

Online Supplementary Content

Table SI - TaqMan SNP genotyping assays.

SNP	Assay ID
rs9296249	C_29685131_20
rs3923809	C_386591_10
rs855791	C_3289902_10
rs4820268	C_11885329_10
rs2160906	C_16080550_10
rs7385804	C_2184545_10
rs3811647	C_27492858_10
rs1799852	C_12061602_10
rs2280673	Custom designed
rs235756	C_2513516_10
rs1175550	C_491762_10

SNP: single nucleotide polymorphism.

Table SII - Donors' demographic information.

Demographic characteristic	Male N (%)	Female N (%)	Total N (%)
	432 (54.0)	368 (46.0)	800 (100)
<i>Age (years)</i>			
18-24	44 (10.2)	44 (12.0)	88 (11.0)
25-34	60 (13.9)	39 (10.6)	99 (12.4)
35-44	61 (14.1)	68 (18.5)	129 (16.1)
45-54	96 (22.2)	73 (19.8)	169 (21.1)
>55	171 (39.6)	144 (39.1)	315 (39.4)
<i>Donation-induced iron loss (mg of iron)*</i>			
0	38 (9.0)	42 (11.6)	80 (10.2)
≤220 (≤1 whole blood donation)	132 (31.4)	109 (30.2)	241 (30.8)
>220 and ≤440 (>1, ≤2 whole blood donations)	125 (29.7)	104 (28.8)	229 (29.3)
>440 and ≤660 (>2, ≤3 whole blood donations)	76 (18.1)	78 (21.6)	154 (19.7)
>660 and ≤880 (>3, ≤4 whole blood donations)	41 (9.7)	27 (7.5)	68 (8.7)
>880 (>4 whole blood donations)	9 (2.1)	1 (0.3)	10 (1.3)
<i>Time since previous donation†</i>			
≤3 months	214 (51.1)	163 (45.2)	377 (48.3)
3-6 months	129 (30.8)	117 (32.4)	246 (31.5)
6-12 months	49 (11.7)	48 (13.3)	97 (12.4)
>12 months	27 (6.4)	33 (9.1)	60 (7.7)

*Unable to determine for 18 samples due to the lack of information; †information was not available for 20 samples.

Table SIII - Number and frequency of each SNP and analyses of Hardy-Weinberg equilibrium (HWE).

Gene	SNP name	N. of wild-type (%)	N. of heterozygous wild-type (%)	N. of homozygous mutant (%)	MAF (reported from NCBI)	Total	χ^2 value	χ^2 test p-value§	Consistency with HWE
<i>BTBD</i>	rs9296249	443 (0.554)	303 (0.379)	54 (0.068)	0.26 (0.38)	800	0.050	0.822	Yes
	rs3923809	353 (0.441)	361 (0.451)	86 (0.108)	0.33 (0.40)	800	0.195	0.658	Yes
<i>TMPRSS6</i>	rs855791	259 (0.324)	394 (0.493)	147 (0.184)	0.43 (0.40)	800	0.018	0.894	Yes
	rs4820268	242 (0.303)	388 (0.485)	170 (0.213)	0.46 (0.46)	800	0.390	0.532	Yes
<i>TFR2</i>	rs7385804	346 (0.433)	356 (0.445)	98 (0.123)	0.35 (0.31)	800	0.189	0.664	Yes
<i>TF</i>	rs3811647	352 (0.440)	342 (0.428)	106 (0.133)	0.35 (0.34)	800	2.483	0.115	Yes
	rs1799852	642 (0.803)	150 (0.188)	8 (0.010)	0.10 (0.14)	800	0.054	0.816	Yes
	rs2280673	321 (0.401)	374 (0.468)	105 (0.131)	0.37 (0.44)	800	0.058	0.810	Yes
<i>BMP2</i>	rs235756	349 (0.436)	347 (0.434)	104 (0.130)	0.35 (0.33)	800	1.460	0.227	Yes
<i>SMIM1</i>	rs1175550	493 (0.617)	261 (0.327)	45 (0.056)	0.22 (0.25)	799 ‡	1.773	0.183	Yes

‡Unable to determine genotype for 1 sample; §If p<0.05 - not consistent with Hardy-Weinberg equilibrium. SNP: single nucleotide polymorphism; MAF: mean allele frequency; NCBI: National Center for Biotechnology Information.

Table SIV - Association between ferritin levels and donor parameters.

Ferritin groups		Age	Hb levels	Donation-induced iron loss (mg, preceding 12 months)	Time since previous donation	
Males	≤15 ng/mL	OR (95% CI)	0.972 (0.948-0.995)	0.947 (0.908-0.987)	1.003 (1.001-1.004)	0.994 (0.989-1.000)
		p-value	0.020	0.010	<0.001	0.064
	>100 ng/mL	OR (95% CI)	0.995 (0.979-1.012)	1.030 (0.979-1.031)	0.999 (0.998-1.000)	1.002 (1.000-1.003)
		p-value	0.555	0.738	0.007	0.012
	Overall p-value*		0.061	0.024	<0.001	<0.001
	Females	≤8 ng/mL	OR (95% CI)	0.981 (0.960-1.002)	0.905 (0.861-0.950)	1.002 (1.000-1.003)
p-value			0.077	<0.001	0.022	0.183
>60 ng/mL		OR (95% CI)	1.021 (0.999-1.043)	1.026 (0.991-1.062)	0.997 (0.996-0.999)	1.001 (1.000-1.001)
		p-value	0.056	0.148	<0.001	0.025
Overall p-value*		0.018	<0.001	<0.001	0.013	

*Overall p-value <0.05 indicates this donor parameter has a statistically significant impact on ferritin levels. The ferritin categories >15 and ≤100 ng/mL ferritin, and >8 and ≤60 ng/mL ferritin, were used as the reference group for males and females, respectively; Shaded cells show SNP significantly (p<0.05) associated with ferritin levels. Hb: haemoglobin; OR: odds ratio; CI: confidence interval; SNP: single nucleotide polymorphism.

Table SV - Number of donors in each ferritin group by sex and SNP genotype.

SNP	Genotypes	Sex	Donors in each ferritin group			Total
			Low	Medium	High	
BTBD rs9296249	CC	Male	2	18	6	26
		Female	3	21	4	28
	CT	Male	12	123	33	168
		Female	15	103	17	135
	TT	Male	16	187	35	238
		Female	22	154	29	205
BTBD rs3923809	AA	Male	12	161	22	195
		Female	15	119	24	158
	AG	Male	15	140	40	195
		Female	21	126	19	166
	GG	Male	3	27	12	42
		Female	4	33	7	44
TMPRSS6 rs855791	AA	Male	5	64	13	82
		Female	7	50	8	65
	AG	Male	15	165	34	214
		Female	21	137	22	180
	GG	Male	10	99	27	136
		Female	12	91	20	123
TMPRSS6 rs4820268	AA	Male	9	91	23	123
		Female	6	93	20	119
	AG	Male	15	166	35	216
		Female	27	125	20	172
	GG	Male	6	71	16	93
		Female	7	60	10	77
TFR2 rs7385804	AA	Male	11	149	35	195
		Female	21	110	20	151
	AC	Male	13	141	27	181
		Female	14	138	23	175
	CC	Male	6	38	12	56
		Female	5	30	7	42
TF rs3811647	AA	Male	5	43	7	55
		Female	3	39	9	51
	AG	Male	11	142	33	186
		Female	18	118	20	156
	GG	Male	14	143	34	191
		Female	19	121	21	161
TF rs1799852	CC	Male	24	258	58	340
		Female	33	229	40	302
	CT	Male	6	68	13	87
		Female	7	46	10	63
	TT	Male	0	2	3	5
		Female	0	3	0	3
TF rs2280673	AA	Male	6	36	10	52
		Female	4	42	7	53
	AC	Male	10	153	36	199
		Female	16	131	28	175
	CC	Male	14	139	28	181
		Female	20	105	15	140
BMP rs235756	AA	Male	9	131	37	177
		Female	22	126	24	172
	AG	Male	20	148	31	199
		Female	15	113	20	148
	GG	Male	1	49	6	56
		Female	3	39	6	48
SMIMI rs1175550*	AA	Male	18	195	43	256
		Female	27	181	29	237
	AG	Male	11	112	26	149
		Female	10	82	20	112
	GG	Male	1	21	5	27
		Female	3	14	1	18

*Genotype could not be determined in one sample. SNP: single nucleotide polymorphism.

Table SVI - Ferritin levels for each genotype of the SNP rs1175550 and rs1799852 in males and females.

	Sex	Genotype	Number	Ferritin level (ng/mL)			
				Mean	SD	Min	Max
rs1175550	Male	GG	27	72	60	12	315
		AG	149	68	62	6	420
		AA	256	66	59	5	420
		Total	432	67	60	5	420
	Female	GG	18	25	19	4	68
		AG	112	39	52	1	420
		AA	237	31	27	1	200
		Total	367**	33	36	1	420
rs1799852	Male	CC	340	67	60	5	420
		CT	87	63	54	8	351
		TT	5	145	118	48	326
		Total	432	67	60	5	420
	Female	CC	302	31	31	1	289
		CT	63	41	57	5	420
		TT	3	31	8	25	40
		Total	368	33	36	1	420

**Genotype could not be determined for one sample. Shaded cells show range/number that were considerably different from other genotype groups in the SNP rs1175550 and rs1799852.

SNP: single nucleotide polymorphism; SD: standard deviation; Min: minimum value; Max: maximum value.

