

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

Product number:	101.702-24/06 – including <i>Taq</i> pol. 101.702-24u/06u – without <i>Taq</i> pol.
Lot number:	01E
Expiry date:	2010-January-01
Number of tests:	24 tests – Product No. 101.702-24/24u 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. 01E.

CHANGES COMPARED TO THE PREVIOUS OLERUP SSP[®] HLA-A-B-C 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-C SSP Combi Tray lot was made (**Lot No. X52**).

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-C SSP Combi Tray lot was made (**Lot No. X52**).

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-C low resolution** specificity and interpretation tables have been updated for the HLA-DRB alleles described since the previous *Olerup* SSP® HLA-A-B-C SSP Combi Tray lot was made (**Lot No. X52**).

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	-	-	Changed to the 800 bp internal positive control primer pair to decrease primer dimer formation tendency.
89	Added	-	Primer added for the Cw*1520 allele.
90	-	Added	Primer added for the Cw*0427 allele.
91	Exchanged	Exchanged	Increased resolution
95	Added	-	Primer added for the Cw*1610 allele.

Change in revision R01 compared to R00:

1. Marking of well number 1 corrected on page 4.

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2. 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-C 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 HLA-Cw*0102 to Cw*1802 alleles into the groups Cw*01xx to Cw*18xx.

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-Cw low resolution primers.

Well 96 – Negative Control.

The 96 well PCR plate is marked with 'A-B-C'.

Well No. 1 is marked with '01E'.

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 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-Cw alleles will be amplified by the HLA-C low resolution primer set, **wells 73 to 95**, except that primer mix 85 will amplify the B*6702 allele and primer mix 92 will amplify the B*1403 allele. Thus, the interpretation of HLA-C low resolution typings is only influenced by these HLA-B alleles and not by other HLA class I 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-Cw alleles, i.e. **Cw*0102 to Cw*1802**, recognized by the HLA Nomenclature Committee in October 2007¹ will be amplified by the primers in the HLA-C low resolution primer set, **wells 73 to 95**. The HLA-Cw alleles will be grouped into the Cw*01xx to Cw*18xx groups.

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

¹The 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.

⁴The 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.

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 ScoreTM 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 ScoreTM

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interpretation software. (In most cases these ambiguities can be resolved by the Olerup SSP[®] HLA-B high resolution SSP sets.)

The ambiguous HLA-Cw 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-Cw high resolution SSP sets.)

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	
72 ⁵	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.

SPECIFICITY TABLE

HLA-C low resolution SSP typing

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

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	Amplified HLA class I ³ alleles
73⁴	155, 370 bp	800 bp	010201-0119
74⁵	225, 270 bp	800 bp	0110, 020201-020203, 020205-0220, 0608, 0806 ^{weakly} , 0807, 1214, 1701-1704, 1803
75	280 bp	800 bp	020201-020203, 020205-0220, 030201-030203, 030401-0310, 0314-0317, 0319, 0323-0329, 0332-033802, 0340-0342, 0344-0346, 0403, 0406, 0416, 0603, 150201-1509, 151002, 1511, 1513, 1515-1521
76⁶	155 bp	1070 bp	030201-030406, 0305-0315, 0317-0340, 0342-0346
77	280 bp	800 bp	030301-030305, 031101-0313, 0320N-0322Q, 0330, 0331, 0343, 1512
78⁷	125 bp	1070 bp	020201-020203, 020205-0220, 04010101-040104, 0403-041502, 0417-0420, 0423-0431, 1511
79	165 bp	1070 bp	050101-050103, 0503-0517, 0605, 0810, 1221
80⁴	130, 240, 355 bp	800 bp	0206, 0339, 06020101-0616N, 1215, 1216, 150201-1503, 1507, 1508, 151001-1513, 1515-1518, 1521
81⁴	245, 425 bp	800 bp	070101-0733N, 0735-0753
82^{6,7}	115, 175 bp	800 bp	080101-0812, 0814, 0815
83	340 bp	1070 bp	0114, 020201-020203, 020205-0211, 0213-0220, 0307, 0315, 0345, 04010101-040104, 0403-0410, 0412-0420, 0423-0428, 0430, 0431, 050101-0517, 06020101-0610, 0612-0616N, 0707, 0709, 0749, 0810, 120401-1205, 1209, 1221, 1404, 150201-1506, 1508-1513, 1515-1520,

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84	150, 185, 220 bp	1070 bp	1602, 1609, 1701-1704, 1801-1803 0104, 120201-12030102, 120303- 120305, 120402-1208, 1210-1213, 1215-1221
85⁶	130, 160 bp	800 bp	0212, 04010101-040104, 0403- 0409N, 0412-0420, 0423-0431, 0753, 0805, 120201-120303, 120305, 120402, 1206-1208, 1210- 1220, 1503, 1516, 160101-1602, 1606-1610, B*6702
86⁸	220 bp	800 bp	0104, 0109, 0205, 0217, 06020101- 0603, 0607-0613, 0615, 0616N, 12030101-1207, 1211-1213, 1215, 1219, 160401
87	255 bp	800 bp	020201 ^{weakly} , 020202-020203, 020205-0213, 0215-0220, 0307, 0310, 0315, 0329, 0345, 0403, 0406, 0416, 050101-050103, 0503- 0517, 0603, 0810, 120401-1205, 1209, 1221, 150201-1506, 1508- 1513, 1515-1521, 1602, 1609, 1701-1704
88^{6,7}	95, 255 bp	1070 bp	0411, 0429, 0511, 0517, 0804, 0813, 140201-1409
89^{5,6,7}	110, 325 bp	1070 bp	0206, 1208, 1215, 150201-1513, 1515-1521
90⁵	190, 255 bp	1070 bp	0213, 0218, 04010101-040104, 0403-0410, 0412-0420, 0423-0431, 0517, 0605, 080101-080102, 0803, 0806, 0808-0811, 0814, 1214, 160101-1602, 160401, 1606-1610
91	225 bp	800 bp	0807, 1214, 1701-1704
92	220, 425 bp	800 bp	010201-0103, 0106-0108, 0110- 0119, 0516, 0605, 0606, 0707, 0709, 0749, 0812, 1209, 140201- 1405, 1407N, 1801-1803, B*1403
93	325, 380 bp	1070 bp	0103, 030301-030407, 0306-0312, 0314, 0318-0324, 0326, 0328- 0332, 0334, 0337-0346, 04010101- 040104, 0403-0420, 0424-0431, 050101-050103, 0503, 0505-0517, 0609, 0614, 0710, 0728, 0741, 0743, 080101-0808, 0810, 0812- 0815, 150201-1513, 1515-1521, 1701-1704, 1801-1803

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94⁷	95, 135 bp	1070 bp	030201-0317, 0319-033802, 0340-0346, 0511, 0517, 0603, 0804, 0813
95	160, 235 bp	1070 bp	06020101-060203, 0604, 0606-0616N, 070101-0725, 072701-0732N, 0735-0738, 0741-0753, 1216, 160101-1602, 1606-1610, 1801-1803

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 73 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-C low resolution typing.

In addition, wells number 74, 75, 77, 80, 81, 82, 85, 86, 87, 91 and 92 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.

³For several HLA-C alleles only partial 1st and 4th exon nucleotide sequences are available. In these instances it is not known whether some of the primers of the HLA-C low resolution SSP sets are completely matched with the target sequences or not. We assume that unknown sequences in these exons and in the introns are conserved within loci and within allelic groups.

⁴The primer pairs in vials 73, 80 and 81 will in most samples give rise to two specific PCR fragments.

⁵Primer mixes 74, 89 and 90 have a tendency of giving rise to primer oligomer artifacts.

⁶Primer mixes 76, 82, 85, 88 and 89 yield somewhat less intense specific PCR fragments than the other HLA-C low resolution primer mixes.

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

⁸Primer mix 86 might faintly amplify the Cw*010201 to 0103, the Cw*0105 to Cw*0119 and the Cw*140201 to 1408 alleles.

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'-gTT ^{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'}	
			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

Lot No.: **01E**

Lot-specific information

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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

Lot No.: **01E**

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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													
*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

Lot No.: **01E**

Lot-specific information

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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.

		INTERPRETATION TABLE																																															
		HLA-B low resolution SSP																																															
		Amplification patterns of the B*0702 to B*8301 alleles⁶																																															
		Well																																															
		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48																								
Length of spec.		110	215	140	130	185	185	290	165	165	180	105	275	195	105	115	80	150	135	245	205	170	110	400	430																								
PCR product				235	265	235			220	390	395	195			435					400																													
									330																																								
Length of int. pos. control ¹		800	1070	1070	1070	1070		800	1070	1070		800	800	1070	1070	1070	1070	1070	1070	1070	800	800	1070	1070	1070																								
5'-primer(s) ²		527	97	209	103	103	103	45	45	45	45	206	419	142	45	161	167	355	206	45	142	409	246	44	44																								
		5'-TgA ^{3'}	5'-TCg ^{3'}	5'-ggC ^{3'}	5'-CCg ^{3'}	5'-CCT ^{3'}	5'-CCg ^{3'}	5'-ggA ^{3'}	5'-ggA ^{3'}	5'-ggA ^{3'}	5'-ggA ^{3'}	5'-AgA ^{3'}	5'-gTC ^{3'}	5'-TCT ^{3'}	5'-ggA ^{3'}	5'-Cgg ^{3'}	5'-gCT ^{3'}	5'-TCA ^{3'}	5'-gAC ^{3'}	5'-ggA ^{3'}	5'-TCT ^{3'}	5'-ggC ^{3'}	5'-gAA ^{3'}	5'-ggC ^{3'}	5'-ggC ^{3'}																								
		540		363	361	363			357	435	420	420		419	540					368		420																											
		5'-gAC ^{3'}		5'-AgC ^{3'}	5'-AgT ^{3'}	5'-AAT ^{3'}			5'-Tgg ^{3'}	5'-AAA ^{3'}	5'-TTA ^{3'}	5'-TTA ^{3'}		5'-gTC ^{3'}	5'-gAC ^{3'}					5'-gTT ^{3'}		5'-TTA ^{3'}																											
									412																																								
									5'-ATA ^{3'}																																								
3'-primer(s) ³		605	272	309	193	246	246	165	206	266	272	272	3rd	301	309	234	204	463	302	259	301	544	317	272	301																								
		5'-gCT ^{3'}	5'-Tgg ^{3'}	5'-gT g ^{3'}	5'-CgT ^{3'}	5'-TAT ^{3'}	5'-TAT ^{3'}	5'-Tgg ^{3'}	5'-CCT ^{3'}	5'-TCC ^{3'}	5'-TgC ^{3'}	5'-Tgg ^{3'}	5'-TAT ^{3'}	5'-gTC ^{3'}	5'-ATC ^{3'}	5'-TCT ^{3'}	5'-TCT ^{3'}	5'-gCT ^{3'}	5'-ggC ^{3'}	5'-gTT ^{3'}	5'-gTC ^{3'}	5'-ggT ^{3'}	5'-ggA ^{3'}	5'-TgC ^{3'}	5'-ggC ^{3'}																								
			272	559	583	559			538	559	559	572		570	605					266	309				302																								
			5'-TgA ^{3'}	5'-CAG ^{3'}	5'-gTg ^{3'}	5'-CTC ^{3'}			5'-gTC ^{3'}	5'-CAG ^{3'}	5'-CTC ^{3'}	5'-gCg ^{3'}		5'-CCg ^{3'}	5'-gCT ^{3'}					5'-TCC ^{3'}	5'-gTg ^{3'}				5'-ggT ^{3'}																								
														572							272																												
														5'-gCg ^{3'}							292																												
																					5'-Tgg ^{3'}																												
																					5'-gTA ^{3'}																												
																					572																												
																					5'-gCg ^{3'}																												
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																								
HLA-B allele ⁴	ser. ⁵																																																



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	Length of spec. PCR product
				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 int. pos. control ¹
363	106	540	1 st	355	141	209	41	209	206	357	49	206	1 st	1 st	141	420	209	209	206	165	1 st	1 st	355	5'-primer(s) ²
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	3'-primer(s) ³
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'}				
																		5'-gCT ^{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



Lot No.: **01E**

Lot-specific information

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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, 0734, 0735, 0739, 0741, 0743, 0747, 0749N, 0752, 0755- 0759	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																							48
*0738	-	25																							48
*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				48
*0803	B8		26						32																48
*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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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
*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									43					
*15170101-151702	B63							31		33								38										
*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					

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																						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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*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						62										70	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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*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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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.
				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	

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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	
																							71	72	B48	*480101-480102, 4807, 4809, 4811, 4819
													62										71		-	*4802
49													62									71		B48	*480301-480302	
													62										71		-	*4804
													62										71	72	B48	*4805, 4808
													62										71	72	-	*4806
													62										71	72	-	*4810, 4812
													62										71		-	*4813
													62										71	72	-	*4814
													62										71	72	-	*4815
													62										71	72	-	*4816
49													62										71	72	-	*4817
													62										70	72	-	*4818
																									B49	*4901
																									-	*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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*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												

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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																

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							71		B78	*7801, 780202, 7803
											59											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.

INTERPRETATION TABLE																							
HLA-Cw low resolution SSP typing																							
Amplification patterns of the Cw*0102 to Cw*1802 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.	155	225	280	155	280	125	165	130	245	115	340	150	130	220	255	95	110	190	225	220	325	95	160
PCR product(s)	370	270						240	425	175		185	160			255	335	250		425	380	135	235
								355				220											
Length of int.	800	800	800	1070	800	1070	1070	800	800	800	1070	1070	800	800	800	1070	1070	1070	800	800	1070	1070	1070
pos. control ¹																							
5'-primer(s) ²	89	2 nd	106	477	105	112	176	28	47	176	1 st	2 nd	201	361	98	98	201	201	2 nd	47	355	105	97
	5'-gAA ^{3'}	5'-CCA ^{3'}	5'-CTg ^{3'}	5'-gCC ^{3'}	5'-gCT ^{3'}	5'-CCT ^{3'}	5'-gCA ^{3'}	5'-TCA ^{3'}	5'-Agg ^{3'}	5'-gCA ^{3'}	5'-CgA ^{3'}	5'-CCA ^{3'}	5'-CCA ^{3'}	5'-AgT ^{3'}	5'-CTA ^{3'}	5'-CTC ^{3'}	5'-CCA ^{3'}	5'-CCA ^{3'}	5'-CCA ^{3'}	5'-Agg ^{3'}	5'-TCA ^{3'}	5'-gCT ^{3'}	5'-TCg ^{3'}
	368					118		2 nd	648	527		361	419			485	409	2 nd		361	412	485	418
	5'-gTg ^{3'}					5'-CCA ^{3'}		5'-CCA ^{3'}	5'-CAC ^{3'}	5'-TAC ^{3'}		5'-AgT ^{3'}	5'-gTC ^{3'}			5'-CAA ^{3'}	5'-ggC ^{3'}	5'-CCA ^{3'}		5'-AgT ^{3'}	5'-ATA ^{3'}	5'-CAA ^{3'}	5'-Agg ^{3'}
												369						361					419
												5'-TAC ^{3'}						5'-AgT ^{3'}					5'-gTC ^{3'}
3'-primer(s) ³	201	512	343	589	343	201	302	97	302	311	302	474	289	538	312	311	270	341	512	302	3 rd	201	289
	5'-CTC ^{3'}	5'-CCA ^{3'}	5'-ACC ^{3'}	5'-CTT ^{3'}	5'-ACT ^{3'}	5'-CTT ^{3'}	5'-ggT ^{3'}	5'-gTC ^{3'}	5'-ggC ^{3'}	5'-ggT ^{3'}	5'-ggT ^{3'}	5'-gCA ^{3'}	5'-AgC ^{3'}	5'-CCA ^{3'}	5'-AgT ^{3'}	5'-ggT ^{3'}	5'-TAG ^{3'}	5'-CgT ^{3'}	5'-CCA ^{3'}	5'-ggT ^{3'}	5'-CTC ^{3'}	5'-CTC ^{3'}	5'-AgC ^{3'}
	3 rd	559						213	853	601		477	539	538		539	3 rd	341		538		539	539
	5'-CTC ^{3'}	5'-CTC ^{3'}						5'-Cgg ^{3'}	5'-CAT ^{3'}	5'-CTT ^{3'}		5'-gCA ^{3'}	5'-TCT ^{3'}	5'-gCA ^{3'}		5'-TCA ^{3'}	5'-CTC ^{3'}	5'-ggT ^{3'}		5'-CCg ^{3'}		5'-TCA ^{3'}	5'-TCT ^{3'}
								420				538						527					
								5'-gCT ^{3'}				5'-gCA ^{3'}						5'-CCg ^{3'}					
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
HLA-Cw allele ⁴																							
*010201-010205, 0106-0108, 0111-0113, 0115-0119	73																			92			
*0103	73																			92	93		
*0104	73											84		86									
*0105	73																						
*0109	73													86									
*0110	73	74																			92		
*0114	73											83									92		
*020201		74	75			78						83				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

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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	
*020202-020203, 020205-0204, 0207-0211, 0215, 0216, 0219, 0220		74	75			78					83				87									
*0205, 0217		74	75			78					83			86	87									
*0206		74	75			78		80			83				87		89							
*0212		74	75			78							85		87									
*0213, 0218		74	75			78					83				87						90			
*0214		74	75			78					83													
*030201-030203, 0305, 0317, 0325, 0327, 0333, 0335, 0336			75	76																			94	
*030301-030305, 031101-031102, 0312, 0320N-0322Q, 0330, 0331, 0343				76	77																	93	94	
*030401-030406, 0306, 0308, 0309, 0314, 0319, 0323, 0324, 0326, 0328, 0332, 0334, 0337-033802, 0340, 0342, 0344, 0346			75	76																			93	94
*030407, 0341			75																			93	94	
*0307, 0345			75	76							83				87							93	94	
*0310, 0329			75	76											87							93	94	
*0313				76	77																		94	
*0315			75	76							83				87								94	
*0316			75																				94	
*0318				76																		93		
*0339				76				80															93	
*04010101-040104, 040401-0405, 0407-0409N, 0412-041502, 0417-0420, 0424-0428, 0430, 0431						78					83				85						90		93	
*0403, 0406			75			78					83			85		87					90		93	
*0410						78					83										90		93	
*0411						78										88							93	
*0416			75								83			85		87					90		93	
*0423						78					83			85							90			
*0429						78								85		88					90		93	
*050101-0503, 0505-0510, 0512-0515						79					83				87								93	
*0504							79				83				87									
*0511							79				83				87	88						93	94	
*0516							79				83				87						92	93		
*0517							79				83				87	88					90		93	94
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	

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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
*06020101-060203, 0607, 0610, 0612, 0613, 0615, 0616N								80			83			86									95
*0603			75					80			83			86	87							94	
*0604								80			83												95
*0605							79	80			83						90		92				
*0606								80			83									92			95
*0608			74					80			83			86									95
*0609								80			83			86								93	95
*0611								80						86									95
*0614								80			83											93	95
*070101-0706, 0708, 0711-0725, 072701-072702, 0729-0732N, 0735-0738, 0742, 0744-0748, 0750-0752											81												95
*0707, 0709, 0749										81		83								92			95
*0710, 0728, 0741, 0743										81												93	95
*0726, 0733N, 0739, 0740										81													
*0753										81				85									95
*080101-080102, 0803, 0808, 0814											82							90				93	
*0802, 0815											82											93	
*0804											82					88						93	94
*0805											82			85									93
*0806			w								82							90				93	
*0807			74			77					82								91			93	
*0809, 0811											82							90					
*0810							79				82	83			87			90				93	
*0812											82									92		93	
*0813																88						93	94
*120201-120203, 1210, 1217, 1218, 1220												84	85										
*12030101-12030102, 120303, 120305, 1206, 1207, 1211-1213, 1219												84	85	86									
*120302													85	86									
*120304												84		86									
*120401												83		86	87								
*120402												83	84	85	86	87							
*1205												83	84		86	87							
*1208												84	85				89						
*1209												83			87					92			
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

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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
*1214		74											85				90	91					
*1215								80				84	85	86			89						
*1216								80				84	85										95
*1221							79				83	84			87								
*140201-1403, 1405, 1407N																88				92			
*1404											83					88				92			
*1406, 1408, 1409																88							
*150201-150203, 1508, 151002, 1513, 1515, 1517, 1518			75					80			83					87	89					93	
*1503, 1516			75					80			83		85		87		89					93	
*1504-1506, 1509, 1519, 1520			75								83				87		89					93	
*1507			75					80									89					93	
*151001								80			83				87		89					93	
*1511			75			78		80			83				87		89					93	
*1512					77			80			83				87		89					93	
*1521			75					80							87		89					93	
*160101-160103, 1606-1608, 1610													85					90					95
*1602, 1609											83		85		87			90					95
*160401														86				90					
*1701-1704			74									83				87				91		93	
*1801, 1802											83										92	93	95
*1803			74									83									92	93	95
HLA-Cw allele ⁴																							
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
B*1403																					92		
B*6702													85										
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

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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-C low resolution SSP typing.

In addition, wells number 73, 74, 77, 80, 81, 82, 85, 86, 87, 91 and 92 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, 3rd or 4th exon or the 1st or 2nd 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 1st, 2nd, 3rd or 4th exon or the 3rd intron, 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 Cw*0101 allele has been shown to be identical to Cw*0102.

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

The sequence of the Cw*020204 allele has been shown to be identical to Cw*0210.

The sequence of the Cw*0301 allele has been shown to be identical to Cw*0304.

The sequence of the Cw*0402 allele has been shown to be identical to Cw*0401.

The sequence of the Cw*0421 allele has been shown to be identical to Cw*041502.

The sequence of the Cw*0422 allele has been shown to be identical to Cw*0421.

The sequence of the Cw*0601 allele has been shown to be identical to Cw*0602.

The sequence of the Cw*0601 allele has been shown to be identical to Cw*0602.

The sequence of the Cw*0734 allele has been shown to be identical to Cw*072702.

The sequence of the Cw*1101 allele has been shown to be in error.

The sequence of the Cw*1201 allele has been shown to be identical to Cw*1202.

The nucleotide sequence of Cw*1301 has been shown to be in error.

The sequence of the Cw*1401 allele has been shown to be identical to Cw*1402.

The sequence of the Cw*1501 allele has been shown to be identical to Cw*1502.

The sequence of the Cw*1514 allele has been shown to be identical to Cw*151002.

The sequence of the Cw*1603 allele has been shown to be identical to Cw*1403.

The sequence of the Cw*16042 allele has been shown to be identical to Cw*16041.

The sequence of the Cw*1605 allele has been shown to be identical to Cw*16041.

Lot No.: **01E**

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	12	13	14	15	16	
				Lot No.:	200739101	200739102	200739103	200739104	200739105	200739106	200739107	200739108	200739109	200739110	200739111	200739112	200739113	200739114	200739115	200739116
	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	+	-	+	+	-	-	-	W	-	-	-	-	-	+	-	-	
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	-	+	-	+	-	-	-	-	-	-	-	+	-	-	-	-	



Lot No.: **01E**

Lot-specific information

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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
	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		-	-	-	-	-	-	-	-
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	-	-	-	-	-	-	-	+

Lot No.: **01E**

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CELL LINE VALIDATION SHEET																					
HLA-B low resolution SSP kit																					
					Well																
					25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
					Prod. No.:	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	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-	-



Lot No.: **01E**

Lot-specific information

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CELL LINE VALIDATION SHEET																								
HLA-B low resolution SSP kit																								
					Well																			
					41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56				
					Prod. No.:	200734317	200734318	2005734319	200734320	200734321	200734322	200734323	200734324	200734325	200734326	200734327	200734328	200734329	200734330	200734331	200734332			
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.: **01E**

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.: **01E**

Lot-specific information

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CELL LINE VALIDATION SHEET																				
HLA-C low resolution SSP primer set																				
				Well																
				73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	
				Prod. No.:																
				200626101	200626102	200736503	200626104	200740205	200626106	200626107	200731608	200740208	200736510	200731611	200626112	200626113	200626114	200626115	200736516	
IHCW cell line			Cw*																	
1	9001	SA	*0702	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	
2	9280	LK707	*0701	*1505	-	-	+	-	-	-	-	-	+	-	+	-	-	-	+	-
3	9011	E4181324	*1202		-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-
4	9275	GU373	*0304	*0401	-	-	+	+	-	+	-	-	-	-	+	-	+	-	-	-
5	9009	KAS011	*0602		-	-	-	-	-	-	-	+	-	-	+	-	-	+	-	-
6	9353	SM	*0304	*0702	-	-	+	+	-	-	-	-	+	-	-	-	-	-	-	-
7	9020	QBL	*0501		-	-	-	-	-	-	+	-	-	-	+	-	-	-	+	-
8	9007	DEM	*0602		-	-	-	-	-	-	-	+	-	-	+	-	-	+	-	-
9	9026	YAR	*1203		-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-
10	9107	LKT3	*0102		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	9051	PITOUT	*1601		-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
12	9052	DBB	*0602		-	-	-	-	-	-	-	+	-	-	+	-	-	+	-	-
13	9004	JESTHOM	*0102		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071	OLGA	*0102	*0304	+	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
15	9075	DKB	*0304		-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
16	9037	SWEIG007	*0202		-	+	+	-	-	+	-	-	-	-	+	-	-	-	+	-
17	9282	CTM395354	*0303	*0701	-	-	-	+	+	-	-	-	+	-	-	-	-	-	-	-
18	9257	32367	*0102	*0705	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
19	9038	BM16	*0701		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
20	9059	SLE005	*0304		-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
21	9064	AMALA	*0303		-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-
22	9056	KOSE	*1203		-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-
23	9124	IHL	*0102	*1502	+	-	+	-	-	-	-	+	-	-	+	-	-	-	+	-
24	9035	JBUSH	*1203		-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-
25	9049	IBW9	*0802		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
26	9285	WT49	*0701		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
27	9191	CH1007	*0704	*1505	-	-	+	-	-	-	-	-	+	-	+	-	-	-	+	-
28	9320	BEL5GB	*0501	*1601	-	-	-	-	-	-	+	-	-	-	+	-	+	-	+	-
29	9050	MOU	*1601		-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
30	9021	RSH	*1701		-	+	-	-	-	-	-	-	-	-	+	-	-	-	+	-
31	9019	DUCAF	*0501		-	-	-	-	-	-	+	-	-	-	+	-	-	-	+	-
32	9297	HAG	*1701	*1703	-	+	-	-	-	-	-	-	-	-	+	-	-	-	+	-
33	9098	MT14B	*0304		-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-
34	9104	DHIF	*1203		-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-
35	9302	SSTO	*0501		-	-	-	-	-	-	+	-	-	-	+	-	-	-	+	-
36	9024	KT17	*0303	*0401	-	-	-	+	+	+	-	-	-	-	+	-	+	-	-	-
37	9065	HHKB	*0702		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
38	9099	LZL	*0303		-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-
39	9315	CML	*0202	*0701	-	+	+	-	-	+	-	-	+	-	+	-	-	-	+	-
40	9134	WHONP199	*0102	*0602	+	-	-	-	-	-	-	+	-	-	+	-	-	+	-	-
41	9055	H0301	*0802		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
42	9066	TAB089	*0102		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43	9076	T7526	*0102	*0801	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
44	9057	TEM	*1203		-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	-
45	9239	SHJO	*0602	*1701	-	+	-	-	-	-	-	+	-	-	+	-	-	+	+	-
46	9013	SCHU	*0702		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
47	9045	TUBO	*0704	*1502	-	-	+	-	-	-	-	+	+	-	+	-	-	-	+	-
48	9303	TER-ND	*0401	*1601	-	-	-	-	-	+	-	-	-	+	-	+	-	-	-	-



Lot No.: **01E**

Lot-specific Information

CELL LINE VALIDATION SHEET													
HLA-C low resolution SSP primer set													
				Tube									
				89	90	91	92	93	94	95			
				Prod. No.:	200736517	200736518	200740219	200626120	200626121	200736522	200740223		
IHWC cell line			Cw*										
1	9001	SA	*0702		-	-	-	-	-	-	-	+	
2	9280	LK707	*0701	*1505	+	-	-	-	+	-	-	+	
3	9011	E4181324	*1202		-	-	-	-	-	-	-	-	
4	9275	GU373	*0304	*0401	-	+	-	-	+	+	-	-	
5	9009	KAS011	*0602		-	-	-	-	-	-	-	+	
6	9353	SM	*0304	*0702	-	-	-	-	+	+	+	+	
7	9020	QBL	*0501		-	-	-	-	+	-	-	-	
8	9007	DEM	*0602		-	-	-	-	-	-	-	+	
9	9026	YAR	*1203		-	-	-	-	-	-	-	-	
10	9107	LKT3	*0102		-	-	-	+	-	-	-	-	
11	9051	PITOUT	*1601		-	+	-	-	-	-	-	+	
12	9052	DBB	*0602		-	-	-	-	-	-	-	+	
13	9004	JESTHOM	*0102		-	-	-	+	-	-	-	-	
14	9071	OLGA	*0102	*0304	-	-	-	+	+	+	-	-	
15	9075	DKB	*0304		-	-	-	-	+	+	-	-	
16	9037	SWEIG007	*0202		-	-	-	-	-	-	-	-	
17	9282	CTM395354	*0303	*0701	-	-	-	-	+	+	-	-	
18	9257	32367	*0102	*0705	-	-	-	+	-	-	-	+	
19	9038	BM16	*0701		-	-	-	-	-	-	-	+	
20	9059	SLE005	*0304		-	-	-	-	+	+	-	-	
21	9064	AMALA	*0303		-	-	-	-	+	+	-	-	
22	9056	KOSE	*1203		-	-	-	-	-	-	-	-	
23	9124	IHL	*0102	*1502	+	-	-	+	+	-	-	-	
24	9035	JBUSH	*1203		-	-	-	-	-	-	-	-	
25	9049	IBW9	*0802		-	-	-	-	+	-	-	-	
26	9285	WT49	*0701		-	-	-	-	-	-	-	+	
27	9191	CH1007	*0704	*1505	+	-	-	-	+	-	-	+	
28	9320	BEL5GB	*0501	*1601	-	+	-	-	+	-	-	+	
29	9050	MOU	*1601		-	+	-	-	-	-	-	+	
30	9021	RSH	*1701		-	-	+	-	+	-	-	-	
31	9019	DUCAF	*0501		-	-	-	-	+	-	-	-	
32	9297	HAG	*1701	*1703	-	-	+	-	+	-	-	-	
33	9098	MT14B	*0304		-	-	-	-	+	+	-	-	
34	9104	DHIF	*1203		-	-	-	-	-	-	-	-	
35	9302	SSTO	*0501		-	-	-	-	+	-	-	-	
36	9024	KT17	*0303	*0401	-	+	-	-	+	+	-	-	
37	9065	HHKB	*0702		-	-	-	-	-	-	-	+	
38	9099	LZL	*0303		-	-	-	-	+	+	-	-	
39	9315	CML	*0202	*0701	-	-	-	-	-	-	-	+	
40	9134	WHONP199	*0102	*0602	-	-	-	+	-	-	-	+	
41	9055	H0301	*0802		-	-	-	-	+	-	-	-	
42	9066	TAB089	*0102		-	-	-	+	-	-	-	-	
43	9076	T7526	*0102	*0801	-	+	-	+	+	-	-	-	
44	9057	TEM	*1203		-	-	-	-	-	-	-	-	
45	9239	SHJO	*0602	*1701	-	-	+	-	+	-	-	+	
46	9013	SCHU	*0702		-	-	-	-	-	-	-	+	
47	9045	TUBO	*0704	*1502	+	-	-	-	+	-	-	+	
48	9303	TER-ND	*0401	*1601	-	+	-	-	+	-	-	+	

Lot No.: **01E**

Lot-specific Information

CERTIFICATE OF ANALYSIS

Olerup SSP® HLA-A-B-C SSP Combi Tray

Product number: 101.702-24/06 – including *Taq* pol.
 101.702-24u/06u – without *Taq* pol.

Lot number: 01E

Expiry date: 2010-January-01

Number of tests: 24 tests – Product No. 101.702-24/24u
 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

Lot No.: **01E**

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	2006-261-01	81	2007-402-09	89	2007-365-17
74	2006-261-02	82	2007-365-10	90	2007-365-18
75	2007-365-03	83	2007-316-11	91	2007-402-19
76	2006-261-04	84	2006-261-12	92	2006-261-20
77	2007-402-05	85	2006-261-13	93	2006-261-21
78	2006-261-06	86	2006-261-14	94	2007-365-22
79	2006-261-07	87	2006-261-15	95	2007-402-23
80	2007-316-08	88	2007-365-16		

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 80, 81, 83 and 90 were tested by separately adding one additional 3'-primer, respectively one additional 5'-primer. Additional 3'-primers in primer solutions 75, 76, 91 and 92 were tested by separately adding one additional 5'-primer. Additional 5'-primers in primer solutions 78, 87 and 88 were tested by separately adding one additional 3'-primer.

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.: **01E**

Lot-specific Information

Declaration of Conformity

Product name: *Olerup* SSP® HLA-A-B-CD SSP Combi Tray
Product number: 101.702-24/06, 101.702-24u/06u
Lot number: 01E

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

101.702-24/06 – including *Taq* polymerase

101.702-24u/06u – without *Taq* polymerase

Lot No.: **01E**

Lot-specific Information

101.702-24/06 – including *Taq* polymerase

101.702-24u/06u – without *Taq* polymerase

Lot No.: **01E**

Lot-specific Information

Lot No.: **01E** Lot-specific Information

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