Supplementary Table 1. Characteristics of control participants in the Skin Health Study and their association with indoor tanning behavior.

Characteristic	Never Tan n (%)	Ever Tan n (%)	Crude OR (95% CI)
Total	375 (100)	394 (100)	769
Age (y)			
25 – 29	8 (2.1)	38 (9.6)	7.82 (3.53-17.29)
30 - 29	36 (9.6)	91 (23.1)	4.16 (2.67-6.49)
40 - 49	122 (32.5)	138 (35.0)	1.86 (1.34-2.59)
50 - 59	209 (55.7)	127 (32.2)	1.00
Sex			
Male	214 (57.1)	108 (27.4)	0.28 (0.21-0.38)
Female	161 (42.9)	286 (72.6)	1.00
Income			
<$60,000	122 (32.5)	120 (30.5)	1.00
$60,000+	244 (65.0)	269 (68.3)	1.12 (0.83-1.52)
Completed college			
No	195 (52)	214 (57.1)	1.00
Yes	178 (47.5)	180 (48.0)	0.92 (0.69-1.22)
Eye color			
Gray/blue	174 (39.2)	155 (39.3)	0.81 (0.56-1.18)
Green	43 (11.5)	61 (15.5)	1.29 (0.79-2.11)
Hazel	77 (20.5)	89 (22.6)	1.05 (0.69-1.62)
Brown	81 (21.6)	89 (22.6)	1.00
Natural hair color			
Red	14 (3.7)	13 (3.3)	1.05 (0.48-2.32)
Blonde	75 (20.0)	88 (22.3)	1.33 (0.9-1.96)
Light brown	147 (39.2)	170 (43.1)	1.31 (0.94-1.81)
Dark brown/black	139 (37.1)	123 (31.2)	1.00
Skin color			
Very fair	52 (13.9)	41 (10.4)	0.79 (0.26-2.43)
Fair	252 (67.2)	280 (71.1)	1.11 (0.38-3.21)
Light olive	64 (17.1)	66 (16.8)	1.03 (0.34-3.11)
Dark olive, brown, black	7 (1.9)	7 (1.8)	1.00
Family History			
No	285 (76.0)	310 (78.7)	1.00
Yes	83 (22.1)	74 (18.8)	0.82 (0.58-1.17)
Lifetime number of painful sunburns			
None	40 (10.7)	29 (7.4)	1.00
2-Jan	55 (14.7)	62 (15.7)	1.56 (0.85-2.83)
3-5	67 (17.9)	75 (19.0)	1.54 (0.86-2.76)
>5	213 (56.8)	228 (57.9)	1.48 (0.88-2.47)
Phenotype Index			
1	35 (9.3)	41 (10.4)	1.00
2	114 (30.4)	95 (24.1)	0.71 (0.42-1.21)
3	151 (40.3)	180 (45.7)	1.02 (0.62-1.68)
4	64 (17.1)	75 (19.0)	1.00 (0.57-1.75)
5	11 (2.9)	3 (0.8)	0.23 (0.06-0.90)
BMI			
18.5 – 24.9	113 (30.1)	165 (41.9)	1.00
25 0 – 29.9	140 (37.3)	149 (37.8)	0.73 (0.52-1.02)
30.0 +	118 (31.5)	73 (18.5)	0.42 (0.29-0.62)

Supplementary Table 2. SNP frequencies, genotypes, and their association with having ever or never tanned indoors for control participants in the Skin Health Study.

							Case Genotypes n			Control Genotypes n				Association with Indoor Tanning for Controls			
							Major		Minor	Major		Minor					
Gene	SNP	Chromosome	Major Allele	Minor Allele	MAF	HWE	Homozygotes	Heterozygotes	Homozygotes	Homozygotes	Heterozygotes	Homozygotes	Genetic Model	OR(95%CI)	*p* -value*	Adj OR(95%CI)	*p* -value[+]
ANKK1	rs1003641	11	A	G	0.30	0.0402	422	386	86	386	334	49	Additive	1.28(1.01,1.62)	0.04	1.33(1.04,1.71)	0.03
SLC6A3	rs10040882	5	A	G	0.22	0.5991	536	315	43	466	268	34	Additive	0.96(0.75,1.22)	0.71	0.95(0.73,1.24)	0.70
SLC6A3	rs10072058	5	G	A	0.00	1.0000	889	5	0	764	5	0	Dominant	0.63(0.11,3.81)	0.62	0.53(0.07,3.8)	0.53
DRD2	rs10891551	11	A	G	0.15	1.0000	630	246	18	578	178	13	Dominant	0.87(0.63,1.21)	0.42	0.99(0.69,1.4)	0.93
DRD2	rs10891552	11	A	T	0.03	1.0000	834	60	0	714	54	1	Dominant	0.99(0.57,1.71)	0.96	1.02(0.56,1.85)	0.94
SLC6A3	rs11133762	5	A	G	0.18	0.0005	596	287	4	479	267	14	Dominant	0.88(0.66,1.19)	0.41	0.85(0.62,1.17)	0.31
ANKK1	rs11214597	11	A	G	0.02	1.0000	867	27	0	742	27	0	Additive	0.88(0.41,1.9)	0.74	0.93(0.4,2.17)	0.87
DRD2	rs11214606	11	A	G	0.06	0.5097	798	95	1	679	89	1	Dominant	1.05(0.67,1.62)	0.84	1.01(0.62,1.62)	0.98
SLC6A3	rs11564773	5	G	A	0.09	0.6690	734	149	10	628	134	5	Dominant	1.1(0.76,1.58)	0.63	1.19(0.8,1.76)	0.39
CYP2A6	rs11670760	19	G	A	0.28	0.3268	448	378	68	391	323	55	Additive	0.88(0.7,1.1)	0.26	0.88(0.68,1.12)	0.29
CYP2A6	rs11671041	19	C	A	0.07	0.1371	770	115	9	672	90	6	Dominant	1.33(0.86,2.04)	0.20	1.45(0.91,2.32)	0.12
SLC6A3	rs11737901	5	A	G	0.31	0.0000	360	517	17	312	430	27	Additive	0.83(0.64,1.07)	0.15	0.81(0.61,1.07)	0.13
CYP2A6	rs11878604	19	G	A	0.08	0.0678	749	124	21	661	100	8	Dominant	0.73(0.48,1.1)	0.13	0.75(0.49,1.17)	0.21
ANKK1	rs12360992	11	A	C	0.45	0.9415	249	446	198	245	380	144	Additive	1.17(0.96,1.43)	0.13	1.21(0.97,1.5)	0.09
DRD2	rs12364283	11	G	A	0.08	0.2441	743	143	8	667	101	1	Dominant	0.72(0.47,1.09)	0.12	0.83(0.53,1.31)	0.43
ANKK1	rs12422191	11	A	G	0.10	0.4178	729	154	11	624	140	5	Dominant	1.6(1.11,2.32)	0.01	1.58(1.06,2.35)	0.02
SLC6A3	rs12516758	5	G	A	0.21	0.0484	546	307	41	473	272	24	Dominant	1.01(0.75,1.35)	0.96	1.03(0.75,1.4)	0.87
ANKK1	rs12794908	11	A	G	0.03	1.0000	835	59	0	726	43	0	Additive	0.74(0.4,1.38)	0.34	0.78(0.4,1.53)	0.48
DRD2	rs12799083	11	G	C	0.03	0.5460	838	55	1	721	47	1	Dominant	1.24(0.69,2.23)	0.47	1.24(0.66,2.32)	0.51
DRD2	rs12805897	11	A	G	0.08	0.7637	750	136	7	671	96	2	Dominant	0.68(0.44,1.04)	0.08	0.76(0.48,1.2)	0.23
SLC6A3	rs13162394	5	C	G	0.27	0.8527	459	371	64	415	302	52	Additive	0.97(0.77,1.22)	0.81	1.02(0.8,1.31)	0.87
SLC6A3	rs16877324	5	G	A	0.00	1.0000	890	4	0	768	1	0	Dominant	0(0,Inf)	0.98	0(0,Inf)	0.98
DRD2	rs17529477	11	A	G	0.32	0.1118	401	398	95	352	351	66	Additive	0.9(0.72,1.12)	0.34	0.87(0.68,1.11)	0.26
DRD2	rs1799978	11	G	A	0.05	0.4802	815	79	0	689	77	3	Dominant	1.25(0.79,2)	0.34	1.25(0.76,2.06)	0.38
ANKK1	rs1800497	11	A	G	0.19	0.7213	569	294	31	511	230	28	Additive	0.84(0.65,1.08)	0.17	0.82(0.62,1.08)	0.15
DRD2	rs1800499	11	A	G	0.04	1.0000	833	60	1	706	62	1	Dominant	1.05(0.63,1.76)	0.85	1.11(0.63,1.95)	0.72
CYP2A6	rs1801272	19	A	T	0.03	1.0000	826	64	4	725	44	0	Dominant	1.05(0.57,1.92)	0.89	1.34(0.69,2.6)	0.38
SLC6A3	rs1973489	5	A	G	0.26	0.0063	498	342	54	407	325	37	Additive	1.12(0.88,1.43)	0.35	1.15(0.89,1.49)	0.30
CYP2A6	rs2316213	19	A	G	0.00	1.0000	889	5	0	764	5	0	Dominant	0.24(0.03,2.12)	0.20	0.29(0.03,3.09)	0.31
DRD2	rs2440390	11	A	G	0.13	0.1778	672	211	11	587	175	7	Dominant	1.45(1.03,2.03)	0.03	1.31(0.91,1.89)	0.14
SLC6A3	rs246995	5	G	A	0.27	0.2015	479	358	57	402	318	49	Additive	1.13(0.9,1.43)	0.30	1.14(0.89,1.46)	0.30
SLC6A3	rs27048	5	A	G	0.44	0.1040	258	466	159	226	394	134	Additive	0.96(0.78,1.19)	0.73	0.9(0.72,1.13)	0.36
SLC6A3	rs27072	5	A	G	0.17	0.9006	624	247	23	524	221	24	Dominant	0.92(0.68,1.24)	0.59	0.93(0.67,1.29)	0.65
SLC6A3	rs27074	5	A	G	0.08	0.3494	759	129	6	643	123	3	Dominant	0.87(0.6,1.28)	0.49	0.98(0.65,1.49)	0.93
DRD2	rs2734831	11	A	C	0.39	0.5362	312	439	143	303	366	100	Additive	1.1(0.89,1.35)	0.39	1.13(0.9,1.42)	0.28
DRD2	rs2734836	11	A	G	0.15	0.4659	635	240	19	559	197	13	Dominant	0.86(0.63,1.19)	0.37	0.89(0.63,1.26)	0.52
ANKK1	rs2734848	11	G	A	0.19	0.0586	574	288	31	498	252	19	Dominant	1.45(1.07,1.95)	0.01	1.38(1,1.9)	0.05
SLC6A3	rs2735917	5	A	C	0.06	0.7173	782	107	5	688	80	1	Dominant	1.03(0.65,1.63)	0.91	1.05(0.64,1.74)	0.84
SLC6A3	rs2963253	5	A	G	0.00	1.0000	890	4	0	767	2	0	Dominant	0.95(0.06,15.27)	0.97	2.62(0.16,43.06)	0.50
SLC6A3	rs2963257	5	G	A	0.48	0.9425	227	479	188	203	383	183	Additive	0.95(0.78,1.16)	0.63	0.91(0.74,1.13)	0.41
SLC6A3	rs2963259	5	A	G	0.22	0.0001	571	261	61	488	224	56	Additive	0.91(0.72,1.14)	0.40	0.89(0.7,1.14)	0.37
SLC6A3	rs2963262	5	A	G	0.16	0.8982	633	236	25	531	217	21	Dominant	0.8(0.59,1.09)	0.16	0.76(0.54,1.06)	0.11
SLC6A3	rs2975292	5	G	C	0.36	0.4347	352	439	102	308	366	95	Additive	1.22(0.99,1.51)	0.07	1.16(0.92,1.46)	0.20
SLC6A3	rs37022	5	A	T	0.17	0.8058	631	239	24	521	223	25	Additive	0.9(0.69,1.17)	0.43	0.81(0.61,1.08)	0.15
SLC6A3	rs3776511	5	A	G	0.21	0.2168	569	293	32	453	283	33	Additive	0.94(0.74,1.2)	0.63	1.01(0.77,1.31)	0.96
SLC6A3	rs3863145	5	A	G	0.27	0.0300	480	352	62	392	331	46	Additive	0.96(0.76,1.21)	0.75	0.94(0.73,1.21)	0.64
DRD2	rs4245145	11	G	A	0.00	1.0000	892	2	0	768	1	0	Dominant	0(0,Inf)	0.98	0(0,Inf)	0.98
ERCC6	rs4253224	10	T	A	0.01	0.0000	877	5	11	758	1	10	Dominant	1.68(0.49,5.78)	0.41	2.27(0.6,8.52)	0.23
DRD2	rs4436578	11	G	A	0.12	0.8526	671	209	14	609	152	8	Dominant	0.85(0.6,1.21)	0.38	0.98(0.67,1.43)	0.91
SLC6A3	rs456082	5	G	A	0.20	0.2274	576	285	33	490	241	38	Additive	1.12(0.88,1.43)	0.35	1.04(0.8,1.35)	0.75
CYP2A7	rs4570984	19	A	G	0.31	0.0000	458	244	157	413	205	119	Additive	0.97(0.8,1.17)	0.74	0.98(0.8,1.2)	0.84
DRD2	rs4630328	11	A	G	0.37	0.6989	355	414	125	303	364	102	Additive	0.88(0.72,1.09)	0.24	0.9(0.72,1.13)	0.37
SLC6A3	rs464049	5	G	A	0.42	0.7126	294	449	151	256	371	142	Additive	1.07(0.87,1.31)	0.51	1.02(0.82,1.26)	0.88
DRD2	rs4648318	11	G	A	0.25	0.0107	478	369	47	443	298	28	Additive	1.21(0.94,1.55)	0.14	1.23(0.94,1.61)	0.13
CYP2A6	rs4803378	19	A	G	0.00	1.0000	894	0	0	768	1	0	Dominant	743543.77(0,Inf)	0.98	2886195.26(0,Inf)	0.98
DRD2	rs4936274	11	A	G	0.10	0.8439	711	176	5	621	139	8	Dominant	1.34(0.93,1.92)	0.12	1.24(0.84,1.84)	0.28
ANKK1	rs4938014	11	A	G	0.14	0.6343	656	221	17	578	180	11	Dominant	0.83(0.6,1.15)	0.25	0.96(0.67,1.37)	0.82
SLC6A3	rs4975636	5	A	G	0.08	0.4765	748	143	3	647	115	7	Dominant	0.91(0.62,1.34)	0.62	0.73(0.48,1.11)	0.14
SLC6A3	rs6347	5	G	A	0.28	0.7244	475	356	60	384	318	61	Additive	0.88(0.7,1.1)	0.27	0.91(0.72,1.16)	0.46
CYP2A7	rs6508950	19	A	G	0.08	0.0010	766	120	5	651	101	13	Dominant	1.12(0.75,1.67)	0.58	1.33(0.86,2.06)	0.20
SLC6A3	rs6869645	5	A	G	0.01	0.0000	887	4	3	764	1	4	Dominant	0.63(0.11,3.81)	0.62	0.49(0.07,3.33)	0.46
ANKK1	rs7122884	11	T	A	0.00	1.0000	892	2	0	763	6	0	Dominant	0.95(0.19,4.74)	0.95	0.94(0.18,4.92)	0.94
ANKK1	rs7123797	11	A	G	0.37	0.0000	393	317	182	358	284	126	Additive	1.19(0.98,1.44)	0.08	1.2(0.98,1.48)	0.08
DRD2	rs7131056	11	A	C	0.44	0.3067	288	448	158	229	395	145	Additive	1.07(0.87,1.31)	0.53	1.01(0.81,1.26)	0.95
CYP2A6	rs7246742	19	C	A	0.14	0.5170	659	217	18	583	176	10	Dominant	1.02(0.73,1.42)	0.91	1.08(0.76,1.55)	0.66
CYP2A6	rs7251418	19	A	G	0.27	0.6395	459	364	71	418	302	49	Additive	0.87(0.69,1.1)	0.24	0.83(0.65,1.07)	0.15
CYP2A6	rs7255443	19	A	G	0.08	0.0146	769	119	5	651	106	11	Dominant	1.13(0.76,1.68)	0.53	1.36(0.88,2.1)	0.16
CYP2A6	rs8192729	19	A	G	0.08	0.0306	771	118	5	652	107	10	Dominant	1.04(0.7,1.55)	0.83	1.28(0.83,1.98)	0.26

* *p* -value, crude;

[+] *p* -value, adjusted for age and sex

Supplementary Table 3. Association of Haplotypes with having ever or never tanned indoors for control participants in the Skin Health Study.

Gene	SNPs	haplotype	Freq.	OR(95%CI)	p-value*	Adj OR(95%CI)	p-value[+]
	rs12360992,						
ANKK1	rs4938014	AG	0.32	1.26(1.01,1.58)	0.04	1.23(0.97,1.57)	0.09
		AA	0.13	0.92(0.68,1.25)	0.61	1.05(0.75,1.46)	0.79
		CG	0.54	0.88(0.72,1.08)	0.23	0.85(0.68,1.06)	0.15
	rs2734848,						
	rs1800497,						
	rs12794908,						
	rs1003641,						
ANKK1	rs12422191	AAGGG	0.19	0.84(0.65,1.09)	0.19	0.82(0.62,1.08)	0.16
		AGGGG	0.47	0.95(0.78,1.17)	0.64	0.93(0.75,1.16)	0.52
		AGGAG	0.11	0.89(0.63,1.25)	0.50	1.05(0.73,1.51)	0.80
		AGAGG	0.03	0.74(0.40,1.38)	0.34	0.78(0.40,1.53)	0.47
		GGGAG	0.09	1.25(0.87,1.80)	0.22	1.13(0.77,1.68)	0.53
		GGGAA	0.09	1.69(1.17,2.44)	0.01	1.68(1.13,2.50)	0.01
	rs11670760,						
	rs7251418,						
	rs7246742,						
	rs8192729,						
	rs2316213,						
	rs1801272,						
	rs11671041,						
CYP2A6	rs7255443	AGAAGTAA	0.06	1.16(0.77,1.73)	0.48	1.37(0.88,2.14)	0.16
		AGAGGTAG	0.24	1.27(1.01,1.62)	0.05	1.21(0.93,1.56)	0.15
		AGCGGTAG	0.07	0.82(0.55,1.22)	0.33	0.87(0.57,1.33)	0.52
		AGCGGTCG	0.06	1.33(0.85,2.07)	0.21	1.40(0.87,2.27)	0.17
		AAAGGTAG	0.24	0.87(0.69,1.11)	0.27	0.81(0.62,1.04)	0.10
		AAAGGAAG	0.03	1.09(0.50,2.35)	0.83	1.29(0.56,2.95)	0.55
		GGAAGTAA	0.01	1.28(0.45,3.63)	0.65	1.69(0.55,5.20)	0.36
		GGAGGTAG	0.26	0.84(0.67,1.07)	0.16	0.82(0.63,1.06)	0.13
	rs2440390,						
	rs1800499,						
	rs2734836,						
	rs2734831,						
	rs12799083,						
	rs4436578,						
	rs11214606,						
	rs4648318,						
DRD2	rs4245145	GGAACAGAA	0.14	0.89(0.67,1.20)	0.46	0.91(0.66,1.25)	0.55
		GGGACGGGA	0.11	0.91(0.65,1.28)	0.58	1.04(0.72,1.50)	0.85
		GGGCCAGAA	0.48	0.92(0.75,1.13)	0.41	0.90(0.72,1.12)	0.34
		GGGCCAAAA	0.06	1.07(0.69,1.65)	0.77	1.02(0.64,1.63)	0.93
		GGGCGAGAA	0.03	1.17(0.66,2.07)	0.59	1.16(0.63,2.13)	0.64
		GAGCCAGAA	0.04	1.06(0.63,1.77)	0.83	1.09(0.61,1.92)	0.78
		AGGACAGGA	0.12	1.54(1.10,2.15)	0.01	1.41(0.98,2.02)	0.06
	rs7131056,						
	rs4936274,						
	rs10891551,						
	rs10891552,						
	rs4630328,						
	rs1799978,						
DRD2	rs12364283	AGGTGAA	0.33	0.95(0.77,1.18)	0.64	0.91(0.72,1.15)	0.44
		AAGTGAA	0.10	1.34(0.95,1.88)	0.09	1.24(0.86,1.78)	0.26
		CGATGAG	0.07	0.71(0.47,1.09)	0.12	0.79(0.50,1.25)	0.32
		CGATGAA	0.04	1.52(0.86,2.68)	0.15	1.70(0.92,3.14)	0.09
		CGAAGAA	0.03	1.07(0.61,1.87)	0.80	1.14(0.62,2.09)	0.67
		CGGTGGA	0.05	1.25(0.79,1.98)	0.33	1.23(0.75,2.01)	0.41
		CGGTAAA	0.37	0.90(0.73,1.11)	0.31	0.91(0.73,1.14)	0.42
	rs246995,						
	rs13162394,						
	rs2963262,						
	rs16877324,						
	rs2963257,						
SLC6A3	rs1973489	ACGAGG	0.01	1.51(0.45,5.10)	0.50	1.48(0.40,5.56)	0.56
		ACGAAG	0.25	0.96(0.76,1.21)	0.73	1.00(0.78,1.30)	0.98
		ACGAAA	0.01	0.96(0.29,3.20)	0.94	1.10(0.29,4.18)	0.89
		AGGAGG	0.27	1.02(0.82,1.29)	0.83	1.00(0.78,1.28)	0.99
		AGAAGG	0.16	0.81(0.61,1.07)	0.14	0.78(0.58,1.06)	0.11
		GGGAGA	0.02	1.51(0.62,3.68)	0.36	1.62(0.62,4.24)	0.33
		GGGAAG	0.03	0.99(0.56,1.73)	0.97	0.92(0.50,1.68)	0.78
		GGGAAA	0.21	1.10(0.85,1.43)	0.46	1.13(0.86,1.50)	0.38
	rs3776511,						
	rs10072058,						
SLC6A3	rs6347	GAA	0.72	1.10(0.89,1.38)	0.38	1.06(0.84,1.35)	0.63

		GAG	0.07	0.87(0.58,1.29)	0.48	0.83(0.54,1.28)	0.41
		AAG	0.21	0.93(0.72,1.19)	0.55	0.99(0.76,1.29)	0.92
	rs10040882, rs2975292, rs2735917, rs464049,						
SLC6A3	rs456082	ACCGA	0.21	0.98(0.76,1.26)	0.88	0.99(0.75,1.30)	0.93
		GCCAA	0.42	0.89(0.73,1.10)	0.28	0.94(0.75,1.17)	0.57
		GGCGG	0.20	1.15(0.90,1.47)	0.25	1.07(0.82,1.40)	0.60
		GGCAA	0.10	1.18(0.83,1.67)	0.35	1.20(0.83,1.75)	0.33
		GGAAA	0.06	1.07(0.68,1.70)	0.76	1.06(0.64,1.76)	0.81

* P-value, crude;

+ P-value, adjusted for age and sex