

Supplementary Table S1 List of 129 pharmacogenes in this study

Classification	Gene
Drug metabolizing enzymes	<i>ADH1A, ADH1B, ADH1C, ALDH1A1, BCHE, COMT, CYP1A2, CYP2A6, CYP2B6, CYP2C19, CYP2C8, CYP2C9, CYP2D6, CYP2E1, CYP2J2, CYP3A4, CYP3A5, CYP4F2, DPYD, G6PD, GSTP1, GSTT1, NAT2, SULT1A1, TPMT, UGT1A1</i>
Drug transporters	<i>ABCB1, ABCG2, SLC19A1, SLC22A1, SLCO1B1</i>
Targets/Pathway	<i>ABL1, ACE, ADRB1, ADRB2, ALK, ALOX5, ASS1, BCR, BRAF, BRCA1, CACNA1S, CD274, CFTR, CPOX, CPS1, CYB5R1, DMD, DRD2, EGFR, ERBB2, F2, F5, FGFR1, FIP1L1, FLT3, GALNS, GLA, HBB, HMBS, HMGCR, HPRT1, IDH1, IDH2, IGH, IL12A, IL12B, IL23A, IL28B, IL2RA, KCNH2, KCNJ11, KIT, KRAS, MS4A1, MTHFR, NAGS, NECTIN4, NPML, NQO1, NRAS, NTRK1, NUDT15, OTC, P2RY12, P2RY1, PDGFRA, PDGFRB, PGR, PIK3CA, PPOX, PRF1, PROC, PROS1, PTGIS, PTGS2, RAB27A, RET, ROS1, SCN5A, SERPINC1, SH2D1A, SMN2, STX11, STXBP2, TNFRSF8, TPP1, TTR, TYMS, UNC13D, VKORC1, XIAP</i>
gDNA repair	<i>POLG</i>
Transcription factor	<i>AHR, ESRI, NR1H2, MYCN, PML, RARA, RYR1, TP53, VDR</i>
Miscellaneous	<i>HLA-A, HLA-B, HLA-DQA1, HLA-DRB1</i>

Supplemental Table S2 Single nucleotide variants of pharmacogenes with an allele frequency of more than 10% in Koreans

Gene	rsID	position	Variant	Function	Minor allele Frequency (%)	HWE P value
<i>CYP2C19</i>	rs12769205	10:96535124	A>G	intron	28.29	0.4058
<i>CYP2C19</i>	rs4986893	10: 96540410	G>A	stop gain	10.04	0.1807
<i>CYP2C19</i>	rs4244285	10: 96541616	G>A	synonymous	28.29	0.4058
<i>CYP2D6</i>	rs1065852	22:42526694	G>A	missense	48.23	0.4994
<i>CYP2D6</i>	rs16947	22:42523943	G>A	missense	14.96	0.2544
<i>CYP2D6</i>	rs1135840	22:42522613	G>C	missense	36.43	0.4632
<i>CYP3A5</i>	rs776746	7: 99270539	C>T	splice acceptor	23.47	0.3593
<i>CYP4F2</i>	rs3093105	19: 16008388	T>G	missense	13.40	0.2320
<i>CYP4F2</i>	rs2108622	19: 15990431	C>T	missense	32.41	0.4381
<i>DPYD</i>	rs72728438	1: 97847874	T>C	intron	19.25	0.3109
<i>NUDT15</i>	rs116855232	13: 48619855	C>T	missense	10.52	0.1883
<i>SLCO1B1</i>	rs4149015	12: 21283322	G>A	upstream	14.28	0.2449
<i>SLCO1B1</i>	rs2306282	12: 21329802	G>A	missense	26.72	0.3916
<i>SLCO1B1</i>	rs4149056	12: 21331549	T>C	missense	14.26	0.2445
<i>SLCO1B1</i>	rs4149057	12: 21331599	T>C	synonymous	25.97	0.3845
<i>SLCO1B1</i>	rs2291075	12: 21331625	C>T	synonymous	43.45	0.4914
<i>UGT1A1</i>	rs4124874	2: 234665659	T>G	intron	28.20	0.4050
<i>UGT1A1</i>	rs887829	2: 234668570	C>T	intron	12.27	0.2152
<i>UGT1A1</i>	rs4148323	2: 234669144	G>A	missense	19.33	0.3119
<i>VKORC1</i>	rs9923231	16:31107689	T>C	upstream	92.42	0.1400

HWE, Hardy-Weinberg Equilibrium

Supplementary Table S3. Single nucleotide variants of pharmacogenes with an allele frequency of less than 10% in Koreans

Gene	rsID	position	Variant	SIFT Function	Alternative allele	HWE P
					Frequency (%)	value
<i>CACNAIS</i>	rs3850625	1: 201016296	G>A	Deleterious	3.89	0.075
<i>CFTR</i>	rs121909046	7: 117175372	A>G	Deleterious	2.27	0.864
<i>CFTR</i>	rs113857788	7: 117304834	G>C	Deleterious	1.88	0.410
<i>CYP2B6</i>	rs8192709	19: 41497274	C>T	Deleterious	2.73	0.942
<i>CYP2C19</i>	rs12248560	10:96521657	C>T	–	1.12	0.297
<i>CYP2C9</i>	rs1057910	10:96741053	A>C	–	4.06	0.056
<i>CYP2D6</i>	rs28371725	22:42523805	C>T	–	2.29	0.267
<i>TPMT</i>	rs1142345	6:18130918	T>C	–	1.56	0.618
<i>UGT1A1</i>	rs35350960	2:234669619	C>A	–	1.22	0.874
<i>VKORC1</i>	rs7294	16:31102321	C>T	–	7.56	0.252

Supplementary Table S4. Copy number variations for pharmacogenes with a frequency of less than 1% in Koreans

Gene	Position	Gain Frequency (%)	Loss Frequency (%)
<i>DPYD</i>	1: 97543300–98386615	0.11	0.11
<i>F5</i>	1: 169481192–169555769	0.84	0
<i>PIK3CA</i>	3: 178866311–178952497	0.11	0
<i>ABCG2</i>	4: 89011416–89080011	0	0.63
<i>ADH1B</i>	4: 100227527–100242572	0.21	0
<i>PDGFRB</i>	5: 149493402–149535422	0.11	0.11
<i>AHR</i>	7: 17338276–17385775	0.21	0
<i>BRAF</i>	7: 140433813–140624564	0	0.11
<i>CD274</i>	9: 5450503–5470567	0.11	0
<i>ABL1</i>	9: 133589268–133763062	0.63	0
<i>IL2RA</i>	10: 6052657–6104333	0.11	0.21
<i>CYP2E1</i>	10: 135340867–135352620	0	0.63
<i>MS4A1</i>	11: 60223282–60238225	0.11	0
<i>PGR</i>	11: 100900355–101000544	0.11	0
<i>NAGS</i>	17: 42082032–42086436	0	0.11
<i>CYP2B6</i>	19: 41497204–41524301	0.21	0
<i>PTGIS</i>	20: 48120411–48184707	0.95	0