

## Supplementary Table S1

Heterozygous nucleotide variants from CARDIO panel obtained by WES present in genome databases (EVS, dbSNP, Ensembl Gene Browser).

Chr., Chromosome.

| Chr. | Gene          | Chromosomal change g. | Transcript  | Nucleotide change c. | Amino acid change p. | Reference genome database | Annotation  | MAF (%) |
|------|---------------|-----------------------|-------------|----------------------|----------------------|---------------------------|-------------|---------|
| 1    | <i>CLCNKB</i> | 16378000 A>G          | NM_000085.4 | 1255A>G              | Ile419Val            | EVS                       | rs6650119   | 13.06   |
| 1    | <i>GJA4</i>   | 35260769 C>T          | NM_002060.2 | 955C>T               | Pro319Ser            | EVS                       | rs1764391   | 37.81   |
| 1    | <i>NEXN</i>   | 78392446 G>A          | NM_144573.3 | 733G>A               | Gly245Arg            | EVS                       | rs1166698   | 15.78   |
| 1    | <i>CLCA2</i>  | 86891073 G>A          | NM_006536.5 | 238G>A               | Val80Ile             | EVS                       | rs11580625  | 3.07    |
| 1    | <i>CLCA1</i>  | 86952324 A>G          | NM_001285.3 | 1070A>G              | Asn357Ser            | EVS                       | rs2734705   | 13.08   |
| 1    | <i>CLCA1</i>  | 86959173 T>C          | NM_001285.3 | 1571T>C              | Met524Thr            | EVS                       | rs2791494   | 19.83   |
| 1    | <i>KCNA10</i> | 111060752 C>T         | NM_005549.2 | 658C>A               | Val1536Met           | EVS                       | rs34970857  | 6.00    |
| 1    | <i>CASQ2</i>  | 116310967 T>C         | NM_001232.3 | 196A>G               | Thr66Ala             | EVS                       | rs4074536   | 33.94   |
| 1    | <i>ATPIA4</i> | 160134056 G>A         | NM_144699.3 | 889G>A               | Glu297Lys            | EVS                       | rs17368402  | 8.34    |
| 1    | <i>KCNHI</i>  | 210857116 C>A         | NM_172362.2 | 2477G>T              | Gly826Val            | EVS                       | rs115026899 | 2.58    |
| 2    | <i>APOB</i>   | 21225753 C>T          | NM_000384.2 | 12541G>A             | Glu4181Lys           | EVS                       | rs1042031   | 16.61   |
| 2    | <i>APOB</i>   | 21250914 G>A          | NM_000384.2 | 1853C>T              | Ala618Val            | EVS                       | rs679899    | 36.55   |

|   |               |               |                |          |             |     |            |       |
|---|---------------|---------------|----------------|----------|-------------|-----|------------|-------|
| 2 | <i>NEB</i>    | 152364589 G>A | NM_001164507.1 | 23381C>T | Ser7794Leu  | EVS | rs41270201 | 2.06  |
| 2 | <i>NEB</i>    | 152580815 C>G | NM_001164507.1 | 571G>C   | Glu191Gln   | EVS | rs35686968 | 1.89  |
| 2 | <i>SCN7A</i>  | 167279922 C>A | NM_002976.3    | 2874G>T  | Met958Ile   | EVS | rs6738031  | 24.45 |
| 2 | <i>SCN7A</i>  | 167334085 G>T | NM_002976.3    | 122C>A   | Thr41Asn    | EVS | rs7565062  | 29.83 |
| 2 | <i>TTN</i>    | 179440163 C>G | NM_001267550.1 | 70696G>C | Gly23566Arg | EVS | rs55801134 | 1.14  |
| 2 | <i>TTN</i>    | 179486223 C>T | NM_001267550.1 | 45328G>A | Asp15110Asn | EVS | rs17354992 | 0.667 |
| 3 | <i>SCN5A</i>  | 38645420 T>C  | NM_001099404.1 | 1673A>G  | His558Arg   | EVS | rs1805124  | 24.63 |
| 3 | <i>SCN10A</i> | 38764998 A>G  | NM_006514.2    | 3275T>C  | Leu1092Pro  | EVS | rs12632942 | 22.00 |
| 3 | <i>SCN10A</i> | 38766675 A>G  | NM_006514.2    | 3218T>C  | Val1073Ala  | EVS | rs6795970  | 29.75 |
| 3 | <i>SCN10A</i> | 38768300 T>C  | NM_006514.2    | 2884A>G  | Ile962Val   | EVS | rs57326399 | 21.03 |
| 5 | <i>ADRB2</i>  | 148206440 G>A | NM_000024.5    | 46G>A    | Gly16Arg    | EVS | rs1042713  | 41.49 |
| 6 | <i>ITPR3</i>  | 33659472 C>G  | NM_002224.3    | 7306C>G  | Leu2436Val  | EVS | rs2229642  | 40.84 |
| 6 | <i>TRDN</i>   | 123699019 A>C | NM_006073.3    | 1211T>G  | Val404Gly   | EVS | rs28494009 | 15.87 |
| 6 | <i>TRDN</i>   | 123869607 G>C | NM_006073.3    | 383C>G   | Thr128Ser   | EVS | rs9490809  | 45.88 |
| 6 | <i>LAMA2</i>  | 129807629 C>T | NM_000426.3    | 7760C>T  | Ala2587Val  | EVS | rs2229848  | 36.14 |
| 6 | <i>LAMA2</i>  | 129813053 A>G | NM_000426.3    | 7906A>G  | Thr2636Ala  | EVS | rs2244008  | 8.08  |
| 6 | <i>SYNE1</i>  | 152443744 G>T | NM_182961.3    | 26221C>A | Leu8741Met  | EVS | rs2295190  | 10.41 |
| 6 | <i>SYNE1</i>  | 152453291 G>A | NM_182961.3    | 26060C>T | Thr8687Ile  | EVS | rs35591210 | 5.44  |
| 6 | <i>SYNE1</i>  | 152640110 G>A | NM_182961.3    | 16227C>T | Thr5426Met  | EVS | rs2306914  | 2.00  |
| 6 | <i>SYNE1</i>  | 152665261 C>A | NM_182961.3    | 12180G>T | Glu4060Asp  | EVS | rs4645434  | 44.27 |

|    |               |                      |                |                |                           |     |             |       |
|----|---------------|----------------------|----------------|----------------|---------------------------|-----|-------------|-------|
| 6  | <i>SYNE1</i>  | 152746593 A>T        | NM_182961.3    | 5190T>A        | Asp1730Glu                | EVS | rs111250109 | 4.82  |
| 6  | <i>SYNE1</i>  | 152772264 A>G        | NM_182961.3    | 3104T>C        | Val1035Ala                | EVS | rs214976    | 46.75 |
| 6  | <i>SYNE1</i>  | 152777095 A>C        | NM_182961.3    | 2653T>G        | Leu885Val                 | EVS | rs17082709  | 6.34  |
| 7  | <i>AKAP9</i>  | 91630620 G>T         | NM_005751.4    | 1389G>T        | Met463Ile                 | EVS | rs6964587   | 44.05 |
| 7  | <i>AKAP9</i>  | 91652179_91652181dup | NM_005751.4    | c.4004_4006dup | Lys1335_Leu1336<br>insGln | EVS | rs10644111  | 47.91 |
| 7  | <i>AKAP9</i>  | 91712698 A>G         | NM_005751.4    | 8375A>G        | Asn2792Ser                | EVS | rs6960867   | 35.61 |
| 8  | <i>KCNQ3</i>  | 133175736 T>C        | NM_004519.3    | 1241A>G        | Glu414Gly                 | EVS | rs2303995   | 1.60  |
| 9  | <i>ABCA1</i>  | 107562804 T>C        | NM_005502.3    | 4760A>G        | Lys1587Arg                | EVS | rs2230808   | 41.5  |
| 9  | <i>ABCA1</i>  | 107620867 C>T        | NM_005502.3    | 656G>A         | Arg219Lys                 | EVS | rs2230806   | 39.15 |
| 10 | <i>MYPN</i>   | 69926334 C>G         | NM_001256267.1 | 1884C>G        | Phe628Leu                 | EVS | rs10823148  | 39.6  |
| 10 | <i>MYPN</i>   | 69933921 G>A         | NM_001256267.1 | 2072G>A        | Ser691Asn                 | EVS | rs10997975  | 39.24 |
| 10 | <i>MYPN</i>   | 69933969 G>A         | NM_001256267.1 | 2120G>A        | Ser707Asn                 | EVS | rs7916821   | 39.23 |
| 10 | <i>MYPN</i>   | 69934258 C>G         | NM_001256267.1 | 2409C>G        | Ser803Arg                 | EVS | rs3814182   | 47.7  |
| 10 | <i>MYPN</i>   | 69959242 C>A         | NM_001256267.1 | 3403C>A        | Pro1135Thr                | EVS | rs7079481   | 40.59 |
| 10 | <i>BAG3</i>   | 121429633 T>C        | NM_004281.3    | 451T>C         | Cys151Arg                 | EVS | rs2234962   | 15.11 |
| 14 | <i>SYNE2</i>  | 64537498 A>C         | NM_182914.2    | 10567A>C       | Lys3523Gln                | EVS | rs35203186  | 2.65  |
| 14 | <i>SYNE2</i>  | 64557734 A>C         | NM_182914.2    | 11944A>C       | Asn3982His                | EVS | rs10137972  | 8.63  |
| 14 | <i>KCNK10</i> | 88651962 C>T         | NM_138317.2    | 1549G>A        | Ala517Thr                 | EVS | rs17762463  | 20.51 |
| 14 | <i>KCNK13</i> | 90651033 G>A         | NM_022054.2    | 913G>A         | Gly305Arg                 | EVS | rs3814848   | 13.24 |

|    |                |                      |                |                |            |         |             |                       |
|----|----------------|----------------------|----------------|----------------|------------|---------|-------------|-----------------------|
| 15 | <i>RYR3</i>    | 33873751 G>A         | NM_001036.3    | 1480G>A        | Val494Ile  | EVS     | rs2077268   | 15.73                 |
| 15 | <i>RYR3</i>    | 33954652 C>T         | NM_001036.3    | 4921C>T        | Arg1641Cys | EVS     | rs4780144   | 13.19                 |
| 15 | <i>RYR3</i>    | 34137086_34137088del | NM_001036.3    | 13320_13322del | Glu4441del | EVS     | rs149087920 | 13.51                 |
| 15 | <i>MEF2A</i>   | 100252710            | NM_005587.2    | 1234-1236del   | Gln412del  | EVS     | rs72198683  | 29.32                 |
| 16 | <i>CACNAIH</i> | 1252441 T>C          | NM_021098.2    | 1991T>C        | Val664Ala  | EVS     | rs4984636   | 17.98                 |
| 16 | <i>CACNAIH</i> | 1269003 A>G          | NM_021098.2    | 5921A>G        | Glu1974Gly | EVS     | rs3751886   | 4.34                  |
| 16 | <i>CACNAIH</i> | 1270585 G>A          | NM_021098.2    | 6653G>A        | Arg2218His | EVS     | rs56885166  | 0.20                  |
| 16 | <i>CLCN7</i>   | 1502857 C>T          | NM_001287.5    | 1252G>A        | Val418Met  | EVS     | rs12926089  | 12.40                 |
| 16 | <i>MYH11</i>   | 15820863 C>T         | NM_001040114.1 | 3721G>T        | Ala1241Thr | EVS     | rs16967494  | 20.68                 |
| 17 | <i>KCNJ12</i>  | 21318698 C>T         | NM_021012.4    | 44C>T          | Ser15Leu   | Ensembl | rs1657738   | 50.00                 |
| 17 | <i>KCNJ12</i>  | 21318782 G>A         | NM_021012.4    | 128G>A         | Arg43His   | Ensembl | rs78117732  | 50.00                 |
| 17 | <i>KCNJ12</i>  | 21318821 A>C         | NM_021012.4    | 167A>C         | Glu56Ala   | EVS     | rs1714865   | 34.15                 |
| 17 | <i>KCNJ12</i>  | 21318867 G>A         | NM_021012.4    | 213G>A         | Met71Ile   | Ensembl | rs73979893  | 50.00                 |
| 17 | <i>KCNJ12</i>  | 21319121 C>T         | NM_021012.4    | 467C>T         | Pro156Leu  | Ensembl | rs1714864   | 50.00                 |
| 17 | <i>KCNJ12</i>  | 21319171 G>A         | NM_021012.4    | 517G>A         | Asp173Asn  | Ensembl | rs73313922  | multiple observations |
| 17 | <i>KCNJ12</i>  | 21319208 C>T         | NM_021012.4    | 554C>T         | Ala185Val  | Ensembl | rs73979896  | multiple observations |
| 17 | <i>KCNJ12</i>  | 21319230 G>C         | NM_021012.4    | 576G>C         | Gln192His  | Ensembl | rs1657742   | multiple observations |

|    |               |                      |             |                |             |         |            |                       |
|----|---------------|----------------------|-------------|----------------|-------------|---------|------------|-----------------------|
| 17 | <i>KCNJ12</i> | 21319285 C>T         | NM_021012.4 | 631C>T         | Leu211Phe   | Ensembl | rs72846667 | multiple observations |
| 17 | <i>KCNJ12</i> | 21319682 C>T         | NM_021012.4 | 1028C>T        | Ser343Leu   | Ensembl | rs80203231 | multiple observations |
| 17 | <i>JUP</i>    | 39912145 T>A         | NM_002230.2 | 2089T>A        | Met697Leu   | EVS     | rs1126821  | 30.30                 |
| 18 | <i>DSC2</i>   | 28648000_28648001dup | NM_024422.3 | c.2686_2687dup | Ala897Lys*4 | EVS     | unknown    | 0.96                  |
| 18 | <i>DSG2</i>   | 29122799 G>A         | NM_001943.3 | 2318G>A        | Arg773Lys   | EVS     | rs2278792  | 19.73                 |
| 18 | <i>TTR</i>    | 29172865 G>A         | NM_000371.3 | 76G>A          | Gly26Ser    | EVS     | rs1800458  | 5.74                  |
| 19 | <i>GDF1</i>   | 18980172 G>A         | NM_001492.4 | 353C>T         | Ala118Val   | dbSNP   | rs4808863  | 28.4                  |
| 19 | <i>RYR1</i>   | 38976655 C>T         | NM_000540.2 | 5360C>T        | Pro1787Leu  | EVS     | rs34934920 | 1.67                  |
| 19 | <i>RYR1</i>   | 38983180 G>T         | NM_000540.2 | 6178G>T        | Gly2060Cys  | EVS     | rs35364374 | 5.14                  |
| 20 | <i>KCNK15</i> | 43379264 A>C         | NM_022358.3 | 778A>C         | Thr260Pro   | EVS     | rs6073538  | 46.29                 |
| 20 | <i>KCNK15</i> | 43379454 T>C         | NM_022358.3 | 968T>C         | Leu323Pro   | EVS     | rs13042905 | 40.00                 |
| 20 | <i>KCNQ2</i>  | 62038277 T>G         | NM_172107.2 | 2339A>C        | Asn780Thr   | EVS     | rs1801475  | 40.13                 |
| 21 | <i>KCNE1</i>  | 35821821 T>C         | NM_000219.4 | 112A>G         | Ser38Gly    | EVS     | rs1805127  | 33.81                 |
| 21 | <i>KCNJ15</i> | 39671476 G>A         | NM_002243.3 | 293G>A         | Gly98Asp    | EVS     | rs2230033  | 40.29                 |