

Table S1: Study Design Summary

Ref.	n	Health Status	Gene(s)	SNP(s)	Gender Distribution	Age (y)	Smokers	Race	Antipsychotic	Daily Dose (mg/d)	Biometric Measures	Plasma Levels	Adverse Effects Tests/ Psychopathologic Status Test	DN A Analysis
<i>Laik a et al., 2009</i>	73	Psychotic Disorder/ Mood Disorder/ Other Psychiatric Disorders	CYP1A2	1A2: rs762551	37F/36M	41.7 ± 14.7 (19-76)	30	Caucassian	Olanzapine	2.5-30 mg/d	BMI	LC/MS-MS	DOTES/PDS/CGI1/CGI2	RFLP
<i>Kang et al., 2009</i>	64	Schizophrenia	CYP2D6/ CYP3A5	CYP2D6: rs1065852, whole-gene deletion/CYP3A4: rs776746	23F/41M	48.9 ± 3.9	-	Asian (Korean)	Risperidone	5.3 (2 - 16) mg/d	-	HP LC/EC D	-	allele specific PCR/ld-PCR/RFLP
<i>Du et al., 2009</i>	130	Schizophrenia (Drug Naive)	CYP3A4	CYP3A4: rs4986907, rs2242480	85F/45M	36.07 ± 11.22	-	Asian (Han Chinese)	Risperidone	2 - 6 mg/d	-	HP LC/UV	PANS S	allele specific PCR
<i>Consoli et al., 2009</i>	60	Psychotic Disorder	ABCB1	ABCB1: rs1045642, rs2032582, rs1128503	20F/40M	45.3 ± 15.3	-	Caucassian (Mediterranean)	Clozapine	165 ± 111 mg/d	Body Weight	HP LC/UV	BPRSt 0/BPR St1	RFLP

<i>Nova Ibos et al., 2010</i>	71	Healthy	CYP2D6	CYP2D6: rs35742686, rs3892097, rs5030655, rs5030867, rs5030656, whole-gene deletion	36F/35 M	23.6 +- 2.1F/23 .2 +- 2.7M	-	Caucasian (Mediterranean)	Risperidone	1 mg*	BMI	HP LC/MS-MS	-	RFLP/Id-PCR/rtPCR
<i>Jovanovic et al., 2010</i>	83	Schizophrenia/Drug Naive	CYP2D6/ABCB1	CYP2D6: rs35742686, rs35742686, rs3892097, rs5030655, duplication, whole-gene deletion/ABCB1: rs2032582, rs1045642	66F/17 M	30.29 +- 8.1	45	Caucasian (Croatian)	Risperidone	2.74 +- 1.6 mg/d	Body Weight	HP LC/UV	PANS S/EPS, Amenorrhea, Galactorrhea, Gynecomastia	RFLP/Id-PCR/rt-PCR
<i>Xiang et al., 2010</i>	23	Healthy	CYP2D6/CYP3A5/ABCB1	*4, *5, *10, *14A/*3/C1236T, C3435T	23M	36.5 +- 2.70 (31 - 39)	-	Asian (Han Chinese)	Risperidone	2 mg*	BP/BMI	HP LC/MS-MS	-	RFLP
<i>Balibey et al., 2011</i>	107	Chronic Schizophrenia	1A2	rs762551	16F/81 M	18-60	58	Turk	Clozapine	200-600 mg/d	-	-	BPRS/SANS/SAPS	PCR
<i>Suzuki et al., 2011</i>	63	Schizophrenia	2D6	rs1065852	32F/31 M	39.4 +- 15.1	16	Asian (Japanese)	Aripiprazole	12 (n = 23)/24 (n = 40) mg/d	Body weight	LC/MS-MS	-	rt-PCR
<i>Biggs et al., 2011</i>	235	Schizophrenia	CYP1A2/CYP2D6/FMO3/CYP3A4, 3A5, 3A7, 3A43	rs2472300, rs2069522, rs2069526, rs4646425, rs11631682/rs6002616, rs9306356/rs2213712, rs2859228, rs2859229, rs1492899, rs929087, rs10458360/rs2527894, rs2527887, rs4215, rs2525557, rs6960542,	63F/17 2M	-	150	Caucasian (n = 161)/African American (n = 74)	Olanzapine	7.5 - 30 mg/d	-	HP LC/MS-MS	PANS S	SNP Mass Array

				rs4729562, rs651430, rs12535293, rs472660, rs17161981, rs17161983, rs2572023, rs2527927													
<i>Suzu ki et al., 2012</i>	64	Schizophr enia (<i>n</i> = 61), Unspecifi ed Psychotic Disorder (<i>n</i> = 2), Delusiona l Disorder (<i>n</i> = 1)	CYP2D6	*10, deletion	whole-gene	31F/33 M	35.5 +- 14.6 (18-65)	25	Asian(Japa nese)	Risperid one	4.6 +- 2.4 mg/d	BMI	HP LC/ MS- MS	-	rt- PCR/ ld- PCR		
<i>Naga i et al., 2012</i>	70	Schizophr enia	CYP2D6	CYP2D6: *5 (whole- gene deletion), rs1065852, rs5030865.		34F/36 M	38.2 +- 14.1F/3 9.2 +- 16.4M y	x	Asian (Japanese)	Aripipra zole	12 (<i>n</i> = 25), 24 (<i>n</i> =46) mg/d	Bodyw eight	-	Prolac tin Plasm a Levels (Chem ilumin escene immu noassa y)	PCR		
<i>Yoo et al., 2012</i>	80	Healthy	CYP2D6/ ABCB1	CYP2D6: rs1135840, rs3892097, *5 (whole- gene deletion), rs1065852, rs5030865, rs1058164, rs1135840. ABCB1: rs1045642.		80M	23.4 +- 2.1 (19- 30) y	-	Asian (Korena)	Risperid one	2 mg/d	BSA	HP LC/ UV	-	PCR		
<i>Lee et al., 2012</i>	96	Schizophr enia	ABCB1/H RH1/DRD 2-ANKK1	rs7787082, rs10248420/rs1306453 0/rs4938013		36F/60 M	32.5 +- 9.3	-	Asian (Korean)	Clozapi ne	319.0 +- 133.1 mg/d	-	HP LC/ MS- MS	CGI-I	PCR- MA LDI TOF/ Mass		

															Array
<i>Söderberg et al., 2013</i>	342	Psychiatric Patient	CYP1A2/AHR	CYP1A2: rs762551, rs2472304/AHR: rs4410790, rs4410790/CYP1A1: rs2470893, rs2472297.	161F/180M (1 Unknown)	45 (16-89)	85F/109M	Caucasian	Olanzapine	10	-	UP LC/MS-MS	-	SNP & SE Q	
<i>Almoguera et al., 2013</i>	75	Schizophrenia	CYP2D6	CYP2D6: rs35742686, rs3892097, rs5030655. CYP3A4: rs2740574, rs4646437, rs35599367. CYP3A5: rs776746. CYP3A7: rs45446698. ABCB1: rs2032582, rs9282564, rs2229109, rs1045642, rs1128503.	34F/41M	>40 ($n = 25$), 40-59 ($n = 39$), >= 60 ($n = 11$)	-	Caucasian (Mediterranean)	Risperidone	3.5 - >9 mg/d	BMI	x	PANS S (P/N/T), Length of Hospital Stay	rt-PCR	
<i>Herb ild et al., 2013</i>	207	Pyschiatric Patient	CYP2C19/CYP2D6	CYP2C19: rs4244285, rs57081121. CYP2D6: rs35742686, rs3892097, *5(whole-gene deletion).	92F/115M	41.5 (19-73) y	-	Caucasian (Nordic-Scandinavian)	Various	-	-	-	Health Care Costs	rt-PCR	
<i>Hend set et al., 2013</i>	414	Psychiatric Patient	2D6	rs35742686, rs3892097, rs5030655, rs1065852, rs28371725, whole gene deletion	-	37 (8-89)/33 (10-86)	-	Caucasian	Risperidone/Aripiprazole	3 (0.5-10)/15 (2.5-45) mg/d	-	UH PL C/MS-MS	-	rt-PCR	
<i>Suzuki et al., 2013</i>	74	Schizophrenia	ABCB1	ABCB1: rs1045642, rs2032582. CYP2D6: *5 (whole-gene deletion), rs1065852.	36F/38M	37.5 ± 15.1 (18-65) y	28	Asian (Japanese)	Risperidone	4.7 ± 2.4 (mg/d)	Body Weight	HP LC/MS	BPRS (28.3 ± 9.0)	PCR	
<i>Vikki et al., 2014</i>	187	Schizophrenia/Schizophreniform disorder/Schizoaffective	CYP1A2	CYP1A2: rs2470890.	70F/110M	>18 (43.1 ± 11.0)	94T	Caucasian (Finnish)	Clozapine	-	-	HP LC/UV D	LUNERS	TaqMan SNP Genotyping	

		disorder/ Delusional disorder												Assay
<i>Van der Weide et al., 2014</i>	23 8	Psychotic Disorder	CYP3A4	CYP3A4: rs35599367.	150F/8 8M	71 (18 - 35 y)/100 (36 - 54 y)/67 (>55 y)	x	x	Quetiapine	300 (12.5 - 1200) mg/d	-	HP LC/ UV	Quetiapine	rt-PCR
<i>Suzuki et al., 2014</i>	89	Schizophrenia	CYP2D6/ CYP3A5/ ABCB1	CYP2D6: *5 (whole-gene deletion), rs1065852, rs5030865. CYP3A5: rs776746. ABCB1: rs1045642, rs2032582.	43F/46 M	37.94 +- 15.16 y	10	Asian (Japanese)	Aripiprazole	12 (n = 33), 24 (n =56) mg/d	BMI	HP LC/ MS	-	PCR
<i>Kim et al., 2014</i>	40	Healthy	CYP3A5/ ABCB1	ABCB1: rs1128503, rs2032582, rs1045642. CYP3A5: rs776746.	40M	23.8 +- 2.6 (19- 33) y	-	Asian (Korean)	Quetiapine	100mg /d	BMI (Height, Weight)	HP LC/ MS- MS		Pyrosequencing
<i>Czerwenky et al., 2015</i>	70	Psychotic Disorder	CYP1A2	CYP1A2: rs762551, rs35694136.	54F/44 M	41.5 +- 14.6	40	Caucasian	Olanzapine	14.7 +- 7.3 mg/d	BMI	HP LC/ MS- MS	-	PCR
<i>Ivanova et al., 2015</i>	31 9	Schizophrenia/Schizotypal disorder	CYP1A2	CYP1A2: rs762551.	123F/1 96M	43 +- 0.9	-	Caucasian	Various*	733.6 +- 40 (mg/day, Clorpromazine)	-	-	AIMS (TD)	rt-PCR
<i>Cabaleiro et al., 2015</i>	70	Healthy	CYP2D6	rs35742686, rs1135824, rs3892097, rs5030655, rs5030867, rs5030656, rs1065852, rs28371725, rs16947, rs1135840,	35F/35 M	28.2 +- 2.6 (25- 39)	-	Caucasian (Mediterranean)	Risperidone	1 mg/d	-	HP LC/ MS- MS	-	DN A Array

				duplications, whole- gene deletion										
<i>Lisbeth et al., 2015</i>	82	Psychiatric Patient	2D6	rs1135840, rs773790593, rs5030656, rs1065852, rs28371706, rs16947, rs61736512, rs1058164, rs59421388, rs1135840, rs28371725, rs35742686, rs3892097, rs5030655, rs5030867, rs5030865, rs5030863, whole-gene deletion	30F/52 M	19 - 66	-	Caucassian	Aripiprazole/Haloperidol/Paliperidone/Risperidone/Zuclopenthixol	¿?	-	UH PL C/MS-MS	-	CYP2D6 genotyping commercial kit
<i>Van der Weide et al., 2015</i>	834	Psychotic Disorder	CYP2D6/CYP3A4	CYP2D6: rs35742686, rs3892097, *5 (whole-gene deletion), rs5030655, rs5030656, rs1065852, rs28371725. CYP3A4: rs2740574.	480F/354M	18 - 35	x	Caucasian (Nordic)	Aripiprazole (<i>n</i> = 130), Haloperidol (<i>n</i> = 312), Pimozide (<i>n</i> = 86), Risperidone (<i>n</i> = 396)	-	-	HP LC/UV	-	PCR
<i>Brandl et al., 2015</i>	152	Schizophrenia/Schizoaffective disorder	CYP3A4	CYP3A4: rs680055, rs472660.	55F (37/18)/97M (49/48)*	34.9 ± 10.6 (35.3 ± 12.0/34.5 ± 8.5)	x	Caucasians	Various (<i>n</i> = 86)/Clozapine (<i>n</i> = 66)*	-	-	x	PANS S/BPRS	PCR
<i>Vandenbergh</i>	150	Psychiatric Patient	CYP2D6/CYP3A4/CYP3A5/		68F/82 M	39	x	Caucasian (122), Arab (4),	Risperidone	<2 (<i>n</i> = 68), 2.1-4 (<i>n</i>	BMI	HP LC/MS	PANS S/SAS	rt-PCR

<i>et al., 2015</i>			CYP3A7/ ABCB1					(3), African (6), Other (15)		= 65), 4.1-6 (<i>n</i> = 13), >6 (<i>n</i> = 4)				
<i>Shilbayeh et al., 2015</i>	34	Healthy	CYP3A5	CYP3A5: rs776746.	34M	36 (19-46) y	23	Caucasian (North-American)	Quetiapine	25 mg/d	BMI	HP LC/ MS-MS	-	PCR
<i>Cabaleiro et al., 2015</i>	79	Healthy	CYP1A1/ CYP1A2/ CYP2C19/ CYP2C9/ CYP2D6/ CYP3A4/ CYP3A5	CYP1A2: rs2069514, rs762551. CYP2C19: rs4244285, rs28399504. CYP2C9: rs1799853, rs1057910. CYP2D6: rs1135840, rs5030862, rs28371706, rs61736512, *40 [1863_1864ins(TTT CGC CCC)2], rs28371725, rs28371725, rs1058164, rs16947. CYP3A4: rs2740574, CYP3A5: rs776746, rs10264272.	31F/48 M	23.80 +- 3.22F/2 3.40 +- 3.33M	-	Caucasian (Mediterranean)/Guat emalan (<i>n</i> = 2)	Quetiapine	-	BMI	-	Prolactin Plasma Levels , Adverse Effects Questioning	PCR
<i>Bakken et al., 2015</i>	289	Psychotic Disorder	CYP2D6/ CYP3A5/ ABCB1	CYP2D6: rs35742686, rs3892097, *5 (whole- gene deletion), rs5030655. CYP3A5: rs28365083, rs776746. ABCB1: rs1045642.	161F/128M	38 (15-82) y	x	Caucasian (Central European)	Quetiapine	600 (25-2000) mg/d	-	HP LC/ MS	-	PCR
<i>Huang et al., 2016</i>	143	Schizophrenia	CYP1A2	CYP1A2: rs762551.	56F/87 M	25-83	10F/55M	Han Chinese	Clozapine	-	BMI	HP LC/ MS-MS	-	RFLP

<i>Xu et al., 2016</i>	304	Schizophrenia	COMT/AKT1/CYP2C19	rs737865/rs2494738/rs4986893	125F/179M	39.9 +/- 16.4/37.6 +/- 14.5	-	Asian (Han Chinese)	Risperidone	2.1 +/- 1.2/2.3 +/- 1.6 mg/d	-	-	PANS S	PCR
<i>Xu et al., 2016</i>	240	Schizophrenia	ABCB1/HTR2C/DRD3/TNFRK1/MT/TCF4/SLC6A2/SLC6A2/AKT1	rs2032582, rs167771, rs3813929, rs4680, rs2242480, rs3001371, rs498177, rs2088885, rs4646316, rs9960767, rs5569,	109F/131M	42.1 +/- 12.9/41.7 +/- 12.5	-	Asian (Han Chinese)	Clozapine	122.0 +/- 69.2/122.2 +/- 69.2 mg/d	-	-	PANS S	PCR
<i>Xu et al., 2016</i>	310	Schizophrenia	NOTCH4/DRD3/CYP2D6/COMT/MT/COMT/T/COMT/HTR2C	rs3131296, rs1135840, rs5993883, rs1544325, rs1414334, rs6280, rs6269, rs4818,	179F/131M	43.51 +/- 17.8/43.4 +/- 18.4	-	Asian (Han Chinese)	Quetiapine	246.62 +/- 130.9/245.9 +/- 130.2 mg/d	-	-	PANS S	PCR
<i>Xu et al., 2016</i>	141	Schizophrenia	RELN/DRD3/AKT1/COMT/CYP2C19	rs7341475, rs2494732, rs174696, rs6280, rs6269, rs4986893	61F/80M	38.4 +/- 15.1/37.0 +/- 12.7	-	Asian (Han Chinese)	Chlorpromazine	139.7 +/- 48.6/144.2 +/- 62.3 mg/d	-	-	PANS S	PCR
<i>Kaur et al., 2017</i>	419	Schizophrenia/Healthy	CYP2D6	CYP2D6: rs3892097, rs106585.	157F/262M	31.36	x	Asian (Indian)	Risperidone	-	BMI, PR, BP, WC	HP LC-UV	PANS S (P/N/T)	RFLP
<i>Belmonte et al., 2017</i>	148	Healthy	CYP2D6/CYP3A4/CYP3A5/ABCB1	CYP2D6: rs35742686, rs3892097, *5 (whole-gene deletion), rs5030655, rs5030656. CYP3A4: rs67666821, rs2740574. CYP3A5: rs776746. ABCB1:	63F/85M	18 - 55	x	Caucasian (Mediterranean)	Aripiprazole	10 (mg/d)	-	HP LC-MS/MS	-	PCR

				rs1045642, rs1128503, rs2032582.												
<i>Papa zisis et al., 2018</i>	10 4	Schizophr enia/Othe r Psychotic Disorders	CYP2D6/ ABCB1	CYP2D6: rs35742686, rs3892097, *5 (whole- gene deletion), rs1065852. ABCB1: rs2032582, rs1045642.	31F/70 M	42.6 +- 9.64	-	Caucasian (Mediterra nean)	Various	943.1 +- 495.25	-	HP LC/ MS- MS	PANS S	rt- PCR		
<i>Jukic et al., 2019</i>	72 5	-	CYP2D6	rs35742686, rs3892097, rs5030655, rs5030656, rs1065852, rs28371725, duplication, whole- gene deletion	372F/3 53M	42.8 +- 20.4	-	Caucassian	Risperid one	2.87 +- 1.65	-	HP LC/ MS- MS	-	rt- PCR		
<i>Jukic et al., 2019</i>	89 0	-	CYP2D6	rs35742686, rs3892097, rs5030655, rs5030656, rs1065852, rs28371725, duplication, whole- gene deletion	490F/4 00M	37.8 +- 16.8	-	Caucassian	Aripipra zole	14.45 +- 7.71	-	HP LC/ MS- MS	-	rt- PCR		

HPLC: High-Performance Liquid Chromatography ; MS: Mass Spectrometry ; rt-PCR: real time-Polymerase Chain Reaction; PANSS: Positive and Negative Syndrome Scale; UV: UltraViolet (spectrophotometry); RFLP: Restriction Fragment Length Polymorphism ; LUNERS: Liverpool University Neuroleptic Side Effect Rating Scale. ; TOF: Time of Flight ; BMI: Body Mass Index; CGI: Clinical Global Impression; AIMS (TD): Abnormal Involuntary Movement Scale (tardive Dyskinesia); DOTES: Dosage Record Treatment Emergent Symptom Scale; PDS: Post-Traumatic stress Diagnostic Scale ; BPRS: Brief Psychiatric Rating Scale; SANS: Scale for the Assessment of Negative Symptoms; SAPS: Scale for the Assessment of Positive Symptoms.