

Lot No.: **02E**

Lot-specific information

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Olerup SSP[®] HLA-A-B-DR SSP Combi Tray

Product number: 101.701-24/06 – including *Taq* pol.
101.701-24u/06u – without *Taq* pol.
Lot number: 02E
Expiry date: 2010-January-01
Number of tests: 24 tests – Product No. 101.701-24/24u
6 tests – Product No. 101.702-06/06u
Number of wells per test: 95 +1
Storage - pre-aliquoted primers: dark at -20°C
- PCR Master Mix: -20°C
- Adhesive PCR seals RT
- Product Insert RT

This Product Description is only valid for Lot No. 02E.

CHANGES COMPARED TO THE PREVIOUS OLERUP SSP[®] HLA-A-B-DR SSP COMBI TRAY LOT

The **HLA-A low resolution** specificity and interpretation tables have been updated for the HLA-A alleles described since the previous *Olerup SSP[®]* HLA-A-B-DR SSP Combi Tray lot was made (**Lot No. X84**).

One or both primers of the wells detailed below have been exchanged, modified or added compared to the previous lot.

Well	5'-primer	3'-primer	rationale
4	Exchanged	Exchanged	Primer pair exchanged to separate the A*11xx,24xx and the A*24xx,2451 genotypes.
6	Added	Added	Added primer pairs for the A*9222 and A*8001 alleles.
11	Exchanged	Exchanged	Exchanged primer pair in exon 3 so that no A*03 alleles will be amplified.
15	Added	Added	Primer pair added for the A*0129 allele.
20	Added/ modified	Added/ modified	Primers modified to separate the A*11xx,68xx and the A*1110,1116 genotypes. Primer pair added to separate the A*023502,0324 and the A*03xx,68xx genotypes.
21	Added	Added	Primer pair added for the A*6829 allele.

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22	Added	Added	Primer pair added to separate the A*023502,0324 and the A*03xx,68xx genotypes.
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The **HLA-B low resolution** specificity and interpretation tables have been updated for the HLA-B alleles described since the previous *Olerup* SSP® HLA-A-B-DR SSP Combi Tray lot was made (**Lot No. X84**).

One or both primers of the wells detailed below have been exchanged compared to the previous lot.

Well	5'-primer	3'-primer	Rationale
25	Exchanged	Modified	Consequence of removing one primer pair from vial 20.
51	-	Modified	Increased specificity of specific primer pair.

The **HLA-DR low resolution** specificity and interpretation tables have been updated for the HLA-DRB alleles described since the previous *Olerup* SSP® HLA-A-B-DR SSP Combi Tray lot was made (**Lot No. X84**).

The primers of the wells detailed below have been exchanged, added or modified compared to the previous lot.

Tube	5'-primer	3'-primer	rationale
75	-	Added	Primer added for the DRB1*1527 allele.
76	Added	-	Primer added for the DRB1*1612 allele.
80	Added	-	Primer added for the DRB1*0466 allele
84	-	Added	Primer added for the DRB1*1002 alleles.
85	Removed/ modified	-	To avoid co-amplification of DRB1*94 alleles.

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Well 96 contains Negative Control primer pairs, that will amplify more than 95% of the *Olerup* SSP® HLA Class I, DRB, DQB1 and DPB1 amplicons as well as the amplicons generated by control primer pairs.

PCR product sizes range from 75 to 430 base pairs.
 The PCR product generated by the control primer pair is 430 base pairs.

Length of PCR product	105	200	105	80	75	80
5'-primer¹	164	340	440	45	45	43
	5'-CAC ^{3'}	5'-Agg ^{3'}	5'-TTA ^{3'}	5'-Tg g ^{3'}	5'-Tg g ^{3'}	5'-Tg g ^{3'}
3'-primer²	231	2nd I	507	59	58	57
	5'-TgC ^{3'}	5'-AAA ^{3'}	5'-TTg ^{3'}	5'-CTC ^{3'}	5'-ggC ^{3'}	5'-CTC ^{3'}
A*	+	+	+			
B*	+	+	+			
Cw*	+	+	+			
DRB1				+	+	
DRB3				+	+	
DRB5				+		
DQB1					+	
DPB1						+

¹The nucleotide position for HLA class I genes and the codon for HLA class II genes, in the 2nd or 3rd exon, matching the specificity-determining 3'-end of the primer is given. Nucleotide and codon numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

²The nucleotide position for HLA class I genes and the codon for HLA class II genes, in the 2nd or 3rd exon or the 2nd intron, matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Nucleotide and codon numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

PRODUCT DESCRIPTION

HLA-A-B-DR SSP Combi Tray

CONTENT

The primer set contains 5'- and 3'-primers for grouping the HLA-A*0101 to A*8001 alleles into the corresponding serological groups A1 to A80.

The primer set contains 5'- and 3'-primers for grouping the B*0702 to B*8301 alleles into the corresponding serological groups B7 to B81 as well as primer pairs for recognizing the Bw4 and Bw6 sequence motifs.

The primer set contains 5'- and 3'-primers for grouping the DRB1*0101 to DRB1*1001 alleles into the corresponding serological groups DR1 to DR18 as well as primer pairs for recognizing the DRB3, DRB4 and DRB5 groups of alleles.

PLATE LAYOUT

Each test consists of 96 PCR reactions in a 96 well PCR plate.

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64
65	66	67	68	69	70	71	72
73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88
89	90	91	92	93	94	95	ctrl

Wells 1 to 24 – HLA-A low resolution primers.

Wells 25 to 72 – HLA-B low resolution primers.

Wells 73 to 95 – HLA-DR low resolution primers.

Well 96 – Negative Control.

The 96 well PCR plate is marked with 'A-B-DR 02E'.

Well No. 1 is marked with '1'.

The PCR plates are covered with a PCR-compatible foil.

INTERPRETATION

Only HLA-A alleles will be amplified by the 24 wells of the HLA-A low resolution primer set, **wells 1 to 24**, except that primer mix 6 will amplify the B*1827 allele. Thus, the interpretation of HLA-A low resolution is only influenced by this HLA-B allele and not by other HLA Class I genes.

Only HLA-B alleles will be amplified by the 48 wells of the HLA-B low resolution, primer set, **wells 25 to 72**, except that the primer pair in well 27 will amplify the HLA-Cw*0305, 0325 and 0327 alleles, that the primer pair in well 32 will amplify the Cw*0746 allele and that the primer pair in well 67 will amplify the Cw*0206

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allele. Thus, the interpretation of HLA-B low resolution typings is only influenced by these five HLA-Cw alleles and not by other alleles of other HLA class I genes.

Only HLA-DRB alleles will be amplified by the 23 wells the DR low resolution primer set, **wells 73 to 95**. Thus, the interpretation of DR low resolution typings is not influenced by other HLA class II genes.

UNIQUELY IDENTIFIED ALLELES

All the HLA-A alleles, i.e. **A*0101 to A*8001**, recognized by the HLA Nomenclature Committee in October 2007¹ will be amplified by the primers in the HLA-A low resolution primer set, **wells 1 to 24**. The HLA-A alleles will be grouped into their corresponding serological specificities³.

All the HLA-B alleles², i.e. **B*0702 to B*8301**, recognized by the HLA Nomenclature Committee in October 2007¹ will be amplified by the primers in the HLA-B low resolution primer set, **wells 25 to 72**. The HLA-B alleles will be grouped into their corresponding serological specificities⁴.

All the HLA-DRB1, -DRB3, -DRB4⁵ and -DRB5 alleles, i.e. **DRB1*010101 to 100102, DRB3*010101 to DRB3*0303, DRB4*01010101 to DRB4*0107, DRB5*010101 to DRB5*0205**, recognized by the HLA Nomenclature Committee in October 2007² will be amplified by the primers in the DR low resolution primer set, **wells 73 to 95**. The HLA-DRB alleles will be grouped into their corresponding serological specificities⁶.

¹HLA-Cw alleles listed on the IMGT/HLA web page 2007-October-05, release 2.19.0, www.ebi.ac.uk/imgt/hla.

²The nucleotide sequences of the B*3580 and 3581 alleles are not yet retrievable from the GenBank or EMBL data banks.

³The A*0318 and A*2619 alleles will give rise to identical amplification patterns. These two alleles can be separated by the respective high resolution SSP primer sets.

The A*2314, A*2405, A*241301 and A*2424 alleles will give rise to identical amplification patterns. These four alleles can be separated by the respective high resolution SSP primer sets.

⁴The B*0826 and B*4207 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These two alleles can be separated by the respective high resolution primer sets.

The B*5504, B*5508, B*5513, B*5527, B*5615 and B*5619N give rise to identical amplification patterns with the HLA-B low resolution primer set. These five alleles can be separated by the respective high resolution primer sets.

The B*5523 and B*5618 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These two alleles can be separated by the respective high resolution primer sets.

⁵The DRB4*0201N and DRB4*0301N null alleles will not be amplified by the DR low resolution primer set.

⁶The DRB1*0809, DRB1*0821 and DRB4*1415 alleles yield identical amplification patterns except for the specific PCR product yielded by the DRB3 gene in linkage disequilibrium with the DRB1*1415 allele.

The DRB1*0820, DRB1*1318, DRB1*1347 and DRB1*1355 alleles yield identical amplification patterns except for the specific PCR product yielded by the DRB3 gene in linkage disequilibrium with the DRB1*1318, DRB1*1347 and DRB1*1355 alleles.

RESOLUTION IN HOMO- AND HETEROZYGOTES

The ambiguous HLA-A homo- and heterozygous combinations of allele groups based on the two first digits of the allele designation are available in the Score™ interpretation software. (In most cases these ambiguities can be resolved by the Olerup SSP® HLA-A high resolution SSP sets.)

The ambiguous HLA-B homo- and heterozygous combinations of allele groups based on the two first digits of the allele designation are available in the Score™ interpretation software. (In most cases these ambiguities can be resolved by the Olerup SSP® HLA-B high resolution SSP sets.)

The ambiguous HLA-DR homo- and heterozygous combinations of allele groups based on the two first digits of the allele designation are available in the Score™ interpretation software. (In most cases these ambiguities can be resolved by the Olerup SSP® HLA-DR high resolution SSP sets.)

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SPECIFICITY TABLE

HLA-A low resolution primer set

Specificities and sizes of the PCR products of the 24 primer mixes used for HLA-A low resolution SSP typing

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	HLA-A serology ³	Amplified HLA-A alleles ^{4,10,11}
1⁵	120, 145 bp	800 bp	A1, A36	01010101-0104N, 0106-0130, 3601-3604
2⁶	135, 200, 255 bp	1070 bp	A2	02010101-0222, 0224-023501, 023503-0247, 0249-0297, 0299, 9201-9221, 9223-9228, 9230-9234
3⁷	205, 235 bp	1070 bp	A1, A3, A11, A32, A34, A36	0112, 0119, 0121, 03010101-0317, 0319-0338, 1125, 3204, 3402-3404, 3407, 3408, 3602
4⁷	190 bp	800 bp	A1, A2, A3, A11, A26, A30, A36	01010101-0104N, 0106, 0107, 0109-0111N, 0113, 0116N-0118N, 0120-0129, 0278, 0312, 0318, 110101-1127, 1129-1132, 2619, 3008, 3604
5	160, 535 bp	800 bp	A3, A23, A24, A31, A32	0330, 2301-2316, 24020101-2411N, 241301-2415, 2417-2464, 2466-2483N, 3108, 3205, 3213
6	165, 200 bp	800 bp	A2, A23, A24, A29, A80	9222, 2301-2316, 2405, 241302, 2424, 2907, 8001, B*1827
7	175, 205 bp	1070 bp	A2, A23, A24, A26	021701-021702 ^{weakly} , 2314, 24020101-2411N, 2413, 2417-2450, 2454-2456, 2458-2463, 2466-2483N, 2616
8	165, 200 bp	800 bp	A2, A3, A11, A25, A26, A32, A34, A66, A68, A69	0255, 0324, 1110, 250101-2506, 260101-2606, 2608-2615, 2617, 2618, 2620-2635, 3215, 340101-3408, 6601-6606, 680101-6841, 6901
9⁵	75 bp	800 bp	A25, A32	250101-2506, 320101-3202,

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10⁵	85 bp	1070 bp	A26, A33	3204, 3206-3215 260101-2602, 2604, 260701-2618, 2620, 2622- 2629, 2632-2635, 3313
11^{5,7,8}	80, 175, 500 bp	1070 bp	A1, A11, A24, A26, A31, A34, A66	0113, 0128, 110101-1127, 1129-1132, 2419, 2444, 2603, 2606, 2621, 3103, 3401-3408, 6601, 6604- 6606
12	185 bp	800 bp	A11, A25, A26, A31, A34, A43, A66	1111, 2506, 2609, 3103, 3104, 3401-3408, 4301, 6602, 6603
13⁷	175, 225 bp	1070 bp	A1, A2, A3, A25, A26, A34, A43, A66	0113, 0234-023503, 0256, 0262, 9203, 03010101- 0307, 0309-0311N, 0313- 0331, 0333-0335, 0337, 0338, 250101-2505, 260101-260105, 2602 ^{weakly} , 2603, 2605-2608, 2610- 2633, 2635, 3408, 4301, 6601, 6604-6606
14	200, 240 bp	1070 bp	A29, A33	29010101-2917, 3313
15⁵	90, 135 bp	1070 bp	A1, A30	0113, 0128, 300101-3004, 3006-3020, 3022-3024
16	180, 210 bp	1070 bp	A24, A29, A31	2914, 310102-3120, 2482
17	180 bp	1070 bp	A29, A32	2913, 320101-3203, 3205- 3215
18	200 bp	1070 bp	A33, A68	3301, 330301-3313, 6829
19	160, 200 bp	800 bp	A74	7401-7412N
20	155, 240 bp	800 bp	A2, A210, A25, A30, A68	0210, 0234-023503, 0239, 0246, 0248, 0250, 0252, 0256, 0262, 0270, 0273, 0278, 0293, 0295, 9203, 9210, 9214, 9217, 9222, 9229, 2505, 3008, 680101- 6841
21	240, 375 bp	800 bp	A2, A24, A26, A68, A69	0255, 2482, 2622, 6829, 6901
22^{5,9}	85, 240 bp	800 bp	A2, A30, A36	0234-023503, 0246, 0248, 0256, 0262, 0270, 0278, 9203, 9229, 3008, 3601- 3604
23⁵	75, 160 bp	800 bp	A2, A26, A68, A80	0255, 2603, 2605, 2606, 2621, 2630, 6805, 6815,

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				6820, 8001
24	360 bp	1070 bp	A1, A11, A33, A36, A74, A80	01010101-0104N, 0106, 0108-0129, 110101-1111, 1113-1117, 1119-1127, 1129-1132, 3313, 3601- 3604, 7410, 8001

¹Alleles are assigned by the presence of specific PCR product(s). However, the sizes of the specific PCR products may be helpful in the interpretation of DR low resolution SSP typings.

When the primers in a primer mix can give rise to specific PCR products of more than one length this is indicated if the size difference is 20 base pairs or more. Size differences shorter than 20 base pairs are not given. For high resolution SSP kits the respective length of the specific PCR product(s) of the alleles amplified by these primer mixes are given.

Nonspecific amplifications, i.e. a ladder or a smear of bands, may sometimes be seen. GC-rich primers have a higher tendency of giving rise to nonspecific amplifications than other primers.

PCR fragments longer than the control bands may sometimes be observed. Such bands should be disregarded and do not influence the interpretation of the SSP typings.

PCR fragments migrating faster than the control bands, but slower than a 400 bp fragment may be seen in some gel read-outs. Such bands can be disregarded and do not influence the interpretation of the SSP typings.

Some primers may give rise to primer oligomer artifacts. Sometimes this phenomenon is an inherent feature of the primer pair(s) of a primer mix. More often it is due to other factors such as too low amount of DNA in the PCR reactions, taking too long time in setting up the PCR reactions, working at elevated room temperature or using thermal cyclers that are not pre-heated.

²The internal positive control primer pairs amplify segments of the human growth hormone gene. The two different control primer pairs give rise to either an internal positive control band of 1070 base pairs, for most wells, or a band of 800 base pairs, for some wells.

Well number 1 contains the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to help in the correct orientation of the HLA-A low resolution typing.

In addition, wells number 4, 5, 6, 8, 9, 11, 12, 19 to 23 contain the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to allow kit identification.

In the presence of a specific amplification the intensity of the control band often decreases.

³The serological reactivity of all HLA-A alleles is not known. In this table we use the information in the HLA Dictionary 2004 on the www.ebi.ac.uk/imgt/hla web site and the information available at the www.worldmarrow.org web site and have also inferred the serological grouping from the naming of the sequence-defined allele.

⁴For several HLA-A alleles only partial 1st exon nucleotide sequences are available. We assume that unknown sequences are conserved within allelic groups.

Nucleotide sequence information is available for only exons 2 and 3 of many HLA Class I alleles and for only exon 2 of many HLA Class II alleles and not for other exons or for the introns of these alleles. We assume that unknown sequences in these exons and in the introns are conserved within loci and within allelic groups.

⁵Specific PCR fragments shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR bands.

⁶The primer pairs in vial 2 will in most samples give rise to two specific PCR fragments.

⁷Primer mixes 3, 4, 11 and 13 may give rise to nonspecific amplifications.

⁶The primer pairs in vial 11 will in most samples give rise to two to three specific PCR fragments.

⁹Primer mix 22 might faintly amplify most A*11 alleles.

¹⁰The A*0318 and A*2619 alleles will give rise to identical amplification patterns. These two alleles can be separated by the respective high resolution SSP primer sets.

The A*2314, A*2405, A*241302 and A*2424 alleles will give rise to identical amplification patterns. These four alleles can be separated by the respective high resolution SSP primer sets.

¹¹Primer mix 6 will amplify the B*1827 allele.

'w', might be weakly amplified.

SPECIFICITY TABLE

HLA-B low resolution primer set

Specificities and sizes of the PCR products of the 48 primer mixes used for HLA-B low resolution SSP typing

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	HLA-B serol. ³	Amplified HLA-B alleles ⁴
25^{5,6}	110 bp	800 bp	7, 15, 37, 40, 41, 42, 48	070201-071802, 0720-0732, 0734-0739, 0741-0747, 0749N, 0750, 0752, 0754-0759, 9538, 3707, 4015, 4016, 4023, 4032, 4108, 420501-420502, 4805, 4808, 4815
26	215 bp	1070 bp	8, 44	080101-0825, 0827-0834, 4449
27⁷	140, 235 bp	1070 bp	7, 8, 13, 15, 35, 40, 4005, 44, 46, 57	0720, 0724, 0760, 0821, 0825, 1301-1304, 1306-1308Q, 1310-1321, 150106, 1507, 152702, 1536, 1545, 1555, 1568, 1589, 9526, 9535-9537, 9539, 3505, 3516, 3517, 3522, 3530, 3551, 3558, 3572, 4005, 4071, 4408, 4454, 4457, 4611, 4612, 5714, Cw*0305, Cw*0325, Cw*0327
28⁸	130, 265 bp	1070 bp	13, 14, 15, 35, 40, 41, 44, 45, 47, 49, 50	1301-1304, 1306-1313, 1315-1321, 1401-1404, 1407N, 1546, 1553, 9506, 3547, 3563, 400101-400105, 4007, 4010, 401401-4016, 4022N, 4023, 4025, 4030-4034, 4036, 4038, 4042, 4043, 4045, 4047-4049, 4051-4055, 4058-4063, 4065-4067, 4069, 4072, 4073, 4076, 4077, 4101-4108, 44020101-4405, 4409-4439, 4441-4443, 4445-4456N, 4501-4507, 47010101-4705, 4901, 4902, 4904, 4905, 5001, 5002, 5004
29⁹	185, 235 bp	1070 bp	14, 16, 27, 37, 38, 39, 47, 64, 67	1401, 1407N, 2701-270402, 270502-2706, 2708-2710, 2712, 2713, 2716-2718, 2720, 2723, 2726, 2727, 2729, 2731, 2735-2737, 3702, 380101-3803, 3807-3817, 39010101-39010102L, 390103-390201,

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				3903, 3905-390602, 3907 [?] , 3908, 3909, 3911, 3914, 3915, 3918, 3922, 3924-3943, 4704, 4705, 670101
30⁹	185 bp	800 bp	14, 35, 38, 39, 65	140201-140602, 3526, 3805, 3904, 3907 [?]
31	290 bp	1070 bp	15, 62, 63, 75, 76, 77, 46	15010101-150103, 150106, 1502, 1504-1508, 151101- 1515, 15170101-151702, 1519- 1521, 1524-152701, 1528, 1530-1536, 1538-1540, 1542- 1546, 1548, 1550, 1555-1558, 1560, 1563, 1565, 1566, 1568, 1570, 1571, 1573, 1575-1579N, 1581-1589, 1592, 1594N, 1596, 1597, 9501, 9502, 9504-9507, 9509-9513, 9516-9518, 9520- 9522, 9525, 9526, 9528, 9529, 9535-9539, 460101-4612
32	165, 220, 330 bp	1070 bp	8, 15, 37, 40, 41, 42, 44, 45, 51, 56, 57, 70, 71, 72	080101-0805, 0808N-0812, 0815-0819N, 0821-0824, 0826, 0827, 0829-0834, 1503, 1509, 1510, 1518, 1523, 1529, 1537, 1546, 1547, 1549, 1551-1554, 1561, 1562, 1564, 1568, 1569, 1572, 1574, 1580, 1583, 1590, 1591, 1593, 1598, 1599, 9503, 9506, 9508, 9514, 9515, 9519, 9523, 9524, 9527, 9531-9534, 3712, 4012, 4101-410302, 4105-4108, 4201, 4202, 4204- 4208, 4414, 4415, 4418, 4420, 4501-4507, 5108, 5120, 5136, 5144N, 5613, 5709, 8201, 8202, Cw*0746
33^{5,9,10}	165, 390 bp	800 bp	15, 35, 40, 51, 52, 56, 58, 62, 63, 70, 78	150102, 1509, 1516-151702, 1567, 1595, 350402, 4026, 4028, 510101-510103, 510105- 510902, 5111N, 5112, 511302, 5114, 5117-5120, 5122, 5123, 5126-5130, 5132, 5133, 5137- 5141N, 5143, 5144N, 5146, 5148-5151, 520101-5207, 5209-5211, 560501-5606, 5621, 5808, 7801-7805
34⁹	180, 395	800 bp	13, 15, 40,	1301-130204, 1307N-1309,

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	bp		55, 62, 70, 71, 72, 75	1311, 1314-1320, 1509, 1510, 1518, 1521, 1523, 1537, 1544, 1551, 1552, 1566, 1572, 1580, 1590, 1593, 1599, 9508, 9514, 9515, 9519, 9524, 9533, 9534, 4048, 5522, 5524, Cw*0206?
35^{5,6}	105, 195 bp	1070 bp	7, 8, 15, 27, 38, 39, 40, 44, 45, 48, 55, 72	0727, 0750, 0804, 0817, 1503, 1547, 1549, 1554, 1561, 1562, 1564, 1568, 1569, 1591, 1598, 9503, 9523, 9527, 9531, 9532, 2718, 2729, 3803, 390201- 390202, 3908, 391301-391302, 3923, 3939, 4012, 4046, 4410, 4415, 4418, 4440, 4444, 4501, 4505-4507, 480101-4805, 4807-4819, 5002, 5518, 8201, 8202
36	275 bp	1070 bp	7, 8, 13, 15, 18, 35, 39, 40, 42, 44, 46, 48, 49, 51, 53, 54, 55, 56, 57, 58, 62, 63, 70, 71, 72, 75, 76, 77	0709, 0711, 0717, 0828, 1304, 1310, 15010101-150104, 150106, 1502-1508, 151101- 1516, 1518-1521, 1523-1529, 1531-1536, 1538-1540, 1543, 1544, 1546, 1547, 1549-1557, 1560-1562, 1564-1572, 1574- 1576, 1578-1582, 1584, 1585, 1587-1589, 1591-1598, 9501- 9529, 9531, 9532, 9534-9536, 9538, 9539, 180101-1815, 1817N-1825, 1827, 350101- 350106, 3505, 3507-350803, 3510, 3511, 351401-3517, 3519-3521, 3523-3530, 3532, 3535, 3537, 3540N-3543, 3545- 3554, 3557, 3558, 3561-3564, 3566-3569, 3571, 3572, 3576- 3579, 3582, 3907, 3943, 4003, 4020, 4038, 4052, 4059, 4060, 4209, 4417, 4443, 460101- 4610, 4612, 4802, 4814, 4904, 4905, 5137, 5145, 530101- 5303, 5305, 5306, 5308-5313, 5406, 5409, 5514, 5523, 5603, 5609, 5618, 570101-570103, 5706, 5708, 5710, 5711, 5713, 5714, 5801, 5802, 5804-5807, 5809-5815
37	195 bp	1070 bp	15, 35, 37, 38, 44, 58, 76	1512, 1514, 1519, 1591, 9531, 3545, 3571, 370101-3709,

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				3712, 3713, 3817, 4417, 4443, 5807
38⁶	105, 435	1070 bp	7, 15, 41, 42, 59, 62, 63, 77	0704, 0725, 1513, 1516-151702, 1523, 1524, 1567, 1587, 1595, 4108, 420501-420502
39⁶	115 bp	1070 bp	18	180101-1815, 1817N-1827
40⁶	80 bp	1070 bp	27, 40, 44	2701-270402, 270502-2721, 2723-2738, 4046, 4440, 4444
41	150 bp	1070 bp	13, 15, 27, 35, 37, 39, 40, 44, 48, 51, 53, 55, 56, 57, 58, 62, 75, 77	1301, 1306, 1307N, 1312, 1313, 1317, 1320, 1502, 1513, 1520, 1521, 1525, 1536, 1544, 1562, 1577, 1580, 1585, 1588, 1589, 9506, 9512, 9521, 9539, 1822, 2719, 2730, 350101-350402, 3506-350803, 3510-3517, 3519-3521, 3523-3530, 3533-3536, 3538-3542, 3545-3550, 3552, 3554-3557, 3559, 3561-3563, 3565Q, 3569-3571, 3574, 3576-3578, 3582, 3583, 370101-370104, 3703N-3706, 3708, 3710, 3711, 3713, 3942, 4028, 44020101-4414, 4416, 4417, 4419N, 4421-4430, 4432-4440, 4442-4446, 4448-4452N, 4455-4457, 4802, 5104, 5142, 5146, 530101-5313, 5514, 5609, 5611, 5612, 570101-5710, 5712, 5714, 5801, 5804, 5805, 5809-5815, 8301
42	135 bp	1070 bp	8, 18, 35, 37, 39, 56, 78	0832, 180101-1808, 1810-1815, 1817N-1827, 350101-3518, 352001-3524, 3528-3545, 3548, 3550-3555, 3557-3562, 3564-3572, 3774-3579, 3582, 3583, 3711, 3919, 5606, 7801-7805
43^{5,6}	245, 400 bp	1070 bp	15, 62, 63, 70, 71, 72, 75, 76, 77, 40, 44	15010101-150104, 150106-1521, 1523-152701, 1528-1540, 1542-1558, 1560-1599, 9501-9529, 9531-9539, 4012, 4410, 8201, 8202
44^{5,9,11}	205 bp	800 bp	7, 8, 15, 18, 37, 38	0727, 0802, 9515, 1809, 370101-3704, 3705 ^{weakly} , 3706-3710, 3712, 3713, 380201-3804, 3808, 3815, 3817

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45	170 bp	800 bp	15, 35, 38, 39, 67	1569, 9536, 3535, 380101- 3809, 3811-3817, 39010101- 39010102L, 390103-3920, 3922-3924, 3926-3929, 3931, 3935, 3937-3942, 670101-6702
46⁶	110 bp	1070 bp	38	380101-3803, 3805, 3808-3817
47	400 bp	1070 bp	14, 38, 39, 64, 65	1401-1407N, 380101-380202, 3804, 3805, 3808-3817, 39010101-39010102L, 390103- 390104, 3903-3907, 3909, 3911, 3912, 3914, 3915, 3918, 3919, 3922, 3924-3938Q, 3940N, 3941
48	430 bp	1070 bp	7, 8, 14, 39, 40, 41, 42, 45, 48, 50, 60, 64, 65, 67, 73	070201-0726, 0728-0735, 0737, 0739-0760, 080101- 080105, 0804-0834, 1401- 1407N, 39010101-39010102L, 390103-3920, 3922-3941, 400101-400105, 4007, 4009- 4011 [?] , 401401-4016 [?] , 4018 [?] . 4021 [?] , 4022N [?] , 4023, 4024- 4038 [?] , 4040 [?] , 4042-4046 [?] , 4048-4050 [?] , 4051, 4052-4058 [?] , 4059, 4060, 4061-4069 [?] , 4071- 4074 [?] , 4077, 4101-4108, 4201, 4202, 4204-4209, 4501-4507, 480101-4817, 4819, 5001, 5002, 5004, 670101-6702, 7301, 8102
49^{5,11}	175 bp	1070 bp	15, 40, 44, 46, 48, 60	9516, 9524, 400101-400105, 4007, 4010, 4012, 4021-4023, 4025, 4033, 4036, 4038, 4042, 4043, 4046-4049, 4051, 4052, 4054, 4055, 4060-4063, 4065- 4067, 4069, 4073, 4074, 4076, 4431, 4606, 480301-480302, 4817
50	130 bp	1070 bp	40, 61	400201-400602, 4008, 4009, 4011, 4013, 4018-4020, 4024, 4026-4029, 4035, 4037, 4039, 4040, 4044, 4050, 4056, 4057, 4064, 4068, 4070, 4071, 4074, 4075, 4078
51⁶	110 bp	1070 bp	7, 8, 41, 42, 55	0704, 0719, 0725, 080101- 0805, 0807-0812, 0814-0819N, 0821-0824, 0826-0834, 4101- 4108, 4201, 4202, 4204-4207,

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				4209, 5520
52	325 bp	1070 bp	7, 15, 27, 42, 45, 46, 54, 55, 56, 67, 73, 81	070201-070207, 0704-0707, 0709-0712, 0713 ^{weakly} , 0714, 0715 ^{weakly} , 0717-0726, 0728- 0731, 0733-0736, 0739-0749N, 0751-0760, 1576, 9501, 2701- 270402, 270502-2711, 2713- 2715, 2717, 2719-2721, 2724- 2728, 2730-2738, 3576, 4201, 4202, 4204-4206, 4208, 4209, 4506, 460101-460102, 4602 ^{weakly} , 4603-4612, 5401- 5413, 550101-5505, 5507- 5517, 5519-5528, 5601-5616, 5618-5621, 670101-670102, 6702 ^{weakly} , 7301, 8101-8103, 8201, 8202, 8301
53^{6,12}	110, 195, 225, 260 bp	1070 bp	35, 37, 44, 47, 51, 57	3538, 3545, 3571, 370101- 370104, 3703N-3706, 3708, 3710-3713, 44020101-4414, 4416, 4417, 4419N-4436, 4438- 4457, 5142, 5707, 5709, 8301
54	215 bp	800 bp	8, 12, 15, 41, 42, 44, 45, 51, 52, 53, 55, 56, 58	0809, 1583, 4101, 4105-4107, 4204, 4406, 4415, 4418, 4420, 4501-4507, 510101, 510103- 510201, 510203-5104, 5106- 510901, 5110-5114, 5116- 5124, 5126-5146, 5148, 5149, 5151, 520102, 520104-5203, 520601-520602, 5209, 5306, 5520, 5613, 5808
55	130, 270 bp	1070 bp	18, 35, 37, 40, 46, 51, 53, 57, 58	1822, 3521, 3524, 3704, 4028, 460101-4612, 5104, 5146, 5302, 5306, 5714, 5809
56⁶	90, 410 bp	1070 bp	27, 35, 47, 54, 55, 56, 81	2702-270402, 270502-2711, 2713-2715, 2717, 2719-2721, 2724-2728, 2730-2738, 3576, 47010101-4703, 5401-5413, 550101-5505, 5507-5517, 5519-5528, 5601-5616, 5618- 5621, 8101, 8201, 8202, 8301
57⁶	90, 175 bp	1070 bp	15, 27, 35, 40, 48, 62, 75, 77, 81	1502, 1508, 151101-151103, 1513, 1515, 1521, 1531, 1544, 1555, 1588, 1589, 9512, 9521, 9539, 2724, 3546, 4031, 4045, 480101-480102, 4804, 4806, 4807, 4809, 4811, 4815, 4816,

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58	145 bp	1070 bp	40, 44, 49	4818, 4819, 8101-8103 4013, 4019, 4418, 4425, 4450, 4901, 4904, 4905
59⁶	120, 210 bp	800 bp	13, 15, 45, 49, 50, 51, 52, 55, 56, 58, 62, 63, 78	1316, 1516, 1542, 1567, 1595, 9537, 4901-4905, 5001, 5002, 5004, 510101-5103, 5105, 5107-510902, 5111N-5114, 5116-1524, 5126-5141N, 5143, 5144N, 5148-5151, 520101- 5211, 550101-550104, 5503, 5505, 5509, 5511, 5515, 5517, 5521, 5524, 5525, 5528, 560501-5606, 5621, 5808, 7801-7805
60	430 bp	1070 bp	27, 40, 44, 45, 51, 52, 53, 57, 58, 59	2702, 2730, 4013, 4019, 4406, 4425, 4450, 510101-5124, 5126-5146, 5148, 5149, 5151, 520101-5211, 530101-5302, 5304-5308, 5310, 570101- 5711, 5713, 5714, 5801, 5802, 5804-5815, 5902
61	145 bp	1070 bp	15, 35, 40, 41, 44, 45, 47, 50, 72	1546, 1553, 9506, 3519, 3547, 3563, 400101-4011, 401401- 4016, 4018, 4020, 4022N-4040, 4042-4045, 4048-4075, 4077, 4078, 4101-4104, 4105 [?] , 4106- 4108, 4409, 4446, 4501-4507, 4702, 5001, 5002, 5004
62⁹	300 bp	1070 bp	7, 8, 13, 15, 18, 27, 35, 37, 38, 39, 40, 41, 44, 45, 46, 47, 48, 49, 50, 52, 55, 57, 58, 62, 72, 76, 78	0754, 0817, 1301-1304, 1306, 1308Q-1321, 15010101- 150104, 150106, 1503-1507, 1512, 1514, 1519, 1520, 1524- 152702, 1530, 1532-1536, 1538-1540, 1542, 1543, 1545- 1550, 1553, 1554, 1556-1558, 1560-1563, 1565, 1566, 1568- 1571, 1573-1575, 1577-1579N, 1581-1587, 1591, 1592, 1594N, 1596-1598, 9502-9507, 9509- 9511N, 9513, 9516-9518, 9522, 9523, 9525-9529, 9531, 9532, 9535-9538, 1812, 2701- 270402, 270502-2721, 2724- 2738, 3510, 3513, 3516, 3528, 3563, 3569, 370101-3707, 3709-3713, 3803, 3804, 390201-390202, 3908, 391301- 391302, 3922, 3923, 400101-

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				4007, 4009-4016, 4018-4024, 4026-4040, 4042-4067, 4070-4078, 4101-4108, 44020101-4405, 4407-4411, 4413-4457, 4501-4505, 4507, 4610-4612, 47010101-4705, 480101-4805, 4807-4815, 4817-4819, 4901-4905, 5001, 5002, 5004, 520101-5211, 5518, 5712-5714, 5815, 7805
63	160, 215 bp	1070 bp	15, 37, 44, 54	150104, 370104, 44020101-440204, 4406, 4408, 4409, 4411, 4412, 4416, 4419N-4424, 4427, 4433, 4434, 4441, 4444, 4448, 4449, 4451-4453, 4455, 5401-5413, 8301
64⁹	180, 210 bp	1070 bp	13, 15, 18, 35, 39, 40, 54, 55, 56, 59, 78	1306, 1542, 1586, 1804, 3560, 3917, 4058, 5401, 5402, 5405N, 5407, 5408N, 5410, 5412, 5413, 550101-5503, 5505, 5507, 5510-5512, 5515, 5516, 5518, 5519, 5521, 5525, 5526, 560501, 5606, 5610, 5901, 7801, 780202, 7803
65¹³	180 bp	1070 bp	13, 15, 40, 44, 45, 46, 49, 50, 51, 54, 56	1303, 1573, 4071, 4410, 4415, 4418, 4501, 4504-4507, 4611, 4901-4903, 5001, 5002, 5004, 5115, 5403, 5601, 5602, 5604, 5607, 5608, 5613, 5614, 5616, 5617, 5620, 8201, 8202
66⁶	90, 240 bp	800 bp	55, 57	5514, 570101-5714
67^{6,14}	90 bp	1070 bp	13, 15, 39, 40, 56, 58	1311, 1573, 3917, 4048, 4071, 5602, 5604, 5610, 5801, 5802, 5804-5815, Cw*0206
68⁶	95 bp	1070 bp	8, 18, 35, 37, 38, 39, 44, 51, 52, 53, 78	0832, 180101-1811, 1813-1815, 1817N-1827, 350101-350902, 3511, 3512, 351401-3515, 3517, 3518, 352001-3524, 3527, 3529-3545, 3548, 3550-3562, 3564-3568, 3570-3572, 3574-3579, 3582, 3583, 3708, 3806, 3807, 3919, 4406, 510101-5124, 5126-5146, 5148-5151, 530101-5313, 7801-7804

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69^{5,6}	115, 150 bp	1070 bp	15, 18, 27, 35, 39, 46, 54, 55, 56, 62, 73, 75, 76	15010101-150104, 150106, 1504, 1507, 1508, 151101- 1512, 1514, 1515, 1519, 1524, 1526N-1528, 1530, 1532, 1534, 1535, 1538, 1543, 1545, 1546, 1550, 1553, 1554, 1556-1558, 1560, 1563, 1566, 1568, 1570, 1571, 1573, 1575-1577, 1579N, 1581, 1582, 1585, 1587, 1592, 1594N, 1596, 1597, 9501, 9502, 9504, 9505, 9509-9511N, 9513, 9517, 9518, 9520, 9522, 9525, 9526, 9528, 9529, 9535, 9537, 1819, 2725, 351401- 351402, 3543, 3544, 3562, 3567, 3579, 3918, 3936, 460101-4602, 4604, 4605, 4607N, 4609, 4610, 4612, 5406, 5521, 5603, 7301
70	360 bp	1070 bp	Bw4 ¹⁶	
71	355 bp	1070 bp	Bw6	
72⁵	290 bp	1070 bp	7, 8, 35, 37, 40, 41, 42, 48	070201-0706, 0708-0732, 0734- 0741, 0743-0752, 0754-0759, 080101-0808N, 0810, 0811, 0813-0815, 0817-0830N, 0832- 0834, 3566, 3707, 4015, 4016, 4030-4032, 4034, 4045, 4059, 4102, 4104, 4201, 4202, 420501-4207, 4209, 480101- 480102, 4805-4812, 4814-4819, 8101-8103

¹Alleles are assigned by the presence of specific PCR product(s). However, the sizes of the specific PCR products may be helpful in the interpretation of DR low resolution SSP typings.

When the primers in a primer mix can give rise to specific PCR products of more than one length this is indicated if the size difference is 20 base pairs or more. Size differences shorter than 20 base pairs are not given. For high resolution SSP kits the respective length of the specific PCR product(s) of the alleles amplified by these primer mixes are given.

Nonspecific amplifications, i.e. a ladder or a smear of bands, may sometimes be seen. GC-rich primers have a higher tendency of giving rise to nonspecific amplifications than other primers.

PCR fragments longer than the control bands may sometimes be observed. Such bands should be disregarded and do not influence the interpretation of the SSP typings.

PCR fragments migrating faster than the control bands, but slower than a 400 bp fragment may be seen in some gel read-outs. Such bands can be disregarded and do not influence the interpretation of the SSP typings.

Some primers may give rise to primer oligomer artifacts. Sometimes this phenomenon is an inherent feature of the primer pair(s) of a primer mix. More often it is due to other factors such as too low amount of DNA in the PCR reactions, taking too long time in setting up the PCR reactions, working at elevated room temperature or using thermal cyclers that are not pre-heated.

²The internal positive control primer pairs amplify segments of the human growth hormone gene. The two different control primer pairs give rise to either an internal positive control band of 1070

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base pairs, for most wells, or a band of 800 base pairs, for some wells.

Well number 1 contains the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to help in the correct orientation of the HLA-B low resolution typing.

In addition, wells number 30, 33, 34, 44, 45, 54, 59 and 66 contain the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to allow kit identification.

In the presence of a specific amplification the intensity of the control band often decreases.

³The serological reactivity of all HLA-B alleles is not known. In this table we use the information in the HLA Dictionary 2004 on the www.ebi.ac.uk/imgt/hla web site and the information available at the www.worldmarrow.org web site and have also inferred the serological grouping from the naming of the sequence-defined allele.

⁴Nucleotide sequence information is available for only exons 2 and 3 of many HLA Class I alleles and for only exon 2 of many HLA Class II alleles and not for other exons or for the introns of these alleles. We assume that unknown sequences in these exons and in the introns are conserved within loci and within allelic groups.

The nucleotide sequences of the B*3580 and 3581 alleles are not yet retrievable from the GenBank or EMBL data banks.

The B*0826 and B*4207 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These two alleles can be separated by the respective high resolution primer sets.

The B*5504, B*5508, B*5513, B*5527, B*5615 and B*5619N give rise to identical amplification patterns with the HLA-B low resolution primer set. These five alleles can be separated by the respective high resolution primer sets.

The B*5523 and B*5618 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These two alleles can be separated by the respective high resolution primer sets.

⁵Primer mixes 25, 33, 35, 43, 44, 49, 69 and 72 may give rise to a primer oligomer artifact.

⁶Specific PCR fragments shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR bands.

⁷Primer mix 27 will amplify the Cw*0305, Cw*0325 and Cw*0327 alleles.

⁸Primer mix 28 may yield less specific PCR product than the other HLA-B low resolution primer mixes in B*40, B*41, B*45, B*49 and B*50 alleles.

⁹Primer mixes 29, 30, 33, 34, 44, 62 and 64 have a higher tendency than other primer mixes to give rise to nonspecific amplifications.

¹⁰The B*57 and B*58 alleles might be faintly amplified by primer mix 33.

¹¹The Cw*1701 to Cw*1704 alleles might be faintly amplified by primer mix 49.

¹²Primer mix 53 might generate a false band of about 500 base pairs. This band should be disregarded when interpreting HLA-B low resolution typings.

¹³The Cw*0312 allele might be faintly amplified by primer mix 65.

¹⁴Primer mix 67 will amplify the Cw*0206 allele.

¹⁵The Bw4-associated HLA-A specificities A23, A24, A2403, A25 and A32 are not amplified by the primer pair in primer mix 70.

'?', nucleotide sequence information not available for the primer matching sequence.

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SPECIFICITY TABLE

Specificities and sizes of the PCR products of the 23 primer mixes used for DR low resolution SSP typing

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	DR serology ³	Amplified HLA-DRB ⁴ alleles
73	205 bp	515 bp	1	010101-010204, 0104-0119
74	195 bp	430 bp	103	0103
75⁶	215, 260 bp	430 bp	15	150101-1527
76	210 bp	430 bp	16	160101-160502, 1607-1613N
77	220 bp	430 bp	3, 17, 18, 11	030101-0339, 1107, 1153
78^{5,6}	80, 210 bp	430 bp	3, 17, 11, 13, 14	030101-030106, 0304-0306, 0308-0316, 0318-0320, 0322, 0323, 0325, 0326, 0328, 0330, 0331, 0333, 0334, 0336, 0337, 110201-1103, 111101-111102, 111401-111402, 1116, 1120, 1121, 1136, 1140, 1141, 1148, 1159, 1163, 116501-116502, 130101-1304, 1308, 1310, 1315-1317, 1319, 1320, 1322-1324, 1327-1329, 1331-1341, 1343, 1345, 1348, 1351-1354, 1357, 1359, 1361, 1363-1366, 1368-1376, 1378-1381, 1416, 1419, 1421
79^{5,6}	80, 210 bp	430 bp	3, 18, 11, 13, 14	030201-0303, 0327, 0329, 0338, 1126, 1134, 1315, 1319, 1326, 1344, 1353, 1357, 1402-140302, 1406, 1409, 1412, 1413, 1417-1421, 1424, 1427, 1429, 1430, 1433, 1440, 1441, 1447-1449, 1451, 1463, 1467
80^{5,6}	100, 175 bp	430 bp	4	040101-0471
81	205, 230 bp	430 bp	7, 13, 14	070101-070102, 0703-0715, 1317, 1450
82^{5,6}	165, 215, 250 bp	515 bp	8, 12, 14	080101-080203, 080302-0819, 0821-0834,

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				1204, 1216, 1411, 1415, 1468
83⁵	85, 130, 180 bp	430 bp	3, 9, 11	0308, 090102-0906, 1107, 1153
84	205 bp	430 bp	10	100101-100102
85⁵	100, 170 bp	430 bp	11, 3, 8	0308, 0831, 110101-1166
86⁵	85, 105 bp	430 bp	12, 8	0832, 120101-120202, 120302- 1216
87	210 bp	430 bp	13, 8, 11, 14	0820, 110101-110404, 110601- 110602, 110801-111202, 111401-1116, 1118-1121, 1123-1125, 112701-1133, 1135-1151, 115401- 115402, 1156-1166, 130101-1308, 1310-1316, 1318-1343, 1345-1381, 140301-140302, 1412, 1416, 1419, 1421, 1422, 1425, 1427, 1440, 1453, 1463, 1467, 1469, 1474
88⁶	195, 210 bp	430 bp	13, 8, 11, 12, 14	080101-080203, 080401- 0809, 0811, 0816, 0817, 0820-0822, 0824, 0826, 0828, 0831, 110101-110602, 1109- 111202, 111401-1116, 1120, 1121, 1123-1125, 112701-1130, 1132, 1133, 1135-1141, 1143, 1144, 1146-1151, 115401-1156, 1158-1163, 116501-1166, 120201-120202, 1213, 1215, 1216, 130101-130201, 130203, 1304-130502, 130701- 1309, 1311, 131401-1324, 1326-1329, 1331, 1332, 1334-1336, 1338-1343, 1345-1355, 1357, 1359, 1361-1365, 1367-137, 1378-1380, 1415, 1416, 1422, 1424, 1425, 1427, 1437, 1453,

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				1473
89	175 bp	430 bp	3, 13, 14, 8	030101-0307, 0309, 0311-0339, 0820, 130101-1316, 1318-1342, 1344, 1346-1366, 1368-1381, 1402-140302, 140501-1406, 1409, 1412-1414, 1417-1421, 142301, 1424, 1427, 1429, 1430, 1433, 1436, 1437, 1440-1445, 1447, 1448, 1451, 1456, 1459, 1463-1467
90⁵⁻⁷	100, 140 bp	430 bp	14, 4, 8, 13	0462, 0469, 0808, 1345, 140101-140102, 1404, 140701-140702, 1410, 1416, 1422, 1425, 1426, 1428, 1431-143202, 1435, 1437-1439, 1449, 1450, 1453-1455, 1457, 1458, 1460-1462, 1468-1471, 1473, 1474
91^{5-7,8}	110, 135, 170 bp	515 bp	14, 3, 9, 11, 12, 13, 15	0308, 0310, 090102-0902, 0904-0906, 110404, 1109, 1110, 111202, 1113, 1116, 1117, 1120, 1122, 1140, 1146, 1152, 1158, 1159, 1204, 1343, 140101-1402, 1404-1411, 1413, 1414, 1416-142302, 1426, 1428-1436, 1438, 1439, 1441, 1443-1452, 1454-1457, 1459-1462, 1464, 1465, 1468, 1470-1474, 1527
92⁵⁻⁷	110, 175, 225 bp	430 bp	14, 3, 8, 11, 13, 15, 16	0310, 0809, 0820, 0821, 0832, 1113, 1117, 1123, 1125, 1131, 1145, 1152, 1155, 1164, 1313, 1318, 1343, 1345,

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				1347, 1355, 140101-140103, 140301- 140503, 140701-1408, 1410-1412, 1414-1416, 1418, 1422-142302, 1425- 1428, 1431-143202, 1434- 1436, 1438-1440, 1442- 1445, 1449, 1450, 1453- 1474, 1521 ^{weakly} , 1604 ^{weakly}
93	230 bp	430 bp	52	DRB3*01010201-0111, 0201-0223, 030101-0303
94⁹	215 bp	430 bp	53	DRB4*01010101-0107
95	260 bp	430 bp	51	DRB5*010101-0113, 0202- 0205

¹Alleles are assigned by the presence of specific PCR product(s). However, the sizes of the specific PCR products may be helpful in the interpretation of DR low resolution SSP typings.

When the primers in a primer mix can give rise to specific PCR products of more than one length this is indicated if the size difference is 20 base pairs or more. Size differences shorter than 20 base pairs are not given. For high resolution SSP kits the respective length of the specific PCR product(s) of the alleles amplified by these primer mixes are given.

Nonspecific amplifications, i.e. a ladder or a smear of bands, may sometimes be seen. GC-rich primers have a higher tendency of giving rise to nonspecific amplifications than other primers, e.g. the primers in wells 75, 90, 91 and 92.

PCR fragments longer than the control bands may sometimes be observed. Such bands should be disregarded and do not influence the interpretation of the SSP typings.

PCR fragments migrating faster than the control bands, but slower than a 400 bp fragment may be seen in some gel read-outs. Such bands can be disregarded and do not influence the interpretation of the SSP typings.

Some primers may give rise to primer oligomer artifacts. Sometimes this phenomenon is an inherent feature of the primer pair(s) of a primer mix. More often it is due to other factors such as too low amount of DNA in the PCR reactions, taking too long time in setting up the PCR reactions, working at elevated room temperature or using thermal cyclers that are not pre-heated.

²The internal positive control primer pairs amplify segments of the human growth hormone gene. The two different control primer pairs give rise to either an internal positive control band of 430 base pairs, for most wells, or a band of 515 base pairs, for some wells.

Well number 73 contains the primer pair giving rise to the longer, 515 bp, internal positive control band in order to help in the correct orientation of the DR low resolution typing.

In addition, wells number 82 and 91 contain the primer pair giving rise to the longer, 515 bp, internal positive control band in order to allow kit identification.

In the presence of a specific amplification the intensity of the control band often decreases.

³The serological reactivity of all DRB alleles is not known. In this table we use the information in the HLA Dictionary 2004 on the www.ebi.ac.uk/imgt/hla web site and the information available at the www.worldmarrow.org web site and have also inferred the serological grouping from the naming of the sequence-defined allele.

⁴For several DRB alleles only partial second exon nucleotide sequences are available. In these instances it is not known whether some of the primers of the SSP set are completely matched with the target sequences or not. We assume that unknown sequences in the first hyperpolymorphic region of the second exon of DRB alleles are conserved within allelic groups and that unknown sequences of codons 87 to 92 are identical with the DRB1*0101 consensus sequence.

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Nucleotide sequence information is available for only exons 2 and 3 of many HLA Class I alleles and for only exon 2 of many HLA Class II alleles and not for other exons or for the introns of these alleles. We assume that unknown sequences in these exons and in the introns are conserved within loci and within allelic groups.

⁵Specific PCR fragments shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR bands.

⁶Individual alleles can give rise to two differently sized specific PCR fragments in these primer mixes.

⁷These primer mixes may give rise to nonspecific amplifications.

⁸Primer mix 91 has a tendency of primer oligomer formation and also has an intense primer cloud due to the high number of primers present in the primer mix.

⁹The DRB4*01030102N allele is amplified by the primer pair in well No. 94, whereas the DRB4*0201N and DRB4*0301N null alleles are not amplified by this primer pair.

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INTERPRETATION TABLE																									
HLA-A low resolution SSP typing																									
Amplification patterns of the A*0101 to A*8001 alleles																									
		Well ⁶																							
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Length of spec.		120	135	205	190	160	165	175	165	75	85	80	185	175	200	90	180	180	200	160	155	240	85	75	360
PCR product		145	200	235		535	200	205	200			175		225	240	135	210			200	240	375	240	160	
			255									500													
Length of int.		800	1070	1070	800	800	800	1070	800	800	1070	1070	800	1070	1070	1070	1070	1070	1070	800	800	800	800	800	1070
pos. control ¹																									
5'-primer(s) ²		98	78	363	98	144	106	98	98	266	257	302	103	98	98	203	97	180	98	180	78	28	78	176	341
		5'-CTT ^{3'}	5'-TCT ^{3'}	5'-ATA ^{3'}	5'-CTA ^{3'}	5'-gCC ^{3'}	5'-CCA ^{3'}	5'-CTC ^{3'}	5'-CTA ^{3'}	5'-ACg ^{3'}	5'-Cgg ^{3'}	5'-ggA ^{3'}	5'-CCT ^{3'}	5'-CTT ^{3'}	5'-CAC ^{3'}	5'-gAA ^{3'}	5'-TCA ^{3'}	5'-TTT ^{3'}	5'-CAC ^{3'}	5'-TTT ^{3'}	5'-TCT ^{3'}	5'-TCg ^{3'}	5'-TCT ^{3'}	5'-gCA ^{3'}	5'-ggA ^{3'}
		123	106		413	317	176	368	102	266	261	385	423	423		363					391	261	527	261	
		5'-AgT ^{3'}	5'-CCA ^{3'}		5'-CCg ^{3'}	5'-gCT ^{3'}	5'-gCA ^{3'}	5'-gTT ^{3'}	5'-ACA ^{3'}	5'-ACg ^{3'}	5'-AAC ^{3'}	5'-ggC ^{3'}	5'-gCT ^{3'}	5'-gCT ^{3'}		5'-ATA ^{3'}					5'-ACg ^{3'}	5'-AAC ^{3'}	5'-TgC ^{3'}	5'-AAC ^{3'}	
			144				368		413												391				
			5'-gCA ^{3'}				5'-gTT ^{3'}		5'-CCg ^{3'}												5'-ACg ^{3'}				
			144																						
			5'-TCA ^{3'}																						
3'-primer(s) ³		203	240	527	256	265	256	259	259	302	299	341	257	282	257	299	238	317	256	299	265	97	265	292	418
		5'-TCT ^{3'}	5'-ggA ^{3'}	5'-CCA ^{3'}	5'-CTg ^{3'}	5'-CCC ^{3'}	5'-CCC ^{3'}	5'-gTT ^{3'}	5'-gTT ^{3'}	5'-ggC ^{3'}	5'-TCg ^{3'}	5'-CgT ^{3'}	5'-gCA ^{3'}	5'-gAC ^{3'}	5'-gCA ^{3'}	5'-CCA ^{3'}	5'-CCT ^{3'}	5'-ggA ^{3'}	5'-CCC ^{3'}	5'-CCA ^{3'}	5'-CCC ^{3'}	5'-ggT ^{3'}	5'-CCC ^{3'}	5'-gTC ^{3'}	
			292	527	559	570	292	502	538			521	559	559	299	411	265		259	299	282	355	282	292	
			5'-gTg ^{3'}	5'-CCT ^{3'}	5'-CCg ^{3'}	5'-CCg ^{3'}	5'-gTT ^{3'}	5'-CTT ^{3'}	5'-CCA ^{3'}			5'-ggg ^{3'}	5'-CTC ^{3'}	5'-CCg ^{3'}	5'-TCg ^{3'}	5'-TCA ^{3'}	5'-CCC ^{3'}		5'-gTT ^{3'}	5'-CCA ^{3'}	5'-gAC ^{3'}	5'-gAC ^{3'}	5'-gAC ^{3'}	5'-gTg ^{3'}	
				555			502	539					559							341	506		570	299	
				5'-CCA ^{3'}			5'-CTg ^{3'}	5'-TCT ^{3'}					5'-CgT ^{3'}							5'-CgT ^{3'}	5'-TgT ^{3'}		5'-CAC ^{3'}	5'-TCT ^{3'}	
				555			538																		
			5'-gCA ^{3'}				5'-Cag ^{3'}																		
Well No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HLA-A allele ⁴	ser ⁵																								
*01010101-0104N, 0106, 0109-0111N, 0116N-0118N, 0120, 0122N-0127N, 0129	A1, null	1			4																				24
Well No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

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Well No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
*0107	-	1			4																				
*0108, 0114, 0115N	1	1																							24
*0112, 0119	-	1		3																					24
*0113	-	1			4							11		13		15									24
*0121	-	1		3	4																				24
*0128	-	1			4							11				15									24
*0130	-	1																							
*02010101-0209, 0211-0216, 0218- 0222, 0224-0233, 0236-0238, 0240- 0245, 0247, 0249, 0251, 0253N, 0254, 0257-0261, 0263- 0269, 0271, 0272, 027401-0277, 0279- 0292, 0294N, 0296, 0297, 0299, 9201, 9202, 9204-9209, 9211-9213N, 9215, 9216, 9218-9221, 9223-9228, 9	A2, A203 , null	2																							
*0210, 0239, 0250, 0252, 0273, 0293, 0295, 9210, 9214, 9217	A210		2																		20				
*021701-021702	A2		2					w																	
*0234, 023501, 023503, 0256, 0262, 0270	-		2											13							20		22		
*023502	-													13							20		22		
*0246, 0270	-		2																		20		22		
*0248	-																				20		22		
*0255	-		2						8													21		23	
*0278	-		2		4																20		22		
*0293	-		2											13							20		22		
*9222	-					6															20				
*9224	-		2							9															
*9229	-																				20		22		
Well No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

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Well No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
*03010101-0307, 0309-0311N, 0313- 0317, 0319-0323, 0325-0329, 0331, 0333-0335, 0337, 0338	A3			3										13											
*0308, 0332, 0336N	-			3																					
*0312	-			3	4																				
*0318, 2619 ⁷	-			4										13											
*0324	-			3					8					13											
*0330	-			3		5								13											
*110101-1109, 1113- 1117, 1119-1124, 1126, 1127, 1129- 1132	A11				4							11													24
*1110	-				4				8			11													24
*1111	-				4							11	12												24
*1112, 1118	-				4							11													
*1125	-			3	4							11													24
*2301-2313, 2315, 2316	A23					5	6																		
*2314, 2405, 241203, 2424 ⁸	-					5	6	7																	
*24020101-2404, 2406-2411N, 241301, 2417, 2418, 2420- 2423, 2425-2443, 2445N-2450, 2454- 2456, 2458-2463, 2466-2481, 2483N	A24					5		7																	
*2414, 2415, 2451- 2453, 2457, 2464	A24					5																			
*2419, 2444	-					5		7				11													
*2482						5		7									16					21			
*250101-2504	A25								8	9				13											
*2505	-								8	9				13						20					
*2506	-								8	9			12												
*260101-260105, 2608, 2610-2615, 2617, 2618, 2620, 2623-2629, 2632, 2633, 2635	A26, null								8			10		13											
*2602	A26								8			10		w											
Well No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

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Well No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
*2603, 2606, 2621	A26								8			11		13										23	
*2604	A26								8		10														
*2605, 2630	A26								8					13										23	
*260701-260702	A26										10			13											
*2609	A26								8		10		12												
*2616	-							7			10			13											
*2622	-								8		10			13								21			
*2631	-								8					13											
*2634	-								8		10														
*29010101-2906, 2908N-2912, 2915- 2917	A29													14											
*2907	-						6							14											
*2913	-													14				17							
*2914	-													14		16									
*300101-3004, 3006, 3007, 3009-3020, 3022-3024	A30													15											
*3008	-				4										15					20		22			
*310102-3102, 3105- 3107, 3109-3120	A31															16									
*3103	-											11	12			16									
*3104	A31												12			16									
*3108	-					5										16									
*320101-3202, 3206- 3212, 3214	A32										9							17							
*3203	-																	17							
*3204	A3			3							9														
*3205	-					5												17							
*3213	-					5					9							17							
*3215	-								8		9							17							
*3301, 330301-3312	A33																	18							
*3313	-										10				14			18							24
*340101-340102, 3405, 3406	A34								8			11	12												
*3402-3404, 3407	-			3					8			11	12												
*3408	-			3					8			11	12	13											
*3601, 3603	A36	1																				22		24	
*3602	-	1		3																		22		24	
*3604	-	1			4																	22		24	
*4301	A43												12	13											
*6601, 6604-6606	A66								8			11		13											
*6602, 6603	A66								8				12												
Well No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

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Well No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
*680101-6804, 6806-6814, 6816-6819, 6821-6828, 6830-6841	A68								8												20				
*6805, 6815, 6820	-								8											20			23		
*6829	-								8										18	20	21				
*6901	A69								8													21			
*7401-7409, 7411, 7412N	A74																			19					
*7410	-																			19			24		
*8001	A80						6																23	24	
HLA-A allele ⁴	ser ⁵																								
Well No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
B*1827							6																		
Well No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

¹The internal positive control primer pairs amplify segments of the human growth hormone gene. The two different control primer pairs give rise to either an internal positive control band of 1070 base pairs, for most wells, or a band of 800 base pairs, for some wells.

Well number 1 contains the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to help in the correct orientation of the HLA-A low resolution SSP typing.

In addition, wells number 4, 5, 6, 8, 9, 11, 12, 19 to 23 contain the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to allow kit identification.

²The nucleotide position, in the 1st, 2nd or 3rd exon, matching the specificity-determining 3'-end of the primer is given. Codon numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

³The nucleotide position, in the 2nd, or 3rd exon, matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Codon numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

⁴The sequence of the A*0105N has been shown to be identical to A*0104N.

The A*020116 allele has been renamed to A*9234.

The sequence of the A*0223 allele has been shown to be identical to A*0222.

The sequence of the A*0298 allele has been shown to be identical to A*0296.

The A*1128 allele has been renamed to A*111502.

The sequence of the A*2401 allele has been shown to be in error.

The sequence of the A*2412 allele has been shown to be identical to A*2408.

The A*2416 allele has been renamed to A*3108.

The A*2465 allele has been renamed to A*241302.

The sequence of the A*3005 allele has been shown to be identical to A*3004.

The A*3021 allele has been renamed to A*301102.

The sequence of the A*31011 allele has been shown to be identical to A*31012.

The sequence of the A*3302 allele has been shown to be identical to A*3303.

⁵The serological reactivity of all HLA-A alleles is not known. In this table we use the information in the HLA Dictionary 2004 on the www.ebi.ac.uk/imgt/hla web site and the information available at the www.worldmarrow.org web site and have also inferred the serological grouping from the naming of the sequence-defined allele.

⁶The primer pairs in vials 2 and 11 will in most samples give rise to two specific PCR fragments.

⁷The A*0318 and A*2619 alleles will give rise to identical amplification patterns. These two alleles can be separated by the respective high resolution SSP primer sets.

⁸The A*2314, A*2405, A*2424 and A*2465 alleles will give rise to identical amplification patterns. These two alleles can be separated by the respective high resolution SSP primer sets.

'w', may be weakly amplified.

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INTERPRETATION TABLE																							
HLA-B low resolution SSP																							
Amplification patterns of the B*0702 to B*8301 alleles ⁶																							
Well																							
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72
175	130	110	325	110	215	130	90	90	145	120	430	145	300	160	180	180	90	90	95	115	360	355	290
				190		270	410	175		210				215	210		240			150			
				225																			
				260																			
1070	1070	1070	1070	1070	800	1070	1070	1070	1070	800	1070	1070	1070	1070	1070	1070	800	1070	1070	1070	1070	1070	1070
Length of spec. PCR product																							
Length of int. pos. control ¹																							
363	106	540	1 st I	355	141	209	41	209	206	357	49	206	1 st I	1 st I	141	420	209	209	206	165	1 st I	1 st I	355
5'-Agg ^{3'}	5'-CCg ^{3'}	5'-gAC ^{3'}	5'-CAG ^{3'}	5'-TCA ^{3'}	5'-ATT ^{3'}	5'-ggC ^{3'}	5'-CTg ^{3'}	5'-ggC ^{3'}	5'-gAA ^{3'}	5'-Tgg ^{3'}	5'-CAG ^{3'}	5'-gAA ^{3'}	5'-CAG ^{3'}	5'-CAG ^{3'}	5'-ATT ^{3'}	5'-TTA ^{3'}	5'-ggC ^{3'}	5'-ggA ^{3'}	5'-gAC ^{3'}	5'-ACC ^{3'}	5'-CAG ^{3'}	5'-CAG ^{3'}	5'-TCA ^{3'}
				418	357	209	368	363						418	420		362	369		463			363
				5'-Agg ^{3'}	5'-Tgg ^{3'}	5'-ggg ^{3'}	5'-gTT ^{3'}	5'-AgC ^{3'}						5'-Agg ^{3'}	5'-TTA ^{3'}		5'-ggT ^{3'}	5'-TAC ^{3'}		5'-TgA ^{3'}			5'-AgC ^{3'}
				499		355																	
				5'-TCT ^{3'}		5'-TCA ^{3'}																	
499	193	603	282	538	309	299	282	259	309	435	309	311	259	175	311	559	256	256	259	272	317	311	610
5'-ggA ^{3'}	5'-CgT ^{3'}	5'-gTg ^{3'}	5'-gCC ^{3'}	5'-gTC ^{3'}	5'-ATC ^{3'}	5'-TCA ^{3'}	5'-gCC ^{3'}	5'-gTT ^{3'}	5'-ATC ^{3'}	5'-TCT ^{3'}	5'-ATC ^{3'}	5'-ggT ^{3'}	5'-CTC ^{3'}	5'-CCg ^{3'}	5'-ggT ^{3'}	5'-CAG ^{3'}	5'-CCC ^{3'}	5'-CCC ^{3'}	5'-gTT ^{3'}	5'-TgC ^{3'}	5'-ggA ^{3'}	5'-ggT ^{3'}	5'-CTC ^{3'}
		610		572	538	583	418	499		527				538	559		559	256		538			
		5'-CTC ^{3'}		5'-gCg ^{3'}	5'-gTC ^{3'}	5'-gTg ^{3'}	5'-gTC ^{3'}	5'-ggA ^{3'}		5'-CCT ^{3'}				5'-gTC ^{3'}	5'-CgT ^{3'}		5'-CgT ^{3'}	5'-CTC ^{3'}		5'-CCA ^{3'}			
																		420					
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72
Well No.																							
ser. ⁵																							
HLA-B allele ⁴																							

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Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
*070201-070207, 070501-0706, 0710, 0712, 0714, 071801- 071802, 0721-0723, 0726, 0728-0731, B7		25																							48
*0703, 0708, 0716, 0732, 0737 B7, B703		25																							48
*0704, 0725 B7		25													38										48
*0707, 0742 B7		25																							48
*0709, 0711, 0717 B7		25											36												48
*0713, 0715 -		25																							48
*0719 -																									48
*0720, 0724 -		25		27																					48
*0727 -		25										35								44					48
*0733 -																									48
*0736 -		25																							
*0738 -		25																							
*0740, 0748, 0751 -																									48
*0753 -																									48
*0750 -		25										35													48
*0754 -		25																							48
*0760 -				27																					48
*080101-080105, 0805, 0808N, 0810, 0811, 0815, 0818, 0819N, 0822-0824, 0827, 0829, 0830, 0833, 0834 B8, Null		26							32																48
*0802 B8		26							32											44					
*0803 B8		26							32																
*0804 -		26							32			35													48
*0806, 0813, 0820 B8		26																							48
*0807, 0814 -		26																							48
*0809 -		26							32																48
*0812, 0816, 0831 -		26							32																48
*0817 -		26							32			35													48
*0821 -		26	27						32																48
*0825 -		26	27																						48
*0826, 4207 -									32																48
*0828 -		26										36													48
*0832 -		26							32											42					48
Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48

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49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.
			52																			71	72	B7	*070201-070207, 070501-0706, 0710, 0712, 0714, 071801- 071802, 0721-0723, 0726, 0728-0731, 0734, 0735, 0739, 0741, 0743-0747, 0749N, 0752, 0755- 0759
																						71	72	B7, B703	*0703, 0708, 0716, 0732, 0737
		51	52																			71	72	B7	*0704, 0725
			52																			71		B7	*0707, 0742
			52																			71	72	B7	*0709, 0711, 0717
			w																			71	72	-	*0713, 0715
		51	52																			71	72	-	*0719
			52																			71	72	-	*0720, 0724
																				70	72			-	*0727
			52																			71		-	*0733
			52																	70	72			-	*0736
																				70	72			-	*0738
			52																			71	72	-	*0740, 0748, 0751
			52																			71		-	*0753
																						71	72	-	*0750
			52									62										71	72	-	*0754
			52																			71		-	*0760
		51																				71	72	B8, Null	*080101-080105, 0805, 0808N, 0810, 0811, 0815, 0818, 0819N, 0822-0824, 0827, 0829, 0830, 0833, 0834
		51																		70	72			B8	*0802
		51																		70	72			B8	*0803
		51																				71	72	-	*0804
																						71	72	B8	*0806, 0813, 0820
		51																				71	72	-	*0807, 0814
		51		54																		71		-	*0809
		51																				71		-	*0812, 0816, 0831
		51										62										71	72		*0817
		51																				71	72	-	*0821
																						71	72	-	*0825
		51																				71	72	-	*0826, 4207
		51																				71	72	-	*0828
		51																	68			71	72	-	*0832
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.

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*1301, 1317, 1320	B13			27	28						34							41							
*130201-130204, 1308Q, 1315, 1318, 1319	B13			27	28						34														
*1303	-			27	28																				
*1304, 1310	-			27	28							36													
*1306	-			27	28													41							
*1307N	Null			27	28						34							41							
*1309	-				28						34														
*1311	-			27	28						34														
*1312, 1313	-			27	28													41							
*1314	-			27							34														
*1316	-			27	28						34														
*1321	-			27	28																				
*1401, 1407N	B64				28	29																		47	48
*140201-1404	B65				28		30																	47	48
*1405-140602	-						30																	47	48
*15010101- 15010102N, 150103, 1504, 1526N, 152701, 1532, 1534, 1535, 1538, 1550, 1556, 1557, 1560, 1570, 1571, 1575, 1579N, 1581, 1582, 1592, 1594N, 1596, 1597, 9502, 9504, 9505, 9509 9511N, 9513, 9517, 9518, 9522, 9525, 9528, 9529	B62, Null, B15							31				36							43						
*150102	B62							31		33			36						43						
*150104	B62											36							43						
*150106, 1507	B62			27				31					36						43						
*1502, 1588, 9512, 9521	B75							31				36						41	43						
*1503, 1547, 1549, 1561, 1598, 9503, 9523, 9527, 9532	B72								32			35	36						43						
*1505, 1506, 1533, 1539, 1540, 1565, 1578, 1584, 9507	B62, B15							31				36							43						
*1508, 151101-151103, 1515	B75							31				36							43						
Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48

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49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.
													62								70			B13	*1301, 1317, 1320
													62								70			B13	*130201-130204, 1308Q, 1315, 1318, 1319
													62			65					70			-	*1303
													62								70			-	*1304, 1310
													62		64						70			-	*1306
																					70			Null	*1307N
													62									71		-	*1309
													62				67				70			-	*1311
													62								70			-	*1312, 1313
													62								70			-	*1314
										59			62								70			-	*1316
													62								70			-	*1321
																						71		B64	*1401, 1407N
																						71		B65	*140201-1404
																						71		-	*1405-140602
													62								69	71		B62, Null, B15	*15010101- 15010102N, 150103, 1504, 1526N, 152701, 1532, 1534, 1535, 1538, 1550, 1556, 1557, 1560, 1570, 1571, 1575, 1579N, 1581, 1582, 1592, 1594N, 1596, 1597, 9502, 9504, 9505, 9509 9511N, 9513, 9517, 9518, 9522, 9525, 9528, 9529
													62								69	71		B62	*150102
													62	63							69	71		B62	*150104
													62								69	71		B62	*150106, 1507
										57												71		B75	*1502, 1588, 9512, 9521
													62									71		B72	*1503, 1547, 1549, 1561, 1598, 9503, 9523, 9527, 9532
													62									71		B62, B15	*1505, 1506, 1533, 1539, 1540, 1565, 1578, 1584, 9507
										57											69	71		B75	*1508, 151101-151103, 1515
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.

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*1509	B70								32	33	34								43						
*1510, 1537, 1590, 1599, 9533	B71								32		34								43						
*1512, 1514, 1519	B76							31				36	37						43						
*1513	B77							31				36		38				41	43						
*1516, 1567, 1595	B63									33		36		38					43						
*15170101-151702	B63							31		33				38					43						
*1518, 1551, 1552, 1572, 1593, 9508, 9514, 9519, 9534	B71								32		34	36							43						
*1520, 1525	B62							31				36						41	43						
*1521, 1544	B75							31			34	36						41	43						
*1523	-								32		34	36		38					43						
*1524, 1587	B62							31				36		38					43						
*152702	-			27								36													
*1528	B15							31				36							43						
*1529	B15								32			36							43						
*1530, 1558, 1563	B62, B15							31											43						
*1531	B75							31				36							43						
*1536	-			27				31				36						41	43						
*1542	-							31											43						
*1543	-							31				36							43						
*1545	B62			27				31											43						
*1546	B72				28			31	32			36							43						
*1548	B62							31											43						
*1553	-				28				32			36							43						
*1554	-								32			35	36						43						
*1555	-			27				31				36							43						
*1562	-								32			35	36					41	43						
*1564	-								32			35	36						43						
*1566	-							31			34	36							43						
*1568	-			27				31	32			35	36						43						
*1569	-								32			35	36						43			45			
*1573	-							31											43						
*1574	-								32			36							43						
*1576, 9501	-							31				36							43						
*1577	-							31										41	43						
*1580	-								32		34	36						41	43						
*1583	-							31	32										43						
*1585	-							31				36						41	43						
*1586	-							31											43						
*1589	-			27				31				36						41	43						
*1591, 9531	-								32			35	36	37					43						
Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48

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49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.	
																					71			B70	*1509	
																						71			B71	*1510, 1537, 1590, 1599, 9533
												62								69	71				B76	*1512, 1514, 1519
								57													70				B77	*1513
									59												70				B63	*1516, 1567, 1595
																					70				B63	*15170101-151702
																						71			B71	*1518, 1551, 1552, 1572, 1593, 9508, 9514, 9519, 9534
												62										71			B62	*1520, 1525
								57														71			B75	*1521, 1544
																					70			-	*1523	
												62								69	70				B62	*1524, 1587
												62								69		71			-	*152702
																				69		71			B15	*1528
																						71			B15	*1529
												62								69		71			B62, B15	*1530, 1558, 1563
								57														71			B75	*1531
												62									70				-	*1536
									59			62		64								71			-	*1542
												62								69	70				-	*1543
												62								69		71			B62	*1545
												61	62							69		71			B72	*1546
												62										71			B62	*1548
												61	62							69		71			-	*1553
												62								69		71			-	*1554
								57														71			-	*1555
												62										71			-	*1562
																						71			-	*1564
												62								69		71			-	*1566
												62								69		71			-	*1568
												62										71			-	*1569
												62				65	67			69		71			-	*1573
												62										71			-	*1574
			52																	69		71			-	*1576, 9501
												62								69		71			-	*1577
																						71			-	*1580
				54								62										71			-	*1583
												62								69		71			-	*1585
												62		64								71			-	*1586
								57													70				-	*1589
												62										71			-	*1591, 9531
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.	

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Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
*9506	-				28			31	32				36					41		43					
*9515	-								32		34		36							43	44				
*9516	-							31					36							43					
*9520	-							31					36							43					
*9524	-								32		34		36							43					
*9526, 9535	-			27				31					36							43					
*9536	-			27				31					36							43		45			
*9537	-			27				31												43					
*9538	-	25						31					36							43					
*9539	-			27				31					36					41		43					
*180101-1803, 1805- 1808, 1810, 1811, 1813 1815, 1817N, 1818, 1820, 1821, 1823N- 1825, 1827	B18												36			39			42						
*1804	-												36			39			42						
*1809	-												36			39				44					
*1812	-												36			39			42						
*1819	-												36			39			42						
*1822	-												36			39		41	42						
*1826	-															39			42						
*2701	B27					29											40								
*2702	B27					29											40								
*2703-270402, 270502- 2706, 2709, 2710, 2713, 2717, 2720, 2727, 2731, 2735-2737	B27					29											40								
*2707, 2711, 2714, 2715, 2721, 2728, 2732, 2734, 2738	B27																40								
*2708, 2726	B2708					29											40								
*2712	-					29											40								
*2716	-					29											40								
*2718	-					29						35					40								
*2719	-																40	41							
*2723	-					29											40								
*2724	-																40								
*2725	-																40								
*2729	-					29						35					40								
*2730	-																40	41							
*2733	-																40								
Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48

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49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.
												61	62									71		-	*9506
																					70		-	*9515	
49													62									71		-	*9516
																				69		71		-	*9520
49																						71		-	*9524
													62							69		71		-	*9526, 9535
													62									71		-	*9536
										59			62							69		71		-	*9537
													62									71		-	*9538
								57														71		-	*9539
																		68				71		B18	*180101-1803, 1805-1808, 1810, 1811, 1813, 1815, 1817N, 1818, 1820, 1821, 1823N-1825, 1827
															64			68			71		-	*1804	
																		68		70			-	*1809	
													62								71		-	*1812	
																		68	69		71		-	*1819	
						55												68			71		-	*1822	
																		68			71		-	*1826	
			52										62								70			B27	*2701
			52				56				60		62								70			B27	*2702
													62									70		B27	*2703-270402, 270502-2706, 2709, 2710, 2713, 2717, 2720, 2727, 2731, 2735-2737
			52				56																	B27	*2707, 2711, 2714, 2715, 2721, 2728, 2732, 2734, 2738
			52				56						62									71		B2708	*2708, 2726
													62									71		-	*2712
													62								70		-	*2716	
													62									71		-	*2718
			52				56						62								70		-	*2719	
																					70		-	*2723	
			52				56	57					62								70		-	*2724	
			52				56						62							69	70		-	*2725	
													62								70		-	*2729	
			52				56				60		62								70		-	*2730	
			52				56						62									71		-	*2733
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.

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*350101-350106, 3507-350803, 3511, 3515, 352001-352002, 3523, 3529, 3540N-3542, 3548, 3550, 3552, 3554, 3557, 3561, 3577, 3578, 3582	B35												36					41	42						
*350201-350401, 3506, 3512, 3533, 3534, 3536, 3539, 3555, 3559, 3565Q, 3570, 3574, 3583	B35																	41	42						
*350402	-									33								41	42						
*3505, 3551, 3558, 3572	B35			27									36						42						
*350901-350902, 3518, 3531, 3575	B35																	42							
*3510, 3528, 3569	-												36					41	42						
*3513	B35																	41	42						
*351401-351402, 3562	B35												36					41	42						
*3516	-			27									36					41	42						
*3517, 3530	B35			27									36					41	42						
*3519	B35												36					41							
*3521, 3524	-												36					41	42						
*3522	-			27														42							
*3525, 3549	-												36					41							
*3526	-							30					36					41							
*3527	B35												36					41							
*3532, 3537, 3553N, 3564, 3568	-												36					42							
*3535	-												36					41	42			45			
*3538	-																	41	42						
*3543, 3567, 3579	B35												36						42						
*3544	-																	42							
*3545, 3571	-												36	37				41	42						
*3546	-												36					41							
*3547	-				28								36					41							
*3556	-																	41							
*3560	-																		42						
*3563	-				28								36					41							
*3566	-												36						42						
3576	-												36					41	42						
Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48

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49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.	
																			68			71			B35	*350101-350106, 3507-350803, 3511, 3515, 352001-352002, 3523, 3529, 3540N-3542, 3548, 3550, 3552, 3554, 3557, 3561, 3577, 3578, 3582
																			68			71			B35	*350201-350401, 3506, 3512, 3533, 3534, 3536, 3539, 3555, 3559, 3565Q, 3570, 3574, 3583
																			68			71			-	*350402
																			68			71			B35	*3505, 3551, 3558, 3572
																			68			71			B35	*350901-350902, 3518, 3531, 3575
													62									71			-	*3510, 3528, 3569
													62									71			B35	*3513
																			68	69		71			B35	*351401-351402, 3562
													62									71			-	*3516
																			68			71			B35	*3517, 3530
												61										71			B35	*3519
						55													68			71			-	*3521, 3524
																			68			71			-	*3522
																						71			-	*3525, 3549
																						71			-	*3526
																			68			71			B35	*3527
																			68			71			-	*3532, 3537, 3553N, 3564, 3568
																			68			71			-	*3535
				53															68			71			-	*3538
																			68	69		71			B35	*3543, 3567, 3579
																			68	69		71			-	*3544
				53															68			71			-	*3545, 3571
								57														71			-	*3546
												61										71			-	*3547
																			68			71			-	*3556
															64				68			71			-	*3560
												61	62									71			-	*3563
																			68			71	72		-	*3566
			52				56												68			71			-	3576
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.	

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Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
*370101-370103, 3703N, 3706, 3713	B37, Null													37				41			44				
*370104	-													37				41			44				
*3702	-					29								37							44				
*3704	-													37				41			44				
*3705	-													37				41			w				
*3707	-	25												37							44				
*3708	-													37				41			44				
*3709	-													37							44				
*3710	-																	41			44				
*3711	-																	41	42						
*3712	-								32					37							44				
*380101-380102, 3809, 3811-3814, 3816	B38					29																45	46	47	
*380201-380202, 3808, 3815	B38					29															44	45	46	47	
*3803	B16					29					35										44	45	46		
*3804	-																				44	45		47	
*3805	-					30																45	46	47	
*3806	-																					45			
*3807	-					29																45			
*3810	-					29																	46	47	
*3817	-					29								37							44	45	46	47	
*39010101-39010102L, 390103-390104, 3903, 3905-390602, 3909, 3911, 3914, 3915, 3924, 3926-3929, 3931, 3935, 3937, 3938Q, 3940N, 3941	B3901, B39					29																45		47	48
*390201, 3908	B3902, B39					29					35											45			48
*390202, 391301- 391302, 3923	B3902, B39										35											45			48
*3904	B39					30																45		47	48
*3907	-					? ?					36											45		47	48
*3910, 3916, 3920	B39																					45			48
*3912	-																					45		47	48
*3917	-																					45			48
*3918	-					29																45		47	48
*3919	-																	42				45		47	48
*3922	-					29																45		47	48
Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48

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				53									62								70			B37, Null	*370101-370103, 3703N, 3706, 3713
				53									62	63							70			-	*370104
													62								70			-	*3702
				53		55							62								70			-	*3704
				53									62									71		-	*3705
													62								70	72		-	*3707
				53														68			70			-	*3708
													62								70			-	*3709
				53									62								70			-	*3710
				53									62									71		-	*3711
				53									62								70			-	*3712
																					70			B38	*380101-380102, 3809, 3811-3814, 3816
																					70			B38	*380201-380202, 3808, 3815
													62								70			B16	*3803
													62								70			-	*3804
																					70			-	*3805
																		68			70			-	*3806
																		68			70			-	*3807
																					70			-	*3810
																					70			-	*3817
																						71		B3901, B39	*39010101-39010102L, 390103-390104, 3903, 3905-390602, 3909, 3911, 3914, 3915, 3924, 3926-3929, 3931, 3935, 3937, 3938Q, 3940N, 3941
													62								71			B3902, B39	*390201, 3908
													62									71		B3902, B39	*390202, 391301- 391302, 3923
																					71			B39	*3904
																					71			-	*3907
																					71			B39	*3910, 3916, 3920
																					71			-	*3912
													64				67				71			-	*3917
																		69			71			-	*3918
																		68			71			-	*3919
													62								71			-	*3922
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.

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*3925N, 3930, 3932-3934	-					29																		47	48
*3936	-					29																		47	48
*3939	-					29						35											45		48
*3942	-					29												41				45			
*3943	-					29						36													
*400101-400105, 4007	B60, B40				28																				48
*400201-400203, 4004, 40060101-400602, 4039, 4075, 4078	B61, B40																								
*4003, 4020	B40												36												
*4005	B4005			27																					
*4008	-																								
*4009, 4011, 4018, 4024, 4027, 4029, 4035, 4037, 4040, 4044, 4050, 4056, 4057, 4064	B61, B40																								?
*4010, 4022N, 4033, 4036, 4042, 4043, 4049, 4054, 4055, 4061, 4063, 4065-4067, 4073	Null, B40, B60				28																				?
*4012	-								32			35							43						
*4013, 4019	-																								
*401401-401403, 4053, 4072	-				28																				?
*4015, 4016, 4032	B61	25			28																				?
*4021	-																								?
*4023	-	25			28																				48
*4025	-				28																				?
*4026	B21									33															?
*4028	-									33									41						?
*4030, 4034	-				28																				?
*4031, 4045	-				28																				?
*4038, 4052	-				28								36												?
*4046	-											35					40								?
*4047	-				28																				
*4048	-				28						34														?
*4051	-				28																				48
*4058	-				28																				?
*4059	-				28								36												48
Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48

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49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.				
																				71		-		*3925N, 3930, 3932-3934					
																				69	71	-		*3936					
																				71		-		*3939					
																					71	-		*3942					
																				71		-		*3943					
49												61	62									71	B60, B40		*400101-400105, 4007				
50												61 62								71				B61, B40		*400201-400203, 4004, 40060101-400602, 4039, 4075, 4078			
	50											61	62									71	B40		*4003, 4020				
	50											61 62								71				B4005		*4005			
	50											61										71	-		*4008				
50												61 62								71				B61, B40		*4009, 4011, 4018, 4024, 4027, 4029, 4035, 4037, 4040, 4044, 4050, 4056, 4057, 4064			
49												61	62										71	Null, B40, B60		*4010, 4022N, 4033, 4036, 4042, 4043, 4049, 4054, 4055, 4061 4063, 4065-4067, 4073			
49												62								71				-		*4012			
	50							58	60			62									70		-		*4013, 4019				
												61 62								71				-		*401401-401403, 4053, 4072			
												61	62									71	72	B61		*4015, 4016, 4032			
49												62								71				-		*4021			
49												61	62									71	-		*4023				
49												61								71				-		*4025			
	50											61	62									71	B21		*4026				
	50				55							61 62								71				-		*4028			
												61	62									71	72	-		*4030, 4034			
								57				61 62								71 72				-		*4031, 4045			
49												61	62									71	-		*4038, 4052				
49												62								71				-		*4046			
49												62									70		-		*4047				
49												61 62				67				71				-		*4048			
49												61	62									71	-		*4051				
												61 62				64						71				-		*4058	
												61	62									71	72	-		*4059			
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.				

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*4060	-				28								36												48
*4068	-																								?
*4069	-				28																				?
*4070	-																								
*4071	-				27																				?
*4074	-																								?
*4076	-				28																				
*4101, 4106, 4107	B41				28				32																48
*4102	B41				28				32																48
*410301-410302	B41				28				32																48
*4104	-				28																				48
*4105	-				28				32																48
*4108	-	25			28				32						38										48
*4201, 4202, 4206	B42								32																48
*4204	-								32																48
*420501-420502	-	25							32						38										48
*4208	-								32																48
*4209	-												36												48
*44020101-440204, 4411, 4416, 4419N, 4421-4424, 4427, 4433, 4434, 4448, 4451, 4452N, 4455	B44, B47, Null				28													41							
*440301-4405, 4413, 4426, 4428-4430, 4432, 4435, 4436, 4438, 4439, 4442, 4445, 4456N	B44				28													41							
*4406	B44																	41							
*4407																		41							
*4408	B44				27													41							
*4409	B12				28													41							
*4410	-				28							35						41		43					
*4412	-				28													41							
*4414	-				28				32									41							
*4415	-				28				32			35													
*4417, 4443	-				28							36	37					41							
*4418	-				28				32			35													
*4420	-				28				32																
*4425	-				28													41							
*4431	-				28																				
*4437	-				28													41							
*4440	-											35					40	41							
Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48

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49												61	62									71		-	*4060
	50											61										71		-	*4068
49												61										71		-	*4069
	50											61	62									71		-	*4070
	50											61	62			65		67				71		-	*4071
49	50											61	62									71		-	*4074
49												62												-	*4076
		51			54							61	62									71		B41	*4101, 4106, 4107
		51										61	62									71	72	B41	*4102
		51										61	62									71		B41	*410301-410302
		51										61	62									71	72	-	*4104
		51			54							?	62									71		-	*4105
		51										61	62									71		-	*4108
		51	52																			71	72	B42	*4201, 4202, 4206
		51	52		54																	71		-	*4204
		51	52																			71	72	-	*420501-420502
			52																			71		-	*4208
		51	52																			71	72	-	*4209
				53									62	63								70		B44, B47, Null	*44020101-440204, 4411, 4416, 4419N, 4421-4424, 4427, 4433, 4434, 4448, 4451, 4452N, 4455
				53									62									70		B44	*440301-4405, 4413, 4426, 4428-4430, 4432, 4435, 4436, 4438, 4439, 4442, 4445, 4456N
				53	54					60			63					68			70		B44	*4406	
				53								62									70			*4407	
				53								62	63								70		B44	*4408	
				53								61	62	63								71		B12	*4409
				53								62				65					70		-	*4410	
				53									63								70		-	*4412	
				53								62									70		-	*4414	
					54							62				65					70		-	*4415	
				53								62									70		-	*4417, 4443	
					54				58			62				65					70		-	*4418	
				53	54							62	63								70		-	*4420	
				53					58	60		62									70		-	*4425	
49				53								62									70		-	*4431	
												62									70		-	*4437	
				53								62									70		-	*4440	
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.

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*4441	-				28																				
*4444	-											35					40	41							
*4446	-				28													41							
*4447	-				28																				
*4449	-		26		28													41							
*4450	-				28													41							
*4453	-				28																				
*4454	-				27	28																			
*4457	-			27														41							
*4501, 4505, 4507	B45				28				32			35													48
*4502, 4503	-				28				32																48
*4504	-				28				32																48
*4506	-				28				32			35													48
*460101-460102, 4604, 4605, 4607N, 4609	B46								31			36													
*4602	-								31			36													
*4603, 4608	-								31			36													
*4606	-								31			36													
*4610	-								31			36													
*4611	-			27					31																
*4612	-			27					31			36													
*47010101-47010102	B47				28																				
*4702	-				28																				
*4703	-				28																				
*4704, 4705	-				28	29																			
*480101-480102, 4807, 4809, 4811, 4819	B48											35													48
*4802	-											35	36					41							48
*480301-480302	B48											35													48
*4804	B48											35													48
*4805, 4808	B48	25										35													48
*4806	-																								48
*4810, 4812	-											35													48
*4813	-											35													48
*4814	-											35	36												48
*4815	-	25										35													48
*4816	-											35													48
*4817	-											35													48
*4818	-											35													
*4901	B49				28																				
*4902	-				28																				
Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48

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				53									62	63							70			-	*4441
				53									62	63							70			-	*4444
				53								61	62									71		-	*4446
				53									62								70			-	*4447
				53									62	63							70			-	*4449
				53				58		60			62								70			-	*4450
				53									62	63							70			-	*4453
				53									62								70			-	*4454
				53									62								70			-	*4457
				54								61	62			65					71			B45	*4501, 4505, 4507
				54								61	62								71			-	*4502, 4503
				54								61	62			65					71			-	*4504
			52	54								61				65					71			-	*4506
			52			55														69	71			B46	*460101-460102, 4604, 4605, 4607N, 4609
			w			55														69	71			-	*4602
			52			55															71			-	*4603, 4608
49			52			55															71			-	*4606
			52			55							62							69	71			-	*4610
			52			55							62			65					71			-	*4611
			52			55							62							69	71			-	*4612
							56						62								70			B47	*47010101-47010102
							56					61	62								71			-	*4702
							56						62								70	w		-	*4703
													62								70			-	*4704, 4705
								57					62									71	72	B48	*480101-480102, 4807, 4809, 4811, 4819
													62								71			-	*4802
49													62								71			B48	*480301-480302
								57					62								71			-	*4804
													62								71	72	B48	*4805, 4808	
								57													71	72	-	*4806	
													62								71	72	-	*4810, 4812	
													62								71			-	*4813
													62								71	72	-	*4814	
								57					62								71	72	-	*4815	
								57													71	72	-	*4816	
49													62								71	72	-	*4817	
								57					62								70		72	-	*4818
								58	59				62			65					70			B49	*4901
									59				62			65					70			-	*4902
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.

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*4903	-																								
*4904, 4905	-				28								36												
*5001, 5004	B50				28																				48
*5002	B45				28								35												48
*510101, 510103, 510105-510201, 510203, 5103, 5107, 510901, 5111N, 5112, 511302, 5114, 5117- 5119, 5122, 5123, 5126 5130, 5132, 5133, 5138 5141N, 5143, 5148, 5149, 5151	B51, B5102, B5103, Null									33															
*510102, 510202, 5105, 510902	B51									33															
*510104, 511301, 5116, 5121, 5124, 5131, 5134, 5135	B51, B52																								
*5104, 5146	B51									33								41							
*5106	B51									33															
*5108, 5120	B51								32	33															
*5110	-																								
*5115	-																								
*5136	-								32																
*5137	-									33			36												
*5142	-																	41							
*5144N	Null								32	33															
*5145	-												36												
*5150										33															
*520101, 520103, 5204, 5205, 5207, 5210, 5211	B52									33															
*520102, 520104-5203, 520601-520602, 5209	B52									33															
*5208	-																								
*530101-530104, 5305, 5308, 5310	B53												36					41							
*5302	B53												36					41							
*5303, 5309, 5311- 5313	-												36					41							
*5304, 5307	-																	41							
*5306	B53												36					41							
Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48

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49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.
										59			62			65					70			-	*4903
									58	59			62								70			-	*4904, 4905
										59		61	62			65					71			B50	*5001, 5004
										59		61	62			65						71		B45	*5002
					54					59	60					68					70			B51, B5102, B5103, Null	*510101, 510103, 510105-510201, 510203, 5103, 5107, 510901, 5111N, 5112, 511302, 5114, 5117-5119, 5122, 5123, 5126 5130, 5132, 5133, 5138 5141N, 5143, 5148, 5149, 5151
										59	60								68		70			B51	*510102, 510202, 5105, 510902
					54					59	60					68					70			B51, B52	*510104, 511301, 5116, 5121, 5124, 5131, 5134, 5135
					54	55					60								68		70			B51	*5104, 5146
					54						60								68		70			B51	*5106
					54					59	60								68		70			B51	*5108, 5120
					54						60								68		70			-	*5110
											60					65			68		70			-	*5115
					54					59	60								68		70			-	*5136
					54					59	60								68		70			-	*5137
					53	54					60								68		70			-	*5142
					54					59	60								68		70			Null	*5144N
					54						60								68		70			-	*5145
										59									68		70				*5150
										59	60		62								70			B52	*520101, 520103, 5204, 5205, 5207, 5210, 5211
					54					59	60		62								70			B52	*520102, 520104-5203, 520601-520602, 5209
										59	60		62								70			-	*5208
											60								68		70			B53	*530101-530104, 5305, 5308, 5310
					55						60								68		70			B53	*5302
																			68		70			-	*5303, 5309, 5311-5313
											60								68		70			-	*5304, 5307
					54	55					60								68		70			B53	*5306
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.

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Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
*5401, 5402, 5405N, 5407, 5408N, 5410, 5413	B54																								
*5403	-																								
*5404, 5411	-																								
*5406	-												36												
*5409	-												36												
*5412	-																								
*550101-550104, 5503, 5505, 5511, 5515, 5525	B55																								
*550201-550202, 5507, 5510, 5512, 5516, 5519, 5526	B54, B55																								
*5504, 5508, 5513, 5527, 5615, 5619N	B55																								
*5509, 5517, 5528	-																								
*5514	-												36					41							
*5518	-											35													
*5520	-																								
*5521	-																								
*5522	-											34													
*5523, 5618	-												36												
*5524	-											34													
*5601, 5608, 5614, 5616, 5620	B56																								
*5602, 5604	B56																								
*5603	B22												36												
*560501	-											33													
*560502	-											33													
*5606	B78											33						42							
*5607	-																								
*5609	-												36					41							
*5610	-																								
*5611, 5612	-																	41							
*5613	-								32																
*5617	-																								
*5621	-											33													
*570101-570103, 5706, 5708, 5710	B57												36					41							
*5702-5705	B57																	41							
*5707	-																	41							
*5709	-								32									41							
*5711	-												36												
Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48

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49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.
			52				56							63	64							71		B54	*5401, 5402, 5405N, 5407, 5408N, 5410, 5413
			52				56							63		65						71		-	*5403
			52				56							63								71		-	*5404, 5411
			52				56							63						69		71		-	*5406
			52				56							63								71		-	*5409
			52				56							63	64						70			-	*5412
			52				56			59					64							71		B55	*550101-550104, 5503, 5505, 5511, 5515, 5525
			52				56								64							71		B54, B55	*550201-550202, 5507, 5510, 5512, 5516, 5519, 5526
			52				56															71		B55	*5504, 5508, 5513, 5527, 5615, 5619N
			52				56			59												71		-	*5509, 5517, 5528
			52				56										66					71		-	*5514
														62	64							71		-	*5518
		51	52			54	56															71		-	*5520
			52				56			59					64					69		71		-	*5521
			52				56															71		-	*5522
			52				56															71		-	*5523, 5618
			52				56			59												71		-	*5524
			52				56										65					71		B56	*5601, 5608, 5614, 5616, 5620
			52				56										65		67			71		B56	*5602, 5604
			52				56													69		71		B22	*5603
			52				56			59					64							71		-	*560501
			52				56			59												71		-	*560502
			52				56			59					64							71		B78	*5606
			52				56										65				70			-	*5607
			52				56															71		-	*5609
			52				56								64				67			71		-	*5610
			52				56															71		-	*5611, 5612
			52		54		56										65					71		-	*5613
																	65					71		-	*5617
			52				56			59											70			-	*5621
										60									66			70		B57	*570101-570103, 5706, 5708, 5710
										60									66			70		B57	*5702-5705
				53						60									66			70		-	*5707
				53						60									66			70		-	*5709
										60									66			70		-	*5711
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.

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Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
*5712	-																	41							
*5713												36													
*5714				27								36						41							
*5801, 5804, 5805, 5810N-5814	B58											36						41							
*5802, 5806	B58											36													
*5807	-											36	37												
*5808	-									33															
*5809	-											36						41							
*5815	-											36						41							
*5901	B59																								
*5902	-																								
*670101	B67					29																45			48
*670102	B67																				45				48
*6702	-																				45				48
*7301	B73																								48
*7801, 780202, 7803	B78									33								42							
*780201, 7804	B78									33								42							
*7805	-									33								42							
*8101	B81																								
*8102	-																								48
*8103	-																								
*8201, 8202	-								32			35						43							
*8301	-																	41							
HLA-B allele ⁴	ser. ⁵																								
Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Cw*0206												?													
Cw*0305, 0325, 0327				27																					
Cw*0746									32																
Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48

¹The internal positive control primer pairs amplify segments of the human growth hormone gene. The two different control primer pairs give rise to either an internal positive control band of 1070 base pairs, for most wells, or a band of 800 base pairs, for some wells.

Well number 1 contains the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to help in the correct orientation of the HLA-B low resolution typing.

In addition, wells number 30, 33, 34, 44, 45, 54, 59 and 66 contain the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to allow kit identification.

²The nucleotide position, in the 1st, 2nd or 3rd exon or in the 1st intron, matching the specificity-determining 3'-end of the primer is given. Codon numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

³The nucleotide position, in the 2nd, or 3rd exon or the 1st or 3rd introns, matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Codon numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

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49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.
													62				66					71		-	*5712
										60			62				66				70				*5713
						55				60			62				66				70				*5714
										60							67				70			B58	*5801, 5804, 5805, 5810N-5814
										60							67				70			B58	*5802, 5806
										60							67				70			-	*5807
					54					59	60						67				70			-	*5808
						55				60							67				70			-	*5809
										60			62				67				70			-	*5815
													64								70			B59	*5901
										60											70			-	*5902
			52																		71			B67	*670101
			52																		71			B67	*670102
			w																		71			-	*6702
			52																	69		71		B73	*7301
										59			64						68		71			B78	*7801, 780202, 7803
										59									68		71			B78	*780201, 7804
										59			62								71			-	*7805
			52				56	57													71	72		B81	*8101
			52					57													71	72		-	*8102
			52					57													71	72		-	*8103
			52				56									65					71			-	*8201, 8202
			52	53			56						63								71			-	*8301
																								ser. ⁵	HLA-B allele ⁴
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.

⁴The nucleotide sequences of the B*3580 and B*3581 alleles are not yet retrievable from the GenBank or EMBL data banks.

The sequence of the B*0701 allele has been shown to be in error.

The sequence of the B*1305 allele has been shown to be identical to B*1304.

The B*1522 allele has been renamed B*3543.

The sequence of the B*1541 allele has been shown to be identical to B*1539.

The B*1559 allele has been renamed B*3544.

The sequence of the B*1816 allele has been shown to be identical to B*1814.

The sequence of the B*27051 allele has been shown to be identical to B*27052.

The sequence of the B*2722 allele has been shown to be identical to the corrected B*2706 sequence.

The B*3573 allele has been renamed B*350803.

The sequence of the B*39012 allele has been shown to be identical to B*39011.

The sequence of the B*3921 allele has been shown to be identical to B*3924.

The sequence of the B*4017 allele has been shown to be identical to B*4016.

The sequence of the B*4041 allele has been shown to be identical to B*4040.

The sequence of the B*4203 allele has been shown to be in error.

The sequence of the B*4401 allele has been shown to be identical to B*4402.

The sequence of the B*5003 allele has been shown to be identical to B*5002.

The sequence of the B*5125 allele has been shown to be identical to B*5122.

The B*5147 allele has been renamed B*510902.

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The sequence of the B*5506 allele has been shown to be identical to B*5504.

The sequence of the B*5803 allele has never been assigned.

The B*7901 allele has been renamed B*1518.

The B*7901 allele has been renamed B*1518.

The B*9530 allele has been renamed B*152702.

The B*0826 and B*4207 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These two alleles can be separated by the respective high resolution primer sets.

The B*5504, B*5508, B*5513, B*5527, B*5615 and B*5619N give rise to identical amplification patterns with the HLA-B low resolution primer set. These five alleles can be separated by the respective high resolution primer sets.

The B*5523 and B*5618 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These two alleles can be separated by the respective high resolution primer sets.

⁵The serological reactivity of all HLA-B alleles is not known. In this table we use the information in the HLA Dictionary 2004 on the www.ebi.ac.uk/imgt/hla web site and the information available at the www.worldmarrow.org web site and have also inferred the serological grouping from the naming of the sequence-defined allele.

'ser', serological HLA specificity.

'w', might be weakly amplified.

'?', nucleotide sequence information not available for the primer matching sequence.

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INTERPRETATION TABLE																								
DR low resolution SSP typing																								
Amplification patterns of the DRB1*0101 to DRB1*1001 alleles																								
		Well																						
		73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
Length of spec.		205	195	215	210	220	80	80	100	205	165	85	205	100	85	210	195	175	100	110	110	230	215	260
PCR product				260			210	210	175	230	215	130		170	105		210		140	135	175			
											250	180								170	225			
Length of int.		515	430	430	430	430	430	430	430	430	515	430	430	430	430	430	430	430	430	515	430	430	430	430
pos. control ¹																								
5'-primer(s) ²		14	14	13	13	13	13	13	13	14	16	26	31	13	16	10	10	13	37	26	13	10	28	13
		5'-gAA ³	5'-gAA ³	5'-Agg ³	5'-Agg ³	5'-g TC ³	5'-g TC ³	5'-g TC ³	5'-A CA ³	5'-AT A ³	5'-gT T ³	5'-TAT ³	5'-gC g ³	5'-g TC ³	5'-gT T ³	5'-g CT ³	5'-g CT ³	5'-g TC ³	5'-g TA ³	5'-g TA ³	5'-g TC ³	5'-g CT ³	5'-g AT ³	5'-g TA ³
					13		16		13	14	16	58		16		13	13		37	34	34	10		13
					5'-AAg ³		5'-gT T ³		5'-A CC ³	5'-AT A ³	5'-gT T ³	5'-gAg ³		5'-gT C ³		5'-g TC ³	5'-g TC ³		5'-g TT ³	5'-Cag ³	5'-Cag ³	5'-g CT ³		5'-g TA ³
									13	16				38			16							
									5'-A TA ³	5'-gT T ³				5'-C gT ³		5'-gT T ³	16							
																	5'-gT C ³							
																	5'-gT C ³							
3'-primer(s) ³		73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
		5'-gAg ³	5'-gAT ³	5'-CTg ³	5'-gAA ³	5'-g gC ³	5'-g gT ³	5'-CT C ³	5'-gTg ³	5'-CTC ³	5'-C CT ³	5'-C gA ³	5'-C AC ³	5'-C CT ³	5'-gTg ³	5'-gTC ³	5'-gAA ³	5'-C gg ³	5'-C Ag ³	5'-C Ag ³	5'-C Ag ³	5'-g gC ³	5'-CTC ³	5'-CTC ³
		71		71	67	73	71	70	58	73	74	73	86	58	38	71	67	58	71	58	60	73		
		5'-gC g ³		5'-CgC ³	5'-gAg ³	5'-g gC ³	5'-g CT ³	5'-CTg ³	5'-C gg ³	5'-g gC ³	5'-Cag ³	5'-g gC ³	5'-C CA ³	5'-C CT ³	5'-Cag ³	5'-g CT ³	5'-gAA ³	5'-C Ag ³	5'-CgC ³	5'-C CT ³	5'-gTg ³	5'-g gC ³		
				86	72					77	86	78					71			70	70			
				5'-C CA ³	5'-gC g ³					5'-A AT ³	5'-C AC ³	5'-CAC ³					5'-CTC ³			5'-CTg ³	5'-T CC ³			
										78							71			70	74			
										5'-CAC ³							5'-CgC ³			5'-T CC ³	5'-Cag ³			
Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
DRB1 allele ⁴	ser ⁵																							
*010101-010204, 0104-0119	1	73																						
*0103	103		74																					
Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23

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Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
*030101-030106, 0304-0306, 0309, 0311-0316, 0318-0320, 0322, 0323, 0325, 0326, 0328, 0330, 0331, 0333, 0334, 0336, 0337	17					77	78											89						
*030201-0303, 0327, 0329, 0338	18					77		79										89						
*0307, 0317, 0321, 0324, 0332, 0335, 0339	-					77												89						
*0308	-					77	78					83		85					91					
*0310	-					77	78												91	92				
*040101-0461, 0463-0468, 0470, 0471	4								80															
*0462, 0469	-								80									90						
*070101-070102, 0703-0715	7									81														
*080101-080203, 080401-0807, 0811, 0816, 0817, 0822, 0824, 0826, 0828	8											82					88							
*080302, 0810, 0812-0815, 0818, 0819, 0823, 0825, 0827, 0829, 0830, 0833, 0834	8											82												
*0808	-											82					88	90						
*0809, 0821, 1415	8											82					88			92				
*0820, 1318, 1347, 1355	8,13															87	88	89		92				
*0831	-											82			85		88							
*0832	-											82			86					92				
*090102-0902, 0904-0906	9												83						91					
*0903	9												83											
*100101-1002	10												84											
*110101-110107, 110401-110403, 110601-110602, 111201, 1115, 1124, 112701-1130, 1132, 1133, 1135, 1137-1139, 1143, 1144, 1147, 1149-1151, 115401-115402, 1156, 1160-1162, 1166	11														85		87	88						
Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23

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Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
*110201-1103, 111101-111102, 111401-111402, 1121, 1136, 1141, 1148, 1163, 116501-116502	11						78								85		87 88							
*110404, 1109, 1110, 111202, 1146, 1158	11														85		87 88		91					
*1105	11														85		88							
*1107, 1153	-					77					83			85										
*110801-110802, 1118-111902, 1142, 1157	11													85		87								
*1113, 1117, 1152	11													85					91 92					
*1116, 1120, 1140, 1159	-						78							85		87 88			91					
*1122	-													85					91					
*1123, 1125	11													85		87 88				92				
*1126, 1134	11						79							85										
*1131, 1145, 1164	-													85		87				92				
*1155	-													85		88			92					
*120101-120102, 120302, 1205-1212, 1214	12														86									
*120201-120202, 1213, 1215	12														86		88							
*1204	-										82				86				91					
*1216	-										82				86		88							
*130101-130201, 130203, 1304, 1308, 1316, 1320, 1322-1324, 1327-1329, 1331, 1332, 1334-1336, 1338-1341, 1348, 1351, 1352, 1354, 1359, 1361, 1363-1365, 1368-1376, 1378, 1380	13						78									87 88	89							
*130202, 130301-130302, 1310, 1333, 1337, 1366, 1381	13						78								87		89							
*130501-130502, 130701-130702, 1311, 131401-131402, 1321, 1342, 1346, 1349, 1350, 1362	13															87 88	89							
*1306, 1312, 1325, 1330, 1356, 1358, 1360, 1377	13														87		89							
Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23

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Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
*1309	13																88	89						
*1313	-																87	89		92				
*1315, 1319, 1353, 1357	-						78	79									87	88	89					
*1317	13						78			81							88							
*1326	-							79									87	88	89					
*1343	-						78										87	88		91	92			
*1344	-							79											89					
*1345	-						78										87	88	90		92			
*1367	-																87	88						
*140101-140102, 1404, 140701-140702, 1410, 1426, 1428, 1431-143202, 1435, 1438, 1439, 1454, 1455, 1457, 1460-1462, 1470, 1471	14																		90	91	92			
*140103, 1408, 142302, 1434, 1472	-																			91	92			
*1402, 1406, 1409, 1413, 1417, 1420, 1429, 1430, 1433, 1441, 1447, 1448, 1451	14							79										89		91				
*140301-140302, 1412, 1440, 1463, 1467	14							79									87	89			92			
*140501-140503, 1414, 142301, 1436, 1443-1445, 1456, 1459, 1464, 1465	14																	89		91	92			
*1411	-										82									91	92			
*1416	6						78										87	88	90	91	92			
*1418	-							79											89		91	92		
*1419, 1421	-						78	79									87	89		91				
*1422	-																87	88	90	91	92			
*1424	-							79									88	89						
*1425, 1453	-																87	88	90		92			
*1427	14							79									87	88	89		92			
*1437	-																88	89	90					
*1442																		89			92			
*1446, 1452	-																			91				
*1449	-							79											90	91	92			
*1450	-									81									90	91	92			
*1458	-																		90		92			
*1468	-										82								90	91	92			
*1469	-																87		90		92			
*1473	-																88		90	91	92			
Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23

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Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
*1474	-																87			90	91	92		
*150101-1520, 1522-1526	15			75																				
*1521	-			75																	w			
*1527	-			75																91				
*160101-1603, 160501-160502, 1607-1613N	16			76																				
*1604	16			76																	w			
Well No.		73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
DRB1 allele⁴	ser⁵																							
DRB3*01010201-0111, 020101-0223, 030101-0303	52																					93		
DRB4*01010101-0107	53																						94	
DRB5*010101-0113, 0202-0205	51																							95
Well No.	ser ⁵	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95

¹The internal positive control primer pairs amplify segments of the human growth hormone gene. The two different control primer pairs give rise to either an internal positive control band of 430 base pairs, for most wells, or a band of 515 base pairs, for some wells.

Well number 73 contains the primer pair giving rise to the longer, 515 bp, internal positive control band in order to help in the correct orientation of the DR low resolution typing.

In addition, wells number 82 and 91 contain the primer pair giving rise to the longer, 515 bp, internal positive control band in order to allow kit identification.

²The codon, in the 2nd exon, matching the specificity-determining 3'-end of the primer is given. Codon numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given. Empty spaces indicate codon boundaries.

³The codon, in the 2nd exon, matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Codon numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given. Empty spaces indicate codon boundaries.

⁴The sequence of the DRB1*0702 allele has been shown to be identical to DRB1*070101.

The sequence of the DRB1*08031 allele has been shown to be identical to DRB1*080302.

The sequence of the DRB1*09011 allele has been shown to be identical to DRB1*090102.

The sequence of the DRB1*12031 allele has been shown to be identical to DRB1*1201.

The sequence of the DRB1*1466 allele has been shown to be identical to DRB1*142302.

The sequence of the DRB1*1606 allele has been shown to be identical to DRB1*1605.

The DRB4*01010102N allele has been renamed DRB4*01030102N.

The sequence of the DRB5*0201 allele has been shown to be identical to DRB5*0202.

⁵The serological reactivity of all DRB alleles is not known. In this table we use the information in the HLA Dictionary 2004 on the www.ebi.ac.uk/imgt/hla web site and the information available at the www.worldmarrow.org web site and have also inferred the serological grouping from the naming of the sequence-defined allele.

'ser', serological HLA specificity.

'w', may be weakly amplified.

'f', may be faintly amplified.

'?', nucleotide sequence information for the primer matching region(s) is not known.

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Lot-specific information

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CELL LINE VALIDATION SHEET																
HLA-A low resolution primer set																
						Well										
						1	2	3	4	5	6	7	8	9	10	11
					Lot No.:	200739101	200739102	200739103	200739104	200739105	200739106	200739107	200739108	200739109	200739110	200739111
						200739112	200739113	200739114	200739115	200739116	200739117	200739118	200739119	200739120	200739121	200739122
	IHWC cell line	A*	A*													
1	9001 SA	*2402				-	-	-	-	+	-	+	-	-	-	-
2	9280 LK707	*0201				-	+	-	-	-	-	-	-	-	-	-
3	9011 E4181324	*0101				+	-	-	+	-	-	-	-	-	-	-
4	9275 GU373	*3001				-	-	-	-	-	-	-	-	-	-	+
5	9009 KAS011	*0101				+	-	-	+	-	-	-	-	-	-	-
6	9353 SM	*0201	*2603			-	+	-	-	-	-	-	+	-	+	-
7	9020 QBL	*2601				-	-	-	-	-	-	-	+	-	+	-
8	9007 DEM	*0201				-	+	-	-	-	-	-	-	-	-	-
9	9026 YAR	*2601				-	-	-	-	-	-	-	+	-	+	-
10	9107 LKT3	*2402				-	-	-	-	+	-	+	-	-	-	-
11	9051 PITOUT	*2902				-	-	-	-	-	-	-	-	-	-	+
12	9052 DBB	*0201				-	+	-	-	-	-	-	-	-	-	-
13	9067 BTB	*0201				-	+	-	-	-	-	-	-	-	-	-
14	9071 OLGA	*3101				-	-	-	-	-	-	-	-	-	-	-
15	9075 DKB	*2402				-	-	-	-	+	-	+	-	-	-	-
16	9037 SWEIG007	*2902				-	-	-	-	-	-	-	-	-	-	+
17	9008 WILJON	*2501				-	-	-	-	-	-	-	+	+	-	-
18	9257 32367	*3303	*7401			-	-	-	-	-	-	-	-	-	-	-
19	9038 BM16	*0201				-	+	-	-	-	-	-	-	-	-	-
20	9059 SLE005	*0201				-	+	-	-	-	-	-	-	-	-	-
21	9064 AMALA	*0217				-	+	-	-	-	-	W	-	-	-	-
22	9056 KOSE	*0201				-	+	-	-	-	-	-	-	-	-	-
23	9124 IHL	*0201	*3401			-	+	-	-	-	-	-	+	-	+	-
24	9035 JBUSH	*3201				-	-	-	-	-	-	-	+	-	-	-
25	9049 IBW9	*3301				-	-	-	-	-	-	-	-	-	-	-
26	9285 WT49	*0205				-	+	-	-	-	-	-	-	-	-	-
27	9191 CH1007	*2410	*2901			-	-	-	-	+	-	+	-	-	-	-
28	9320 BEL5GB	*0201	*2902			-	+	-	-	-	-	-	-	-	-	+
29	9050 MOU	*2902				-	-	-	-	-	-	-	-	-	-	+
30	9021 RSH	*3001	*6802			-	-	-	-	-	-	-	+	-	-	+
31	9019 DUCAF	*3002				-	-	-	-	-	-	-	-	-	-	+
32	9297 HAG	*0201				-	+	-	-	-	-	-	-	-	-	-
33	9098 MT14B	*3101				-	-	-	-	-	-	-	-	-	-	-
34	9104 DHIF	*3101				-	-	-	-	-	-	-	-	-	-	-
35	9302 SSTO	*3201				-	-	-	-	-	-	-	+	-	-	-
36	9024 KT17	*0206	*1101			-	+	-	+	-	-	-	-	-	+	-
37	9065 HHKB	*0301				-	-	+	-	-	-	-	-	-	-	+
38	9099 LZL	*0217				-	+	-	-	-	-	W	-	-	-	-
39	9315 CML	*0101	*0301			+	-	+	+	-	-	-	-	-	-	+
40	9134 WHONP199	*0207	*3001			-	+	-	-	-	-	-	-	-	-	+
41	9055 H0301	*0301				-	-	+	-	-	-	-	-	-	-	+
42	9066 TAB089	*0207				-	+	-	-	-	-	-	-	-	-	-
43	9076 T7526	*0207				-	+	-	-	-	-	-	-	-	-	-
44	9057 TEM	*6601				-	-	-	-	-	-	-	+	-	+	-
45	9239 SHJO	*2301	*2402			-	-	-	-	+	+	+	-	-	-	-
46	9013 SCHU	*0301				-	-	+	-	-	-	-	-	-	-	+
47	9045 TUBO	*0216	*0301			-	+	+	-	-	-	-	-	-	-	+
48	9303 TER-ND	*0201	*1101			-	+	-	+	-	-	-	-	-	-	-

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CELL LINE VALIDATION SHEET												
HLA-A low resolution primer set												
					Well							
					17	18	19	20	21	22	23	24
				Lot No.:	200739717	200739718	200739719	200739720	200739721	200739722	200739723	200739724
	IHCW cell line		A*	A*								
1	9001	SA	*2402		-	-	-	-	-	-	-	-
2	9280	LK707	*0201		-	-	-	-	-	-	-	-
3	9011	E4181324	*0101		-	-	-	-	-	-	-	+
4	9275	GU373	*3001		-	-	-	-	-	-	-	-
5	9009	KAS011	*0101		-	-	-	-	-	-	-	+
6	9353	SM	*0201	*2603	-	-	-	-	-	-	+	-
7	9020	QBL	*2601		-	-	-	-	-	-	-	-
8	9007	DEM	*0201		-	-	-	-	-	-	-	-
9	9026	YAR	*2601		-	-	-	-	-	-	-	-
10	9107	LKT3	*2402		-	-	-	-	-	-	-	-
11	9051	PITOUT	*2902		-	-	-	-	-	-	-	-
12	9052	DBB	*0201		-	-	-	-	-	-	-	-
13	9067	BTB	*0201		-	-	-	-	-	-	-	-
14	9071	OLGA	*3101		-	-	-	-	-	-	-	-
15	9075	DKB	*2402		-	-	-	-	-	-	-	-
16	9037	SWEIG007	*2902		-	-	-	-	-	-	-	-
17	9008	WILJON	*2501		-	-	-	-	-	-	-	-
18	9257	32367	*3303	*7401	-	+	+	-	-	-	-	-
19	9038	BM16	*0201		-	-	-	-	-	-	-	-
20	9059	SLE005	*0201		-	-	-	-	-	-	-	-
21	9064	AMALA	*0217		-	-	-	-	-	-	-	-
22	9056	KOSE	*0201		-	-	-	-	-	-	-	-
23	9124	IHL	*0201	*3401	-	-	-	-	-	-	-	-
24	9035	JBUSH	*3201		+	-	-	-	-	-	-	-
25	9049	IBW9	*3301		-	+	-	-	-	-	-	-
26	9285	WT49	*0205		-	-	-	-	-	-	-	-
27	9191	CH1007	*2410	*2901	-	-	-	-	-	-	-	-
28	9320	BEL5GB	*0201	*2902	-	-	-	-	-	-	-	-
29	9050	MOU	*2902		-	-	-	-	-	-	-	-
30	9021	RSH	*3001	*6802	-	-	-	+	-	-	-	-
31	9019	DUCAF	*3002		-	-	-	-	-	-	-	-
32	9297	HAG	*0201		-	-	-	-	-	-	-	-
33	9098	MT14B	*3101		-	-	-	-	-	-	-	-
34	9104	DHIF	*3101		-	-	-	-	-	-	-	-
35	9302	SSTO	*3201		+	-	-	-	-	-	-	-
36	9024	KT17	*0206	*1101	-	-	-	-	-	-	-	+
37	9065	HHKB	*0301		-	-	-	-	-	-	-	-
38	9099	LZL	*0217		-	-	-	-	-	-	-	-
39	9315	CML	*0101	*0301	-	-	-	-	-	-	-	+
40	9134	WHONP199	*0207	*3001	-	-	-	-	-	-	-	-
41	9055	H0301	*0301		-	-	-	-	-	-	-	-
42	9066	TAB089	*0207		-	-	-	-	-	-	-	-
43	9076	T7526	*0207		-	-	-	-	-	-	-	-
44	9057	TEM	*6601		-	-	-	-	-	-	-	-
45	9239	SHJO	*2301	*2402	-	-	-	-	-	-	-	-
46	9013	SCHU	*0301		-	-	-	-	-	-	-	-
47	9045	TUBO	*0216	*0301	-	-	-	-	-	-	-	-
48	9303	TER-ND	*0201	*1101	-	-	-	-	-	-	-	+

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CELL LINE VALIDATION SHEET				Well																
HLA-B low resolution SSP kit																				
				Prod. No.:	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
					200734301	200734302	200734303	200734304	200734305	200734306	200734307	200734308	200734309	200734310	200734311	200734312	200734313	200734314	200734315	200734316
	IHWC cell line	B*																		
1	9001 SA	*0702			+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280 LK707	*5201	*7301		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
3	9011 E4181324	*52011			-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
4	9275 GU373	*1510	*5301		-	-	-	-	-	-	-	+	-	+	-	+	-	-	-	-
5	9009 KAS011	*3701			-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
6	9353 SM	*3901	*5101		-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-
7	9020 QBL	*1801			-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
8	9007 DEM	*5701			-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
9	9026 YAR	*3801			-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
10	9107 LKT3	*5401			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	9051 PITOUT	*4403			-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
12	9052 DBB	*5701			-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
13	9067 BTB	*2705			-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+
14	9071 OLGA	*1501	*1520		-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-
15	9075 DKB	*4001			-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
16	9037 SWEIG007	*4002			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	9008 WILJON	*1801			-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
18	9257 32367	*1401	*5601		-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-
19	9038 BM16	*1801			-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
20	9059 SLE005	*4001			-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
21	9064 AMALA	*1501			-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-
22	9056 KOSE	*3503			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	9124 IHL	*4002	*5602		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	9035 JBUSH	*3801			-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
25	9049 IBW9	*1402			-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-
26	9285 WT49	*5801			-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
27	9191 CH1007	*0705	*5101		+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
28	9320 BEL5GB	*4402	*4403		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
29	9050 MOU	*4403			-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
30	9021 RSH	*4201			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
31	9019 DUCAF	*1801			-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
32	9297 HAG	*4102			-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-
33	9098 MT14B	*4001			-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
34	9104 DHIF	*3801			-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
35	9302 SSTO	*4402			-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
36	9024 KT17	*1501	*3501		-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-
37	9065 HHKB	*0702			+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	9099 LZL	*1501			-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-
39	9315 CML	*0801	*2705		-	+	-	-	+	-	-	+	-	-	-	-	-	-	-	+
40	9134 WHONP199	*1302	*4601		-	-	+	+	-	-	+	-	-	+	-	+	-	-	-	-
41	9055 H0301	*1402			-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-
42	9066 TAB089	*4601			-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-
43	9076 T7526	*4601			-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-
44	9057 TEM	*3801			-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
45	9239 SHJO	*4201	*5001		-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-
46	9013 SCHU	*0702			+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	9045 TUBO	*5101			-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
48	9303 TER-ND	*3501	*4403		-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-

[illegible]

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Lot-specific information

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CELL LINE VALIDATION SHEET																					
HLA-B low resolution SSP kit																					
					Well																
						57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72
				Prod. No.:		200734333	200734334	200734335	200734336	200734337	200734339	200734339	200734340	200734341	200734342	200734343	200734344	200734345	200734346	200734347	200734372
	IHC cell line		B*																		
1	9001	SA	*0702		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	
2	9280	LK707	*5201	*7301	-	-	+	+	-	+	-	-	-	-	-	-	-	-	+	-	-
3	9011	E4181324	*52011		-	-	+	+	-	+	-	-	-	-	-	-	-	+	+	+	-
4	9275	GU373	*1510	*5301	-	-	-	+	-	-	-	-	-	-	-	-	+	-	+	+	-
5	9009	KAS011	*3701		-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-	-
6	9353	SM	*3901	*5101	-	-	+	+	-	-	-	-	-	-	-	-	+	-	+	+	-
7	9020	QBL	*1801		-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
8	9007	DEM	*5701		-	-	-	+	-	-	-	-	-	-	+	-	-	-	+	-	-
9	9026	YAR	*3801		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
10	9107	LKT3	*5401		-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	+	-
11	9051	PITOUT	*4403		-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-	-
12	9052	DBB	*5701		-	-	-	+	-	-	-	-	-	-	+	-	-	-	+	-	-
13	9067	BTB	*2705		-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-	-
14	9071	OLGA	*1501	*1520	-	-	-	-	-	-	+	-	-	-	-	-	-	+	-	+	-
15	9075	DKB	*4001		-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	+	-
16	9037	SWEIG007	*4002		-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	+	-
17	9008	WILJON	*1801		-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
18	9257	32367	*1401	*5601	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+	-
19	9038	BM16	*1801		-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
20	9059	SLE005	*4001		-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	+	-
21	9064	AMALA	*1501		-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	+	-
22	9056	KOSE	*3503		-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
23	9124	IHL	*4002	*5602	-	-	-	-	+	+	-	-	-	+	-	+	-	-	-	+	-
24	9035	JBUSH	*3801		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
25	9049	IBW9	*1402		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
26	9285	WT49	*5801		-	-	-	+	-	-	-	-	-	-	-	+	-	-	+	-	-
27	9191	CH1007	*0705	*5101	-	-	+	+	-	-	-	-	-	-	-	-	+	-	+	+	+
28	9320	BEL5GB	*4402	*4403	-	-	-	-	-	-	+	+	-	-	-	-	-	-	+	-	-
29	9050	MOU	*4403		-	-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-
30	9021	RSH	*4201		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
31	9019	DUCAF	*1801		-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
32	9297	HAG	*4102		-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	+	+
33	9098	MT14B	*4001		-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	+	-
34	9104	DHIF	*3801		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
35	9302	SSTO	*4402		-	-	-	-	-	+	+	-	-	-	-	-	-	-	+	-	-
36	9024	KT17	*1501	*3501	-	-	-	-	-	+	-	-	-	-	-	-	+	+	-	+	-
37	9065	HHKB	*0702		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
38	9099	LZL	*1501		-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-	+
39	9315	CML	*0801	*2705	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	+	+
40	9134	WHONP199	*1302	*4601	-	-	-	-	-	+	-	-	-	-	-	-	-	+	+	+	-
41	9055	H0301	*1402		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
42	9066	TAB089	*4601		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-
43	9076	T7526	*4601		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-
44	9057	TEM	*3801		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
45	9239	SHJO	*4201	*5001	-	-	+	-	+	+	-	-	-	+	-	-	-	-	-	+	+
46	9013	SCHU	*0702		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
47	9045	TUBO	*5101		-	-	+	+	-	-	-	-	-	-	-	-	+	-	+	-	-
48	9303	TER-ND	*3501	*4403	-	-	-	-	-	+	-	-	-	-	-	-	+	-	+	+	-

Lot No.: **02E**

Lot-specific information

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CELL LINE VALIDATION SHEET																					
DR low resolution primer set																					
					Well																
						73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
				Prod. No.:		200734001	200734002	200739303	200739304	200734005	200734006	200734007	200739308	200734009	200734010	200734011	200739312	200734013	200734014	200734015	200734016
	IHCW cell line			DRB1																	
1	9001	SA	*0101		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2	9280	LK707	*1502	*0405	-	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-	
3	9011	E4181324	*1502		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	
4	9275	GU373	*0301		-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	
5	9009	KAS011	*1601		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	
6	9353	SM	*0407	*0803	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	
7	9020	QBL	*0301		-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	
8	9007	DEM	*0401	*1602	-	-	-	+	-	-	-	-	+	-	-	-	-	-	-	-	
9	9026	YAR	*0402		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	
10	9107	LKT3	*0405		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	
11	9051	PITOUT	*0701		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	
12	9052	DBB	*0701		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	
13	9067	BTB	*0801		-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	+	
14	9071	OLGA	*0802		-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	+	
15	9075	DKB	*0901		-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	
16	9037	SWEIG007	*1101		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	
17	9008	WILJON	*1501		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	
18	9257	32367	*0901	*1101	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	+	
19	9038	BM16	*1201		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	
20	9059	SLE005	*1302		-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	
21	9064	AMALA	*1402		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	
22	9056	KOSE	*1302	*1401	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	
23	9124	IHL	*0803	*1414	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	+	
24	9035	JBUSH	*1101		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	
25	9049	IBW9	*0701		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	
26	9285	WT49	*0301		-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	
27	9191	CH1007	*0405	*1001	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	
28	9320	BEL5GB	*0416	*0701	-	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	
29	9050	MOU	*0701		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	
30	9021	RSH	*0302		-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	
31	9019	DUCAF	*0301		-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	
32	9297	HAG	*1303		-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-	
33	9098	MT14B	*0404		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	
34	9104	DHIF	*1101		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	
35	9302	SSTO	*0403		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	
36	9024	KT17	*0403	*0406	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	
37	9065	HHKB	*1301		-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	+	
38	9099	LZL	*1402		-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	
39	9315	CML	*0301	*0401	-	-	-	-	+	+	-	+	-	-	-	-	-	-	-	-	
40	9134	WHONP199	*0701	*0901	-	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	
41	9055	H0301	*1302		-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	
42	9066	TAB089	*0803		-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	
43	9076	T7526	*0901		-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	
44	9057	TEM	*1401		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
45	9239	SHJO	*0701		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	
46	9013	SCHU	*1501		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	
47	9045	TUBO	*1104	*1201	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	
48	9303	TER-ND	*0103		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Lot No.: **02E**

Lot-specific Information

CELL LINE VALIDATION SHEET													
DR low resolution primer set													
					Well								
						89	90	91	92	93	94	95	
					Prod. No.:	200734017	200734018	200734019	200734020	200734021	200734022	200734023	
	IHCW cell line			DRB1									
1	9001	SA		*0101		-	-	-	-	-	-	-	
2	9280	LK707		*1502	*0405	-	-	-	-	-	+	+	
3	9011	E4181324		*1502		-	-	-	-	-	-	+	
4	9275	GU373		*0301		+	-	-	-	+	-	-	
5	9009	KAS011		*1601		-	-	-	-	-	-	+	
6	9353	SM		*0407	*0803	-	-	-	-	-	+	-	
7	9020	QBL		*0301		+	-	-	-	+	-	-	
8	9007	DEM		*0401	*1602	-	-	-	-	-	+	+	
9	9026	YAR		*0402		-	-	-	-	-	+	-	
10	9107	LKT3		*0405		-	-	-	-	-	+	-	
11	9051	PITOUT		*0701		-	-	-	-	-	+	-	
12	9052	DBB		*0701		-	-	-	-	-	+	-	
13	9067	BTB		*0801		-	-	-	-	-	-	-	
14	9071	OLGA		*0802		-	-	-	-	-	-	-	
15	9075	DKB		*0901		-	-	+	-	-	+	-	
16	9037	SWEIG007		*1101		-	-	-	-	+	-	-	
17	9008	WILJON		*1501		-	-	-	-	-	-	+	
18	9257	32367		*0901	*1101	-	-	+	-	+	+	-	
19	9038	BM16		*1201		-	-	-	-	+	-	-	
20	9059	SLE005		*1302		+	-	-	-	+	-	-	
21	9064	AMALA		*1402		+	-	+	-	+	-	-	
22	9056	KOSE		*1302	*1401	+	+	+	+	+	-	-	
23	9124	IHL		*0803	*1414	+	-	+	+	+	-	-	
24	9035	JBUSH		*1101		-	-	-	-	+	-	-	
25	9049	IBW9		*0701		-	-	-	-	-	+	-	
26	9285	WT49		*0301		+	-	-	-	+	-	-	
27	9191	CH1007		*0405	*1001	-	-	-	-	-	+	-	
28	9320	BEL5GB		*0416	*0701	-	-	-	-	-	+	-	
29	9050	MOU		*0701		-	-	-	-	-	+	-	
30	9021	RSH		*0302		+	-	-	-	+	-	-	
31	9019	DUCAF		*0301		+	-	-	-	+	-	-	
32	9297	HAG		*1303		+	-	-	-	+	-	-	
33	9098	MT14B		*0404		-	-	-	-	-	+	-	
34	9104	DHIF		*1101		-	-	-	-	+	-	-	
35	9302	SSTO		*0403		-	-	-	-	-	+	-	
36	9024	KT17		*0403	*0406	-	-	-	-	-	+	-	
37	9065	HHKB		*1301		+	-	-	-	+	-	-	
38	9099	LZL		*1402		+	-	+	-	+	-	-	
39	9315	CML		*0301	*0401	+	-	-	-	+	+	-	
40	9134	WHONP199		*0701	*0901	-	-	+	-	-	+	-	
41	9055	H0301		*1302		+	-	-	-	+	-	-	
42	9066	TAB089		*0803		-	-	-	-	-	-	-	
43	9076	T7526		*0901		-	-	+	-	-	+	-	
44	9057	TEM		*1401		-	+	+	+	+	-	-	
45	9239	SHJO		*0701		-	-	-	-	+	-	-	
46	9013	SCHU		*1501		-	-	-	-	-	-	+	
47	9045	TUBO		*1104	*1201	-	-	-	-	+	-	-	
48	9303	TER-ND		*0103		-	-	-	-	-	-	-	

CERTIFICATE OF ANALYSIS

Olerup SSP® HLA-A-B-DR SSP Combi Tray

Product number: 101.701-24/06 – including *Taq* pol.
101.701-24u/06u – without *Taq* pol.
Lot number: 02E
Expiry date: 2010-January-01
Number of tests: 24 tests – Product No. 101.701-24/24u
6 tests – Product No. 101.702-06/06u
Number of wells per test: 95 + 1

Well specifications:

Well No.	Production No.	Well No.	Production No.	Well No.	Production No.
1	2007-397-01	9	2007-397-09	17	2007-397-17
2	2007-397-02	10	2007-397-10	18	2007-397-18
3	2007-397-03	11	2007-332-11	19	2007-397-29
4	2007-397-04	12	2007-397-12	20	2007-397-20
5	2007-397-05	13	2007-397-13	21	2007-397-21
6	2007-332-06	14	2007-397-14	22	2007-397-22
7	2007-397-07	15	2007-397-15	23	2007-397-23
8	2007-397-08	16	2007-397-16	24	2007-397-24

The specificity of each primer solution of the kit has been tested against 48 well characterized IHWC cell line DNAs.

Additional 5'-primers in primer solutions 8 and 10 were tested by separately adding one 3'-primer. Additional 3'-primers in primer solutions 3, 4, 8, 14, 16, 18, 19 and 23 were tested by separately adding one 5'-primer. Additional 5'- and 3'-primers in primer solutions 5, 7, 12 and 22 were tested by separately adding one 3'-primer, respectively one 5'-primer.

Well No.	Production No.	Well No.	Production No.	Well No.	Production No.
25	2007-343-01	41	2007-343-17	57	2007-343-33
26	2007-343-02	42	2007-343-18	58	2007-343-34
27	2007-343-03	43	2007-343-19	59	2007-343-35
28	2007-343-04	44	2007-343-20	60	2007-343-36
29	2007-343-05	45	2007-343-21	61	2007-343-37
30	2007-343-06	46	2007-343-22	62	2007-343-38
31	2007-343-07	47	2007-343-23	63	2007-343-39
32	2007-343-08	48	2007-343-24	64	2007-343-40
33	2007-343-09	49	2007-343-25	65	2007-343-41
34	2007-343-10	50	2007-343-26	66	2007-343-42
35	2007-343-11	51	2007-343-27	67	2007-343-43
36	2007-343-12	52	2007-343-28	68	2007-343-44
37	2007-343-13	53	2007-343-29	69	2007-343-45
38	2007-343-14	54	2007-343-30	70	2007-343-47
39	2007-343-15	55	2007-343-31	71	2007-343-48
40	2007-343-16	56	2007-343-32	72	2007-343-48

101.701-24/06 – including *Taq* polymerase101.701-24u/06u – without *Taq* polymeraseLot No.: **02E**

Lot-specific Information

The specificity of each primer solution of the kit has been tested against 48 well characterized IHWC cell line DNAs.

Additional 5'-primers and 3'-primers in primer solutions 26, 27, 32, 34, 35, 38, 43, 44, 55, 64, 66, 67 and 69 were tested by separately adding one additional 3'-primer, respectively one additional 5'-primer. Additional 3'-primers in primer solutions 37, 48, 53 and 59 were tested by separately adding one additional 5'-primer. Additional 5'-primers in primer solutions 45 and 53 were tested by separately adding one additional 3'-primer.

Well No.	Production No.	Well No.	Production No.	Well No.	Production No.
73	2007-340-01	81	2007-340-09	89	2007-340-17
74	2007-340-02	82	2007-340-10	90	2007-340-41
75	2007-393-03	83	2007-340-11	91	2007-340-19
76	2007-393-04	84	2007-393-12	92	2007-340-20
77	2007-340-05	85	2007-340-13	93	2007-340-21
78	2007-340-06	86	2007-340-14	94	2007-340-22
79	2007-340-07	87	2007-340-15	95	2007-340-23
80	2007-393-08	88	2007-340-16		

The specificity of each primer solution of the kit has been tested against 48 well characterized IHWC cell line DNAs.

The reactivities of one additional 3'-primer in primer solution 75, one additional 3'-primer in primer solution 76, one additional 5'-primer in primer solution 78, one additional 3'-primer in primer solution 81, one additional primer pair in primer solutions 80, 81 and 83, two additional 5'-primers in primer solution 85, one additional primer pair in primer solution 90, one additional 3'-primer in primer solution 91 and one additional 3'-primer in primer solution 92 were tested by separately adding another 5'-primer or 3'-primer. One of the 5'-primers in primer solution 82 and one of the 5'-primers in primer solution 85 were not possible to test.

The negative control primer pairs, **Production No. 2008-417-01**, can detect contamination with PCR products diluted 10^{-7} .

Results: No false positive or false negative amplifications were obtained.

Date of approval: 2008-December-28

Approved by:

Quality Control, Supervisor

Lot No.: **02E**

Lot-specific Information

Declaration of Conformity

Product name: *Olerup* SSP® HLA-A-B-DRD SSP Combi Tray
Product number: 101.701-24/06, 101.701-24u/06u
Lot number: 02E

Intended use: HLA-A, HLA-B and HLA-C low resolution histo-compatibility testing

Manufacturer: *Olerup* SSP AB
Hasselstigen 1
SE-133 33 Saltsjöbaden, Sweden
Phone: +46-8-717 88 27
Fax: +46-8-717 88 18

We, *Olerup* SSP AB, hereby declare that this product, to which this Declaration of Conformity relates is in conformity with the following Standard(s) and other normative document(s) ISO 9001:2000 and ISO 13485:2003, following the provisions of the 98/79/EC Directive on *in vitro* diagnostic medical devices, Annex II List B, conformity assessed using Annex IV, as transposed into the national laws of the Member States of the European Union.

The Technical Documentation File is maintained at *Olerup* SSP AB, Hasselstigen 1, SE-133 33 Saltsjöbaden, Sweden.

The Authorized Representative located within the Community is: *Olerup* SSP AB.

Notified Body: Lloyd's Register Quality Assurance Limited, Hiramford, Middlemarch Office Village, Siskin Drive, Coventry CV3 4FJ, United Kingdom. (Notified Body number: 0088.)

Saltsjöbaden, Sweden
2008-January-28

Olle Olerup
Managing Director

101.701-24/06 – including *Taq* polymerase

101.701-24u/06u – without *Taq* polymerase

Lot No.: **02E**

Lot-specific Information

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