

Supplementary Materials:

PhosSNP: systematic analysis of genetic polymorphisms that influence protein phosphorylation

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Running title: Influence of phosphorylation by nsSNPs

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Supplementary tables

Supplementary Table S1 – Several experimentally identified phosSNPs. In 2006, Erxleben *et al.* (The Armstrong group) firstly raise the term "phosphorylopathy" to describe human genetic variation that results in aberrant regulation of protein phosphorylation (1). For simplicity, we refined the term "phosphorylopathy" as phosSNP (Phosphorylation-related SNP). *a.* Exp. Type, the phosSNP types identified by experimental approaches; *b.* Pre. Type, the phosSNP types predicted in this work. For example, the K897T nsSNP of human ERG1/KCNH2/Kv11.1 channel protein was experimentally verified as a type I (+) phosSNP to create a new AKT phosphorylation site to prolong the QT interval of cardiac myocytes (2), while our predictions further pointed that this phosSNP might induce changes of PK types for adjacent phosphorylation sites (Type III). Users could use RefSeq ID, eg., NM_000238 to query the PhosSNP database for more detailed information.

Gene/Protein name	Experimentally identified phosSNPs	Exp. Type ^a	Pre. Type ^b	Ref.
Kv11.1/KCNH2/ERG1	NM_000238 rs1805123 pos=897 AAG->ACG K->T	1+	1+, 3	(2)
RET	NM_020630 rs1799939 pos=691 GGT->AGT G->S	1+	1+, 2+, 3	(3)
p21	NM_078467 rs1801724 pos=149 GAT->GGT D->G	3	3	(4)
RyR2	NM_001035 rs3766871 pos=1886 GGC->AGC G->S	1+	1+	(5)
OGG1	NM_002542 rs1052133 pos=326 TCC->TGC S->C	1-	1-	(6, 7)
p53	NM_000546 rs1800371 pos=47 CCG->TCG P->S	3	1+, 3	(8)
HTR2A	NM_000621 rs1058576 pos=421 TCT->TTT S->F	1-	1-, 3	(9)

Supplementary Table S2 – The SNP annotation information for three distinct mRNAs of human ERG1/KCNH2/Kv11.1. The pre-calculated mapping SNP information for the three mRNAs was not identical. And no entry has the full SNP annotations.

NM_000238	NM_172056	NM_172057	NM_000238	NM_172056	NM_172057
731506	731506			41307289	
740952	740952	740952	41307292	41307292	41307292
1060516		1060516	41307295	41307295	41307295
1060517		1060517	41307319	41307319	
1064800		1064800	41308954	41308954	
1137617	1137617	1137617	41311000		41311000
1805120	1805120	1805120	41311003	41311003	41311003
1805123		1805123			41311009
2228160	2228160				41311012
	2968859		41311018	41311018	
9333649	9333649	9333649	41312081		41312081
9770044	9770044	9770044	41312087		41312087
11538710	11538710	11538710	41313068		41313068
12720441	12720441	12720441	41313074		41313074
13229961	13229961				41313083
13230253	13230253		41313143		41313143
28763994		28763994	41313746		41313746
28928904	28928904	28928904	41313752		41313752
28928905	28928905	28928905	41313761		41313761
28933095	28933095		41313764		41313764
33959111	33959111	33959111	41314354		41314354
33999003	33999003	33999003		41314363	
34708518		34708518		41314366	
34804926		34804926	41314375	41314375	41314375
36210421		36210421			41314393
36210422	36210422				41314396
41307270		41307270	41314417	41314417	
41307271		41307271	45607339	45607339	45607339
41307274		41307274		55684712	
41307277		41307277			62492438
41307280		41307280			

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