Supplementary Table 1. Overview of the 1000 Genomes Project samples typed for *HLA* genes.

Code	Description of 1000 Genomes Project	Ancestry	Sample Size
LWK	Luhya from Webuye, Kenya	African	76
YRI	Yoruba from Ibadan, Nigeria	African	50
ASW	African Ancestry from Southwest, USA	American	50
CLM	Colombian from Medellin, Colombia	American	69
MXL	Mexican Ancestry from Los Angeles-California, USA	American	49
PUR	Puerto Rican, Puerto Rico	American	70
CHB	Han Chinese from Beijing, China	East Asian	85
CHS	Han from south, China	East Asian	96
JPT	Japanese from Tokyo, Japan	East Asian	90
CEU	Northern and Western European from Utah, USA	European	52
FIN	Finnish, Finland	European	97
GBR	British from England and Scotland, UK	European	88
TSI	Italian from Tuscany, Italy	European	89
total			961

Supplementary Table 2. Allele frequency in the 1000 Genomes Project samples used in this study (N = 961).

Gene	Allele	Counts	Frequency
HLA-A			
	A*01:01	116	6.0%
	A*01:02	4	0.2%
	A*02:01	377	19.6%
	A*02:02	24	1.2%
	A*02:03	16	0.8%
	A*02:04	3	0.2%
	A*02:05	16	0.8%
	A*02:06	38	2.0%
	A*02:07	35	1.8%
	A*02:10	2	0.1%
	A*02:11	6	0.3%
	A*02:14	1	0.1%
	A*02:147	1	0.1%
	A*02:17	1	0.1%
	A*02:20	2	0.1%
	A*02:22	2	0.1%
	A*03:01	190	9.9%
	A*03:02	4	0.2%
	A*11:01	166	8.6%
	A*11:02	9	0.5%
	A*23:01	49	2.5%
	A*24:02	244	12.7%
	A*24:03	4	0.2%
	A*24:04	2	0.1%
	A*24:08	1	0.1%
	A*24:20	1	0.1%
	A*24:24	1	0.1%
	A*25:01	15	0.8%
	A*26:01	49	2.5%
	A*26:02	2	0.1%
	A*26:03	7	0.4%
	A*26:08	3	0.2%
	A*29:01	6	0.3%
	A*29:02	53	2.8%
	A*30:01	63	3.3%
	A*30:02	48	2.5%
	A*30:04	3	0.2%
	A*30:10	1	0.1%
	A*31:01	65	3.4%
	A*31:04	4	0.2%
	A*32:01	42	2.2%
	A*33:01	11	0.6%
	A*33:03	63	3.3%
	A*34:02	12	0.6%
	A*36:01	21	1.1%
	A*66:01	12	0.6%
	A*66:02	8	0.4%
	A*68:01	53	2.8%
	A*68:02	35	1.8%
	A*68:03	1	0.1%
	A*69:01	2	0.1%
	A*74:01	22	1.1%
	A*74:03	2	0.1%
	A*80:01	4	0.2%
HLA-B			
	B*07:02	138	7.2%
	B*07:05	7	0.4%
	B*08:01	73	3.8%
	B*13:01	23	1.2%
	B*13:02	47	2.4%
	B*14:01	9	0.5%
	B*14:02	37	1.9%
	B*14:03	1	0.1%
	B*15:01	73	3.8%
	B*15:02	12	0.6%
	B*15:03	27	1.4%
	B*15:07	5	0.3%
	B*15:09	1	0.1%
	B*15:10	17	0.9%
	B*15:11	3	0.2%
	B*15:12	1	0.1%
	B*15:15	3	0.2%
	B*15:16	7	0.4%

B*15:17	7	0.4%
B*15:18	12	0.6%
B*15:20	1	0.1%
B*15:25	1	0.1%
B*15:27	3	0.2%
B*15:37	1	0.1%
B*18:01	54	2.8%
B*18:03	1	0.1%
B*18:05	1	0.1%
B*18:06	1	0.1%
B*27:03	4	0.2%
B*27:04	4	0.2%
B*27:05	34	1.8%
B*27:07	1	0.1%
B*35:01	126	6.6%
B*35:02	12	0.6%
B*35:03	22	1.1%
B*35:05	2	0.1%
B*35:08	9	0.5%
B*35:10	2	0.1%
B*35:11	2	0.1%
B*35:12	5	0.3%
B*35:14	1	0.1%
B*35:17	7	0.4%
B*35:43	10	0.5%
B*37:01	12	0.6%
B*38:01	17	0.9%
B*38:02	8	0.4%
B*39:01	30	1.6%
B*39:02	1	0.1%
B*39:03	1	0.1%
B*39:05	7	0.4%
B*39:06	16	0.8%
B*39:08	1	0.1%
B*39:10	4	0.2%
B*39:11	4	0.2%
B*40:01	116	6.0%
B*40:02	52	2.7%
B*40:04	4	0.2%
B*40:06	16	0.8%
B*40:12	2	0.1%
B*40:20	1	0.1%
B*41:01	9	0.5%
B*41:02	6	0.3%
B*41:04	1	0.1%
B*42:01	26	1.4%
B*42:02	3	0.2%
B*44:02	79	4.1%
B*44:03	84	4.4%
B*44:05	2	0.1%
B*45:01	30	1.6%
B*46:01	64	3.3%
B*47:01	4	0.2%
B*48:01	18	0.9%
B*48:02	1	0.1%
B*48:03	1	0.1%
B*48:05	1	0.1%
B*49:01	21	1.1%
B*50:01	13	0.7%
B*51:01	107	5.6%
B*51:02	4	0.2%
B*51:08	1	0.1%
B*51:23	1	0.1%
B*52:01	48	2.5%
B*53:01	60	3.1%
B*54:01	19	1.0%
B*55:01	18	0.9%
B*55:02	10	0.5%
B*56:01	19	1.0%
B*57:01	46	2.4%
B*57:02	3	0.2%
B*57:03	13	0.7%
B*58:01	57	3.0%
B*58:02	19	1.0%
B*59:01	5	0.3%
B*67:01	8	0.4%

	B*73:01	1	0.1%
	B*78:01	3	0.2%
	B*81:01	16	0.8%
	B*82:01	1	0.1%
	B*82:02	1	0.1%
HLA-C			
	C*01:02	144	7.5%
	C*01:03	4	0.2%
	C*02:02	43	2.2%
	C*02:10	20	1.0%
	C*03:02	38	2.0%
	C*03:03	102	5.3%
	C*03:04	164	8.5%
	C*03:05	8	0.4%
	C*03:36	1	0.1%
	C*04:01	254	13.2%
	C*04:03	2	0.1%
	C*04:04	2	0.1%
	C*05:01	91	4.7%
	C*06:02	146	7.6%
	C*07:01	145	7.5%
	C*07:02	244	12.7%
	C*07:04	30	1.6%
	C*08:01	49	2.5%
	C*08:02	49	2.5%
	C*08:03	3	0.2%
	C*08:04	15	0.8%
	C*12:02	36	1.9%
	C*12:03	64	3.3%
	C*14:02	47	2.4%
	C*14:03	15	0.8%
	C*15:02	48	2.5%
	C*15:05	11	0.6%
	C*16:01	86	4.5%
	C*16:02	5	0.3%
	C*16:04	3	0.2%
	C*17:01	41	2.1%
	C*18:01	12	0.6%

Supplementary Table 3. *HLA* typing results 12 clinical samples in several algorithms.

Sample	Software	*HLA-A*		*HLA-B*		*HLA-C*	
MPM2N	HLA genotype	*A*25:01*	*A*25:01*	*B*39:01*	*B*40:01*	*C*03:04*	*C*12:03*
	Optitype	*A*25:01*	*A*25:01*	*B*39:01*	*B*40:01*	*C*03:04*	*C*12:03*
	Polysolver	***A*26:01***	***A*26:01***	*B*39:01*	*B*40:01*	*C*03:04*	*C*12:03*
	PHLAT	***A*01:22***	*A*25:01*	*B*39:01*	*B*40:01*	*C*03:04*	*C*12:03*
	HLAreporter	*A*25:01*	*A*25:01*	*B*39:01*	*B*40:01*	*C*03:04*	*C*12:03*
	HLAforest	*A*25:01*	*A*25:01*	***B*39:39***	***B*40:06***	***C*03:38***	*C*12:03*
	HLAminer	*A*25:01*	*A*25:01*	*B*39:01*	*B*40:01*	***C*03:03***	***C*12:02***
	seq2HLA	*A*25:01*	*A*25:01*	*B*39:01*	*B*40:01*	*C*03:04*	***C*12:02***
MPM3N	HLA genotype	*A*29:02*	*A*32:01*	*B*14:01*	*B*53:01*	*C*04:01*	*C*08:02*
	Optitype	*A*29:02*	*A*32:01*	*B*14:01*	*B*53:01*	*C*04:01*	*C*08:02*
	Polysolver	*A*29:02*	*A*32:01*	*B*14:01*	*B*53:01*	*C*04:01*	*C*08:02*
	PHLAT	*A*29:02*	*A*32:01*	*B*14:01*	*B*53:01*	*C*04:01*	*C*08:02*
	HLAreporter	*A*29:02*	***A*29:02***	*B*14:01*	*B*53:01*	*C*04:01*	*C*08:02*
	HLAforest	***A*29:18***	***A*74:06***	***B*14:12***	***B*51:09***	***C*04:14***	***C*08:45***
	HLAminer	*A*29:02*	*A*32:01*	*B*14:01*	*B*53:01*	*C*04:01*	*C*08:02*
	seq2HLA	*A*29:02*	***A*32:03***	***B*14:02***	*B*53:01*	*C*04:01*	*C*08:02*
MPM4N	HLA genotype	*A*02:01*	*A*02:01*	*B*07:02*	*B*55:01*	*C*03:03*	*C*07:02*
	Optitype	*A*02:01*	*A*02:01*	*B*07:02*	*B*55:01*	*C*03:03*	*C*07:02*
	Polysolver	*A*02:01*	*A*02:01*	*B*07:02*	*B*55:01*	*C*03:03*	*C*07:02*
	PHLAT	***A*01:81***	***A*01:81***	*B*07:02*	*B*55:01*	*C*03:03*	*C*07:02*
	HLAreporter	*A*02:01*	*A*02:01*	*B*07:02*	*B*55:01*	*C*03:03*	*C*07:02*
	HLAforest	*A*02:01*	*A*02:01*	***B*07:56***	***B*55:02***	***C*03:38***	***C*07:51***
	HLAminer	***A*02:06***	***A*69:01***	***B*07:33***	*B*55:01*	*C*03:03*	***C*07:391***
	seq2HLA	*A*02:01*	***A*33:01***	*B*07:02*	*B*55:01*	***C*03:04***	*C*07:02*
MPM5N	HLA genotype	*A*02:01*	*A*29:02*	*B*44:02*	*B*44:03*	*C*05:01*	*C*16:01*
	Optitype	*A*02:01*	*A*29:02*	*B*44:02*	*B*44:03*	*C*05:01*	*C*16:01*
	Polysolver	*A*02:01*	*A*29:02*	***B*44:03***	*B*44:03*	*C*05:01*	*C*16:01*
	PHLAT	*A*02:01*	*A*29:02*	*B*44:02*	*B*44:03*	*C*05:01*	*C*16:01*
	HLAreporter	***A*02***	***A*29***	*B*44:02*	*B*44:03*	***C*05:29***	*C*16:01*
	HLAforest	***A*02:152***	***A*29:01***	*B*44:02*	***B*44:02***	***C*05:29***	***C*16:15***
	HLAminer	***A*02:48***	*A*29:02*	***B*44:46***	***B*51:42***	***C*08:94***	*C*16:01*
	seq2HLA	*A*02:01*	*A*29:02*	*B*44:02*	***B*44:02***	***C*08:02***	***C*16:02***
MPM6N	HLA genotype	*A*01:01*	*A*33:01*	*B*07:02*	*B*14:02*	*C*07:02*	*C*08:02*
	Optitype	*A*01:01*	*A*33:01*	*B*07:02*	*B*14:02*	*C*07:02*	*C*08:02*
	Polysolver	*A*01:01*	*A*33:01*	*B*07:02*	*B*14:02*	*C*07:02*	*C*08:02*
	PHLAT	*A*01:01*	*A*33:01*	*B*07:02*	*B*14:02*	*C*07:02*	*C*08:02*
	HLAreporter	***A*01***	*A*33:01*	*B*07:02*	*B*14:02*	***C*07***	*C*08:02*
	HLAforest	***A*01:32***	*A*33:01*	***B*07:13***	*B*14:02*	***C*07:41***	***C*08:82***
	HLAminer	*A*01:01*	*A*33:01*	*B*07:02*	*B*14:02*	***C*07:402***	***C*08:62***
	seq2HLA	*A*01:01*	*A*33:01*	*B*07:02*	*B*14:02*	*C*07:02*	***C*05:01***
MPM7N	HLA genotype	*A*23:01*	*A*68:01*	*B*39:01*	*B*52:01*	*C*12:02*	*C*12:03*
	Optitype	*A*23:01*	*A*68:01*	*B*39:01*	*B*52:01*	*C*12:02*	*C*12:03*
	Polysolver	*A*23:01*	*A*68:01*	*B*39:01*	*B*52:01*	*C*12:02*	*C*12:03*
	PHLAT	*A*23:01*	*A*68:01*	*B*39:01*	*B*52:01*	*C*12:02*	*C*12:03*
	HLAreporter	***A*23***	***A*68***	*B*39:01*	*B*52:01*	*C*12:02*	*C*12:03*
	HLAforest	***A*24:24***	*A*68:01*	*B*39:01*	*B*52:01*	***C*12:14***	***C*12:14***
	HLAminer	*A*23:01*	***A*24:02***	***B*39:34***	*B*52:01*	*C*12:02*	*C*12:03*
	seq2HLA	*A*23:01*	*A*68:01*	*B*39:01*	*B*52:01*	***C*12:03***	*C*12:03*
	HLA genotype	*A*03:01*	*A*25:01*	*B*07:02*	*B*07:02*	*C*07:02*	*C*07:02*

MPM8N	Optitype	*A*03:01*	*A*25:01*	*B*07:02*	*B*07:02*	*C*07:02*	*C*07:02*
	Polysolver	*A*03:01*	***A*26:01***	*B*07:02*	*B*07:02*	*C*07:02*	*C*07:02*
	PHLAT	*A*03:01*	*A*25:01*	*B*07:02*	*B*07:02*	*C*07:02*	*C*07:02*
	HLAreporter	***A*03***	*A*25:01*	*B*07:02*	*B*07:02*	*C*07:02*	*C*07:02*
	HLAforest	*A*03:01*	***A*25:13***	*B*07:02*	*B*07:02*	***C*07:137***	***C*07:137***
	HLAminer	*A*03:01*	***A*11:50***	*B*07:02*	***B*07:33***	*C*07:02*	***C*07:351***
	seq2HLA	*A*03:01*	*A*25:01*	*B*07:02*	*B*07:02*	*C*07:02*	*C*07:02*
MPM9N	HLA genotype	*A*03:01*	*A*03:01*	*B*07:02*	*B*55:01*	*C*07:02*	*C*07:02*
	Optitype	*A*03:01*	*A*03:01*	*B*07:02*	*B*55:01*	*C*07:02*	*C*07:02*
	Polysolver	*A*03:01*	*A*03:01*	*B*07:02*	*B*55:01*	*C*07:02*	*C*07:02*
	PHLAT	*A*03:01*	*A*03:01*	*B*07:02*	*B*55:01*	*C*07:02*	*C*07:02*
	HLAreporter	*A*03:01*	*A*03:01*	*B*07:02*	*B*55:01*	*C*07:02*	*C*07:02*
	HLAforest	***A*03:02***	***A*03:63***	***B*07:56***	***B*55:02***	*C*07:02*	*C*07:02*
	HLAminer	*A*03:01*	***A*03:02***	***B*07:41***	*B*55:01*	***C*07:67***	***C*07:351***
	seq2HLA	*A*03:01*	***A*30:02***	*B*07:02*	*B*55:01*	*C*07:02*	*C*07:02*
MPM10N	HLA genotype	*A*03:01*	*A*03:01*	*B*14:02*	*B*35:03*	*C*04:01*	*C*08:02*
	Optitype	*A*03:01*	*A*03:01*	*B*14:02*	*B*35:03*	*C*04:01*	*C*08:02*
	Polysolver	*A*03:01*	*A*03:01*	*B*14:02*	*B*35:03*	*C*04:01*	*C*08:02*
	PHLAT	*A*03:01*	*A*03:01*	*B*14:02*	*B*35:03*	*C*04:01*	*C*08:02*
	HLAreporter	*A*03:01*	*A*03:01*	*B*14:02*	*B*35:03*	*C*04:01*	*C*08:02*
	HLAforest	***A*03:26***	***A*03:26***	*B*14:02*	*B*35:03*	***C*04:116***	***C*08:15***
	HLAminer	*A*03:01*	***A*11:50***	*B*14:02*	*B*35:03*	*C*04:01*	***C*08:62***
	seq2HLA	*A*03:01*	***A*30:02***	*B*14:02*	*B*35:03*	*C*04:01*	***C*05:01***
MPM11N	HLA genotype	*A*02:01*	*A*11:01*	*B*18:01*	*B*35:01*	*C*04:01*	*C*07:01*
	Optitype	*A*02:01*	*A*11:01*	*B*18:01*	*B*35:01*	*C*04:01*	*C*07:01*
	Polysolver	*A*02:01*	*A*11:01*	*B*18:01*	*B*35:01*	*C*04:01*	*C*07:01*
	PHLAT	*A*02:01*	*A*11:01*	*B*18:01*	*B*35:01*	*C*04:01*	*C*07:01*
	HLAreporter	***A*02***	***A*11***	***B*18***	***B*35***	*C*04:01*	*C*07:01*
	HLAforest	***A*02:06***	***A*11:12***	***B*35:20***	***B*35:190***	***C*04:20***	*C*07:01*
	HLAminer	***A*02:07***	***A*11:50***	*B*18:01*	***B*35:02***	*C*04:01*	*C*07:01*
	seq2HLA	***A*02:40***	*A*11:01*	***B*18:02***	*B*35:01*	*C*04:01*	*C*07:01*
MPM12N	HLA genotype	*A*03:01*	*A*29:02*	*B*07:02*	*B*47:01*	*C*07:01*	*C*07:02*
	Optitype	*A*03:01*	*A*29:02*	*B*07:02*	*B*47:01*	*C*07:01*	*C*07:02*
	Polysolver	*A*03:01*	*A*29:02*	*B*07:02*	*B*47:01*	***C*07:06***	*C*07:02*
	PHLAT	*A*03:01*	*A*29:02*	*B*07:02*	*B*47:01*	***C*07:18***	*C*07:02*
	HLAreporter	*A*03:01*	***A*29***	*B*07:02*	***B*47:07***	*C*07:01*	***C*07:19***
	HLAforest	***A*03:42***	*A*29:02*	*B*07:02*	*B*47:01*	***C*07:02***	*C*07:02*
	HLAminer	***A*03:02***	***A*11:50***	*B*07:02*	*B*47:01*	*C*07:01*	***C*07:19***
	seq2HLA	*A*03:01*	***A*29:01***	*B*07:02*	*B*47:01*	*C*07:01*	***C*07:01***
MPM13N	HLA genotype	*A*01:01*	*A*31:01*	*B*08:01*	*B*40:01*	*C*03:04*	*C*07:01*
	Optitype	*A*01:01*	*A*31:01*	*B*08:01*	*B*40:01*	*C*03:04*	*C*07:01*
	Polysolver	*A*01:01*	*A*31:01*	*B*08:01*	*B*40:01*	*C*03:04*	*C*07:01*
	PHLAT	***A*01:22***	*A*31:01*	*B*08:01*	*B*40:01*	*C*03:04*	*C*07:01*
	HLAreporter	*A*01:01*	*A*31:01*	***B*08:12***	***B*40:80***	***C*03:37***	***C*07:16***
	HLAforest	*A*01:01*	*A*31:01*	*B*08:01*	***B*40:178***	***C*03:35***	***C*07:96***
	HLAminer	***A*11:50***	***A*33:03***	***B*08:33***	***B*41:35***	*C*03:04*	***C*07:385***
	seq2HLA	*A*01:01*	*A*31:01*	*B*08:01*	*B*40:01*	***C*03:07***	***C*07:06***

*HLA genotype was determined by NGS-based method in Scisco Genetics.
The discordant results are highlighted in bold.

Supplementary Table 4. Accuracy of 7 HLA-typing algorithms in 12 clinical samples.

	2nd field				1st field			
	HLA-A	*HLA-B*	*HLA-C*	*HLA-A,B,C*	*HLA-A*	*HLA-B*	*HLA-C*	*HLA-A,B,C*
Allele level								
Optitype	1.000	1.000	1.000	**1.000**	1.000	1.000	1.000	**1.000**
Polysolver	0.875	0.958	0.958	**0.931**	1.000	1.000	0.958	**0.958**
PHLAT	0.833	1.000	0.958	**0.931**	1.000	1.000	0.958	**0.958**
HLAreporter	0.583	0.792	0.792	**0.722**	1.000	1.000	0.986	**0.986**
HLAforest	0.417	0.458	0.208	**0.361**	0.917	1.000	0.944	**0.944**
HLAminer	0.458	0.625	0.500	**0.528**	0.917	0.958	0.861	**0.861**
seq2HLA	0.750	0.875	0.583	**0.736**	1.000	0.875	0.917	**0.917**

Supplementary Table 6. Accuracy of 3 exome-based HLA-typing algorithms in the 1000 Genomes Project samples.

	2nd field				1st field			
	HLA-A	*HLA-B*	*HLA-C*	*HLA-A,B,C*	*HLA-A*	*HLA-B*	*HLA-C*	*HLA-A,B,C*
Optitype	0.973	0.966	0.977	**0.972**	0.996	0.989	0.997	**0.994**
Polysolver	0.934	0.925	0.961	**0.940**	0.959	0.961	0.979	**0.967**
PHLAT	0.791	0.851	0.928	**0.856**	0.870	0.942	0.979	**0.930**

Supplementary Table 7. Discordant alleles of *HLA-A* in Optitype prediction.

Experimental typing		Predicted data		2nd field			1st field		
2nd field	1st field	2nd field	1st field	No of miscalls	Error rate	*P*	No of miscalls	Error rate	*P*
A*01:01	A*01	A*01:02	A*01	1	0.9%	1.0	1	0.8%	1.0
A*02:01	A*02	A*02:07	A*02	10	2.7%	**0.0018**			
A*02:01	A*02	A*02:02	A*02	1	0.3%	1.0			
A*02:01	A*02	A*02:06	A*02	3	0.8%	0.25			
A*02:01	A*02	A*02:17	A*02	1	0.3%	1.0			
A*02:01	A*02	A*02:20	A*02	1	0.3%	1.0			
A*02:01	A*02	A*02:22	A*02	1	0.3%	1.0			
A*02:01	A*02	A*02:64	A*02	1	0.3%	1.0	31	5.9%	**5.9E-10**
A*02:01	A*02	A*02:74	A*02	2	0.5%	0.50			
A*02:06	A*02	A*02:01	A*02	7	18.4%	**0.012**			
A*02:06	A*02	A*02:07	A*02	1	2.6%	1.0			
A*02:06	A*02	A*02:10	A*02	1	2.6%	1.0			
A*02:147	A*02	A*02:74	A*02	1	100.0%	1.0			
A*02:22	A*02	A*02:05	A*02	1	50.0%	1.0			
A*02:01	A*02	A*69:01	A*69	1	0.3%	1.0	1	0.2%	1.0
A*03:01	A*03	A*03:12	A*03	1	0.5%	1.0	1	0.5%	1.0
A*11:01	A*11	A*11:02	A*11	1	0.6%	1.0	2	1.1%	0.50
A*11:01	A*11	A*11:12	A*11	1	0.6%	1.0			
A*24:20	A*24	A*24:02	A*24	1	100.0%	1.0	1	0.4%	1.0
A*26:01	A*26	A*02:01	A*02	1	2.0%	1.0	1	1.6%	1.0
A*26:01	A*26	A*25:01	A*25	2	4.1%	0.49	2	3.3%	0.50
A*26:01	A*26	A*26:02	A*26	1	2.0%	1.0	2	3.3%	0.50
A*26:03	A*26	A*26:06	A*26	1	14.3%	1.0			
A*29:02	A*29	A*29:01	A*29	3	5.7%	0.24	3	5.1%	0.24
A*31:01	A*31	A*33:03	A*33	1	1.5%	1.0	1	1.4%	1.0
A*33:03	A*33	A*31:01	A*31	1	1.6%	1.0	1	1.4%	1.0
A*33:03	A*33	A*33:01	A*33	1	1.6%	1.0	1	1.4%	1.0
A*36:01	A*36	A*01:01	A*01	1	4.8%	1.0	1	4.8%	1.0
A*68:01	A*68	A*68:04	A*68	1	1.9%	1.0	2	2.2%	0.50
A*68:01	A*68	A*68:08	A*68	1	1.9%	1.0			

Supplementary Table 8. Discordant alleles of *HLA-B* in Optitype prediction.

Experimental typing		Predicted data		2nd field			1st field		
2nd field	1st field	2nd field	1st field	No of miscalls	Error rate	*P*	No of miscalls	Error rate	*P*
B*07:02	B*07	B*07:05	B*07	1	0.7%	1.0	2	1.4%	0.50
B*07:02	B*07	B*07:33	B*07	1	0.7%	1.0			
B*08:01	B*08	B*08:12	B*08	1	1.4%	1.0	1	1.4%	1.0
B*08:01	B*08	B*42:01	B*42	1	1.4%	1.0	1	1.4%	1.0
B*13:01	B*13	B*13:02	B*13	1	4.3%	1.0	7	10.0%	**0.013**
B*13:02	B*13	B*13:01	B*13	6	12.8%	**0.026**			
B*14:01	B*14	B*14:02	B*14	2	22.2%	0.47	2	4.3%	0.49
B*15:01	B*15	B*15:34	B*15	1	1.4%	1.0	2	1.1%	0.50
B*15:18	B*15	B*15:03	B*15	1	8.3%	1.0			
B*15:01	B*15	B*51:01	B*51	1	1.4%	1.0	1	0.6%	1.0
B*18:01	B*18	B*35:01	B*35	1	1.9%	1.0	1	1.8%	1.0
B*27:03	B*27	B*27:05	B*27	3	75.0%	0.14	3	7.0%	0.24
B*35:03	B*35	B*15:01	B*15	1	4.5%	1.0	1	0.5%	1.0
B*35:01	B*35	B*35:02	B*35	1	0.8%	1.0	8	4.0%	**0.0073**
B*35:01	B*35	B*35:08	B*35	1	0.8%	1.0			
B*35:01	B*35	B*35:14	B*35	1	0.8%	1.0			
B*35:01	B*35	B*35:51	B*35	1	0.8%	1.0			
B*35:17	B*35	B*35:01	B*35	1	14.3%	1.0			
B*35:43	B*35	B*35:11	B*35	1	10.0%	1.0			
B*35:43	B*35	B*35:14	B*35	2	20.0%	0.47			
B*35:01	B*35	B*51:01	B*51	1	0.8%	1.0	1	0.5%	1.0
B*39:03	B*39	B*39:24	B*39	1	100.0%	1.0	3	4.7%	0.24
B*39:06	B*39	B*39:01	B*39	2	12.5%	0.48			
B*40:01	B*40	B*35:03	B*35	1	0.9%	1.0	1	0.5%	1.0
B*40:04	B*40	B*40:02	B*40	1	25.0%	1.0	7	3.7%	**0.015**
B*40:06	B*40	B*40:02	B*40	5	31.3%	**0.043**			
B*40:20	B*40	B*40:03	B*40	1	100.0%	1.0			
B*40:02	B*40	B*44:09	B*44	1	1.9%	1.0	1	0.5%	1.0
B*41:02	B*41	B*08:01	B*08	1	16.7%	1.0	1	6.3%	1.0
B*41:02	B*41	B*41:03	B*41	1	16.7%	1.0	2	12.5%	0.48
B*41:04	B*41	B*41:02	B*41	1	100.0%	1.0			
B*42:02	B*42	B*42:01	B*42	1	33.3%	1.0	1	3.4%	1.0
B*44:03	B*44	B*15:01	B*15	1	1.2%	1.0	1	0.6%	1.0
B*44:03	B*44	B*40:02	B*40	1	1.2%	1.0	1	0.6%	1.0
B*44:03	B*44	B*44:02	B*44	1	1.2%	1.0	1	0.6%	1.0
B*44:02	B*44	B*83:01	B*83	1	1.3%	1.0	1	0.6%	1.0
B*45:01	B*45	B*44:09	B*44	1	3.3%	1.0	4	13.3%	0.11
B*45:01	B*45	B*44:15	B*44	3	10.0%	0.24			
B*45:01	B*45	B*45:04	B*45	1	3.3%	1.0	1	3.3%	1.0
B*45:01	B*45	B*82:02	B*82	1	3.3%	1.0	1	3.3%	1.0
B*51:02	B*51	B*51:01	B*51	1	25.0%	1.0	2	1.8%	0.50
B*51:23	B*51	B*51:02	B*51	1	100.0%	1.0			
B*52:01	B*52	B*51:01	B*51	1	2.1%	1.0	1	2.1%	1.0
B*58:01	B*58	B*35:01	B*35	1	1.8%	1.0	2	2.6%	0.50
B*58:01	B*58	B*35:28	B*35	1	1.8%	1.0			
B*58:01	B*58	B*44:02	B*44	1	1.8%	1.0	1	1.3%	1.0
B*58:01	B*58	B*53:01	B*53	1	1.8%	1.0	2	2.6%	0.50
B*58:02	B*58	B*53:01	B*53	1	5.3%	1.0			
B*58:02	B*58	B*58:01	B*58	1	5.3%	1.0	1	1.3%	1.0

Supplementary Table 9. Discordant alleles of *HLA-C* in Optitype prediction.

Experimental typing		Predicted data		2nd field			1st field		
2nd field	1st field	2nd field	1st field	No of miscalls	Error rate	*P*	No of miscalls	Error rate	*P*
C*01:02	C*01	C*01:03	C*01	1	0.7%	1.0	1	0.7%	1.0
C*02:02	C*02	C*02:08	C*02	1	2.3%	1.0	6	9.5%	**0.028**
C*02:02	C*02	C*02:10	C*02	5	11.6%	0.055			
C*03:02	C*03	C*03:04	C*03	1	2.6%	1.0			
C*03:03	C*03	C*03:02	C*03	1	1.0%	1.0			
C*03:03	C*03	C*03:04	C*03	5	4.9%	0.059			
C*03:03	C*03	C*03:81	C*03	1	1.0%	1.0	17	5.4%	**5.9E-06**
C*03:04	C*03	C*03:02	C*03	1	0.6%	1.0			
C*03:04	C*03	C*03:03	C*03	6	3.7%	**0.030**			
C*03:04	C*03	C*03:07	C*03	1	0.6%	1.0			
C*03:36	C*03	C*03:02	C*03	1	100.0%	1.0			
C*03:04	C*03	C*04:01	C*04	1	0.6%	1.0	1	0.3%	1.0
C*04:01	C*04	C*04:03	C*04	1	0.4%	1.0	2	0.8%	0.50
C*04:01	C*04	C*04:07	C*04	1	0.4%	1.0			
C*05:01	C*05	C*05:09	C*05	1	1.1%	1.0	1	1.1%	1.0
C*05:01	C*05	C*08:02	C*08	1	1.1%	1.0	1	1.1%	1.0
C*06:02	C*06	C*06:06	C*06	1	0.7%	1.0	1	0.7%	1.0
C*07:01	C*07	C*07:14	C*07	1	0.7%	1.0			
C*07:02	C*07	C*07:56	C*07	1	0.4%	1.0	4	1.0%	0.12
C*07:02	C*07	C*07:01	C*07	1	0.4%	1.0			
C*07:02	C*07	C*07:19	C*07	1	0.4%	1.0			
C*08:02	C*08	C*05:01	C*05	2	4.1%	0.49	2	1.7%	0.50
C*08:01	C*08	C*08:03	C*08	2	4.1%	0.49	3	2.6%	0.25
C*08:02	C*08	C*08:04	C*08	1	2.0%	1.0			
C*12:03	C*12	C*12:02	C*12	1	1.6%	1.0	2	2.0%	0.50
C*12:03	C*12	C*12:05	C*12	1	1.6%	1.0			
C*14:02	C*14	C*06:02	C*06	1	2.1%	1.0	1	1.6%	1.0
C*14:03	C*14	C*14:02	C*14	2	13.3%	0.48	2	3.2%	0.50
C*16:02	C*16	C*16:01	C*16	1	20.0%	1.0	1	1.1%	1.0

Supplementary Table 10. Discordant alleles of *HLA-A* in Polysolver prediction.

Experimental typing		Predicted data		2nd field			1st field		
2nd field	1st field	2nd field	1st field	No of miscalls	Error rate	*P*	No of miscalls	Error rate	*P*
A*01:02	A*01	A*01:01	A*01	1	25.0%	1.0	1	0.8%	1.0
A*02:01	A*02	A*01:01	A*01	1	0.3%	1.0	3	0.6%	0.25
A*02:01	A*02	A*01:02	A*01	2	0.5%	0.50			
A*02:01	A*02	A*02:07	A*02	9	2.4%	**0.0037**			
A*02:01	A*02	A*02:03	A*02	2	0.5%	0.50			
A*02:01	A*02	A*02:06	A*02	1	0.3%	1.0			
A*02:02	A*02	A*02:01	A*02	1	4.2%	1.0			
A*02:02	A*02	A*02:05	A*02	1	4.2%	1.0			
A*02:05	A*02	A*02:02	A*02	1	6.3%	1.0			
A*02:06	A*02	A*02:01	A*02	5	13.2%	0.054			
A*02:06	A*02	A*02:03	A*02	1	2.6%	1.0	34	6.5%	**6.7E-11**
A*02:06	A*02	A*02:07	A*02	1	2.6%	1.0			
A*02:06	A*02	A*02:10	A*02	1	2.6%	1.0			
A*02:11	A*02	A*02:01	A*02	5	83.3%	**0.015**			
A*02:14	A*02	A*02:05	A*02	1	100.0%	1.0			
A*02:147	A*02	A*02:01	A*02	1	100.0%	1.0			
A*02:20	A*02	A*02:01	A*02	2	100.0%	0.33			
A*02:22	A*02	A*02:01	A*02	1	50.0%	1.0			
A*02:22	A*02	A*02:02	A*02	1	50.0%	1.0			
A*02:01	A*02	A*03:01	A*03	2	0.5%	0.50	2	0.4%	0.50
A*02:01	A*02	A*11:01	A*11	1	0.3%	1.0	1	0.2%	1.0
A*02:01	A*02	A*24:02	A*24	2	0.5%	0.50	4	0.8%	0.12
A*02:06	A*02	A*24:02	A*24	2	5.3%	0.49			
A*02:01	A*02	A*26:01	A*26	1	0.3%	1.0	1	0.2%	1.0
A*02:01	A*02	A*30:01	A*30	2	0.5%	0.50			
A*02:01	A*02	A*30:02	A*30	3	0.8%	0.25			
A*02:01	A*02	A*30:04	A*30	1	0.3%	1.0	8	1.5%	**0.0076**
A*02:02	A*02	A*30:01	A*30	1	4.2%	1.0			
A*02:07	A*02	A*30:01	A*30	1	2.9%	1.0			
A*02:01	A*02	A*32:01	A*32	1	0.3%	1.0	1	0.2%	1.0
A*02:11	A*02	A*36:01	A*36	1	16.7%	1.0	1	0.2%	1.0
A*02:01	A*02	A*69:01	A*69	2	0.5%	0.50	2	0.4%	0.50
A*03:01	A*03	A*01:01	A*01	1	0.5%	1.0	1	0.5%	1.0
A*03:01	A*03	A*02:01	A*02	2	1.1%	0.50	2	1.0%	0.50
A*03:02	A*03	A*03:01	A*03	1	25.0%	1.0	1	0.5%	1.0
A*03:01	A*03	A*24:02	A*24	1	0.5%	1.0	2	1.0%	0.50
A*03:02	A*03	A*24:02	A*24	1	25.0%	1.0			
A*03:01	A*03	A*30:01	A*30	1	0.5%	1.0	2	1.0%	0.50
A*03:01	A*03	A*30:04	A*30	1	0.5%	1.0			
A*11:01	A*11	A*11:02	A*11	1	0.6%	1.0	2	1.1%	0.50
A*11:01	A*11	A*11:12	A*11	1	0.6%	1.0			
A*11:01	A*11	A*24:02	A*24	2	1.2%	0.50	2	1.1%	0.50
A*11:01	A*11	A*30:02	A*30	1	0.6%	1.0	1	0.6%	1.0
A*24:02	A*24	A*01:01	A*01	1	0.4%	1.0	1	0.4%	1.0
A*24:24	A*24	A*23:01	A*23	1	100.0%	1.0	1	0.4%	1.0
A*24:04	A*24	A*24:02	A*24	2	100.0%	0.33	3	1.2%	0.25
A*24:08	A*24	A*24:20	A*24	1	100.0%	1.0			
A*24:02	A*24	A*30:01	A*30	1	0.4%	1.0	1	0.4%	1.0
A*25:01	A*25	A*26:01	A*26	**14**	**93.3%**	**2.1E-07**	14	93.3%	**2.1E-07**
A*26:01	A*26	A*01:01	A*01	1	2.0%	1.0	1	1.6%	1.0
A*26:01	A*26	A*24:02	A*24	1	2.0%	1.0	1	1.6%	1.0
A*26:01	A*26	A*26:02	A*26	2	4.1%	0.49	4	6.6%	0.12
A*26:08	A*26	A*26:01	A*26	2	66.7%	0.40			
A*29:02	A*29	A*01:01	A*01	2	3.8%	0.50	2	3.4%	0.50
A*29:02	A*29	A*03:01	A*03	3	5.7%	0.24	3	5.1%	0.24
A*29:02	A*29	A*24:02	A*24	1	1.9%	1.0	1	1.7%	1.0
A*29:02	A*29	A*29:01	A*29	1	1.9%	1.0	1	1.7%	1.0
A*29:02	A*29	A*30:02	A*30	1	1.9%	1.0	1	1.7%	1.0
A*30:01	A*30	A*30:02	A*30	1	1.6%	1.0	2	1.7%	0.50
A*30:10	A*30	A*30:02	A*30	1	100.0%	1.0			
A*31:01	A*31	A*24:02	A*24	1	1.5%	1.0	1	1.4%	1.0
A*31:01	A*31	A*33:03	A*33	1	1.5%	1.0	1	1.4%	1.0
A*32:01	A*32	A*11:01	A*11	1	2.4%	1.0	1	2.4%	1.0

A*32:01	A*32	A*30:01	A*30	1	2.4%	1.0		1	2.4%	1.0
A*33:03	A*33	A*24:02	A*24	1	1.6%	1.0		1	1.4%	1.0
A*33:03	A*33	A*30:01	A*30	1	1.6%	1.0		1	1.4%	1.0
A*34:02	A*34	A*30:02	A*30	1	8.3%	1.0		1	8.3%	1.0
A*66:01	A*66	A*30:02	A*30	1	8.3%	1.0		1	5.0%	1.0
A*68:02	A*68	A*01:01	A*01	1	2.9%	1.0		1	1.1%	1.0
A*68:01	A*68	A*02:03	A*02	1	1.9%	1.0		1	1.1%	1.0
A*68:01	A*68	A*11:01	A*11	1	1.9%	1.0		1	1.1%	1.0
A*68:01	A*68	A*26:01	A*26	1	1.9%	1.0		1	1.1%	1.0
A*68:01	A*68	A*30:01	A*30	1	1.9%	1.0				
A*68:01	A*68	A*30:02	A*30	2	3.8%	0.50		5	5.6%	0.059
A*68:02	A*68	A*30:02	A*30	2	5.7%	0.49				
A*68:03	A*68	A*68:02	A*68	1	100.0%	1.0		1	1.1%	1.0
A*68:01	A*68	A*69:01	A*69	1	1.9%	1.0		1	1.1%	1.0
A*69:01	A*69	A*30:02	A*30	1	50.0%	1.0		1	50.0%	1.0

Supplementary Table 11. Discordant alleles of *HLA-B* in Polysolver prediction.

Experimental typing		Predicted data		2nd field			1st field		
2nd field	1st field	2nd field	1st field	No of miscalls	Error rate	*P*	No of miscalls	Error rate	*P*
B*13:02	B*13	B*07:02	B*07	1	2.1%	1.0	1	1.4%	1.0
B*13:01	B*13	B*13:02	B*13	1	4.3%	1.0	3	4.3%	0.24
B*13:02	B*13	B*13:01	B*13	2	4.3%	0.49			
B*14:02	B*14	B*08:01	B*08	1	2.7%	1.0	1	2.1%	1.0
B*14:01	B*14	B*14:02	B*14	1	11.1%	1.0	6	12.8%	**0.026**
B*14:02	B*14	B*14:01	B*14	5	13.5%	0.054			
B*15:01	B*15	B*07:02	B*07	1	1.4%	1.0	1	0.6%	1.0
B*15:01	B*15	B*15:05	B*15	1	1.4%	1.0	7	4.0%	**0.015**
B*15:01	B*15	B*15:07	B*15	1	1.4%	1.0			
B*15:09	B*15	B*15:18	B*15	1	100.0%	1.0			
B*15:10	B*15	B*15:18	B*15	2	11.8%	0.48			
B*15:15	B*15	B*15:01	B*15	1	33.3%	1.0			
B*15:15	B*15	B*15:08	B*15	1	33.3%	1.0			
B*15:01	B*15	B*46:01	B*46	2	2.7%	0.50	3	1.7%	0.25
B*15:15	B*15	B*46:01	B*46	1	33.3%	1.0			
B*15:01	B*15	B*51:01	B*51	1	1.4%	1.0	1	0.6%	1.0
B*15:01	B*15	B*55:01	B*55	1	1.4%	1.0	1	0.6%	1.0
B*18:05	B*18	B*18:01	B*18	1	100.0%	1.0	2	3.5%	0.50
B*18:06	B*18	B*18:01	B*18	1	100.0%	1.0			
B*18:01	B*18	B*42:01	B*42	1	1.9%	1.0	1	1.8%	1.0
B*27:05	B*27	B*08:01	B*08	1	2.9%	1.0	1	2.3%	1.0
B*27:05	B*27	B*14:01	B*14	1	2.9%	1.0	1	2.3%	1.0
B*27:05	B*27	B*15:01	B*15	1	2.9%	1.0	1	2.3%	1.0
B*27:03	B*27	B*27:05	B*27	1	25.0%	1.0	4	9.3%	0.12
B*27:03	B*27	B*27:05	B*27	2	25.0%	1.0			
B*27:07	B*27	B*27:05	B*27	1	100.0%	1.0			
B*27:05	B*27	B*47:01	B*47	1	2.9%	1.0	1	2.3%	1.0
B*27:04	B*27	B*54:01	B*54	1	25.0%	1.0	1	2.3%	1.0
B*35:17	B*35	B*07:02	B*07	1	14.3%	1.0	1	0.5%	1.0
B*35:12	B*35	B*15:08	B*15	1	20.0%	1.0	7	3.5%	**0.015**
B*35:43	B*35	B*15:08	B*15	5	50.0%	**0.033**			
B*35:43	B*35	B*15:46	B*15	1	10.0%	1.0			
B*35:01	B*35	B*35:02	B*35	1	0.8%	1.0	17	8.6%	**1.1E-05**
B*35:03	B*35	B*35:01	B*35	1	4.5%	1.0			
B*35:10	B*35	B*35:01	B*35	1	50.0%	1.0			
B*35:11	B*35	B*35:01	B*35	2	100.0%	0.33			
B*35:12	B*35	B*35:02	B*35	4	80.0%	**0.048**			
B*35:14	B*35	B*35:01	B*35	1	100.0%	1.0			
B*35:17	B*35	B*35:01	B*35	6	85.7%	**0.0047**			
B*35:43	B*35	B*35:01	B*35	1	10.0%	1.0			
B*35:43	B*35	B*44:02	B*44	1	10.0%	1.0	1	0.5%	1.0
B*35:43	B*35	B*49:01	B*49	1	10.0%	1.0	1	0.5%	1.0
B*35:43	B*35	B*50:01	B*50	1	10.0%	1.0	1	0.5%	1.0
B*35:01	B*35	B*51:01	B*51	1	0.8%	1.0	1	0.5%	1.0
B*35:01	B*35	B*52:01	B*52	1	0.8%	1.0	1	0.5%	1.0
B*35:10	B*35	B*53:01	B*53	1	50.0%	1.0	1	0.5%	1.0
B*39:05	B*39	B*38:01	B*38	3	42.9%	0.19	6	7.8%	0.058
B*39:11	B*39	B*38:01	B*38	3	50.0%	0.43			
B*39:03	B*39	B*39:01	B*39	1	100.0%	1.0	7	10.9%	**0.013**
B*39:05	B*39	B*39:01	B*39	4	57.1%	**0.070**			
B*39:06	B*39	B*39:01	B*39	1	6.3%	1.0			
B*39:08	B*39	B*39:02	B*39	1	100.0%	1.0			
B*39:11	B*39	B*40:02	B*40	1	25.0%	1.0	1	1.6%	1.0
B*40:01	B*40	B*07:02	B*07	1	0.9%	1.0	1	0.5%	1.0
B*40:06	B*40	B*13:02	B*13	1	6.3%	1.0	1	0.5%	1.0
B*40:01	B*40	B*35:03	B*35	1	0.9%	1.0	2	1.0%	0.50
B*40:04	B*40	B*35:02	B*35	1	25.0%	1.0			
B*40:02	B*40	B*40:14	B*40	1	1.9%	1.0	9	4.7%	**0.0035**
B*40:04	B*40	B*40:02	B*40	3	75.0%	0.14			
B*40:06	B*40	B*40:02	B*40	4	25.0%	0.10			
B*40:20	B*40	B*40:03	B*40	1	100.0%	1.0			
B*40:02	B*40	B*44:03	B*44	1	1.9%	1.0	1	0.5%	1.0
B*40:02	B*40	B*51:01	B*51	1	1.9%	1.0	1	0.5%	1.0

B*41:02	B*41	B*14:01	B*14	1	16.7%	1.0	1	6.3%	1.0
B*41:02	B*41	B*41:03	B*41	1	16.7%	1.0	1	6.3%	1.0
B*41:04	B*41	B*42:01	B*42	1	100.0%	1.0	1	6.3%	1.0
B*42:02	B*42	B*42:01	B*42	2	66.7%	0.40	2	6.9%	0.49
B*44:03	B*44	B*07:05	B*07	1	1.2%	1.0	1	0.6%	1.0
B*44:02	B*44	B*08:01	B*08	1	1.3%	1.0	1	0.6%	1.0
B*44:02	B*44	B*18:01	B*18	1	1.3%	1.0	1	0.6%	1.0
B*44:02	B*44	B*35:01	B*35	1	1.3%	1.0	1	0.6%	1.0
B*44:02	B*44	B*40:02	B*40	1	1.3%	1.0	2	1.2%	0.50
B*44:03	B*44	B*40:02	B*40	1	1.2%	1.0			
B*44:03	B*44	B*44:02	B*44	1	1.2%	1.0			
B*44:03	B*44	B*44:15	B*44	1	1.2%	1.0	3	1.8%	0.25
B*44:05	B*44	B*44:02	B*44	1	50.0%	1.0			
B*44:03	B*44	B*50:01	B*50	1	1.2%	1.0	1	0.6%	1.0
B*45:01	B*45	B*82:02	B*82	1	3.3%	1.0	1	3.3%	1.0
B*46:01	B*46	B*15:07	B*15	1	1.6%	1.0	1	1.6%	1.0
B*46:01	B*46	B*38:02	B*38	1	1.6%	1.0	1	1.6%	1.0
B*48:05	B*48	B*40:16	B*40	1	100.0%	1.0	1	4.8%	1.0
B*48:01	B*48	B*81:01	B*81	1	5.6%	1.0	1	4.8%	1.0
B*51:01	B*51	B*51:02	B*51	1	0.9%	1.0			
B*51:02	B*51	B*51:01	B*51	1	25.0%	1.0	4	3.5%	0.12
B*51:08	B*51	B*51:01	B*51	1	100.0%	1.0			
B*51:23	B*51	B*51:02	B*51	1	100.0%	1.0			
B*52:01	B*52	B*51:01	B*51	2	4.2%	0.49	2	4.2%	0.49
B*53:01	B*53	B*51:01	B*51	1	1.7%	1.0	1	1.7%	1.0
B*56:01	B*56	B*54:01	B*54	1	5.3%	1.0	1	5.3%	1.0
B*57:01	B*57	B*08:01	B*08	1	2.2%	1.0	1	1.6%	1.0
B*57:01	B*57	B*15:01	B*15	1	2.2%	1.0	1	1.6%	1.0
B*57:01	B*57	B*44:02	B*44	1	2.2%	1.0	1	1.6%	1.0
B*57:03	B*57	B*53:01	B*53	1	7.7%	1.0	1	1.6%	1.0
B*57:02	B*57	B*57:03	B*57	1	33.3%	1.0	1	1.6%	1.0
B*58:01	B*58	B*07:02	B*07	1	1.8%	1.0	1	1.3%	1.0
B*58:01	B*58	B*35:01	B*35	2	3.5%	0.50	3	3.9%	0.25
B*58:02	B*58	B*35:01	B*35	1	5.3%	1.0			
B*58:01	B*58	B*53:01	B*53	3	5.3%	0.24	5	6.6%	0.058
B*58:02	B*58	B*53:01	B*53	2	10.5%	0.49			
B*58:01	B*58	B*55:02	B*55	1	1.8%	1.0	1	1.3%	1.0
B*58:01	B*58	B*58:02	B*58	3	5.3%	0.24	3	3.9%	0.25
B*67:01	B*67	B*39:01	B*39	1	12.5%	1.0	1	12.5%	1.0
B*81:01	B*81	B*07:05	B*07	1	6.3%	1.0	1	6.3%	1.0

Supplementary Table 12. Discordant alleles of *HLA-C* in Polysolver prediction.

Experimental typing		Predicted data		2nd field			1st field		
2nd field	1st field	2nd field	1st field	No of miscalls	Error rate	*P*	No of miscalls	Error rate	*P*
C*01:02	C*01	C*01:03	C*01	1	0.7%	1.0	1	0.7%	1.0
C*01:02	C*01	C*07:01	C*07	1	0.7%	1.0	1	0.7%	1.0
C*01:02	C*01	C*14:02	C*14	1	0.7%	1.0	1	0.7%	1.0
C*02:02	C*02	C*02:10	C*02	5	11.6%	0.055	6	9.5%	**0.028**
C*02:10	C*02	C*02:02	C*02	1	5.0%	1.0			
C*03:02	C*03	C*01:02	C*01	2	5.3%	0.49			
C*03:03	C*03	C*01:02	C*01	1	1.0%	1.0	5	1.6%	0.062
C*03:04	C*03	C*01:02	C*01	2	1.2%	0.50			
C*03:03	C*03	C*02:10	C*02	1	1.0%	1.0			
C*03:04	C*03	C*02:02	C*02	1	0.6%	1.0	3	1.0%	0.25
C*03:05	C*03	C*02:02	C*02	1	12.5%	1.0			
C*03:02	C*03	C*03:04	C*03	1	2.6%	1.0			
C*03:03	C*03	C*03:04	C*03	1	1.0%	1.0			
C*03:04	C*03	C*03:03	C*03	6	3.7%	**0.030**	16	5.1%	**2.5E-05**
C*03:05	C*03	C*03:04	C*03	7	87.5%	**0.0014**			
C*03:36	C*03	C*03:02	C*03	1	100.0%	1.0			
C*03:02	C*03	C*04:01	C*04	1	2.6%	1.0			
C*03:03	C*03	C*04:01	C*04	1	1.0%	1.0	5	1.6%	0.062
C*03:03	C*03	C*04:03	C*04	1	1.0%	1.0			
C*03:04	C*03	C*04:01	C*04	2	1.2%	0.50			
C*03:04	C*03	C*06:02	C*06	2	1.2%	0.50	2	0.6%	0.50
C*03:03	C*03	C*07:02	C*07	1	1.0%	1.0	2	0.5%	0.50
C*03:04	C*03	C*07:02	C*07	1	0.6%	1.0			
C*04:01	C*04	C*04:03	C*04	1	0.4%	1.0	1	0.4%	1.0
C*05:01	C*05	C*08:02	C*08	1	1.1%	1.0	1	1.1%	1.0
C*07:01	C*07	C*07:02	C*07	1	0.7%	1.0	2	0.5%	0.50
C*07:02	C*07	C*07:01	C*07	1	0.4%	1.0			
C*08:01	C*08	C*01:02	C*01	1	2.0%	1.0	1	0.9%	1.0
C*08:04	C*08	C*04:01	C*04	1	6.7%	1.0	1	0.9%	1.0
C*08:02	C*08	C*05:01	C*05	2	4.1%	0.49	2	1.7%	0.50
C*08:01	C*08	C*08:03	C*08	1	2.0%	1.0	1	0.9%	1.0
C*08:01	C*08	C*12:02	C*12	1	2.0%	1.0	1	0.9%	1.0
C*08:01	C*08	C*15:02	C*15	2	4.1%	0.49	2	1.7%	0.50
C*12:02	C*12	C*01:02	C*01	1	2.8%	1.0	2	2.0%	0.50
C*12:02	C*12	C*01:03	C*01	1	2.8%	1.0			
C*12:03	C*12	C*04:01	C*04	1	1.6%	1.0	1	1.0%	1.0
C*12:03	C*12	C*07:01	C*07	1	1.6%	1.0	1	1.0%	1.0
C*12:03	C*12	C*12:02	C*12	4	6.3%	0.12	4	4.0%	0.12
C*12:03	C*12	C*14:02	C*14	1	1.6%	1.0	1	1.0%	1.0
C*14:02	C*14	C*07:02	C*07	1	2.1%	1.0	1	1.6%	1.0
C*14:03	C*14	C*14:02	C*14	3	20.0%	0.22	3	4.8%	0.24
C*14:02	C*14	C*16:01	C*16	1	2.1%	1.0	1	1.6%	1.0
C*16:01	C*16	C*03:02	C*03	1	1.2%	1.0	1	1.1%	1.0
C*16:01	C*16	C*04:01	C*04	1	1.2%	1.0	1	1.1%	1.0
C*16:01	C*16	C*07:01	C*07	2	2.3%	0.50	2	2.1%	0.50
C*16:01	C*16	C*15:02	C*15	1	1.2%	1.0	1	1.1%	1.0
C*16:01	C*16	C*16:02	C*16	1	1.2%	1.0	1	1.1%	1.0
C*18:01	C*18	C*04:01	C*04	1	8.3%	1.0	1	8.3%	1.0

Supplementary Table 13. Discordant alleles of *HLA-A* in PHLAT prediction.

Experimental typing		Predicted data		2nd field			1st field		
2nd field	1st field	2nd field	1st field	No of miscalls	Error rate	*P*	No of miscalls	Error rate	*P*
A*01:01	A*01	A*01:03	A*01	2	1.7%	0.50			
A*01:01	A*01	A*01:14	A*01	1	0.9%	1.0			
A*01:01	A*01	A*01:22	A*01	5	4.3%	0.060			
A*01:01	A*01	A*01:81	A*01	14	12.1%	**8.0E-05**	26	21.7%	**6.5E-09**
A*01:02	A*01	A*01:20	A*01	2	50.0%	0.43			
A*01:02	A*01	A*01:22	A*01	1	25.0%	1.0			
A*01:02	A*01	A*01:81	A*01	1	25.0%	1.0			
A*01:01	A*01	A*11:50	A*11	1	0.9%	1.0	1	0.8%	1.0
A*01:01	A*01	A*34:01	A*34	2	1.7%	0.50	2	1.7%	0.50
A*01:01	A*01	no data	no data	1	0.9%	1.0	1	0.8%	1.0
A*02:01	A*02	A*01:01	A*01	1	0.3%	1.0			
A*02:01	A*02	A*01:22	A*01	25	6.6%	**4.0E-08**			
A*02:01	A*02	A*01:81	A*01	47	12.5%	**3.1E-15**			
A*02:02	A*02	A*01:22	A*01	3	12.5%	0.23			
A*02:02	A*02	A*01:81	A*01	1	4.2%	1.0			
A*02:03	A*02	A*01:22	A*01	1	6.3%	1.0			
A*02:03	A*02	A*01:81	A*01	3	18.8%	0.23			
A*02:05	A*02	A*01:22	A*01	1	6.3%	1.0			
A*02:05	A*02	A*01:81	A*01	1	6.3%	1.0			
A*02:06	A*02	A*01:22	A*01	1	2.6%	1.0	101	19.3%	**3.8E-33**
A*02:06	A*02	A*01:81	A*01	10	26.3%	**0.0010**			
A*02:07	A*02	A*01:81	A*01	1	2.9%	1.0			
A*02:11	A*02	A*01:22	A*01	1	16.7%	1.0			
A*02:11	A*02	A*01:81	A*01	1	16.7%	1.0			
A*02:14	A*02	A*01:81	A*01	1	100.0%	1.0			
A*02:147	A*02	A*01:22	A*01	1	100.0%	1.0			
A*02:20	A*02	A*01:81	A*01	1	50.0%	1.0			
A*02:22	A*02	A*01:81	A*01	1	50.0%	1.0			
A*02:01	A*02	A*02:81	A*02	1	0.3%	1.0			
A*02:01	A*02	A*02:06	A*02	4	1.1%	0.12			
A*02:01	A*02	A*02:07	A*02	4	1.1%	0.12			
A*02:01	A*02	A*02:269	A*02	6	1.6%	**0.031**			
A*02:01	A*02	A*02:279	A*02	2	0.5%	0.50			
A*02:01	A*02	A*02:48	A*02	2	0.5%	0.50			
A*02:01	A*02	A*02:53	A*02	1	0.3%	1.0			
A*02:01	A*02	A*02:65	A*02	3	0.8%	0.25			
A*02:01	A*02	A*02:68	A*02	2	0.5%	0.50			
A*02:01	A*02	A*02:77	A*02	2	0.5%	0.50			
A*02:02	A*02	A*02:03	A*02	1	4.2%	1.0			
A*02:02	A*02	A*02:05	A*02	1	4.2%	1.0			
A*02:03	A*02	A*02:01	A*02	2	12.5%	0.48			
A*02:04	A*02	A*02:01	A*02	1	33.3%	1.0	58	11.1%	**1.3E-18**
A*02:04	A*02	A*02:07	A*02	1	33.3%	1.0			
A*02:05	A*02	A*02:02	A*02	1	6.3%	1.0			
A*02:06	A*02	A*02:07	A*02	1	2.6%	1.0			
A*02:06	A*02	A*02:48	A*02	1	2.6%	1.0			
A*02:06	A*02	A*02:01	A*02	4	10.5%	0.12			
A*02:06	A*02	A*02:43	A*02	1	2.6%	1.0			
A*02:06	A*02	A*02:57	A*02	3	7.9%	0.24			
A*02:07	A*02	A*02:01	A*02	9	25.7%	**0.0022**			
A*02:11	A*02	A*02:269	A*02	1	16.7%	1.0			
A*02:11	A*02	A*02:48	A*02	1	16.7%	1.0			
A*02:11	A*02	A*02:81	A*02	1	16.7%	1.0			
A*02:17	A*02	A*02:01	A*02	1	100.0%	1.0			
A*02:22	A*02	A*02:01	A*02	1	50.0%	1.0			
A*02:01	A*02	A*26:02	A*26	1	0.3%	1.0	4	0.8%	0.12
A*02:01	A*02	A*26:01	A*26	3	0.8%	0.25			
A*02:01	A*02	A*31:01	A*31	2	0.5%	0.50	3	0.6%	0.25
A*02:02	A*02	A*31:01	A*31	1	4.2%	1.0			
A*02:01	A*02	A*33:03	A*33	1	0.3%	1.0	1	0.2%	1.0
A*02:06	A*02	A*34:01	A*34	1	2.6%	1.0	1	0.2%	1.0
A*02:20	A*02	A*69:01	A*69	1	50.0%	1.0	1	0.2%	1.0
A*02:01	A*02	no data	no data	1	0.3%	1.0	1	0.2%	1.0

A*03:01	A*03	A*01:81	A*01	1	0.5%	1.0			
A*03:01	A*03	A*01:01	A*01	3	1.6%	0.25	6	3.1%	**0.030**
A*03:01	A*03	A*01:22	A*01	2	1.1%	0.50			
A*03:01	A*03	A*03:22	A*03	1	0.5%	1.0			
A*03:01	A*03	A*03:26	A*03	2	1.1%	0.50			
A*03:01	A*03	A*03:42	A*03	1	0.5%	1.0			
A*03:01	A*03	A*03:56	A*03	1	0.5%	1.0			
A*03:01	A*03	A*03:02	A*03	2	1.1%	0.50			
A*03:01	A*03	A*03:03	A*03	1	0.5%	1.0			
A*03:01	A*03	A*03:06	A*03	1	0.5%	1.0			
A*03:01	A*03	A*03:11	A*03	1	0.5%	1.0			
A*03:01	A*03	A*03:12	A*03	1	0.5%	1.0			
A*03:01	A*03	A*03:122	A*03	2	1.1%	0.50			
A*03:01	A*03	A*03:123	A*03	1	0.5%	1.0			
A*03:01	A*03	A*03:125	A*03	1	0.5%	1.0			
A*03:01	A*03	A*03:129	A*03	2	1.1%	0.50	29	14.9%	**1.2E-09**
A*03:01	A*03	A*03:130	A*03	1	0.5%	1.0			
A*03:01	A*03	A*03:143	A*03	1	0.5%	1.0			
A*03:01	A*03	A*03:15	A*03	1	0.5%	1.0			
A*03:01	A*03	A*03:29	A*03	1	0.5%	1.0			
A*03:01	A*03	A*03:38	A*03	1	0.5%	1.0			
A*03:01	A*03	A*03:39	A*03	1	0.5%	1.0			
A*03:01	A*03	A*03:64	A*03	1	0.5%	1.0			
A*03:01	A*03	A*03:72	A*03	1	0.5%	1.0			
A*03:01	A*03	A*03:91	A*03	1	0.5%	1.0			
A*03:01	A*03	A*03:95	A*03	1	0.5%	1.0			
A*03:02	A*03	A*03:01	A*03	1	25.0%	1.0			
A*03:02	A*03	A*03:90	A*03	1	25.0%	1.0			
A*03:01	A*03	A*30:04	A*30	1	0.5%	1.0	2	1.0%	0.50
A*03:01	A*03	A*30:11	A*30	1	0.5%	1.0			
A*03:01	A*03	A*31:01	A*31	1	0.5%	1.0	1	0.5%	1.0
A*03:01	A*03	A*34:01	A*34	1	0.5%	1.0	4	2.1%	0.12
A*03:01	A*03	A*34:09	A*34	3	1.6%	0.25			
A*03:01	A*03	A*74:01	A*74	1	0.5%	1.0	1	0.5%	1.0
A*11:01	A*11	A*01:01	A*01	4	2.4%	0.12	5	2.9%	0.061
A*11:01	A*11	A*01:22	A*01	1	0.6%	1.0			
A*11:01	A*11	A*11:25	A*11	1	0.6%	1.0			
A*11:01	A*11	A*11:02	A*11	2	1.2%	0.50			
A*11:01	A*11	A*11:50	A*11	2	1.2%	0.50	15	8.6%	**4.5E-05**
A*11:01	A*11	A*11:77	A*11	9	5.4%	**0.0035**			
A*11:02	A*11	A*11:77	A*11	1	11.1%	1.0			
A*11:01	A*11	A*34:01	A*34	1	0.6%	1.0	1	0.6%	1.0
A*23:01	A*23	A*23:38	A*23	2	4.1%	0.49	2	4.1%	0.49
A*23:01	A*23	A*24:03	A*24	1	2.0%	1.0	10	20.4%	**0.0012**
A*23:01	A*23	A*24:02	A*24	9	18.4%	**0.0026**			
A*23:01	A*23	A*74:01	A*74	1	2.0%	1.0	1	2.0%	1.0
A*24:02	A*24	A*24:03	A*24	2	0.8%	0.50			
A*24:02	A*24	A*24:161	A*24	1	0.4%	1.0			
A*24:02	A*24	A*24:86	A*24	1	0.4%	1.0	6	2.4%	**0.030**
A*24:04	A*24	A*24:02	A*24	1	50.0%	1.0			
A*24:20	A*24	A*24:02	A*24	1	100.0%	1.0			
A*24:02	A*24	A*34:01	A*34	1	0.4%	1.0	1	0.4%	1.0
A*24:02	A*24	no data	no data	1	0.4%	1.0	1	0.4%	1.0
A*25:01	A*25	A*26:01	A*26	1	6.7%	1.0	1	6.7%	1.0
A*25:01	A*25	A*69:01	A*69	1	6.7%	1.0	1	6.7%	1.0
A*25:01	A*25	no data	no data	1	6.7%	1.0	1	6.7%	1.0
A*26:01	A*26	A*01:22	A*01	8	16.3%	**0.0057**	9	14.8%	**0.0028**
A*26:01	A*26	A*01:81	A*01	1	2.0%	1.0			
A*26:01	A*26	A*25:01	A*25	1	2.0%	1.0	3	4.9%	0.24
A*26:03	A*26	A*25:01	A*25	2	28.6%	0.46			
A*26:01	A*26	A*26:02	A*26	1	2.0%	1.0			
A*26:03	A*26	A*26:01	A*26	1	14.3%	1.0	5	8.2%	0.057
A*26:08	A*26	A*26:01	A*26	3	100.0%	0.10			
A*26:03	A*26	A*31:01	A*31	1	14.3%	1.0	1	1.6%	1.0
A*26:03	A*26	A*66:01	A*66	2	28.6%	0.46	2	3.3%	0.50
A*26:01	A*26	no data	no data	2	4.1%	0.49	2	3.3%	0.50

A*29:02	A*29	A*01:22	A*01	4	7.5%	0.12		4	6.8%	0.12
A*30:02	A*30	A*01:22	A*01	4	8.3%	0.12		4	3.5%	0.12
A*30:01	A*30	A*34:01	A*34	1	1.6%	1.0				
A*30:01	A*30	A*34:07	A*34	1	1.6%	1.0		3	2.6%	0.25
A*30:01	A*30	A*34:09	A*34	1	1.6%	1.0				
A*31:01	A*31	A*01:22	A*01	2	3.1%	0.50		2	2.9%	0.50
A*31:04	A*31	A*31:01	A*31	1	25.0%	1.0		1	1.4%	1.0
A*31:01	A*31	A*34:01	A*34	2	3.1%	0.50		2	2.9%	0.50
A*31:01	A*31	no data	no data	1	1.5%	1.0		1	1.4%	1.0
A*32:01	A*32	A*01:22	A*01	1	2.4%	1.0		1	2.4%	1.0
A*32:01	A*32	A*02:65	A*02	1	2.4%	1.0		2	4.8%	0.49
A*32:01	A*32	A*02:77	A*02	1	2.4%	1.0				
A*32:01	A*32	A*74:01	A*74	1	2.4%	1.0		1	2.4%	1.0
A*33:03	A*33	A*01:22	A*01	1	1.6%	1.0		1	1.4%	1.0
A*33:03	A*33	A*31:01	A*31	16	25.4%	**1.0E-05**		16	21.6%	**1.2E-05**
A*33:01	A*33	A*34:01	A*34	1	9.1%	1.0				
A*33:03	A*33	A*34:03	A*34	1	3.2%	0.50		7	9.5%	**0.013**
A*33:03	A*33	A*34:01	A*34	3	4.8%	0.24				
A*33:03	A*33	A*34:03	A*34	2	3.2%	0.50				
A*33:03	A*33	A*66:01	A*66	1	1.6%	1.0		1	1.4%	1.0
A*34:02	A*34	A*01:22	A*01	2	16.7%	0.48		3	25.0%	0.22
A*34:02	A*34	A*01:81	A*01	1	8.3%	1.0				
A*34:02	A*34	A*34:01	A*34	1	8.3%	1.0		1	8.3%	1.0
A*34:02	A*34	A*66:01	A*66	4	33.3%	0.093		4	33.3%	0.093
A*36:01	A*36	A*01:01	A*01	1	4.8%	1.0		1	4.8%	1.0
A*36:01	A*36	A*03:21	A*03	1	4.8%	1.0		1	4.8%	1.0
A*36:01	A*36	A*34:01	A*34	2	9.5%	0.49		3	14.3%	0.23
A*36:01	A*36	A*34:08	A*34	1	4.8%	1.0				
A*66:02	A*66	A*01:22	A*01	1	12.5%	1.0		1	5.0%	1.0
A*66:02	A*66	A*02:01	A*02	1	12.5%	1.0		1	5.0%	1.0
A*66:02	A*66	A*34:01	A*34	1	12.5%	1.0		1	5.0%	1.0
A*66:02	A*66	A*66:01	A*66	2	25.0%	0.47		3	15.0%	0.23
A*66:02	A*66	A*66:03	A*66	1	12.5%	1.0				
A*68:01	A*68	A*01:81	A*01	2	3.8%	0.50				
A*68:01	A*68	A*01:22	A*01	9	17.0%	**0.0027**		15	16.9%	**3.2E-05**
A*68:02	A*68	A*01:22	A*01	3	8.6%	0.24				
A*68:02	A*68	A*01:81	A*01	1	2.9%	1.0				
A*68:01	A*68	A*33:03	A*33	1	1.9%	1.0		1	1.1%	1.0
A*68:02	A*68	A*34:01	A*34	2	5.7%	0.49		2	2.2%	0.50
A*68:01	A*68	A*68:02	A*68	4	7.5%	0.12		5	5.6%	0.059
A*68:03	A*68	A*68:02	A*68	1	100.0%	1.0				
A*68:01	A*68	A*69:01	A*69	2	3.8%	0.50		2	2.2%	0.50
A*69:01	A*69	A*01:22	A*01	1	50.0%	1.0		2	100.0%	0.33
A*69:01	A*69	A*01:81	A*01	1	50.0%	1.0				
A*74:01	A*74	A*01:22	A*01	1	4.5%	1.0		1	4.2%	1.0
A*74:03	A*74	A*02:65	A*02	1	50.0%	1.0		1	4.2%	1.0
A*74:01	A*74	no data	no data	1	4.5%	1.0		1	4.2%	1.0

Supplementary Table 14. Discordant alleles of *HLA-B* in PHLAT prediction.

Experimental typing		Predicted data		2nd field			1st field		
2nd field	1st field	2nd field	1st field	No of miscalls	Error rate	*P*	No of miscalls	Error rate	*P*
B*07:02	B*07	B*07:42	B*07	1	0.7%	1.0			
B*07:02	B*07	B*07:51	B*07	1	0.7%	1.0			
B*07:02	B*07	B*07:62	B*07	2	1.4%	0.50			
B*07:02	B*07	B*07:67	B*07	1	0.7%	1.0			
B*07:02	B*07	B*07:68	B*07	1	0.7%	1.0			
B*07:02	B*07	B*07:77	B*07	1	0.7%	1.0			
B*07:02	B*07	B*07:95	B*07	1	0.7%	1.0	15	10.3%	**4.2E-05**
B*07:02	B*07	B*07:113	B*07	1	0.7%	1.0			
B*07:02	B*07	B*07:114	B*07	1	0.7%	1.0			
B*07:02	B*07	B*07:128	B*07	1	0.7%	1.0			
B*07:02	B*07	B*07:142	B*07	1	0.7%	1.0			
B*07:02	B*07	B*07:152	B*07	1	0.7%	1.0			
B*07:05	B*07	B*07:06	B*07	1	14.3%	1.0			
B*07:05	B*07	B*07:02	B*07	1	14.3%	1.0			
B*07:02	B*07	B*40:11	B*40	1	0.7%	1.0	1	0.7%	1.0
B*08:01	B*08	B*08:79	B*08	1	1.4%	1.0	1	1.4%	1.0
B*08:01	B*08	B*15:180	B*15	1	1.4%	1.0	1	1.4%	1.0
B*08:01	B*08	B*40:02	B*40	1	1.4%	1.0	1	1.4%	1.0
B*13:01	B*13	B*13:02	B*13	8	34.8%	**0.0038**	9	12.9%	**0.0030**
B*13:01	B*13	B*13:07	B*13	1	4.3%	1.0			
B*14:01	B*14	B*14:02	B*14	4	44.4%	0.082			
B*14:01	B*14	B*14:26	B*14	1	11.1%	1.0	6	12.8%	**0.026**
B*14:02	B*14	B*14:08	B*14	1	2.7%	1.0			
B*14:02	B*14	B*39:01	B*39	4	10.8%	0.11	4	8.5%	0.12
B*14:02	B*14	no data	no data	2	5.4%	0.49	2	4.3%	0.49
B*15:01	B*15	B*15:11	B*15	1	1.4%	1.0			
B*15:01	B*15	B*15:18	B*15	1	1.4%	1.0			
B*15:01	B*15	B*15:04	B*15	1	1.4%	1.0			
B*15:01	B*15	B*15:07	B*15	3	4.1%	0.24			
B*15:01	B*15	B*15:27	B*15	2	2.7%	0.50			
B*15:01	B*15	B*15:32	B*15	3	4.1%	0.24			
B*15:01	B*15	B*15:42	B*15	1	1.4%	1.0			
B*15:01	B*15	B*15:77	B*15	1	1.4%	1.0			
B*15:03	B*15	B*15:01	B*15	1	3.7%	1.0	26	15.5%	**5.0E-09**
B*15:03	B*15	B*15:18	B*15	1	3.7%	1.0			
B*15:03	B*15	B*15:220	B*15	3	11.1%	0.24			
B*15:07	B*15	B*15:01	B*15	1	20.0%	1.0			
B*15:09	B*15	B*15:18	B*15	1	100.0%	1.0			
B*15:15	B*15	B*15:01	B*15	2	66.7%	0.40			
B*15:18	B*15	B*15:108	B*15	1	8.3%	1.0			
B*15:18	B*15	B*15:220	B*15	1	8.3%	1.0			
B*15:27	B*15	B*15:01	B*15	1	33.3%	1.0			
B*15:37	B*15	B*15:10	B*15	1	100.0%	1.0			
B*15:01	B*15	B*35:14	B*35	1	1.4%	1.0	2	1.1%	0.50
B*15:20	B*15	B*35:01	B*35	1	100.0%	1.0			
B*15:01	B*15	B*46:01	B*46	2	2.7%	0.50			
B*15:02	B*15	B*46:01	B*46	2	16.7%	0.48	5	2.3%	0.12
B*15:15	B*15	B*46:01	B*46	1	33.3%	1.0			
B*15:01	B*15	B*51:01	B*51	1	1.4%	1.0	1	0.6%	1.0
B*15:01	B*15	B*56:03	B*56	1	1.4%	1.0	1	0.6%	1.0
B*18:01	B*18	B*18:02	B*18	1	1.9%	1.0	1	1.8%	1.0
B*18:01	B*18	no data	no data	1	1.9%	1.0	1	1.8%	1.0
B*27:05	B*27	B*08:01	B*08	2	5.9%	0.49	2	4.7%	0.49
B*27:05	B*27	B*13:02	B*13	1	2.9%	1.0	1	2.3%	1.0
B*27:03	B*27	B*27:05	B*27	1	75.0%	0.14			
B*27:03	B*27	B*27:05	B*27	3	75.0%	0.14	6	14.0%	**0.026**
B*27:05	B*27	B*27:07	B*27	1	2.9%	1.0			
B*27:05	B*27	B*27:47	B*27	1	2.9%	1.0			
B*35:43	B*35	B*15:01	B*15	2	20.0%	0.47			
B*35:43	B*35	B*15:11	B*15	1	10.0%	1.0	4	2.0%	0.12
B*35:43	B*35	B*15:15	B*15	1	10.0%	1.0			
B*35:01	B*35	B*35:02	B*35	1	0.8%	1.0			
B*35:01	B*35	B*35:08	B*35	1	0.8%	1.0			

B*35:01	B*35	B*35:14	B*35	1	0.8%	1.0			
B*35:02	B*35	B*35:162	B*35	1	8.3%	1.0			
B*35:03	B*35	B*35:01	B*35	2	9.1%	0.49			
B*35:03	B*35	B*35:193	B*35	1	4.5%	1.0			
B*35:05	B*35	B*35:01	B*35	1	50.0%	1.0	18	9.1%	**5.1E-06**
B*35:08	B*35	B*35:01	B*35	1	11.1%	1.0			
B*35:10	B*35	B*35:01	B*35	1	50.0%	1.0			
B*35:11	B*35	B*35:01	B*35	2	100.0%	0.33			
B*35:12	B*35	B*35:02	B*35	1	20.0%	1.0			
B*35:12	B*35	B*35:14	B*35	1	20.0%	1.0			
B*35:17	B*35	B*35:01	B*35	2	28.6%	0.46			
B*35:43	B*35	B*35:14	B*35	2	20.0%	0.47			
B*35:43	B*35	B*39:01	B*39	1	10.0%	1.0	1	0.5%	1.0
B*35:43	B*35	B*49:01	B*49	2	20.0%	0.47	2	1.0%	0.50
B*35:01	B*35	B*51:01	B*51	1	0.8%	1.0	2	1.0%	0.50
B*35:12	B*35	B*51:01	B*51	1	20.0%	1.0			
B*35:01	B*35	B*52:01	B*52	1	0.8%	1.0	1	0.5%	1.0
B*35:10	B*35	B*53:01	B*53	1	50.0%	1.0	1	0.5%	1.0
B*35:17	B*35	B*58:01	B*58	1	14.3%	1.0	1	0.5%	1.0
B*35:03	B*35	B*78:02	B*78	1	4.5%	1.0	1	0.5%	1.0
B*35:01	B*35	no data	no data	1	0.8%	1.0			
B*35:12	B*35	no data	no data	1	20.0%	1.0	3	1.5%	0.25
B*35:17	B*35	no data	no data	1	14.3%	1.0			
B*38:01	B*38	B*39:01	B*39	3	17.6%	0.23	4	16.0%	0.11
B*38:02	B*38	B*39:01	B*39	1	12.5%	1.0			
B*38:01	B*38	B*46:01	B*46	1	5.9%	1.0	1	4.0%	1.0
B*38:01	B*38	no data	no data	1	5.9%	1.0	1	4.0%	1.0
B*39:03	B*39	B*39:24	B*39	1	100.0%	1.0			
B*39:06	B*39	B*39:01	B*39	11	68.8%	**6.8E-05**			
B*39:06	B*39	B*39:34	B*39	1	6.3%	1.0	15	23.4%	**2.4E-05**
B*39:10	B*39	B*39:02	B*39	1	25.0%	1.0			
B*39:11	B*39	B*39:05	B*39	1	25.0%	1.0			
B*40:01	B*40	B*07:02	B*07	12	10.3%	**0.00036**	12	6.3%	**0.00041**
B*40:02	B*40	B*08:01	B*08	1	1.9%	1.0	1	0.5%	1.0
B*40:02	B*40	B*27:05	B*27	1	1.9%	1.0	1	0.5%	1.0
B*40:01	B*40	B*35:03	B*35	1	0.9%	1.0	1	0.5%	1.0
B*40:01	B*40	B*40:117	B*40	1	0.9%	1.0			
B*40:01	B*40	B*40:10	B*40	1	0.9%	1.0			
B*40:01	B*40	B*40:114	B*40	1	0.9%	1.0			
B*40:01	B*40	B*40:137	B*40	1	0.9%	1.0			
B*40:01	B*40	B*40:138	B*40	1	0.9%	1.0			
B*40:01	B*40	B*40:139	B*40	1	0.9%	1.0			
B*40:01	B*40	B*40:14	B*40	1	0.9%	1.0			
B*40:01	B*40	B*40:146	B*40	2	1.7%	0.50			
B*40:01	B*40	B*40:149	B*40	1	0.9%	1.0			
B*40:01	B*40	B*40:150	B*40	1	0.9%	1.0	27	14.1%	**5.5E-09**
B*40:01	B*40	B*40:152	B*40	1	0.9%	1.0			
B*40:01	B*40	B*40:171	B*40	1	0.9%	1.0			
B*40:01	B*40	B*40:80	B*40	1	0.9%	1.0			
B*40:02	B*40	B*40:57	B*40	1	1.9%	1.0			
B*40:02	B*40	B*40:97	B*40	1	1.9%	1.0			
B*40:02	B*40	B*40:06	B*40	1	1.9%	1.0			
B*40:02	B*40	B*40:40	B*40	2	3.8%	0.50			
B*40:04	B*40	B*40:02	B*40	3	75.0%	0.14			
B*40:06	B*40	B*40:02	B*40	4	25.0%	0.10			
B*40:20	B*40	B*40:03	B*40	1	100.0%	1.0			
B*40:01	B*40	B*41:01	B*41	1	0.9%	1.0	1	0.5%	1.0
B*40:02	B*40	B*44:03	B*44	1	1.9%	1.0	1	0.5%	1.0
B*41:02	B*41	B*08:01	B*08	1	16.7%	1.0	1	6.3%	1.0
B*41:02	B*41	B*15:03	B*15	1	16.7%	1.0	1	6.3%	1.0
B*41:02	B*41	B*41:01	B*41	1	16.7%	1.0	1	6.3%	1.0
B*41:01	B*41	B*42:01	B*42	1	11.1%	1.0			
B*41:02	B*41	B*42:01	B*42	1	16.7%	1.0	4	25.0%	0.10
B*41:02	B*41	B*42:08	B*42	1	16.7%	1.0			
B*41:04	B*41	B*42:01	B*42	1	100.0%	1.0			
B*42:01	B*42	B*42:07	B*42	1	3.8%	1.0	1	3.4%	1.0

B*42:01	B*42	no data	no data	1	3.8%	1.0		1	3.4%	1.0
B*44:03	B*44	B*40:02	B*40	1	1.2%	1.0		1	0.6%	1.0
B*44:02	B*44	B*44:03	B*44	1	1.3%	1.0				
B*44:02	B*44	B*44:09	B*44	4	5.1%	0.12				
B*44:02	B*44	B*44:138	B*44	1	1.3%	1.0				
B*44:03	B*44	B*44:02	B*44	2	2.4%	0.50				
B*44:03	B*44	B*44:103	B*44	1	1.2%	1.0		17	10.9%	**4.7E-06**
B*44:03	B*44	B*44:37	B*44	1	1.2%	1.0				
B*44:03	B*44	B*44:46	B*44	5	6.0%	0.059				
B*44:05	B*44	B*44:02	B*44	1	50.0%	1.0				
B*44:05	B*44	B*44:70	B*44	1	50.0%	1.0				
B*44:02	B*44	B*45:01	B*45	1	1.3%	1.0		1	0.6%	1.0
B*44:02	B*44	B*47:01	B*47	1	1.3%	1.0		1	0.6%	1.0
B*44:02	B*44	B*51:42	B*51	1	1.3%	1.0		1	0.6%	1.0
B*45:01	B*45	no data	no data	1	3.3%	1.0		1	3.3%	1.0
B*46:01	B*46	B*15:07	B*15	1	1.6%	1.0		3	4.7%	0.24
B*46:01	B*46	B*15:01	B*15	2	3.1%	0.50				
B*48:05	B*48	B*07:05	B*07	1	100.0%	1.0		1	4.8%	1.0
B*48:02	B*48	B*35:01	B*35	1	100.0%	1.0		1	4.8%	1.0
B*48:01	B*48	B*48:03	B*48	2	11.1%	0.49		2	9.5%	0.49
B*49:01	B*49	B*15:01	B*15	1	4.8%	1.0		2	9.5%	0.49
B*49:01	B*49	B*15:03	B*15	1	4.8%	1.0				
B*49:01	B*49	B*18:01	B*18	1	4.8%	1.0		1	4.8%	1.0
B*51:01	B*51	B*35:01	B*35	3	2.8%	0.25		3	2.7%	0.25
B*51:01	B*51	B*51:02	B*51	1	0.9%	1.0				
B*51:02	B*51	B*51:01	B*51	1	25.0%	1.0		4	3.5%	0.12
B*51:08	B*51	B*51:01	B*51	1	100.0%	1.0				
B*51:23	B*51	B*51:02	B*51	1	100.0%	1.0				
B*51:01	B*51	B*56:05	B*56	1	0.9%	1.0		1	0.9%	1.0
B*52:01	B*52	B*35:03	B*35	1	2.1%	1.0		1	2.1%	1.0
B*52:01	B*52	B*51:01	B*51	2	4.2%	0.49		2	4.2%	0.49
B*53:01	B*53	B*35:01	B*35	3	5.0%	0.24		3	5.0%	0.24
B*53:01	B*53	B*51:01	B*51	1	1.7%	1.0		1	1.7%	1.0
B*53:01	B*53	B*53:24	B*53	1	1.7%	1.0		1	1.7%	1.0
B*53:01	B*53	B*56:04	B*56	1	1.7%	1.0		1	1.7%	1.0
B*53:01	B*53	no data	no data	2	3.3%	0.50		2	3.3%	0.50
B*54:01	B*54	B*48:01	B*48	1	5.3%	1.0		1	5.3%	1.0
B*54:01	B*54	B*54:18	B*54	1	5.3%	1.0		1	5.3%	1.0
B*54:01	B*54	B*55:02	B*55	1	5.3%	1.0		1	5.3%	1.0
B*55:01	B*55	B*55:02	B*55	2	11.1%	0.49		2	7.1%	0.49
B*55:01	B*55	B*56:03	B*56	1	5.6%	1.0		1	3.6%	1.0
B*56:01	B*56	B*55:24	B*55	1	5.3%	1.0		1	5.3%	1.0
B*56:01	B*56	B*56:04	B*56	1	5.3%	1.0		1	5.3%	1.0
B*56:01	B*56	B*59:01	B*59	1	5.3%	1.0		1	5.3%	1.0
B*57:03	B*57	B*44:03	B*44	1	7.7%	1.0		1	1.6%	1.0
B*57:02	B*57	B*57:01	B*57	1	33.3%	1.0				
B*57:02	B*57	B*57:57	B*57	1	33.3%	1.0				
B*57:03	B*57	B*57:01	B*57	1	7.7%	1.0		8	12.9%	**0.0061**
B*57:03	B*57	B*57:11	B*57	1	7.7%	1.0				
B*57:03	B*57	B*57:57	B*57	4	30.8%	0.096				
B*58:01	B*58	B*35:01	B*35	3	5.3%	0.24				
B*58:02	B*58	B*35:01	B*35	1	5.3%	1.0		5	6.6%	0.058
B*58:02	B*58	B*35:17	B*35	1	5.3%	1.0				
B*58:01	B*58	B*44:03	B*44	1	1.8%	1.0		1	1.3%	1.0
B*58:01	B*58	B*51:01	B*51	1	1.8%	1.0		1	1.3%	1.0
B*58:01	B*58	B*53:01	B*53	1	1.8%	1.0		2	2.6%	0.50
B*58:02	B*58	B*53:01	B*53	1	5.3%	1.0				
B*58:01	B*58	B*58:31	B*58	1	1.8%	1.0				
B*58:02	B*58	B*58:01	B*58	10	52.6%	**0.00039**		13	17.1%	**0.00014**
B*58:02	B*58	B*58:07	B*58	1	5.3%	1.0				
B*58:02	B*58	B*58:28	B*58	1	5.3%	1.0				
B*81:01	B*81	B*48:01	B*48	1	6.3%	1.0		1	6.3%	1.0
B*81:01	B*81	B*81:02	B*81	1	6.3%	1.0		1	6.3%	1.0
B*82:01	B*82	no data	no data	1	100.0%	1.0		1	50.0%	1.0

Supplementary Table 15. Discordant alleles of *HLA-C* in PHLAT prediction.

Experimental typing		Predicted data		2nd field			1st field		
2nd field	1st field	2nd field	1st field	No of miscalls	Error rate	*P*	No of miscalls	Error rate	*P*
C*01:02	C*01	C*01:03	C*01	1	0.7%	1.0			
C*01:02	C*01	C*01:06	C*01	1	0.7%	1.0	4	2.7%	0.12
C*01:02	C*01	C*01:30	C*01	1	0.7%	1.0			
C*01:02	C*01	C*01:58	C*01	1	0.7%	1.0			
C*02:02	C*02	C*02:10	C*02	5	11.6%	0.055	5	7.9%	0.058
C*03:03	C*03	C*01:02	C*01	1	2.6%	1.0	1	0.3%	1.0
C*03:03	C*03	C*02:10	C*02	1	2.6%	1.0	1	0.3%	1.0
C*03:02	C*03	C*03:04	C*03	1	1.0%	1.0			
C*03:03	C*03	C*03:20	C*03	1	1.0%	1.0			
C*03:03	C*03	C*03:04	C*03	1	1.0%	1.0			
C*03:03	C*03	C*03:13	C*03	4	3.9%	0.12			
C*03:03	C*03	C*03:61	C*03	6	1.0%	1.0	32	11.2%	**2.1E-11**
C*03:04	C*03	C*03:02	C*03	3	5.9%	**0.029**			
C*03:04	C*03	C*03:03	C*03	13	3.9%	0.12			
C*03:04	C*03	C*03:13	C*03	1	1.0%	1.0			
C*03:05	C*03	C*03:02	C*03	1	1.0%	1.0			
C*03:36	C*03	C*03:02	C*03	1	1.0%	1.0			
C*03:03	C*03	C*04:01	C*04	4	1.0%	1.0	5	0.6%	0.50
C*03:04	C*03	C*04:01	C*04	1	1.8%	0.25			
C*03:03	C*03	C*06:02	C*06	1	7.9%	**0.00019**	1	0.3%	1.0
C*03:03	C*03	C*12:03	C*12	1	0.6%	1.0	1	0.3%	1.0
C*03:03	C*03	C*18:01	C*18	1	0.6%	1.0	1	0.3%	1.0
C*03:02	C*03	no data	no data	1	12.5%	1.0	2	0.6%	0.50
C*03:03	C*03	no data	no data	1	100.0%	1.0			
C*04:04	C*04	C*04:01	C*04	1	0.8%	0.50	2	0.8%	0.50
C*04:04	C*04	C*04:13	C*04	1	50.0%	1.0			
C*04:01	C*04	no data	no data	2	50.0%	1.0	2	0.8%	0.50
C*05:01	C*05	C*05:08	C*05	3	3.3%	0.25			
C*05:01	C*05	C*05:09	C*05	1	1.1%	1.0	5	5.5%	0.059
C*05:01	C*05	C*05:37	C*05	1	1.1%	1.0			
C*05:01	C*05	C*08:02	C*08	1	1.1%	1.0	1	1.1%	1.0
C*05:01	C*05	C*12:03	C*12	1	1.1%	1.0	1	1.1%	1.0
C*06:02	C*06	C*06:24	C*06	3	2.1%	0.25	4	2.7%	0.12
C*06:02	C*06	C*06:46	C*06	1	0.7%	1.0			
C*06:02	C*06	C*12:02	C*12	2	1.4%	0.50			
C*06:02	C*06	C*12:03	C*12	1	0.7%	1.0	4	2.7%	0.12
C*06:02	C*06	C*12:19	C*12	1	0.7%	1.0			
C*07:01	C*07	C*07:02	C*07	7	4.8%	**0.015**			
C*07:01	C*07	C*07:103	C*07	1	0.7%	1.0			
C*07:01	C*07	C*07:18	C*07	3	2.1%	0.25			
C*07:01	C*07	C*07:27	C*07	1	0.7%	1.0			
C*07:01	C*07	C*07:71	C*07	1	0.7%	1.0			
C*07:01	C*07	C*07:85	C*07	1	0.7%	1.0			
C*07:02	C*07	C*07:01	C*07	1	0.4%	1.0			
C*07:02	C*07	C*07:124	C*07	2	0.4%	1.0	24	5.7%	**8.5E-08**
C*07:02	C*07	C*07:135	C*07	1	0.8%	0.50			
C*07:02	C*07	C*07:121	C*07	1	0.4%	1.0			
C*07:02	C*07	C*07:174	C*07	1	0.4%	1.0			
C*07:02	C*07	C*07:178	C*07	1	0.4%	1.0			
C*07:02	C*07	C*07:18	C*07	1	0.4%	1.0			
C*07:02	C*07	C*07:46	C*07	1	0.4%	1.0			
C*07:04	C*07	C*07:01	C*07	1	3.3%	1.0			
C*08:01	C*08	C*05:01	C*05	3	6.1%	0.24	8	6.9%	**0.0069**
C*08:02	C*08	C*05:01	C*05	5	6.1%	0.24			
C*08:01	C*08	C*08:22	C*08	4	8.2%	0.12			
C*08:01	C*08	C*08:03	C*08	3	2.0%	1.0	9	7.8%	**0.0033**
C*08:02	C*08	C*08:04	C*08	1	2.0%	1.0			
C*08:02	C*08	C*08:24	C*08	1	10.2%	0.056			
C*08:01	C*08	C*12:03	C*12	1	2.0%	1.0	1	0.9%	1.0
C*08:01	C*08	C*14:02	C*14	1	2.0%	1.0	1	0.9%	1.0
C*08:02	C*08	no data	no data	2	4.1%	0.49	2	1.7%	0.50
C*12:02	C*12	C*01:21	C*01	2	5.6%	0.49	2	2.0%	0.50
C*12:03	C*12	C*04:01	C*04	1	1.6%	1.0	1	1.0%	1.0

C*12:03	C*12	C*06:02	C*06	1	1.6%	1.0		2	2.0%	0.50
C*12:03	C*12	C*06:73	C*06	1	1.6%	1.0				
C*12:03	C*12	C*12:02	C*12	4	6.3%	0.12		5	5.0%	0.059
C*12:03	C*12	C*12:13	C*12	1	1.6%	1.0				
C*12:02	C*12	C*14:03	C*14	1	2.8%	1.0		1	1.0%	1.0
C*12:03	C*12	no data	no data	2	3.1%	0.50		2	2.0%	0.50
C*14:03	C*14	C*14:02	C*14	3	20.0%	0.22		3	6.5%	0.12
C*14:02	C*14	C*16:01	C*16	1	2.1%	1.0		1	1.6%	1.0
C*14:03	C*14	no data	no data	1	6.7%	1.0		1	1.6%	1.0
C*15:02	C*15	C*15:13	C*15	1	2.1%	1.0		2	5.1%	0.24
C*15:02	C*15	C*15:05	C*15	1	2.1%	1.0				
C*16:02	C*16	C*16:01	C*16	1	20.0%	1.0		1	1.1%	1.0
C*16:01	C*16	no data	no data	1	1.2%	1.0		1	1.1%	1.0
C*18:01	C*18	C*18:02	C*18	1	8.3%	1.0		1	8.3%	1.0