

**Supplemental Table 1**

Gene number according to fig 1	Gene	rs number	E2 p-value	E1 p-value	T p-value
1	AKR1C3	rs11252935	0.94	0.72	0.42
1	AKR1C3	rs12387	0.78	0.59	0.61
1	AKR1C3	rs12529	0.86	0.42	0.09
1	AKR1C3	rs17396032	0.49	0.31	0.23
1	AKR1C3	rs1937841	0.45	0.69	0.22
1	AKR1C3	rs2154306	0.93	0.45	0.60
1	AKR1C3	rs2275928	0.89	0.78	0.74
1	AKR1C3	rs2298305	0.48	0.61	0.25
1	AKR1C3	rs3750566	0.99	0.98	0.15
1	AKR1C3	rs4242785	0.87	0.71	0.35
1	AKR1C3	rs4559587	0.78	0.56	0.50
1	AKR1C3	rs4881400	0.94	0.94	0.40
1	AKR1C3	rs7086771	0.92	0.79	0.42
1	AKR1C3	rs7894034	0.69	0.63	0.50
2	AR	rs12011518	0.83	0.93	0.39
2	AR	rs1204039	0.47	0.75	0.36
2	AR	rs12396249	0.34	0.93	0.43
2	AR	rs2361634	0.32	0.45	0.12
2	AR	rs5031002	0.93	0.66	0.97
2	AR	rs5918764	0.10	0.99	0.95
2	AR	rs7064188	0.66	0.66	0.34
3	CGA	rs6631	0.95	0.40	0.43
3	CGA	rs6909630	0.93	0.21	0.46
3	CGA	rs6909901	0.35	0.86	0.40
3	CGA	rs7745823	0.81	0.43	0.30
3	CGA	rs932742	0.88	0.12	0.52
3	CGA	rs9444470	0.85	0.92	0.18
3	CGA	rs981086	0.98	0.45	0.18
4	COMT	rs1544325	0.99	0.69	0.67
4	COMT	rs165815	0.14	0.50	0.83
4	COMT	rs165849	0.09	0.66	0.46
4	COMT	rs174675	0.54	0.77	0.49
4	COMT	rs174696	0.15	0.18	0.10
4	COMT	rs2020917	0.54	0.98	0.25
4	COMT	rs2239393	0.09	0.38	0.04
4	COMT	rs2240714	0.63	0.76	0.35
4	COMT	rs4485648	0.44	0.84	0.37
4	COMT	rs4680	0.01	0.27	0.008
4	COMT	rs9332377	0.43	0.68	0.36
4	COMT	rs9605030	0.97	0.71	0.28
5	CYP17A1	rs10883783	0.53	0.07	0.75
5	CYP17A1	rs17115100	0.47	0.01	0.16
5	CYP17A1	rs17724534	0.04996	0.64	0.23
5	CYP17A1	rs2486758	0.44	0.21	0.04
5	CYP17A1	rs3824755	0.41	0.01	0.14
5	CYP17A1	rs6162	0.99	0.90	0.39
5	CYP17A1	rs7089422	0.02	0.16	0.04
5	CYP17A1	rs743572	0.95	0.92	0.24
6	CYP19A1	rs10046	0.009	0.005	0.13

6	CYP19A1	rs1004983	0.34	0.70	0.26
6	CYP19A1	rs10459592	0.06	0.02	0.72
6	CYP19A1	rs10519295	0.007	0.14	0.86
6	CYP19A1	rs10851498	0.01	0.009	0.18
6	CYP19A1	rs12591359	0.09	0.09	0.86
6	CYP19A1	rs17523880	0.04	0.007	0.34
6	CYP19A1	rs17523922	0.27	0.56	0.81
6	CYP19A1	rs1870050	0.63	0.18	0.06
6	CYP19A1	rs1902584	0.73	0.44	0.71
6	CYP19A1	rs1961177	0.45	0.23	0.57
6	CYP19A1	rs2008691	0.90	0.27	0.85
6	CYP19A1	rs2445762	0.61	0.53	0.90
6	CYP19A1	rs2445768	0.26	0.06	0.53
6	CYP19A1	rs2470144	0.09	0.70	0.68
6	CYP19A1	rs2470152	0.000002	0.0009	0.11
6	CYP19A1	rs2470157	0.07	0.74	0.78
6	CYP19A1	rs2899470	0.0004	0.002	0.14
6	CYP19A1	rs2899472	0.001	0.0005	0.71
6	CYP19A1	rs3751591	0.03	0.02	0.42
6	CYP19A1	rs3751592	0.94	0.13	0.88
6	CYP19A1	rs3889391	0.002	0.006	0.17
6	CYP19A1	rs4275794	0.57	0.08	0.95
6	CYP19A1	rs4646	0.02	0.12	0.10
6	CYP19A1	rs4774585	0.84	0.09	0.28
6	CYP19A1	rs6493487	0.06	0.003	0.95
6	CYP19A1	rs700518	0.02	0.04	0.16
6	CYP19A1	rs7172156	0.007	0.001	0.07
6	CYP19A1	rs7174997	0.65	0.56	0.52
6	CYP19A1	rs727479	0.004	0.006	0.72
6	CYP19A1	rs767199	0.02	0.0496	0.09
6	CYP19A1	rs8025374	0.25	0.17	0.03
6	CYP19A1	rs8031463	0.003	0.06	0.94
6	CYP19A1	rs934633	0.33	0.59	0.01
7	CYP1A1	rs1799814	0.95	0.94	0.10
7	CYP1A1	rs2470893	0.23	0.37	0.009
7	CYP1A1	rs4646421	0.94	0.95	0.94
8	CYP1A2	rs762551	0.31	0.99	0.048
9	CYP1B1	rs10175338	0.53	0.79	0.77
9	CYP1B1	rs1056836	0.91	0.96	0.83
9	CYP1B1	rs10916	0.83	0.69	0.26
9	CYP1B1	rs162556	0.46	0.76	0.94
9	CYP1B1	rs2256327	0.70	0.60	0.27
10	CYP2C9	rs1057910	0.76	0.58	0.82
10	CYP2C9	rs12251688	0.78	0.88	0.70
10	CYP2C9	rs1505	0.51	0.48	0.52
10	CYP2C9	rs1934963	0.64	0.81	0.96
10	CYP2C9	rs1934967	0.67	0.74	0.64
10	CYP2C9	rs1934968	0.49	0.82	0.27
10	CYP2C9	rs2185570	0.74	0.48	0.71
10	CYP2C9	rs2253635	0.63	0.66	0.52
10	CYP2C9	rs2298037	0.27	0.37	0.39
10	CYP2C9	rs2475377	0.28	0.63	0.27
10	CYP2C9	rs9332197	0.90	0.71	0.29

11	CYP3A4	rs12333983	0.48	0.33	0.36
11	CYP3A4	rs2242480	0.63	0.35	0.37
12	CYP3A5	rs15524	0.59	0.81	0.35
12	CYP3A5	rs4646450	0.45	0.09	0.62
13	ESR1	rs10484922	0.38	0.63	0.86
13	ESR1	rs1062577	0.84	0.79	0.17
13	ESR1	rs11964281	0.43	0.65	0.92
13	ESR1	rs11964865	0.56	0.22	0.47
13	ESR1	rs12154178	0.23	0.36	0.57
13	ESR1	rs12199102	0.51	0.50	0.15
13	ESR1	rs12212176	0.40	0.94	0.14
13	ESR1	rs1543403	0.78	0.31	0.88
13	ESR1	rs1709182	0.58	0.52	0.17
13	ESR1	rs1709183	0.51	0.44	0.22
13	ESR1	rs1884052	0.17	0.55	0.36
13	ESR1	rs1884054	0.08	0.45	0.22
13	ESR1	rs2144025	0.12	0.06	0.28
13	ESR1	rs2228480	0.52	0.52	0.42
13	ESR1	rs2234693	0.60	0.78	0.54
13	ESR1	rs2347867	0.06	0.08	0.04
13	ESR1	rs2747649	0.27	0.40	0.89
13	ESR1	rs2813543	0.37	0.62	0.88
13	ESR1	rs2881766	0.80	0.90	0.56
13	ESR1	rs2982712	0.62	0.48	0.69
13	ESR1	rs2982896	0.77	0.97	0.37
13	ESR1	rs2982900	0.59	0.12	0.16
13	ESR1	rs3003925	0.50	0.62	0.54
13	ESR1	rs3020314	0.09	0.18	0.20
13	ESR1	rs3020317	0.16	0.21	0.12
13	ESR1	rs3020328	0.22	0.30	0.53
13	ESR1	rs3020364	0.09	0.25	0.99
13	ESR1	rs3020368	1.00	0.36	0.22
13	ESR1	rs3020382	0.93	0.36	0.11
13	ESR1	rs3020383	0.72	0.14	0.33
13	ESR1	rs3020393	0.24	0.43	0.32
13	ESR1	rs3020404	0.27	0.26	0.07
13	ESR1	rs3020407	0.13	0.48	0.90
13	ESR1	rs3020410	0.41	0.77	0.18
13	ESR1	rs3020434	0.91	0.21	0.07
13	ESR1	rs3778099	0.03	0.09	0.04
13	ESR1	rs3798577	0.58	0.68	0.78
13	ESR1	rs3853248	0.56	0.51	0.74
13	ESR1	rs3936674	0.63	0.68	0.34
13	ESR1	rs488133	0.17	0.08	0.36
13	ESR1	rs6557170	0.59	0.44	0.16
13	ESR1	rs6914211	0.60	0.81	0.85
13	ESR1	rs7743290	0.09	0.14	0.71
13	ESR1	rs7754762	0.04	0.01	0.13
13	ESR1	rs7757956	0.85	0.22	0.14
13	ESR1	rs7761846	0.04	0.19	0.54
13	ESR1	rs827423	0.24	0.81	0.30
13	ESR1	rs926777	0.21	0.57	0.74
13	ESR1	rs9322335	0.80	0.63	0.46

13	ESR1	rs9322336	0.39	0.74	0.12
13	ESR1	rs9340835	0.91	0.89	0.32
13	ESR1	rs9340941	0.99	0.86	0.97
13	ESR1	rs9340954	0.12	0.22	0.77
13	ESR1	rs9340955	0.56	0.22	0.47
13	ESR1	rs9340978	0.34	0.19	0.24
13	ESR1	rs9341019	0.16	0.48	0.42
13	ESR1	rs9341052	0.86	0.66	0.25
13	ESR1	rs9341066	0.89	0.63	0.82
13	ESR1	rs9397463	0.98	0.61	0.91
13	ESR1	rs9478265	0.24	0.14	0.56
13	ESR1	rs985192	0.33	0.34	0.32
13	ESR1	rs985694	0.14	0.28	0.39
13	ESR1	rs988328	0.67	0.18	0.45
14	ESR2	rs12435857	0.98	0.11	0.09
14	ESR2	rs1256030	0.56	0.08	0.08
14	ESR2	rs1256031	0.45	0.07	0.04
14	ESR2	rs1256044	0.52	0.06	0.10
14	ESR2	rs1256063	0.87	0.67	0.99
14	ESR2	rs1256064	0.44	0.74	0.66
14	ESR2	rs1887994	0.56	0.79	0.12
14	ESR2	rs1952586	0.33	0.65	1.00
14	ESR2	rs2978381	0.37	0.02	0.58
14	ESR2	rs3020450	0.62	0.02	0.45
14	ESR2	rs3783736	0.73	0.04	0.11
14	ESR2	rs7159462	0.21	0.76	0.43
14	ESR2	rs8003490	0.51	0.63	0.55
14	ESR2	rs8006145	0.96	0.07	0.43
14	ESR2	rs8017441	0.59	0.71	0.44
14	ESR2	rs944045	0.26	0.44	0.56
15	ESRRA	rs11231745	0.56	0.83	0.45
15	ESRRA	rs11600990	0.64	0.80	0.79
15	ESRRA	rs731703	0.02	0.03	0.001
16	ESRRB	rs10132091	0.74	0.34	0.27
16	ESRRB	rs10135410	0.13	0.08	0.009
16	ESRRB	rs10147732	0.98	0.59	0.62
16	ESRRB	rs1077429	0.30	0.02	0.82
16	ESRRB	rs10873288	0.65	0.58	0.70
16	ESRRB	rs10873289	0.95	0.21	0.28
16	ESRRB	rs11159197	0.17	0.49	0.39
16	ESRRB	rs11159198	0.08	0.95	0.25
16	ESRRB	rs11620876	0.52	0.17	0.72
16	ESRRB	rs11622466	0.36	0.45	0.27
16	ESRRB	rs11624925	0.53	0.10	0.71
16	ESRRB	rs11625043	0.11	0.05	0.22
16	ESRRB	rs11626258	0.33	0.42	0.23
16	ESRRB	rs11845849	0.98	0.59	0.62
16	ESRRB	rs12050313	0.046	0.008	0.97
16	ESRRB	rs12100889	0.06	0.33	0.03
16	ESRRB	rs12590670	0.19	0.43	0.93
16	ESRRB	rs12880655	0.07	0.25	0.20
16	ESRRB	rs12880920	0.32	0.42	0.78
16	ESRRB	rs12883849	0.87	0.13	0.78

16	ESRRB	rs17497770	0.87	0.80	0.16
16	ESRRB	rs1867653	0.66	0.009	1.00
16	ESRRB	rs1867654	0.56	0.28	0.80
16	ESRRB	rs1867655	0.40	0.14	0.93
16	ESRRB	rs2361286	0.60	0.04	0.80
16	ESRRB	rs2361288	0.36	0.11	1.00
16	ESRRB	rs2361289	0.92	0.15	0.42
16	ESRRB	rs2361290	0.32	0.08	0.57
16	ESRRB	rs2361291	0.24	0.22	0.30
16	ESRRB	rs2361330	0.16	0.70	0.52
16	ESRRB	rs2921451	0.99	0.15	0.66
16	ESRRB	rs2980894	0.37	0.33	0.60
16	ESRRB	rs2980895	0.93	0.03	0.85
16	ESRRB	rs2980896	0.88	0.01	0.25
16	ESRRB	rs3742754	0.52	0.09	0.95
16	ESRRB	rs3813545	0.90	0.33	0.38
16	ESRRB	rs4427728	0.67	0.045	0.61
16	ESRRB	rs4903413	0.83	0.62	0.85
16	ESRRB	rs6574292	0.11	0.15	0.90
16	ESRRB	rs6574293	0.58	0.02	0.67
16	ESRRB	rs6574294	0.45	0.42	0.60
16	ESRRB	rs7140182	0.86	0.11	0.08
16	ESRRB	rs7149569	0.91	0.56	0.57
16	ESRRB	rs7150423	0.87	0.99	0.88
16	ESRRB	rs7152540	0.004	0.01	0.29
16	ESRRB	rs7154927	0.29	0.01	0.58
16	ESRRB	rs7160216	0.26	0.06	0.22
16	ESRRB	rs730452	0.85	0.95	0.43
16	ESRRB	rs733486	0.75	0.53	0.41
16	ESRRB	rs745011	0.23	0.01	0.95
16	ESRRB	rs748379	0.35	0.51	0.80
16	ESRRB	rs8010081	0.40	0.92	0.34
16	ESRRB	rs8012921	0.57	0.76	0.68
16	ESRRB	rs8021398	0.65	0.36	0.95
16	ESRRB	rs935344	0.27	0.12	0.63
16	ESRRB	rs9944093	0.74	0.36	0.40
17	FSHB	rs1716022	0.42	0.15	0.58
17	FSHB	rs1782507	0.56	0.51	0.09
17	FSHB	rs621686	1.00	0.77	0.38
18	FSHR	rs1007540	0.56	0.43	0.05
18	FSHR	rs10490118	0.38	0.44	0.18
18	FSHR	rs10495963	0.28	0.26	0.22
18	FSHR	rs10865238	0.04	0.29	0.004
18	FSHR	rs11693287	0.09	0.29	0.31
18	FSHR	rs11694529	0.85	0.58	0.96
18	FSHR	rs12465332	0.35	0.72	0.09
18	FSHR	rs12623845	0.02	0.09	0.02
18	FSHR	rs12713027	0.18	0.15	0.22
18	FSHR	rs1277459	0.49	0.57	0.69
18	FSHR	rs1277460	0.06	0.16	0.002
18	FSHR	rs1290100	0.23	0.50	0.26
18	FSHR	rs12996623	0.11	0.02	0.26
18	FSHR	rs12997223	0.01	0.13	0.02

18	FSHR	rs13010134	0.07	0.04	0.32
18	FSHR	rs13389334	0.65	0.74	0.57
18	FSHR	rs1394207	0.06	0.67	0.02
18	FSHR	rs1504174	0.15	0.08	0.22
18	FSHR	rs1504186	0.06	0.03	0.13
18	FSHR	rs1504189	0.02	0.002	0.02
18	FSHR	rs1504190	0.12	0.80	0.008
18	FSHR	rs1553476	0.22	0.06	0.54
18	FSHR	rs1558607	0.53	0.80	0.40
18	FSHR	rs17038059	0.03	0.23	0.06
18	FSHR	rs17038087	0.01	0.09	0.09
18	FSHR	rs17038110	0.53	0.50	0.38
18	FSHR	rs17038379	0.01	0.03	0.05
18	FSHR	rs17823341	0.65	0.62	0.47
18	FSHR	rs1910564	0.01	0.05	0.01
18	FSHR	rs2058595	0.86	0.54	0.63
18	FSHR	rs2072485	0.60	0.76	0.94
18	FSHR	rs2072486	0.82	0.82	0.61
18	FSHR	rs2268362	0.86	0.40	0.41
18	FSHR	rs2284674	0.87	0.50	0.68
18	FSHR	rs2300437	0.11	0.26	0.24
18	FSHR	rs2300438	0.72	0.15	0.09
18	FSHR	rs2300440	0.54	0.72	0.81
18	FSHR	rs2349415	0.02	0.08	0.008
18	FSHR	rs2349710	0.02	0.11	0.0005
18	FSHR	rs3788982	0.23	0.64	0.73
18	FSHR	rs4510264	0.02	0.25	0.00008
18	FSHR	rs4971637	0.21	0.50	0.05
18	FSHR	rs6166	0.82	0.23	0.45
18	FSHR	rs6545087	0.09	0.11	0.08
18	FSHR	rs6545094	0.09	0.08	0.003
18	FSHR	rs6705106	0.75	0.78	0.64
18	FSHR	rs6724851	0.01	0.09	0.0008
18	FSHR	rs7559066	0.56	0.28	0.55
18	FSHR	rs7577214	0.06	0.04	0.08
18	FSHR	rs759287	0.18	0.55	0.38
18	FSHR	rs905668	0.15	0.65	0.007
18	FSHR	rs917944	0.10	0.05	0.03
18	FSHR	rs9309159	0.55	0.85	0.06
18	FSHR	rs958974	0.02	0.04	0.01
18	FSHR	rs974897	0.03	0.44	0.002
18	FSHR	rs9808506	0.73	0.75	0.10
19	GNRH1	rs17201112	0.43	0.97	0.25
19	GNRH1	rs17790824	0.81	0.77	0.32
19	GNRH1	rs1876281	0.28	0.30	0.36
19	GNRH1	rs2659590	0.68	0.27	0.46
19	GNRH1	rs6185	0.07	0.59	0.07
20	GNRH2	rs15659	0.07	0.46	0.08
20	GNRH2	rs3761243	0.14	0.20	0.12
20	GNRH2	rs566570	0.18	0.69	0.19
20	GNRH2	rs6051545	0.58	0.47	0.76
20	GNRH2	rs6115763	0.49	0.87	0.04
20	GNRH2	rs676749	0.40	0.82	0.19

21	GNRHR	rs10005857	0.59	0.56	0.40
21	GNRHR	rs1843593	0.69	0.98	0.79
21	GNRHR	rs2711144	0.44	0.97	0.95
21	GNRHR	rs3796718	0.14	0.03	0.36
21	GNRHR	rs3796720	0.59	0.04	0.70
21	GNRHR	rs3822196	0.19	0.06	0.29
21	GNRHR	rs3828562	0.21	0.08	0.41
21	GNRHR	rs6552115	0.91	0.82	0.47
21	GNRHR	rs6828922	0.96	0.45	0.41
21	GNRHR	rs972072	0.39	0.38	0.71
21	GNRHR	rs974483	0.76	0.29	0.89
22	GPR30	rs3808350	0.53	0.93	0.49
22	GPR30	rs4285396	0.92	0.43	0.25
23	HSD17B1	rs12602084	0.76	0.36	0.56
23	HSD17B1	rs597255	0.36	0.19	0.52
23	HSD17B1	rs676387	0.95	0.14	0.84
24	HSD17B2	rs10514524	0.41	0.82	0.58
24	HSD17B2	rs1364283	0.31	0.50	0.82
24	HSD17B2	rs2042429	0.04	0.02	0.04
24	HSD17B2	rs2955162	0.20	0.10	0.008
24	HSD17B2	rs2955163	0.29	0.94	0.41
24	HSD17B2	rs2966245	0.17	0.02	0.02
24	HSD17B2	rs2966248	0.98	0.54	0.09
24	HSD17B2	rs3887358	0.53	0.62	0.27
24	HSD17B2	rs4243229	0.44	0.14	0.16
24	HSD17B2	rs4291899	0.47	0.34	0.63
24	HSD17B2	rs7201637	0.71	0.42	0.85
24	HSD17B2	rs723012	0.84	0.57	0.18
24	HSD17B2	rs8191225	0.98	0.72	0.92
24	HSD17B2	rs8191248	0.95	0.68	0.13
24	HSD17B2	rs996752	0.81	0.71	0.19
25	HSD17B3	rs10739847	0.65	0.34	0.22
25	HSD17B3	rs1119864	0.77	0.30	0.17
25	HSD17B3	rs11788785	0.71	0.75	0.95
25	HSD17B3	rs1324196	0.83	0.57	0.62
25	HSD17B3	rs1887774	0.96	0.94	0.50
25	HSD17B3	rs1927886	0.48	0.24	0.16
25	HSD17B3	rs2026001	0.25	0.73	0.33
25	HSD17B3	rs2066475	0.14	0.04	0.45
25	HSD17B3	rs2253502	0.51	0.36	0.42
25	HSD17B3	rs2257157	0.98	0.20	0.99
25	HSD17B3	rs2476923	0.05	0.25	0.09
25	HSD17B3	rs2476927	0.88	0.68	0.24
25	HSD17B3	rs2479828	0.18	0.62	0.96
25	HSD17B3	rs394243	0.36	0.39	0.74
25	HSD17B3	rs7029101	0.57	0.96	0.35
25	HSD17B3	rs8190512	0.96	0.93	0.39
25	HSD17B3	rs8190534	0.17	0.53	0.56
25	HSD17B3	rs8190536	0.10	0.03	0.31
25	HSD17B3	rs8190557	0.31	0.08	0.94
25	HSD17B3	rs8190581	0.23	0.11	0.78
25	HSD17B3	rs9409407	0.008	0.32	0.09
26	HSD17B4	rs10064000	0.73	0.80	0.13

26	HSD17B4	rs10478424	0.02	0.01	0.11
26	HSD17B4	rs11205	0.94	0.80	0.34
26	HSD17B4	rs11749784	0.42	0.08	0.65
26	HSD17B4	rs17145477	0.87	0.48	0.64
26	HSD17B4	rs17388769	0.65	0.40	0.14
26	HSD17B4	rs32651	0.54	0.96	0.18
26	HSD17B4	rs3756513	0.43	0.19	0.93
26	HSD17B4	rs3797371	0.33	0.13	0.96
26	HSD17B4	rs382719	0.46	0.78	0.15
26	HSD17B4	rs3850200	0.58	0.67	0.12
26	HSD17B4	rs442923	0.63	0.44	0.07
26	HSD17B4	rs6897978	0.12	0.07	0.24
26	HSD17B4	rs6898518	0.37	0.06	0.66
26	HSD17B4	rs7706359	0.95	0.47	0.35
26	HSD17B4	rs7723390	0.64	0.59	0.81
27	HSD17B6	rs10876920	0.19	0.71	0.07
27	HSD17B6	rs12809466	0.18	0.37	0.26
27	HSD17B6	rs6581104	0.75	0.27	0.68
27	HSD17B6	rs7980317	0.04	0.78	0.15
28	HSD17B7	rs1039874	0.09	0.10	0.32
28	HSD17B7	rs11589262	0.88	0.60	0.91
28	HSD17B7	rs2803865	0.96	0.69	0.65
28	HSD17B7	rs2805053	0.76	0.42	0.92
28	HSD17B7	rs4656381	0.77	0.64	0.82
29	HSD17B8	rs1547387	0.75	0.83	0.75
29	HSD17B8	rs213210	0.14	0.44	0.004
29	HSD17B8	rs6531	0.75	0.82	0.68
30	HSD17B10	rs1264016	0.84	0.28	0.30
31	HSD17B12	rs10501303	0.64	0.37	0.77
31	HSD17B12	rs10768989	0.92	0.39	0.84
31	HSD17B12	rs10838176	0.51	0.15	0.85
31	HSD17B12	rs11037556	0.36	0.18	0.81
31	HSD17B12	rs11037567	0.80	0.88	0.94
31	HSD17B12	rs11037589	0.65	0.37	0.74
31	HSD17B12	rs11037662	0.70	0.57	0.93
31	HSD17B12	rs12800235	0.94	0.99	0.94
31	HSD17B12	rs1518820	0.35	0.97	0.63
31	HSD17B12	rs16937624	0.62	0.90	0.72
31	HSD17B12	rs17597526	0.75	0.50	0.76
31	HSD17B12	rs17598687	0.28	0.23	0.78
31	HSD17B12	rs17599114	0.28	0.23	0.78
31	HSD17B12	rs2037296	0.31	0.10	0.91
31	HSD17B12	rs4755737	0.30	0.07	0.95
31	HSD17B12	rs6485443	0.67	0.88	0.80
31	HSD17B12	rs6485453	0.85	0.87	0.66
31	HSD17B12	rs7110523	0.56	0.25	0.53
31	HSD17B12	rs7118659	0.78	0.53	0.83
31	HSD17B12	rs7120753	0.40	0.52	0.52
32	HSD17B13	rs13112695	0.33	0.31	0.58
32	HSD17B13	rs4089	0.61	0.95	0.36
32	HSD17B13	rs6531973	0.52	0.84	0.57
32	HSD17B13	rs6850509	0.72	0.35	0.24
32	HSD17B13	rs7674658	0.39	0.67	0.20



32	HSD17B13	rs9647458	0.60	0.35	0.39
33	HSD3B1	rs1812256	0.42	0.32	0.28
33	HSD3B1	rs6203	0.13	0.36	0.02
33	HSD3B1	rs6428830	0.27	0.28	0.21
34	HSD3B2	rs12141041	0.74	0.63	0.61
34	HSD3B2	rs1341018	0.94	0.39	0.78
34	HSD3B2	rs1361530	0.56	0.55	0.98
34	HSD3B2	rs1856886	0.56	0.38	0.60
34	HSD3B2	rs4659175	0.78	0.88	0.81
35	INHA	rs1039898	1.00	0.71	0.46
35	INHA	rs2059693	0.33	0.99	0.19
35	INHA	rs7588807	0.90	0.45	0.21
35	INHA	rs907141	0.32	0.38	0.85
36	INHBA	rs1003291	0.41	0.45	0.23
36	INHBA	rs1122291	0.68	0.57	0.80
36	INHBA	rs11770488	0.55	0.35	0.10
36	INHBA	rs2007475	0.84	0.29	0.58
36	INHBA	rs2237435	0.92	0.37	0.53
36	INHBA	rs2237436	0.74	0.50	0.55
36	INHBA	rs2877098	0.88	0.45	0.36
36	INHBA	rs3801158	0.74	0.17	0.90
36	INHBA	rs998190	0.33	0.81	0.55
37	INHBB	rs11902591	0.70	0.24	0.86
37	INHBB	rs745723	0.91	0.25	0.90
37	INHBB	rs7578624	0.70	0.74	0.08
37	INHBB	rs7581178	0.80	0.95	0.14
37	INHBB	rs7589138	0.58	0.61	0.32
38	LHB	rs7256062	0.44	0.46	0.27
38	LHB	rs753307	0.72	0.96	0.12
39	LHCGR	rs11125179	0.76	0.35	0.33
39	LHCGR	rs11689544	0.88	0.09	0.42
39	LHCGR	rs11691408	0.33	0.59	0.22
39	LHCGR	rs12468825	0.11	0.15	0.11
39	LHCGR	rs12478799	0.01	0.28	0.07
39	LHCGR	rs12618729	0.006	0.33	0.02
39	LHCGR	rs13019537	1.00	0.53	0.43
39	LHCGR	rs13421618	0.01	0.07	0.23
39	LHCGR	rs13432488	0.80	0.87	0.95
39	LHCGR	rs17037563	0.55	0.22	0.44
39	LHCGR	rs17326321	0.77	0.51	0.98
39	LHCGR	rs17326656	0.27	0.60	0.03
39	LHCGR	rs17398156	0.77	0.86	0.50
39	LHCGR	rs17398267	0.08	0.91	0.09
39	LHCGR	rs17398392	0.86	0.83	0.97
39	LHCGR	rs2956355	0.78	0.98	0.61
39	LHCGR	rs4074648	0.21	0.46	0.60
39	LHCGR	rs4131885	0.04	0.61	0.68
39	LHCGR	rs4131886	0.61	0.79	0.13
39	LHCGR	rs4293599	0.008	0.08	0.20
39	LHCGR	rs4297936	0.41	0.59	0.63
39	LHCGR	rs4366951	0.75	0.31	0.99
39	LHCGR	rs4374421	0.38	0.73	0.14
39	LHCGR	rs4465809	0.27	0.80	0.75

39	LHCGR	rs4490239	0.049	0.92	0.02
39	LHCGR	rs4574159	0.06	0.72	0.13
39	LHCGR	rs4597581	0.30	0.30	0.15
39	LHCGR	rs4637174	0.48	0.96	0.04
39	LHCGR	rs4952922	0.02	0.36	0.58
39	LHCGR	rs4952923	0.02	0.53	0.55
39	LHCGR	rs4953611	0.38	0.68	0.47
39	LHCGR	rs4953616	0.0005	0.11	0.002
39	LHCGR	rs4953617	0.23	0.54	0.42
39	LHCGR	rs4953624	0.13	0.53	0.46
39	LHCGR	rs6744967	0.02	0.23	0.01
39	LHCGR	rs6752933	0.02	0.03	0.11
39	LHCGR	rs6755901	0.60	0.54	0.82
39	LHCGR	rs7371084	0.007	0.20	0.04
39	LHCGR	rs7561278	0.04	0.13	0.34
39	LHCGR	rs7562693	0.34	1.00	0.51
39	LHCGR	rs7584253	0.07	0.77	0.09
40	SHBG	rs13894	0.67	0.87	0.02
40	SHBG	rs1641544	0.82	0.89	0.25
40	SHBG	rs2955617	0.39	0.95	0.41
40	SHBG	rs6258	0.41	0.69	0.0003
40	SHBG	rs6259	0.17	0.95	0.04
40	SHBG	rs727428	0.84	0.64	0.06
40	SHBG	rs858521	0.18	0.41	0.04
41	SRD5A1	rs16877779	0.55	0.71	0.50
41	SRD5A1	rs30434	0.64	0.42	0.91
41	SRD5A1	rs39847	0.92	0.94	0.25
41	SRD5A1	rs39848	0.78	0.76	0.61
41	SRD5A1	rs4702378	0.30	0.42	0.27
41	SRD5A1	rs471604	0.85	0.83	0.88
41	SRD5A1	rs501999	0.29	0.15	0.36
41	SRD5A1	rs518673	0.33	0.14	0.11
41	SRD5A1	rs6874005	0.04	0.06	0.15
42	SRD5A2	rs12470143	0.18	0.29	0.28
42	SRD5A2	rs2208532	0.26	0.54	0.09
42	SRD5A2	rs2268794	0.79	0.11	0.70
42	SRD5A2	rs2300703	0.97	0.41	0.98
42	SRD5A2	rs3754838	0.60	0.02	0.59
42	SRD5A2	rs4952222	0.46	0.81	0.32
42	SRD5A2	rs612224	0.77	0.62	0.55
42	SRD5A2	rs7562326	0.77	0.03	0.61
42	SRD5A2	rs7571644	0.70	0.33	0.76
42	SRD5A2	rs806645	0.78	0.73	0.74
43	STS	rs1000900	0.71	0.61	0.62
43	STS	rs1131289	0.96	0.76	0.17
43	STS	rs17268988	0.73	0.42	0.99
43	STS	rs17331438	0.99	0.53	0.58
43	STS	rs4403552	0.32	0.59	0.06
43	STS	rs4595309	0.47	0.94	0.51
43	STS	rs5933863	0.90	0.82	0.30
43	STS	rs5934700	0.64	0.88	0.74
43	STS	rs5979338	0.71	0.61	0.62
43	STS	rs6639825	0.94	0.78	0.16

44	SULT1A1	rs2411453	0.75	0.64	0.82
45	SULT1E1	rs11573763	0.92	0.57	0.50
45	SULT1E1	rs1220725	0.24	0.31	0.24
45	SULT1E1	rs13102618	0.41	0.10	0.48
45	SULT1E1	rs1590128	0.35	0.95	0.82
45	SULT1E1	rs1881668	0.31	0.50	0.95
45	SULT1E1	rs2331821	0.50	0.42	0.61
45	SULT1E1	rs3775777	0.41	0.10	0.48
45	SULT1E1	rs3822173	0.92	0.57	0.50
45	SULT1E1	rs4149525	0.07	0.96	0.32
45	SULT1E1	rs4149535	0.29	0.09	0.46
46	SULT2A1	rs182420	0.11	0.26	0.62
46	SULT2A1	rs188440	0.15	0.13	0.32
46	SULT2A1	rs212099	0.56	0.99	0.31
46	SULT2A1	rs2547238	0.80	0.55	0.58
46	SULT2A1	rs2910397	0.18	0.11	0.27
46	SULT2A1	rs4149448	0.28	0.03	0.73
46	SULT2A1	rs7508610	0.02	0.27	0.13
47	SULT2B1	rs10417472	0.03	0.03	0.83
47	SULT2B1	rs10426628	0.75	0.33	0.51
47	SULT2B1	rs1236093	0.02	0.21	0.98
47	SULT2B1	rs12460535	0.002	0.002	0.91
47	SULT2B1	rs12462337	0.84	0.10	0.41
47	SULT2B1	rs12611137	0.47	0.91	0.94
47	SULT2B1	rs2544785	0.41	0.18	0.76
47	SULT2B1	rs2544796	0.63	0.71	0.49
47	SULT2B1	rs2665579	0.40	0.24	0.61
47	SULT2B1	rs2665581	0.08	0.02	0.29
47	SULT2B1	rs2665582	0.15	0.02	0.29
47	SULT2B1	rs2665601	0.70	0.42	0.97
47	SULT2B1	rs2665605	0.51	0.32	0.88
47	SULT2B1	rs279451	0.77	0.35	0.95
47	SULT2B1	rs3745726	0.32	0.26	0.23
47	SULT2B1	rs3760802	0.40	0.74	0.57
47	SULT2B1	rs3760804	0.48	0.35	0.48
47	SULT2B1	rs3760808	0.13	0.28	0.91
47	SULT2B1	rs3826827	0.51	0.85	0.61
47	SULT2B1	rs4149455	0.14	0.34	0.79
47	SULT2B1	rs6509396	0.07	0.49	0.65
47	SULT2B1	rs8108904	0.06	0.67	0.35
47	SULT2B1	rs8109050	0.65	0.33	0.99
48	UGT1A	rs10176426	0.54	0.046	0.94
48	UGT1A	rs10179091	0.89	0.36	0.93
48	UGT1A	rs10199882	0.41	0.21	0.07
48	UGT1A	rs11563251	1.00	0.40	0.22
48	UGT1A	rs1377460	0.04	0.008	0.40
48	UGT1A	rs1823803	0.33	0.60	0.65
48	UGT1A	rs1875263	0.29	0.046	0.53
48	UGT1A	rs2013030	0.21	0.43	0.31
48	UGT1A	rs2302538	0.80	0.55	0.28
48	UGT1A	rs2741027	0.42	0.54	0.09
48	UGT1A	rs3771342	0.26	0.08	0.07
48	UGT1A	rs4114768	0.58	0.89	0.55

48	UGT1A	rs4148328	0.87	0.26	0.18
48	UGT1A	rs4402757	0.04	0.03	0.02
48	UGT1A	rs4663945	0.22	0.63	0.13
48	UGT1A	rs4663972	0.24	0.009	0.27
48	UGT1A	rs6719561	0.92	0.41	0.14
48	UGT1A	rs6744284	0.80	0.42	0.50
48	UGT1A	rs6755571	0.02	0.02	0.01
48	UGT1A	rs7585521	0.006	0.01	0.007
48	UGT1A	rs7592624	0.25	0.30	0.03
48	UGT1A	rs7608713	0.06	0.17	0.04
49	UGT2B4	rs1389930	0.84	0.71	0.23
49	UGT2B4	rs17671289	0.15	0.14	0.16
49	UGT2B4	rs1826690	0.18	0.24	0.26
49	UGT2B4	rs1845557	0.16	0.23	0.14
49	UGT2B4	rs2642872	0.45	0.97	0.12
49	UGT2B4	rs3822179	0.72	0.82	0.94
49	UGT2B4	rs4554145	0.58	0.81	0.33
49	UGT2B4	rs7657880	0.96	0.66	0.97
50	UGT2B7	rs10028494	0.30	0.89	0.98
50	UGT2B7	rs12506592	0.51	0.86	0.29
50	UGT2B7	rs12642938	0.0046	0.25	0.04
50	UGT2B7	rs3924194	0.43	0.19	0.08
50	UGT2B7	rs4356975	0.008	0.18	0.003
50	UGT2B7	rs4694169	0.06	0.23	0.07
50	UGT2B7	rs7435335	0.47	0.82	0.30

Univariate correlations analyses between SNPs (coded 1, 2, 3 in alphabetical order for A, C, G and T with 2 for the heterozygote) and age and BMI-adjusted serum sex steroid levels in the comprehensive screening in the GOOD study were performed using Pearson's correlation. Association between 604 genetic markers in 50 sex steroid-related genes (1-50) and serum estradiol (E2), estrone (E1) and testosterone (T) were evaluated in young adult men (GOOD, n = 1041).