

**Supplemental Table 1** – List of the 208 variants present in the EVS or 1000 genomes databases. Variants present in the EVS are listed in bold.

Gene	Product	Reference	Mutation
<i>SCN1A</i>	Nav1.1 (Na <sup>+</sup> channel)	Mulley et al., 2005	Q3X
			E20X
			E78D
			Y83X
			R101Q
			S103G
			T112I
			S128X
			Y165X
			G177E
			D188V
			W190R
			R222X
			I227S
			I252N
			G265W
			W280R
			E289X
			<b>T297I</b>
			G343E
			Q389X
			R393H
			M400del
			Y426N
			E435X
			I448X
			R568X
			R712X
			Y790C
			T808S
			R865X
			T875M
			F902C
			R931C
			W932X
			M934I
			H939Q

V944A  
R946C  
R946H  
W952X  
C959R  
M960V  
G979R  
V983A  
N985I  
L986F  
K1027X  
W1204R  
W1204X  
R1213X  
V1215X  
S1231R  
G1233R  
R1245X  
F1263L  
L1265P  
K1270T  
W1271X  
W1284X  
F1289del  
A1326P  
V1353L  
L1355P  
V1390M  
R1407X  
W1408X  
V1428A  
W1434R  
Q1450R  
L1461I  
F1463S  
S1516X  
M1558del  
V1611F  
Y1628X  
P1632S  
R1645X

R1648C  
R1648H  
I1656M  
R1657C  
F1661S  
P1668A  
G1674R  
A1685D  
A1685V  
F1692S  
Y1694C  
T1709I  
G1749E  
F1766del  
M1780T  
Y1781C  
F1805X  
F1808L  
W1812G  
W1812C  
F1831S  
M1852T  
E1881D  
R1892X  
T1909I  
R1912X  
**E1957G**

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Harkin et al 2007

Y84C  
R101W  
Y399X  
F403L  
Y413N  
D674G  
L783P  
V944E  
F945L  
G950E  
Q965X  
E1238D  
A1441P

R1525X  
 I1545V  
 Y1598X  
 R1645Q  
 F1707V  
 T1721R  
 W1726R  
 A1783T  
 W1812X  
 R1886X  
 Q1904X  
 I1922T  
 D79H  
 I171K  
 A175T  
 D194N  
 T199R  
 T226M  
 A239T  
 W384X  
 E1008X  
 C1396G  
 Q1427X  
 A395P  
 V422E  
 S626G  
 M973V  
 F1543S  
**R1596C**  
 R1657H  
 R1636Q  
 R393C  
 G1480V

<i>KCNQ2</i>	K <sub>v</sub> 7.2 (K <sup>+</sup> channel)	Ottman et al., 2010	Y284C A306T
<i>KCNQ3</i>	K <sub>v</sub> 7.3 (K <sup>+</sup> channel)		G263V
<i>SCN2A</i>	Na <sub>v</sub> 1.2 (Na <sup>+</sup> channel)		L1330F L1563V A1822V T1200A

		V892I R223Q R1319Q L1003I N1001K I1596S E430Q
<i>STXBP1</i>	Syntaxin binding protein 1	G544D C180Y M443R V84D
<i>SCN1B</i>	$\beta_1$ subunit (Na <sup>+</sup> channel)	<b>C121W</b> R85C R85H
<i>GABRG2</i>	$\gamma_2$ subunit (GABAA receptor)	K289M Q351X R43Q
<i>SLC2A1</i>	GLUT1 (glucose transporter type 1)	R223P S324L R126C
<i>GABRA1</i>	$\alpha_1$ subunit (GABAA receptor)	A322D
<i>EFHC1</i>	EF hand motif protein	<b>F229L</b> D210N D253Y <b>P77T</b> <b>R221H</b>
<i>CHRNA4</i>	$\alpha_4$ subunit (nACh receptor)	S248F S252L
<i>CHRNB2</i>	$\beta_2$ subunit (nACh receptor)	V287L V287M
<i>CHRNA2</i>	$\alpha_2$ subunit (nACh receptor)	I279N
<i>LGII</i>	Leucine-rich repeat protein	C46R E383A
<i>KCNMA1</i>	K <sub>Ca</sub> 1.1 (K <sup>+</sup> channel)	D434G
<i>SLC2A1</i>	glucose transporter type 1	S95I V140M N317T A275T G314S
<i>CACNA1A</i>	Ca <sub>v</sub> 2.1 (Ca <sup>2+</sup>	R1820X

	channel)	
<i>KCNA1</i>	K <sub>v</sub> 1.1 (K <sup>+</sup> channel)	E147K
		T226R
		A242P
		P244H
		R417X
		V404I
<i>ATP1A2</i>	Sodium-potassium ATPase	R689Q
		M731T
		G900R
		C702Y

