Supplementary Table S5: Association of potassium channel genes expression level (ratio between 'A' and 'B' pools, i.e. heart/non cardiac tissues) to OMIM phenoypes in the case of gene mutation. Gene symbols related to cardiac phenotypes are in bold, as well as the related phenotypes. Dashed line: threshold at 1.5 folds of overexpression in the heart.

#	Gene	A'/'B' Value	OMIM Phenotype	Notes
1	**KCNJ8**	5.37	**Brugada syndrome or ventricular fibrillation with early repolarization**	Not confirmed
			Cantu syndrome (Hypertrichotic osteochondrodysplasia)	Not confirmed
2	KCNH6	4.80	-	
3	**KCNA5**	3.85	**Atrial fibrillation, familial, 7**	
4	KCNK15	2.94	-	
5	KCNK7	2.59	-	
6	KCNIP2	2.12	-	
7	KCNJ4	2.09	-	
8	**KCNQ1**	2.01	**Atrial fibrillation, familial, 3**	
			Jervell and Lange-Nielsen syndrome	
			Long QT syndrome 1	
			Short QT syndrome 2	
			{Long QT syndrome 1, acquired, susceptibility to}	
9	KCNK1	1.83	-	
10	**KCNH2**	1.80	**Long QT syndrome 2**	
			Short QT syndrome 1	
			{Long QT syndrome 2, acquired, susceptibility to}	
11	KCNT2	1.75	-	
12	KCNJ2-AS1	1.74	-	
13	KCNG2	1.61	-	
14	**KCNE1**	1.56	**Jervell and Lange-Nielsen syndrome 2**	
			Long QT syndrome 5	
15	KCNK18	1.54	{Migraine, with or without aura, susceptibility to, 13}	
16	KCNJ15	1.45	-	
17	KCNE1L	1.33	-	
18	KCNC3	1.32	Spinocerebellar ataxia 13	
19	KCNT1	1.29	Epilepsy, nocturnal frontal lobe, 5	
			Epileptic encephalopathy, early infantile, 14	
20	KCNQ3	1.24	Seizures, benign neonatal, type 2	
21	KCNK5	1.22	-	
22	KCNK13	1.17	-	
23	**KCNJ2**	1.14	**Andersen syndrome**	
			Atrial fibrillation, familial, 9	
			Short QT syndrome 3	
24	KCNA4	1.13	-	
25	KCND2	1.11	-	
26	KCNK4	1.10	-	
27	KCNMB1	1.10	{Hypertension, diastolic, resistance to}	
28	KCNN2	1.02	-	
29	KCNJ9	1.02	-	
30	KCNJ13	1.02	Leber congenital amaurosis 16	
			Snowflake vitreoretinal degeneration	
31	KCNJ11	0.98	Diabetes mellitus, permanent neonatal, with neurologic features	
			Diabetes mellitus, transient neonatal, 3	
			Diabetes, permanent neonatal	
			Hyperinsulinemic hypoglycemia, familial, 2	
			Maturity-onset diabetes of the young, type 13	
			{Diabetes mellitus, type 2, susceptibility to}	
32	KCNK2	0.97	-	
33	KCNV2	0.96	Retinal cone dystrophy 3B	
34	KCNJ12	0.94	-	
35	KCNC2	0.91	-	
36	KCNQ4	0.89	Deafness, autosomal dominant 2A	
37	KCNA10	0.89	-	
38	KCNMB4	0.85	-	
39	KCNH8	0.81	-	
40	KCNK17	0.81	-	
41	KCNIP3	0.80	-	
42	KCNJ3	0.79	-	

43	KCNH4	0.78	-	
44	KCNA7	0.77	-	
45	KCNG1	0.77	-	
46	KCNQ5-IT1	0.76	-	
47	KCNH7	0.76	Bipolar spectrum disorder	Not confirmed
48	KCND1	0.76	-	
49	**KCND3**	0.74	**Brugada syndrome 9 (ST segment elevation)** Spinocerebellar ataxia 19	
50	KCNK12	0.74	-	
51	KCNMB2	0.74	-	
52	**KCNJ5**	0.74	Hyperaldosteronism, familial, type III **Long QT syndrome 13**	
53	KCNH1	0.70	Temple-Baraitser syndrome Zimmermann-Laband syndrome 1	
54	KCNK10	0.69	-	
55	KCNA3	0.68	-	
56	KCNK9	0.68	Birk-Barel mental retardation dysmorphism syndrome	
57	KCNV1	0.66	-	
58	KCNU1	0.65	-	
59	KCNRG	0.65	-	
60	KCNMB3	0.64	-	
61	KCNQ5	0.63	-	
62	KCNH5	0.63	Epileptic encephalopathy	Not confirmed
63	KCNAB1-AS2	0.63	-	
64	KCNQ1DN	0.60	-	
65	KCNAB1	0.59	-	
66	KCNF1	0.59	-	
67	KCNS3	0.57	-	
68	KCNG3	0.57	-	
69	KCNAB1-AS1	0.57	-	
70	KCNK6	0.55	-	
71	KCNH3	0.52	-	
72	KCNN3	0.51	-	
73	KCNAB2	0.50	-	
74	KCNAB3	0.48	-	
75	KCNJ6	0.47	Keppen-Lubinsky syndrome	
76	KCNQ2	0.47	Epileptic encephalopathy, early infantile, 7 Myokymia Seizures, benign neonatal, 1	
77	KCNJ1	0.47	Bartter syndrome, type 2	
78	KCNJ14	0.46	-	
79	KCNJ10	0.44	Enlarged vestibular aqueduct, digenic SESAME syndrome	
80	KCNC4	0.43	-	
81	KCNE4	0.43	-	
82	KCNK3	0.42	Pulmonary hypertension, primary, 4	
83	KCNQ1OT1	0.41	Beckwith-Wiedemann syndrome	
84	KCNB2	0.39	-	
85	KCNC1	0.39	Epilepsy, progressive myoclonic 7	
86	KCNIP1	0.39	-	
87	KCNN1	0.38	-	
88	KCNG4	0.36	-	
89	KCNA6	0.35	-	
90	**KCNE2**	0.34	**Atrial fibrillation, familial, 4** **Long QT syndrome 6**	
91	**KCNE3**	0.33	**Brugada syndrome 6 (ST segment elevation)**	
92	KCNK16	0.30	-	
93	KCNIP4	0.30	-	
94	KCNB1	0.29	Epileptic encephalopathy, early infantile, 26	
95	KCNMA1	0.29	Generalized epilepsy and paroxysmal dyskinesia	
96	KCNA2	0.29	Epileptic encephalopathy, early infantile, 32	
97	KCNA1	0.28	Episodic ataxia/myokymia syndrome	
98	KCNS1	0.26	-	
99	KCNN4	0.24	Dehydrated hereditary stomatocytosis 2	
100	KCNJ16	0.21	-	

101 KCNS2 0.20 -