SUPPLEMENTAL TABLE I: Differential Phosphorylation of Target Proteins in Cardiac Myocytes Isolated from Wild Type *Versus* Prkg1$^{RQ/+}$ Mice. Phosphoproteomic analysis was performed as described in Methods. Date in the columns labeled RQ/+ and WT represent the mean area of the peaks in the ion chromatograms normalized to the peak areas of the corresponding peaks of the unphosphorylated peptides (means of cells from n=4 mice per genotype).

Protein Accession	Protein Name	Phosphosite (s)	RQ/+	WT	Log2 WT/RQ$^{/+}$	-Log2 p value
A2AAJ9	Obscurin	S6503	0.7991	0.5342	-0.5811	4.9290
A2AMM0	Muscle-related coiled-coil protein	T334	0.3002	0.1455	-1.0446	4.7796
A2ASS6	Titin	S12884	0.1499	0.0438	-1.7735	4.6692
		S12972	0.0299	0.0075	-2.0147	6.3153
		S13904	0.7661	0.2754	-1.4762	4.8978
		S1415	0.1218	0.0181	-2.7517	5.6109
		S17978	0.0002	0.0004	1.2321	5.3539
		S18310	0.0029	0.0012	-1.3090	4.8421
		S18721	0.0071	0.0017	-2.1042	5.7631
		S19128	0.0066	0.0019	-1.8105	7.5114
		S20732	0.0024	0.0007	-1.8037	5.3075
		S21152	0.0057	0.0014	-1.9661	5.0531
		S214	0.0041	0.0011	-1.9085	6.2440
		S21858	0.0008	0.0004	-1.1779	5.0580
		S21980	0.0005	0.0001	-2.0856	6.3753
		S22390	0.0237	0.0096	-1.3004	6.1182
		S23358	0.0043	0.0013	-1.7008	5.9259
		S24287	0.0037	0.0010	-1.9079	7.7703
		S24415	0.0007	0.0003	-1.2021	6.6905
		S24436	0.0014	0.0007	-1.1276	6.3608
		S281	0.0006	0.0001	-2.2190	4.5485
		S281, S290	0.0004	0.0001	-1.7084	7.0972
		S29318	0.0013	0.0005	-1.3813	6.2498
		S315	0.1257	0.0340	-1.7007	4.5178
		S31837	0.0080	0.0017	-2.2325	6.0213
		S321	0.0036	0.0012	-1.5376	4.3341
		S322	0.0028	0.0010	-1.4856	4.8107
		S32318	0.0044	0.0016	-1.4624	6.4868
		S32433	0.0008	0.0002	-1.6683	7.8575
		S33086	0.0009	0.0004	-1.3011	5.6697
		S33861	0.1166	0.0503	-1.3616	4.8831
		S33880	0.1259	0.0120	-3.3897	5.5831

A2ASS6	Titin	S33927	0.0072	0.0029	-1.3157	5.3697
		S33928	0.0343	0.0147	-1.2170	4.7118
		S33933	0.1894	0.0422	-1.8482	6.5336
		S33961	0.0689	0.0256	-1.4254	5.1518
		S34009	0.0367	0.0136	-1.4275	5.1136
		S34065	0.2110	0.0492	-2.0442	5.9833
		S34097	1.8807	0.7122	-1.3743	5.4130
		S34097, T34099	3.0167	0.7140	-2.0657	5.2455
		S34118	0.0226	0.0095	-1.2552	4.4349
		S34286	0.0044	0.0017	-1.3749	6.5322
		S34292	0.0031	0.0009	-1.8574	4.9342
		S34358	0.0078	0.0013	-2.5266	4.7370
		S34476	0.0459	0.0152	-1.9708	6.7339
		S35038	0.0113	0.0048	-1.2395	9.5113
		T15634	0.0019	0.0008	-1.3113	5.6776
		T16928	0.0015	0.0006	-1.1773	6.2643
		T17096	0.0029	0.0012	-1.3013	5.6016
		T18267	0.0009	0.0004	-1.2666	5.2523
		T20730	0.0013	0.0006	-1.1194	5.2102
		T20974	0.0012	0.0005	-1.3938	5.9147
		T21339	0.0006	0.0002	-1.3134	5.1288
		T21345	0.0043	0.0014	-1.6002	5.7396
		T22413	0.0028	0.0009	-1.6783	4.3368
		T22529	0.0022	0.0009	-1.3680	5.7435
		T23053	0.0118	0.0050	-1.2454	4.8808
		T25670	0.0028	0.0012	-1.1666	4.3849
		T25842	0.0015	0.0004	-1.7514	5.8948
		T26156	0.0016	0.0007	-1.2591	4.8873
		T26696	0.0021	0.0007	-1.6634	5.0180
		T32019	0.0075	0.0027	-1.4590	6.4673
		T33712	0.0007	0.0002	-1.6269	5.1489
		T33716	0.0412	0.0122	-1.7533	4.9060
		T33859	0.0250	0.0093	-1.4212	5.8358
		T33951	0.0013	0.0005	-1.3961	4.6350
		T34099	0.1037	0.0375	-1.4690	5.7238
		T34360	0.0116	0.0022	-2.4173	4.6374
		T34450	0.0417	0.0087	-2.2634	5.2159
		T34490	0.0019	0.0004	-2.3555	4.6260
		Y25028	0.0025	0.0007	-1.8175	4.6532
		Y34089	0.0070	0.0025	-1.4793	5.4296

E9Q0S6	Protein Tns1	S1054	0.0584	0.0257	-1.1849	6.1923
		S1451	0.6317	0.3440	-0.8770	5.8587
E9Q616	Protein Ahnak	S116	0.0055	0.0009	-2.5900	6.8365
		S136	0.1190	0.0676	-0.8166	6.2106
G3X9L6	MCG55033	S44	0.0001	0.0005	1.6488	4.9756
O08715	A-kinase anchor protein 1 mitochondrial	S546	1.0082	0.3587	-1.4908	5.1226
		S55	39.4215	19.2740	-1.0323	9.5664
O54724	Polymerase I and transcript release factor	S20	0.0738	0.0577	-0.3548	4.8786
O70251	Elongation factor 1-beta	S106	3.9982	0.9844	-2.0221	4.7138
O88990	Alpha-actinin-3	S147	0.0074	0.0059	-0.3268	5.4884
P08249	Malate dehydrogenase mitochondrial	T235	0.0009	0.0002	-1.9440	4.3772
P11531	Dystrophin	S1770	0.0333	0.0125	-1.4128	5.6028
		S2070	0.0540	0.0051	-3.4105	8.2522
P13542	Myosin-8	S1206	3.0980	0.6637	-2.2227	4.7000
		S1342	4.9305	1.0057	-2.2935	5.5599
		T1188	9.1947	1.6444	-2.4833	4.5755
P15508	Spectrin beta chain erythrocytic	T2072	1.0051	1.2893	0.3593	7.5462
P23242	Gap junction alpha-1 protein	S273	0.1593	0.9434	2.5660	5.5193
		S325	0.7484	0.5628	-0.4114	5.8472
P27546	Microtubule-associated protein 4	S610	0.3949	0.2289	-0.7871	6.3288

P35486	Pyruvate dehydrogenase E1 component subunit alpha somatic form mitochondrial	S300	0.0162	0.0122	-0.4121	4.4200
P50462	Cysteine and glycine-rich protein 3	S95	0.0021	0.0012	-0.7426	6.3354
P51667	Myosin regulatory light chain 2 ventricular/cardiac muscle isoform	S14	0.0108	0.0184	1.4707	4.5494
P53986	Monocarboxylate transporter 1	S213	0.0278	0.0063	-2.1419	4.5758
P58771	Tropomyosin alpha-1 chain	S87	0.0003	0.0002	-0.2789	4.8352
P59017	Bcl-2-like protein 13	S343	4.4476	3.4242	-0.3772	4.6244
P70670	Nascent polypeptide-associated complex subunit alpha muscle-specific form	S1364	0.0012	0.0031	1.3774	4.8381
		S2138	2.2540	1.5795	-0.5130	6.8084
		S494	0.0471	0.0655	0.4754	9.7262
		T2129	0.0735	0.0233	-1.6556	9.0701
		T946	0.0270	0.1974	2.8713	7.1190
P97855	Ras GTPase-activating protein-binding protein 1	S149	15.9179	5.5490	-1.5203	4.3308
Q02257	Junction plakoglobin	S665	0.0158	0.0099	-0.6769	8.1032
Q02566	Myosin-6	S1362	0.0002	0.0003	0.5367	4.5129
		S1465	0.0002	0.0001	-0.9855	5.0253

		S1469	0.0000	0.0000	-2.4819	5.2167
		S1600	0.0004	0.0005	0.4379	4.8373
		S1922	0.0024	0.0008	-1.5925	5.0694
		S205	0.0000	0.0000	0.2175	4.3235
		T662	0.0002	0.0001	-0.9554	5.2232
		Y1382	0.0002	0.0001	-1.3242	4.4201
Q03265	ATP synthase subunit alpha mitochondrial	S521	0.0009	0.0008	-0.1954	6.1092
		T64	0.0001	0.0000	-1.8215	4.5288
Q14BI5	Myomesin 2	S78	0.0074	0.0263	1.8294	5.9235
Q3UHZ5	Leiomodin-2	S15	0.5259	0.2796	-0.9114	5.3197
		S423	3.8246	0.6288	-2.6046	4.6946
		S59	0.5681	0.2829	-1.0059	4.3662
Q3UTJ2	Sorbin and SH3 domain-containing protein 2	S1097	0.2737	0.1449	-0.9177	7.0154
		S32433	0.0233	0.0088	-1.4020	7.3101
		S328	0.0048	0.0037	-0.3879	6.1920
		S382	1.8724	1.5259	-0.2952	4.9972
Q4U4S6	Xin actin-binding repeat-containing protein 2	S1576	16.0632	4.5636	-1.8155	4.7302
		T2910	0.2633	0.0189	-3.7974	7.0974
Q62234	Myomesin-1	S857, S867	0.0295	0.0148	-0.9922	5.1552
		S2127, S2137	0.0282	0.0124	-1.1906	4.3272

Q62407	Striated muscle-specific serine/threonine-protein kinase	S2019	0.7227	0.1802	-2.0040	4.6616
		S2396	0.8762	0.3110	-1.4944	6.2763
		S511	1.2698	0.5888	-1.1087	4.7248
		S511	0.1402	0.0336	-2.0599	12.4438
		T1701	0.5907	0.2842	-1.0554	7.0415
Q62417	Sorbin and SH3 domain-containing protein 1	S397	0.2880	0.6779	1.2352	6.8945
Q63918	Serum deprivation-response protein	S204	0.3621	0.1396	-1.3752	9.8672
		S359	0.4695	1.4052	1.5815	4.6333
Q6P8J7	Creatine kinase S-type mitochondrial	T151	0.0024	0.0018	-0.4202	5.6519
Q70KF4	Cardiomyopathy-associated protein 5	S1458	0.6693	0.1177	-2.5069	4.7364
		S155	0.1240	0.0335	-1.8894	4.4325
		S158	0.2707	0.1187	-1.1890	5.0162
Q78IK4	MICOS complex subunit Mic27	S253	0.0129	0.0694	2.4276	4.6409
Q7TPW1	Nexilin	S299	0.0519	0.0085	-2.6190	4.6854
		S96	0.0682	0.0208	-1.7097	6.1825
Q8BG95	Protein phosphatase 1 regulatory subunit 12B	S502	0.0754	0.0087	-3.1098	5.3858
		S729	1.0089	0.7794	-0.3814	6.3575

Q8BMS1	Trifunctional enzyme subunit alpha mitochondrial	T316	0.0013	0.0009	-0.5822	6.0033
Q8BWB1	Synaptopodin 2-like protein	S175	5.2623	4.7648	-0.1433	4.6354
		T344	0.4644	0.5580	0.2650	4.9074
Q8CAQ8	MICOS complex subunit Mic60	S446	0.0036	0.0013	-1.4743	5.9090
		Y33	0.0045	0.0008	-2.5840	6.5576
Q8CC35	Synaptopodin	S512	6.5720	7.1959	0.1308	6.6120
		S831	0.3623	0.5722	0.6593	5.8528
		S833	0.2805	0.4870	0.7959	6.5303
Q8K4G5	Actin-binding LIM protein 1	S475, S479	0.0032	0.7176	7.7880	5.3990
		S752	1.1747	0.8391	-0.4853	4.6471
Q8VCF0	Mitochondrial antiviral-signaling protein	S152	2.4500	9.4202	1.9430	6.4528
		S220	55.4740	32.0061	-0.7935	4.3761
Q91Z83	Myosin-7	S1137	0.0079	0.0022	-1.8695	4.3341
		S1362	0.0002	0.0020	3.3096	4.6271
		S1465	0.0036	0.0005	-2.8680	4.8571
		S1469	0.0007	0.0001	-2.8017	6.1582
		S1922	0.0349	0.0094	-1.8898	6.2882
		Y1382	0.0026	0.0008	-1.6190	5.9383
Q99JB8	Protein kinase C and casein kinase II substrate protein 3	T335	2.7721	1.6031	-0.7902	5.8995
Q9CQ73	Plakophilin 2	S126	0.1452	0.0881	-0.7199	4.5166

		S207	0.1065	0.1543	0.5347	4.6197
Q9CR62	Mitochondrial 2-oxoglutarate/malate carrier protein	Y102	0.0004	0.0012	1.7507	4.5292
Q9CY58	Plasminogen activator inhibitor 1 RNA-binding protein	S329	7.8868	3.6106	-0.8484	5.1380
		S329	15.0249	6.7037	-1.1643	5.2753
		Y244	0.6315	0.3991	-0.6622	5.1253
Q9D5T0	ATPase family AAA domain-containing protein 1	S322	1.5285	1.2449	-0.2998	4.9283
Q9D6Z1	Nucleolar protein 56	S543	0.5552	1.1323	1.0282	6.2902
Q9DC70	NADH dehydrogenase [ubiquinone] iron-sulfur protein 7 mitochondrial	S41	0.0188	0.0157	-0.2631	4.3663
Q9ET54	Palladin	T642	0.4029	0.7533	0.9026	4.8468
Q9ET78	Junctophilin-2	S593, S597	19.9814	11.0532	-0.8542	6.1349
		S101, S116	0.4846	0.2903	-0.7396	6.3980
Q9JKS4	LIM domain-binding protein 3	S156	0.0016	0.0042	1.3915	6.7734
		T119	0.0024	0.0029	0.2771	5.6162
Q9Z0X1	Apoptosis-inducing factor 1 mitochondrial	S370	0.0036	0.0027	-0.4396	4.9222