])	5.38 [5.17, 6.12]	5.50 [5.14, 6.02]	5.59 [5.08, 6.13]	5.60 [5.22, 6.26]	31.7
Wall thickness segment 13 (median [IQR])	5.38 [5.24, 5.80]	5.44 [5.13, 5.91]	5.49 [5.12, 5.93]	5.48 [5.10, 5.91]	31.7
Wall thickness segment 14 (median [IQR])	5.92 [5.41, 6.60]	5.90 [5.44, 6.28]	5.95 [5.38, 6.58]	6.00 [5.36, 6.66]	31.7
Wall thickness segment 15 (median [IQR])	5.12 [4.78, 5.37]	4.99 [4.56, 5.39]	4.99 [4.44, 5.68]	5.09 [4.48, 5.69]	31.7
Wall thickness segment 16 (median [IQR])	5.32 [4.86, 5.67]	5.13 [4.82, 5.67]	5.23 [4.76, 5.65]	5.26 [4.80, 5.72]	31.7
Global wall thickness (median [IQR])	6.07 [5.57, 6.29]	6.17 [5.90, 6.59]	6.28 [5.70, 6.87]	6.30 [5.72, 6.84]	31.6
Septal wall thickness (median [IQR])	6.43 [5.69, 7.01]	6.37 [6.00, 6.90]	6.62 [6.12, 7.52]	6.67 [5.88, 7.34]	31.7
Maximum wall thickness (median [IQR])	7.81 [6.97, 8.59]	8.01 [7.43, 8.66]	8.16 [7.45, 9.58]	8.09 [7.24, 9.01]	31.7

Abbreviations:

ARVC: arrhythmogenic right ventricular cardiomyopathy; BMI: body mass index; CMR: cardiac magnetic resonance imaging; DCM: dilated cardiomyopathy; ECG: Electrocardiography;

EDVi: indexed end-diastolic volume; EDMi: indexed end-diastolic mass; EF: ejection fraction; ESVi: indexed end-systolic volume;

G+: carriers of likely pathogenic and pathogenic variants associated with one of the cardiomyopathies; HCM: hypertrophic cardiomyopathy; HDL: high-density lipoprotein;

IQR: interquartile range; LDL: low-density lipoprotein; LV: left ventricular; MET: metabolic equivalent of task; MVR: mass to volume ratio; PAFR: peak atrial filling rate;

peakEcc: peak circumferential strain; peakEI2Ch: longitudinal strain analyzed in 2-chamber view; peakEI4Ch: longitudinal strain analyzed in 4-chamber view; PER: peak ejection rate;

PFR: peak filling rate; RV: right ventricular; SVi: indexed stroke volume; TPKEcc: global time to peak circumferential strain;

TPKEI2Ch: global time to longitudinal strain analyzed in 2-chamber view; TPKEI4Ch: global time to longitudinal strain analyzed in 4-chamber view.