SUPPLEMENTAL MATERIAL

Supplemental Table 1. Summary of genes sequenced for 65 individuals with gene panel testing

ABCC9	EMD	MTTH	*MYH7*	SGCD
ACTC1	GLA	MTTI	MYL2	TAZ
ACTN2	LAMP2	MTTK	MYL3	TCAP
ANKRD1	LDB3	MTTL1	MYPN	TNNC1
BAG3	LMNA	MTTL2	NEBL	*TNNI3*
CAV3	MTND1	MTTM	NEXN	*TNNT2*
CRYAB	MTND5	MTTQ	PLN	*TPM1*
CSRP3	MTND6	MTTS1	PRKAG2	TTN
CTF1	MTTD	MTTS2	RBM20	TTR
DES	MTTG	*MYBPC3*	SCN5A	VCL

65 individuals had CM gene panel testing from one of four clinical testing laboratories. Gene panel size ranged from 11-38 genes. All individuals had sequencing of at least the 6 genes in italics. 52 (80%) individuals had sequencing of at least the 27 genes in gray.

Supplemental Table 2. Genetic conditions and test results in 12 individuals with LVNC

Genetic Diagnostic Category	**Cardiac Phenotype**	**Genetic Diagnosis**	**Genetic Testing Results**
Mitochondrial	LVNC/CM	Mitochondrial	m.8528T>C, homoplasmic
Mitochondrial	iLVNC	Unknown	Non-diagnostic
Mitochondrial	LVNC/CM	Unknown	Non-diagnostic
Mitochondrial	LVNC/CM	Mitochondrial	m.5814T>C, homoplasmic
Chromosomal	iLVNC	Chromosomal	Unbalanced translocation, 46,XX,der(13)t(7;13)(q33;q33.1)
Chromosomal	iLVNC	1p36 deletion syndrome	6.5 Mb deletion, 1p36.33p36.31
Chromosomal	iLVNC	Chromosomal	Tetrasomy, 5q32.2-5q35.3
Syndromic/mitochondrial	LVNC/CM	Barth syndrome	*TAZ*, deletion of exons 1-5
Syndromic	LVNC/CVM	Noonan syndrome	Non-diagnostic
Syndromic	LVNC/CVM	Noonan syndrome	Non-diagnostic
Syndromic	LVNC/CVM	Noonan syndrome	*PTPN11*, p.Asn58Lys, c.174C>A, heterozygous
Syndromic	LVNC/CM	Malonic acidemia	*MLYCD*, p.Leu133AlafsX72, c.393_400del8, homozygous