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| Supplementary table 2. The 68 reported probands with potential pathogenic variants in three of the six genes |  |  |
| ID | Gene | Nucleotide change | Amino acid change | Diagnosis | Method | Reference |
| 1 | CNGA3 | c.[830G>A];[1074G>A]  | p.[Trp358\*];[Arg277His] | CORD | SS  | PMID24903488 |
| 2 | CNGA3 | c.[965T>C;1307G>A];[1319G>A]  | p.[Trp440\*];[Arg436Q;Phe322S] | ACHM | WES, SS | PMID24903488 |
| 3 | CNGA3 | c.[1585G>A];[1585G>A]  | p.[Val529Met];[Val529Met] | CORD | WES, SS | PMID24903488 |
| 4 | CNGA3 | c.[1585G>A];[1585G>A]  | p.[Val529Met];[Val529Met] | CORD | SS  | PMID24903488 |
| 5 | CNGA3 | c.[989T>C];[1315C>T]  | p.[Phe330Ser];[Arg439Trp] | CORD | SS  | PMID24903488 |
| 6 | CNGA3 | c.[667C>T];[667C>T]  | p.[Arg223Trp];[Arg223Trp] | CORD | SS  | PMID24903488 |
| 7 | CNGA3 | c.[661C>T];[829C>T]  | p.[Arg221\*];[Arg277Cys] | CORD | SS  | PMID24903488 |
| 8 | CNGA3 | c.[396-11C>G];[1074G>A]  | / | CORD | WES, SS  | PMID24903488 |
| 9 | CNGA3 | c.[1074G>A];[1585G>A]  | p.[Trp358\*];[Val529Met] | CORD | WES, SS | PMID24903488 |
| 10 | CNGA3 | c.[668G>A];[1306C>T]  | p.[Arg223Gln];[Arg436Trp] | ACHM | WES, SS | PMID24903488 |
| 11 | CNGA3 | c.[773C>G];[1116dup]  | p.[Pro258Arg];[Pro371Thrfs\*6] | CORD | WES, SS | PMID24903488 |
| 12 | CNGA3 | c.[661C>T];[1585G>A]  | p.[Val529Met];[Arg221\*] | CORD | WES | PMID24903488 |
| 13 | CNGA3 | c.[67C>T];[778G>A]  | p.[Arg23\*];[Asp260Asn] | CORD | SS  | PMID24903488 |
| 14 | CNGA3 | c.[830G>A];[1315C>T]  | p.[Arg277His];[Arg439Trp] | ACHM | WES, SS | PMID24903488 |
| 15 | CNGA3 | c.[989T>C];[1585G>A]  | p.[Val529Met];[Phe330Ser] | CORD | WES, SS | PMID24903488 |
| 16 | CNGA3 | c.[62C>G];[62C>G]  | p.[Ser21\*];[Ser21\*] | ACHM | SS  | PMID24903488 |
| 17 | CNGA3 | c.[396-11C>G];[396-11C>G]  | / | CORD | SS  | PMID24903488 |
| 18 | CNGA3 | c.[671C>T];[847C>T]  | p.[Thr224Ile];[Arg283Trp] | CORD | WES, SS | PMID24903488 |
| 19 | CNGA3 | c.[1001C>T];[1315C>T]  | p.[Arg439Trp];[Set334Phe] | CORD | WES, SS | PMID24903488 |
| 20 | CNGA3 | c.[1585G>A];[1709G>A]  | p.[Ser570Asn];[Val529Met] | CORD | WES, SS | PMID24903488 |
| 21 | CNGA3 | c.[1306C>T];[1495C>T]  | p.[Arg499\*];[Arg436Trp] | CORD | WES, SS | PMID24903488 |
| 22 | CNGA3 | c.[396-11C>G];[1495C>T] | / | CORD | TES, SS | PMID24903488 |
| 23 | CNGA3 | c.[830G>A];[1585G>A]  | p.[Arg277His];[Val529Met] | CORD | SS  | PMID24903488 |
| 24 | CNGA3 | c.[513G>T];[847C>T]  | p.[Trp171Cys];[Arg283Trp] | CORD | SS  | PMID24903488 |
| 25 | CNGA3 | c.[512G>A];[512G>A]  | p.[Trp171\*];[Trp171\*] | CORD | WES, SS | PMID24903488 |
| 26 | CNGA3 | c.[62C>G];[1768G>A]  | p.[Ser21\*];[Glu590Lys] | CORD | SS  | PMID24903488 |
| 27 | CNGA3 | c.[872\_873del];[1585G>A]  | p.[Val529Met];[Thr291Argfs\*77] | CORD | WES, SS | PMID24903488 |
| 28 | CNGA3 | c.[833T>C];[1306C>T]  | p.[Arg436Trp];[Leu278Pro] | ACHM | WES, SS | PMID24903488 |
| 29 | CNGA3 | c.[1074G>A];[1315C>T]  | p.[Trp358\*];[Arg439Trp] | ACHM | SS  | PMID24903488 |
| 30 | CNGA3 | c.[1074G>A];[1768G>A]  | p.[Trp358\*];[Glu590Lys] | ACHM | SS  | PMID24903488 |
| 31 | CNGA3 | c.[830G>A];[830G>A]  | p.[Arg277His];[Arg277His] | ACHM | WES, SS | PMID24903488 |
| 32 | CNGA3 | c.[821G>A];[833T>C]  | p.[Arg274Lys];[Leu278Pro] | ACHM | WES, SS | PMID24903488 |
| 33 | CNGA3 | c.[396-11C>G];[1074G>A]  | / | ACHM | WES, SS  | PMID24903488 |
| 34 | CNGA3 | c.[513G>T];[661C>T]  | p.[Trp171Cys];[Arg221\*] | ACHM | WES, SS | PMID24903488 |
| 35 | CNGA3 | c.[62C>G];[1585G>A]  | p.[Ser21\*];[Val529M] | ACHM | SS  | PMID24903488 |
| 36 | CNGA3 | c.[396-11C>G];[1074G>A]  | / | ACHM | SS  | PMID24903488 |
| 37 | CNGA3 | c.[1010\_1012delinsCAATCCCAGTG];[1627\_1635del]  | p.[Tyr337Sfs\*28];[Asp543\_ S545del] | ACHM | SS  | PMID24903488 |
| 38 | CNGA3 | c.[1146dup];[1585G>A]  | p.[Val383Argfs\*36];[Val529Met] | ACHM | WES, SS  | PMID24903488 |
| 39 | CNGA3 | c.[1495C>T];[1585G>A]  | p.[Arg499\*];[Val529Met] | ACHM | WES, SS | PMID24903488 |
| 40 | CNGA3 | c.[1315C>T];[1627\_1635del]  | p.[Asp543\_Ser545del];[Arg439Trp] | ACHM | WES, SS | PMID24903488 |
| 41 | CNGA3 | c.[1585G>A];[1585G>A]  | p.[Val529Met];[Val529Met] | CORD | SS  | PMID24903488 |
| 42 | CNGA3 | c.[671C>T];[674-2A>C]  | / | CORD | WES, SS | PMID24903488 |
| 43 | CNGA3 | c.[1306C>T];[1306C>T]  | p.[Arg436Trp];[Arg436Trp] | CORD | SS  | PMID24903488 |
| 44 | CNGA3 | c.[62C>G];[1768G>A]  | p.[Ser21\*];[Glu590Lys] | ACHM | WES, SS | PMID24903488 |
| 45 | CNGA3 | c.[1597G>C];[1597G>C]  | p.[Asp533His];[Asp533His] | CORD | SS  | PMID24903488 |
| 46 | CNGA3 | c.[872\_873del];[1975A>T]  | p.[Lys659\*];[Thr291Argfs\*77] | CORD | WES, SS | PMID24903488 |
| QT1193 | CNGA3 | c.[396-11C>G]; [1627\_1635del]  | / | CORD | WES, SS  | PMID26992781 |
| QT1256 | CNGA3 | c.[1306C>T];[1306C>T]  | p.[Arg436Trp];[Arg436Trp] | CORD | WES, SS | PMID26992781 |
| QT1270 | CNGA3 | c.[512G>A];[1768G>A ]  | p.[Trp171\*];[Glu590Lys] | CORD | WES, SS | PMID26992781 |
| QT1285 | CNGA3 | c.[1513C>G];[1537G>C]  | p.[Pro505Ala];[Gly513Arg] | CORD | WES, SS | PMID26992781 |
| QT1294 | CNGA3 | c.[396-11C>G];[1556T>C]  | / | CORD | TES, SS | PMID26992781 |
| QT1305 | CNGA3 | c.[62C>G];[1877T>G]  | p.[Ser21\*];[Leu626Arg] | CORD | WES, SS | PMID26992781 |
| QT1310 | CNGA3 | c.[1306C>T];[1585G>A]  | p.[Val529Met];[Arg436Trp] | CORD | WES, SS | PMID26992781 |
| 10906 | CNGA3 | c.989T>C(;)989T>C | p.[Phe330Ser];[Phe330Ser] | CORD | WES | PMID31106028 |
| 11069 | CNGA3 | c.512G>A(;)512G>A | p.[Trp171\*];[Trp171\*] | CORD | WES | PMID31106028 |
| 13556 | CNGA3 | c.[830G>A];[1074G>A] | p.[Arg277His];[Trp358\*] | CORD | TES | PMID31106028 |
| 13984 | CNGA3 | c.1306C>T(;)1513C>G | p.[Arg436Trp];[Proro505Ala] | IRD | TES | PMID31106028 |
| 14401 | CNGA3 | c.1627\_1635del(;)1627\_1635del | p.[Asp543\_Ser545del];[Asp543\_Ser545del] | IRD | TES | PMID31106028 |
| 14476 | CNGA3 | c.838A>T(;)989T>C | p.[Leuys280\*];[Prohe330Ser] | IRD | TES | PMID31106028 |
| 14652 | CNGA3 | c.[1074G>A];[989T>C] | p.[Trp358\*];[Phe330Ser] | CORD | TES | PMID31106028 |
| QT455 | CNGB3 | c.[1774dup];[1774dup] | p.[Glu592Glyfs\*44];[Glu592Glyfs\*44] | CORD | WES | PMID23776498 |
| QT534 | CNGB3 | c.[680T>C];[1271T>G] | p.[Leu424Arg];[Leu227Pro] | CORD | WES | PMID31106028 |
| QT628 | CNGB3 | c.[129+1G>A];[129+1G>A] | / | CORD | WES | PMID23776498 |
| QT677 | PDE6C | c.[1004+1G>A];[1004+1G>A] | / | CORD | WES | PMID23776498 |
| QT5 | PDE6C | c.[1935del];[2518+5G>C] | / | CORD | WES | PMID23776498 |
| HM482 | PDE6C | c.[2005A>G];[2005A>G] | p.[Ile669Val];[Ile669Val] | EoHM | WES | PMID26747767 |
| QT1070 | PDE6C | c.[1004+1G>A];[1771G>A] | / | CORD | WES | PMID31106028 |
| 14639 | PDE6C | c.[940G>T];[940G>T] | p.[Glu314\*];[Glu314\*] | CORD | TES | PMID31106028 |