

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

Product number:	101.701-24/06 – including <i>Taq</i> pol. 101.701-24u/06u – without <i>Taq</i> pol.
Lot number:	98E
Expiry date:	2010-August-01
Number of tests:	24 tests – Product No. 101.701-24/24u 6 tests – Product No. 101.702-06/06u
Number of wells per test:	95 +1
Storage - pre-aliquoted primers:	dark at -20°C
- PCR Master Mix:	-20°C
- Adhesive PCR seals	RT
- Product Insert	RT

This Product Description is only valid for Lot No. 98E.

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

The **HLA-A low resolution** specificity and interpretation tables have been updated for the HLA-A alleles described since the previous *Olerup SSP[®]* HLA-A-B-DR SSP Combi Tray lot was made (**Lot No. 02E**).

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
16	Exchanged	-	To amplify the A*3121 allele.

The **HLA-B low resolution** specificity and interpretation tables have been updated for the HLA-B alleles described since the previous *Olerup SSP[®]* HLA-A-B-DR SSP Combi Tray lot was made (**Lot No. 02E**).

The HLA-B low resolution primer set is unchanged compared to the previous lot.

The **HLA-DR low resolution** specificity and interpretation tables have been updated for the HLA-DRB alleles described since the previous *Olerup SSP[®]* HLA-A-B-DR SSP Combi Tray lot was made (**Lot No. 02E**).

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

Well	5'-primer	3'-primer	rationale
75	Added	-	Primer added for the DRB1*1528 allele.

Change in revision R01 compared to R00:

1. Primer mix 20 may give rise to nonspecific amplifications. Foot note added to the Specificity Table.

Changes in revision R02 compared to R01:

1. Size of internal positive control band corrected to 800 bp for well 72.

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

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

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

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

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

PRODUCT DESCRIPTION

HLA-A-B-DR SSP Combi Tray

CONTENT

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

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

The primer set contains 5'- and 3'-primers for grouping the DRB1*0101 to DRB1*1003 alleles into the corresponding serological groups DR1 to DR18 as well as primer pairs for recognizing the DRB3, DRB4 and DRB5 groups of alleles.

PLATE LAYOUT

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

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

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

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

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

Well 96 – Negative Control.

The 96 well PCR plate is marked with 'A-B-DR' in silver/gray ink.

Well No. 1 is marked with the Lot No. '98E'.

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 HLA-Cw*0305, 0325 and 0327 alleles will be amplified by primer mix 27, that the Cw*0746 allele will be amplified by primer mix 32, that the Cw*0206 allele will be weakly amplified by primer mixes 34

and 67 and that the Cw*150204 allele will amplified by primer mix 64. Thus, the interpretation of HLA-B low resolution typings is only influenced by these six HLA-Cw alleles and not by other alleles of other HLA class I genes.

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

UNIQUELY IDENTIFIED ALLELES

All the HLA-A alleles, i.e. **A*0101 to A*8001**, recognized by the HLA Nomenclature Committee in July 2008¹ 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 July 2008¹ will be amplified by the primers in the HLA-B low resolution primer set, **wells 25 to 72**. The HLA-B alleles will be grouped into their corresponding serological specificities⁴.

All the HLA-DRB1, -DRB3, -DRB4⁵ and –DRB5 alleles, i.e. **DRB1*010101 to 1003, DRB3*010101 to DRB3*0303, DRB4*01010101 to DRB4*0107, DRB5*010101 to DRB5*0205**, recognized by the HLA Nomenclature Committee in July 2008² will be amplified by the primers in the DR low resolution primer set, **wells 73 to 95**. The HLA-DRB alleles will be grouped into their corresponding serological specificities⁶.

¹HLA-A, HLA-B and HLA-DRB alleles listed on the IMGT/HLA web page 2008-July-11, release 2.22.0, www.ebi.ac.uk/imgt/hla.

²The nucleotide sequences of the B*3589 and 4093 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*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.

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

The B*1408 and the B*3925N, B*3930 and B*3932 to 3934 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The B*1829 and the B*3523, B*3537, B*3553N, B*3564, B*3566 and B*356801-356802 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The B*5504, B*5508, B*5513, B*5527 and the B*5615, B*5619N and B*5622 give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The B*5523, B*5532 and the B*5618 give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

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

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

Lot No.: **98E**

Lot-specific information

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

The DRB1*0831 and DRB1*1167 alleles yield identical amplification patterns except for the specific PCR product yielded by the DRB3 gene in linkage disequilibrium with the DRB1*1167 allele.

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 ^{4,11,12}
1⁵	120, 145 bp	800 bp	A1, A36	01010101-0104N, 0106-0130, 3601-3604
2⁶	135, 200, 255 bp	1070 bp	A2	02010101-020115, 020117-0222, 0224-023501, 023503-0247, 0249-0297, 0299, 9201-9221, 9223-9228, 9230-9248
3⁷	205, 235 bp	1070 bp	A1, A3, A11, A32, A34, A36	0112, 0119, 0121, 03010101-0317, 0319-0339, 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, 1129-1136, 2619, 3008, 3604
5	160, 535 bp	800 bp	A3, A23, A24, A31, A32	0330, 2301-2319Q, 24020101-2411N, 241301-2415, 2417-2464, 2466-2488, 2490N, 2491, 3108, 3205, 3213
6	165, 200 bp	800 bp	A2, A23, A24, A29, A80	9222, 2301-2319Q, 2405, 241302, 2424, 2907, 8001, B*1827
7	175, 205 bp	1070 bp	A2, A23, A24, A26, A33	021701-021702 ^{weakly} , 2314, 24020101-2411N, 241301-241302, 2417-2450, 2454-2456, 2458-2463, 2466-2491, 2616, 3319
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, 2620-2637, 3215, 340101-3408, 6601-6607, 680101-6843, 6901
9⁵	75 bp	800 bp	A25, A32	250101-2506, 320101-3202, 3204, 3206-3216
10⁵	85 bp	1070 bp	A2, A26, A33	9246, 260101-2602, 2604, 260701-2618, 2620, 2622-2629, 2632-2637, 3313

Lot No.: **98E**

Lot-specific information

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11 ^{5,7,8}	80, 175, 500 bp	1070 bp	A1, A11, A24, A26, A31, A34, A66	0113, 0128, 110101-1127, 1129-1136, 2419, 2444, 2603, 2606, 2621, 3103, 340101-3408, 6601, 6604-6607
12	185 bp	800 bp	A11, A25, A26, A31, A34, A43, A66	1111, 2506, 2609, 3103, 3104, 340101-3408, 4301, 6602, 6603
13 ⁷	175, 225 bp	1070 bp	A1, A2, A3, A25, A26, A34, A43, A66	0113, 0234-023503, 0256, 0262, 9203, 9235, 03010101-0307, 0309-0311N, 0313-0331, 0333-0335, 0337-0339, 250101-2505, 260101-260106, 2602 ^{weakly} , 2603, 2605-2608, 2610-2633, 2635-2637, 3408, 4301, 6601, 6604-6607
14	200, 240 bp	1070 bp	A29, A33	29010101-2917, 3313
15 ⁵	90, 135 bp	1070 bp	A1, A30	0113, 0128, 300101-3004, 3006-3020, 3022-3025
16	370, 400 bp	1070 bp	A31, A32	2914, 310102-3122, 3205
17	180 bp	1070 bp	A29, A32	2913, 320101-3203, 3205-3216
18	200 bp	1070 bp	A33, A68	3301, 330301-3319, 6829
19	160, 200 bp	800 bp	A74	7401-7412N
20 ⁹	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, 680101-6843
21	240, 375 bp	800 bp	A2, A24, A26, A68, A69	0255, 2482, 2622, 6829, 6901
22 ^{5,10}	85, 240 bp	800 bp	A2, A30, A36	0234-023503, 0246, 0248, 0256, 0262, 0270, 0278, 9203, 9229, 3008, 3601-3604
23 ⁵	75, 160 bp	800 bp	A2, A26, A68, A80	0255, 2603, 2605, 2606, 2621, 2630, 6805, 6815, 6820, 8001
24	360 bp	1070 bp	A1, A11, A33, A36, A74, A80	01010101-0104N, 0106, 0108-0129, 110101-1111, 1113-1117, 1119-1127, 1129-1136, 3313, 3601-3604, 7410, 8001

Lot No.: **98E**

Lot-specific information

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¹ Alleles 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 HLA-A 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.

² The 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.

³ The 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.

⁴ For 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.

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

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

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

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

⁹ Primer mix 20 may give rise to nonspecific amplifications.

¹⁰ Primer mix 22 might faintly amplify most A*11 alleles.

¹¹ The 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.

¹² Primer 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, 0761-0766, 9538, 3707, 4015, 4016, 4023, 4032, 4108, 420501-420502, 4805, 4808, 4815
26	215 bp	1070 bp	8, 15, 44	080101-0825, 0827-0836, 9542, 4449
27⁷	140, 235 bp	1070 bp	7, 8, 13, 15, 35, 40, 4005, 44, 46, 53, 57, 58	0720, 0724, 0760, 0821, 0825, 1301-1304, 1306-1308Q, 1310-1322, 150106-150108, 1507, 152702-152703, 1536, 1545, 1555, 1568, 1589, 9526, 9535-9537, 9539-9542, 9544-9549N, 3505, 3516, 3517, 3522, 3530, 3551, 3558, 3572, 4005, 4071, 4408, 4454, 4457, 4460, 4611- 4616, 5314, 5714, 5715, 5717, 5818, 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, 1315-1322, 1401-1404, 1407N, 1409, 1546, 1553, 9506, 3547, 3563, 400101-400106, 4007, 4010, 401401-4016, 4022N, 4023, 4025, 4030-4034, 4036, 4038, 4042, 4043, 4045, 4047-4049, 4051-4055, 4058-4063, 4065-4067, 4069, 407201-4073, 4076, 4077, 4079-4081, 4084, 4087, 4088, 4092, 4101-4108, 44020101-4405, 4409-4439, 4441-4443, 4445-4456N, 4458N-446402, 4501-4509, 47010101-4705, 4901, 4902, 4904, 4905, 5001, 5002, 5004
29⁹	185, 235 bp	1070 bp	14, 16, 27, 37, 38, 39,	1401, 1407N, 1408, 2701-270402, 270502-2706, 2708-2710, 2712,

Lot No.: **98E**

Lot-specific information

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			47, 64, 67	2713, 2716-2718, 2720, 2723, 2726, 2727, 2729, 2731, 2735-2737, 2739-2742, 3702, 380101-3803, 3807-3817, 39010101-39010102L, 390103-390201, 3903, 3905-390602, 3907 [?] , 3908, 3909, 3911, 3914, 3915, 3918, 391902, 3922, 3924-3944, 4704, 4705, 670101
30⁹	185 bp	800 bp	14, 35, 38, 39, 65	140201-140602, 1409, 3526, 3805, 3904, 3907 [?]
31	290 bp	1070 bp	15, 62, 63, 75, 76, 77, 46	15010101-150103, 150106-150107, 1502, 1504-1508, 151101-1515, 15170101-151702, 1519-1521, 1524-152701, 152703, 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, 9535-9549N, 460101-4616
32	165, 220, 330 bp	1070 bp	8, 15, 35, 37, 40, 41, 42, 44, 45, 51, 56, 57, 70, 71, 72	080101-0805, 0808N-0812, 0815-0819N, 0821-0824, 0826, 0827, 0829-0836, 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, 9543, 3587, 3712, 4012, 4101-410302, 4105-4108, 4201, 4202, 4204-4208, 4414, 4415, 4418, 4420, 4462, 4501-4509, 5108, 5120, 5136, 5144N, 5613, 5709, 8201, 8202, Cw*0746
33^{5,9,10}	165, 390 bp	800 bp	15, 35, 40, 44, 51, 52, 56, 58, 62, 63, 70, 78	150102, 1509, 1516-151702, 1567, 1595, 350402, 4026, 4028, 4462, 510101-510103, 510105-510902, 5111N, 5112, 511302, 5114, 5117-5120, 5122, 5123, 5126-5130, 5132, 5133, 5137-5141N, 5143, 5144N, 5146, 5148-5157, 520101-

Lot No.: **98E**

Lot-specific information

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				5207, 5209-5213, 560501-5606, 5621, 5808, 7801-7806
34⁹	180, 395 bp	800 bp	13, 15, 40, 55, 62, 70, 71, 72, 75	1301-130204, 1307N-1309, 1311, 1314-1320, 1322, 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^{weakly}
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, 27, 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, 0835, 1304, 1310, 15010101-150104, 150106-1508, 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, 9538-9549N, 180101-1815, 1817N- 1825, 1827-1829, 2741, 350101- 350107, 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, 3576-3580, 3582, 3586, 3590-3594, 3907, 3943, 4003, 4020, 4038, 4052, 4059, 4060, 4209, 4417, 4443, 4509, 460101- 4610, 4612-4616, 4802, 4814, 4904, 4905, 5137, 5145, 530101- 5303, 5305, 5306, 5308-5316, 5406, 5409, 5414, 5514, 5523, 5532, 5603, 5609, 5618, 570101- 570103, 5706, 5708, 5710, 5711, 5713-5716, 580101-5802, 5804- 5807, 5809-5819

Lot No.: **98E**

Lot-specific information

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37	195 bp	1070 bp	15, 35, 37, 38, 44, 45, 58, 76	1512, 1514, 1519, 1591, 9531, 3545, 3571, 370101-3709, 3712, 3713, 3817, 4417, 4443, 4509, 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-1828
40⁶	80 bp	1070 bp	27, 40, 44	2701-270402, 270502-2721, 2723- 2743, 4046, 4440, 4444
41	150 bp	1070 bp	13, 15, 18, 27, 35, 37, 39, 40, 44, 48, 51, 53, 55, 56, 57, 58, 62, 75, 77	1301, 1306, 1307N, 1312, 1313, 1317, 1320, 1322, 1502, 1513, 1520, 1521, 1525, 1536, 1544, 1562, 1577, 1580, 1585, 1588, 1589, 9506, 9512, 9521, 9539, 9544, 1822, 2719, 2730, 350101- 350403, 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, 3580-3585, 3590-3594, 370101-370104, 3703N-3706, 3708, 3710, 3711, 3713, 3942, 4028, 44020101-4414, 4416, 4417, 4419N, 4421-4430, 4432-4440, 4442-4446, 4448-4452N, 4455- 446402, 4802, 5104, 5142, 5146, 5156, 530101-5313, 5315, 5316, 5514, 5609, 5611, 5612, 570101- 5710, 5712, 5714-5717, 580101- 580102, 5804, 5805, 5809-5815, 5817N, 5819, 8301
42	135 bp	1070 bp	7, 8, 18, 35, 37, 39, 56, 78	0765, 0832, 180101-1808, 1810- 1815, 1817N-1829, 350101-3518, 352001-3524, 3528-3545, 3548, 3550-3555, 3557-3562, 3564-3572, 3774-3588, 3590-3594, 3711, 3714, 391901-391902, 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, 1523-1540, 1542-1558, 1560-1599, 9501-9529, 9531-9549N, 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

Lot No.: **98E**

Lot-specific information

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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, 3944, 3945, 670101-6702
46⁶	110 bp	1070 bp	38	380101-3803, 3805, 3808-3817
47	400 bp	1070 bp	14, 38, 39, 64, 65	1401-1409, 380101-380202, 3804, 3805, 3808-3817, 39010101- 39010102L, 390103-390105, 3903- 3907, 3909, 3911, 3912, 3914, 3915, 3918-391902, 3922, 3924- 3938Q, 3940N, 3941, 3944, 3945
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, 0739-0764, 0766, 080101-080105, 0804-0835, 1401-1409, 39010101- 39010102L, 390103-3920, 3922- 3945, 400101-400106, 4007, 4009- 4011 [?] , 401401-4016 [?] , 4018 [?] , 4021 [?] , 4022N [?] , 4023, 4024-4038 [?] , 4040 [?] , 4042-4046 [?] , 4048-4050 [?] , 4051, 4052-4058 [?] , 4059, 4060, 4061-4069 [?] , 4071 [?] , 407201 [?] , 407202, 4073-4076 [?] , 4077, 4078 [?] , 4079, 4080-4088 [?] , 4101-4108, 4201, 4202, 4204-4209, 4501-4509, 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, 400101-400106, 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, 4079, 4081, 4084, 4087, 4088, 4092, 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, 4082, 4085, 4086, 4089-4091
51⁶	110 bp	1070 bp	7, 8, 35, 41, 42, 55	0704, 0719, 0725, 080101-0805, 0807-0812, 0814-0819N, 0821- 0824, 0826-0836, 3587, 4101-4108, 4201, 4202, 4204-4207, 4209, 5520
52	325 bp	1070 bp	7, 15, 27, 35, 42, 45,	070201-070207, 0704-0707, 0709- 0712, 0713 ^{weakly} , 0714, 0715 ^{weakly} ,

Lot No.: **98E**

Lot-specific information

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			46, 54, 55, 56, 67, 73, 81	0717-0726, 0728-0731, 0733-0736, 0739-0749N, 0751-0766, 1576, 9501, 2701-270402, 270502-2711, 2713-2715, 2717, 2719-2721, 2724-2728, 2730-2738, 2740-2743, 3576, 4201, 4202, 4204-4206, 4208, 4209, 4506, 460101-460102, 4602 ^{weakly} , 4603-4616, 5401-5415, 550101-5505, 5507-5517, 5519- 5532, 5601-5616, 5618-5622, 670101-670102, 6702 ^{weakly} , 7301, 8101-8104N, 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, 4438-4463, 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, 4501-4509, 510101, 510103- 510108, 510201, 510203-5104, 5106-510901, 5110-5114, 5116- 512402, 5126-5146, 5148, 5149, 5151-5153, 5155-5157, 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, 3581, 3704, 4028, 460101-4616, 5104, 5146, 5156, 5302, 5306, 5714, 5809
56 ⁶	90, 410 bp	1070 bp	7, 27, 35, 47, 54, 55, 56, 81	0765, 2702-270402, 270502-2711, 2713-2715, 2717, 2719-2721, 2724-2728, 2730-2738, 2740-2743, 3576, 47010101-4703, 5401-5415, 550101-5505, 5507-5517, 5519- 5532, 5601-5616, 5618-5622, 8101, 8201, 8202, 8301
57 ⁶	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, 9544, 9548, 2724, 3546, 4031, 4045, 4080, 480101-480102, 4804, 4806, 4807, 4809, 4811, 4815, 4816, 4818, 4819, 8101-8104N
58	145 bp	1070 bp	40, 44, 49	4013, 4019, 4418, 4425, 4450, 4901, 4904, 4905
59 ⁶	120, 210 bp	800 bp	13, 15, 45, 49, 50, 51,	1316, 1504 ^{weakly} , 1516, 1542, 1567, 1595, 9537, 4901-4905, 5001,

Lot No.: **98E**

Lot-specific information

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			52, 55, 56, 58, 62, 63, 78	5002, 5004, 510101-5103, 5105, 5107-510902, 5111N-5114, 5116- 152402, 5126-5141N, 5143, 5144N, 5148-5155, 5157, 520101-5214, 550101-550104, 5503, 5505, 5509, 5511, 5515, 5517, 5521, 5524, 5525, 5528, 5529, 5531, 560501- 5606, 5621, 5808, 7801-7806
60	430 bp	1070 bp	27, 40, 44, 45, 51, 52, 53, 57, 58, 59	2702, 2730, 4013, 4019, 4406, 4425, 4450, 510101-512402, 5126- 5146, 5148, 5149, 5151-5153, 5155, 520101-5212, 530101-5302, 5304-5308, 5310, 5314-5316, 570101-5711, 5713-5716, 580101- 5802, 5804-5816, 5902
61	145 bp	1070 bp	15, 35, 40, 41, 44, 45, 47, 50, 72	1546, 1553, 9506, 9543, 3519, 3547, 3563, 400101-4011, 401401- 4016, 4018, 4020, 4022N-4040, 4042-4045, 4048-4075, 4077-4092, 4101-4104, 4105 [?] , 4106-4108, 4409, 4446, 4501-4509, 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-1322, 15010101-150104, 150106-150108, 1503-1507, 1512, 1514, 1519, 1520, 1524-152703, 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, 9540-9542, 9545-9547, 1812, 2701-270402, 270502-2721, 2724-2743, 3510, 3513, 3516, 3528, 3563, 3569, 3580, 370101-3707, 3709-3714, 3803, 3804, 390201-390202, 3908, 391301-391302, 3922, 3923, 400101-4007, 4009-4016, 4018- 4024, 4026-4040, 4042-4067, 4070-4092, 4101-4108, 44020101- 4405, 4407-4411, 4413-446402, 4501-4505, 4507-4509, 4610-4616, 47010101-4705, 480101-4805, 4807-4815, 4817-4819, 4901-4905,

Lot No.: **98E**

Lot-specific information

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				5001, 5002, 5004, 520101-5214, 5518, 5712-5717, 580102, 5815-5819, 7805, 7806
63	160, 215 bp	1070 bp	15, 37, 44, 54	150104, 370104, 44020101-440205, 4406, 4408, 4409, 4411, 4412, 4416, 4419N-4424, 4427, 4433, 4434, 4441, 4444, 4448, 4449, 4451-4453, 4455, 4459, 4463, 5401-5415, 8301
64⁹	180, 210 bp	1070 bp	7, 13, 15, 18, 35, 39, 40, 45, 54, 55, 56, 59, 78	0765, 1306, 1542, 1586, 1804, 3560, 3917, 4058, 4508, 5401, 5402, 5405N, 5407, 5408N, 5410, 5412, 5413, 550101-5503, 5505, 5507, 5510-5512, 5515, 5516, 5518, 5519, 5521, 5525, 5526, 5529-5531, 560501, 5606, 5610, 5623, 5901, 7801, 780202, 7803, Cw*150204
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, 570101-5715, 5717
67^{6,14}	90 bp	1070 bp	13, 15, 39, 40, 56, 58	1311, 1573, 3917, 4048, 4071, 5602, 5604, 5610, 580101-5802, 5804-5819, Cw*0206^{weakly}
68⁶	95 bp	1070 bp	7, 8, 18, 35, 37, 38, 39, 44, 51, 52, 53, 78	0765, 0832, 180101-1811, 1813-1815, 1817N-1829, 350101-350902, 3511, 3512, 351401-3515, 3517, 3518, 352001-3524, 3527, 3529-3545, 3548, 3550-3562, 3564-356802, 3570-3572, 3574-3579, 3581-3588, 3590-3594, 3708, 3806, 3807, 391901-391902, 4406, 510101-512402, 5126-5146, 5148-5157, 530101-5316, 7801-7804
69^{5,6}	115, 150 bp	1070 bp	15, 18, 27, 35, 39, 46, 54, 55, 56, 62, 73, 75, 76	15010101-150104, 150106-150108, 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, 9540, 9542-9549N, 1819, 2725, 351401-351402, 3543, 3544, 3562, 3567, 3579, 3586, 3918, 3936, 460101-4602, 4604, 4605, 4607N, 4609, 4610, 4612, 4614-4616, 5406, 5521, 5603, 7301
70	360 bp	1070 bp	Bw4 ¹⁶	
71	355 bp	1070 bp	Bw6	
72⁵	290 bp	800 bp	7, 8, 35, 37, 40, 41, 42, 48, 53, 81	070201-0706, 0708-0732, 0734-0741, 0743-0752, 0754-0759, 0761-0766, 080101-0808N, 0810, 0811, 0813-0815, 0817-0830N, 0832-0836, 3566, 3587, 3707, 4015, 4016, 4030-4032, 4034, 4045, 4059, 4080, 4102, 4104, 4201, 4202, 420501-4207, 4209, 480101-480102, 4805-4812, 4814-4819, 5315, 8101-8104N

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 HLA-B 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-B low resolution typing.

In addition, wells number 30, 33, 34, 44, 45, 54, 59, 66 and 72 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.

Lot No.: **98E**

Lot-specific information

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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*3589 and 4093 alleles are not yet retrievable from the GenBank or EMBL data banks.

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

The B*1408 and the B*3925N, B*3930 and B*3932 to 3934 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The B*1829 and the B*3523, B*3537, B*3553N, B*3564, B*3566 and B*356801-356802 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The B*5504, B*5508, B*5513, B*5527 and the B*5615, B*5619N and B*5622 give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The B*5523, B*5532 and the B*5618 give rise to identical amplification patterns with the HLA-B low resolution primer set. These 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

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

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	DR serology ³	Amplified HLA-DRB ⁴ alleles
73	205 bp	515 bp	1	010101-010204, 0104-0120
74	195 bp	430 bp	103	0103
75⁶	215, 260 bp	430 bp	15	150101-1531
76	210 bp	430 bp	16	160101-160502, 1607-1613N
77	220 bp	430 bp	3, 17, 18, 11	030101-0340, 1107, 1153
78^{5,6}	80, 210 bp	430 bp	3, 17, 11, 13, 14	030101-030106, 0304-0306, 0308-0316, 0318-0320, 0322, 0323, 0325, 0326, 0328, 0330, 0331, 0333, 0334, 0336, 0337, 110201-1103, 111101- 111102, 111401-111402, 1116, 1120, 1121, 1136, 1140, 1141, 1148, 1159, 1163, 116501-116502, 1168, 130101-1304, 1308, 1310, 1315-1317, 1319, 1320, 1322- 1324, 1327-1329, 1331-1341, 1343, 1345, 1348, 1351-1354, 1357, 1359, 1361, 1363-1366, 1368-1376, 1378-1381, 1383- 1385, 1416, 1419, 1421
79^{5,6}	80, 210 bp	430 bp	3, 18, 11, 13, 14	030201-0303, 0327, 0329, 0338, 1126, 1134, 1315, 1319, 1326, 1344, 1353, 1357, 1385, 1386, 1402-140302, 1406, 1409, 1412, 1413, 1417-1421, 1424, 1427, 1429, 1430, 1433, 1440, 1441, 1447-1449, 1451, 1463, 1467, 1477, 1478, 1480, 1481
80^{5,6}	100, 175 bp	430 bp	4	040101-0477
81	205, 230 bp	430 bp	7, 13, 14	070101-070102, 0703-0715, 1317, 1450
82^{5,6}	165, 215, 250 bp	515 bp	8, 12, 14	080101-080203, 080302-0819, 0821-0835, 1167, 1204, 1216, 1411, 1415, 1468
83⁵	85, 130, 180 bp	430 bp	3, 9, 11	0308, 090102-0907, 1107, 1153

Lot No.: **98E**

Lot-specific information

www.olerup.com

84	205 bp	430 bp	10	100101-1003
85⁵	100, 170 bp	430 bp	11, 3, 8	0308, 0831, 110101-1169
86⁵	85, 105 bp	430 bp	12, 8	0832, 120101-120203, 120302-1216
87	210 bp	430 bp	13, 8, 11, 14	0820, 110101-110404, 110601-110602, 110801-111202, 111401-1116, 1118-1121, 1123-1125, 112701-1133, 1135-1151, 115401-115402, 1156-1166, 1168, 130101-1308, 1310-1316, 1318-1343, 1345-1385, 140301-140302, 1412, 1416, 1419, 1421, 1422, 1425, 1427, 1440, 1453, 1463, 1467, 1469, 1474, 1477, 1478
88⁶	195, 210 bp	430 bp	13, 8, 11, 12, 14	080101-080203, 080401-0809, 0811, 0816, 0817, 0820-0822, 0824, 0826, 0828, 0831, 110101-110602, 1109-111202, 111401-1116, 1120, 1121, 1123-1125, 112701-1130, 1132, 1133, 1135-1141, 1143, 1144, 1146-1151, 115401-1156, 1158-1163, 116501-1169, 120201-120203, 1213, 1215, 1216, 130101-130201, 130203, 1304-130502, 130701-1309, 131101-131102, 131401-1324, 1326-1329, 1331, 1332, 1334-1336, 1338-1343, 1345-1355, 1357, 1359, 1361-1365, 1367-1376, 1378-1380, 1383, 1384, 1415, 1416, 1422, 1424, 1425, 1427, 1437, 1453, 1473
89	175 bp	430 bp	3, 13, 14, 8	030101-0307, 0309, 0311-0340, 0820, 130101-1316, 1318-1342, 1344, 1346-1366, 1368-1386, 1402-140302, 140501-1406, 1409, 1412-1414, 1417-1421, 142301, 1424, 1427, 1429, 1430, 1433, 1436, 1437, 1440-1445, 1447, 1448, 1451, 1456, 1459, 1463-1465, 1467, 1477, 1478, 1480,

Lot No.: **98E**

Lot-specific information

www.olerup.com

90 ⁵⁻⁷	100, 140 bp	430 bp	14, 4, 8,13	1481 0462, 0469, 0473, 0808, 1169, 1345, 140101-140102, 1404, 140701-140702, 1410, 1416, 1422, 1425, 1426, 1428, 1431- 143202, 1435, 1437-1439, 1449, 1450, 1453-1455, 1457, 1458, 1460-1462, 1468-1471, 1473-1476, 1479
91 ^{5-7,8}	110, 135, 170 bp	515 bp	14, 3, 9, 11, 12, 13, 15	0308, 0310, 090102-0902, 0904-0907, 110404, 1109, 1110, 111202, 1113, 1116, 1117, 1120, 1122, 1140, 1146, 1152, 1158, 1159, 1204, 1343, 140101-1402, 1404-1411, 1413, 1414, 1416-142302, 1426, 1428-1436, 1438, 1439, 1441, 1443-1452, 1454-1457, 1459-1462, 1464, 1465, 1468, 1470-1476, 1479-1481, 1527
92 ⁵⁻⁷	110, 175, 225 bp	430 bp	14, 3, 8, 11, 13, 15, 16	0310, 0809, 0820, 0821, 0832, 0835, 090104, 1113, 1117, 1123, 1125, 1131, 1145, 1152, 1155, 1164, 1313, 1318, 1343, 1345, 1347, 1355, 140101- 140103, 140301-140503, 140701-1408, 1410-1412, 1414-1416, 1418, 1422- 142302, 1425-1428, 1431- 143202, 1434-1436, 1438- 1440, 1442-1445, 1449, 1450, 1453-1465, 1467-1479, 1481, 1521 ^{weakly} , 1604 ^{weakly}
93	230 bp	430 bp	52	DRB3*01010201-0111, 0201- 0223, 030101-0303
94 ⁹	215 bp	430 bp	53	DRB4*01010101-0107
95	260 bp	430 bp	51	DRB1*0907, DRB5*010101- 0113, 0202-0205

¹Alleles are assigned by the presence of specific PCR product(s). However, the sizes of the specific PCR products may be helpful in the interpretation of DR low resolution SSP typings. When the primers in a primer mix can give rise to specific PCR products of more than one length this is indicated if the size difference is 20 base pairs or more. Size differences shorter than 20 base pairs are not given. For high resolution SSP kits the respective length of the specific PCR product(s) of the alleles amplified by these primer mixes are given. Nonspecific amplifications, i.e. a ladder or a smear of bands, may sometimes be seen. GC-rich primers have a higher tendency of giving rise to nonspecific amplifications than other primers, e.g. the primers in wells 75, 90, 91 and 92.

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

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

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

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

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

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

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

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

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

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.

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

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

The DRB1*0831 and DRB1*1167 alleles yield identical amplification patterns except for the specific PCR product yielded by the DRB3 gene in linkage disequilibrium with the DRB1*1167 allele.

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

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

⁷These primer mixes may give rise to nonspecific amplifications.

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

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

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	370	180	200	160	155	240	85	75	360
PCR product(s)		145	200	235		535	200	205	200			175		225	240	135	400			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	41	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'-CTT 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'-CCT 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	559							341	506		570	299	
				5'-CCA ³			5'-CTg ³	5'-TCT ³				5'-CgT ³								5'-CgT ³	5'-TgT ³		5'-CAC ³	5'-TCT ³	
			555			538																			
			5'-gCA ³			5'-Cag ³																			
Well No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HLA-A allele ⁴	ser ⁵																								
*01010101-0104N, 0106, 0109-0111N, 0116N-0118N, 0120, 0122N-0127N, 0129	A1, null	1			4																				24
*0107	-	1			4																				
*0108, 0114, 0115N	1	1																							24
*0112, 0119	-	1		3																					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.: **98E**

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	
*0113	-	1			4							11		13		15									24	
*0121	-	1		3	4																				24	
*0128	-	1			4							11				15									24	
*0130	-	1																								
*02010101-020115, 020117-0209, 0211- 0216, 0218-0222, 0224- 0233, 0236-0238, 0240- 0245, 0247, 0249, 0251, 0253N, 0254, 0257- 0261, 0263-0269, 0271, A2, 0272, 027401-0277, A203 0279-0292, 0294N, , null 0296, 0297, 0299, 9201, 9202, 9204-9209, 9211- 9213N, 9215, 9216, 9218-9221, 9223-9228, 9230-9234, 9236-9245, 9247, 9248																										
*0210, 0239, 0250, 0252, 0273, 0293, 0295, 9210, 9214, 9217	A210		2																		20					
*021701-021702	A2		2					w																		
*0234, 023501, 023503, 0256, 0262, 9203	-		2											13							20		22			
*023502	-													13							20		22			
*0246, 0270	-		2																		20		22			
*0248, 9229	-																				20		22			
*0255	-		2						8													21		23		
*0278	-		2		4																20		22			
*9222	-							6													20					
*9235	-		2											13												
*9246	-		2									10														
*03010101-0307, 0309- 0311N, 0313-0317, 0319- 0323, 0325-0329, 0331, 0333-0335, 0337-0339					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, 1119-112402, 1126, 1127, 1129-1136					4							11													24	

Lot No.: **98E**

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
*1110	-				4				8			11													24
*1111	-				4							11	12												24
*1112, 1118	-				4							11													
*1125	-				3 4							11													24
*2301-2313, 2315-2319Q	A23					5	6																		
*2314, 2405, 241302, 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-2488, 2490, 2491	A24					5		7																	
*2414, 2415, 2451-2453, 2457, 2464	A24					5																			
*2419, 2444	-					5		7				11													
*2482	-					5		7																21	
*2489	-							7																	
*250101-2504	A25								8	9				13											
*2505	-								8	9				13								20			
*2506	-								8	9			12												
*260101-260106, 2608, 2610-2615, 2617, 2618, 2620, 2623-2629, 2632, 2633, 2635-2637	A26, null								8		10			13											
*2602	A26								8		10			w											
*2603, 2606, 2621	A26								8			11		13											23
*2604, 2634	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											
*29010101-2906, 2908N-2912, 2915-2917	A29														14										
*2907	-							6							14										
*2913	-														14					17					
*2914	-														14		16								
*300101-3004, 3006, 3007, 3009-3020, 3022-3025	A30															15									
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.: **98E**

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				
*3008	-	4												15				20				22							
*310102-3102, 3105-3107, 3109-3122	A31													16															
*3103	-									11 12				16															
*3104	A31									12				16															
*3108	-					5								16															
*320101-3202, 3206-3212, 3214, 3216	A32									9								17											
*3203	-													16				17											
*3204	A3	3								9																			
*3205	-					5								16				17											
*3213	-					5				9								17											
*3215	-									8				9				17											
*3301, 330301-3312, 3314-3318	A33																	18											
*3313	-									10				14				18				24							
*3319	-					7												18											
*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, 6604-6607	A66									8				11				13											
*6602, 6603	A66									8				12															
*680101-6804, 6806-6814, 6816-6819, 6821-6828, 6830-6843	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				

Lot No.: **98E**

Lot-specific information

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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-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. Nucleotide 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. Nucleotide 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 A*020120 has been renamed to A*020118.

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*310102.

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(s)				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	1070	1070	800	800	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'-gTg ^{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'}					272	309				302																								
														572							272																												
																					292																												
																					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																																																
*070201-070207, 070501-0706, 0710, 0712, 0714, 071801- 071802, 0721-0723, 0726, 0728-0731, 0734, 0735, 0739, 0741, 0743-0747, 0749N, 0752, 0755- 0759, 0761-0764, 0766	B7	25																							48																								

Lot No.: **98E**

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	
*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			
*0733, 0753	-																									48
*0736	-	25																								
*0738	-	25																								
*0740, 0748, 0751	-																									48
*0750	-	25										35														48
*0754	-	25																								48
*0760	-			27																						48
*0765	-	25																	42							
*080101-080105, 0805, 0808N, 0810, 0811, 0815, 0818, 0819N, 0822-0824, 0827, 0829, 0830N, 0833, 0834	B8, Null		26						32																	48
*0802	B8		26						32													44				
*0803	B8		26						32																	
*0804	-		26						32			35														48
*0806, 0813, 0820	B8		26																							48
*0807, 0814	-		26																							48
*0809	-		26						32																	48
*0812, 0816, 0831	-		26						32																	48
*0817			26						32			35														48
*0821	-		26	27					32																	48
*0825	-		26	27																						48
*0826, 4207	-								32																	48
*0828	-		26										36													48
*0832	-		26						32										42							48
*0835	-		26						32				36													48
*0836	-		26						32																	
*1301, 1317, 1320, 1322	B13			27	28						34								41							
*130201-130204, 1308Q, 1315, 1318, 1319	B13				27	28					34															
*1303	-				27	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	

Lot No.: **98E**

Lot-specific information

www.olerup.com

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	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, 0753
			52																		70	72	-	*0736	
																					70	72	-	*0738	
			52																			71	72	-	*0740, 0748, 0751
																						71	72	-	*0750
			52									62										71	72	-	*0754
			52																			71		-	*0760
			52				56						64						68			71	72	-	*0765
		51																				71	72	B8, Null	*080101-080105, 0805, 0808N, 0810, 0811, 0815, 0818, 0819N, 0822-0824, 0827, 0829, 0830N, 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
		51																				71	72	-	*0835
		51																				71	72	-	*0836
												62										70		B13	*1301, 1317, 1320, 1322
												62										70		B13	*130201-130204, 1308Q, 1315, 1318, 1319
												62				65						70		-	*1303
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.

Lot No.: **98E**

Lot-specific information

www.olerup.com

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
*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, 1409	B65				28		30																	47	48
*1405-140602	-						30																	47	48
*1408, 3925N, 3930, 3932-3934	-					29																		47	48
*15010101- 15010102N, 150103, 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					
*150106-150107, 1507	B62			27				31					36							43					
*150108				27									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					
*1504								31					36							43					
*1505, 1506, 1533, 1539, 1540, 1565, 1578, 1584, 9507	B62, B15							31					36							43					
*1508, 151101-151103, 1515	B75							31					36							43					
*1509	B70								32	33	34									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

Lot No.: **98E**

Lot-specific information

www.olerup.com

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			-	*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, 1409
																					71			-	*1405-140602
																					71			-	*1408, 3925N, 3930, 3932-3934
													62								69	71		B62, Null, B15	*15010101- 15010102N, 150103, 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	*150106-150107, 1507
													62								69	71			*150108
										57												71		B75	*1502, 1588, 9512, 9521
													62									71		B72	*1503, 1547, 1549, 1561, 1598, 9503, 9523, 9527, 9532
										w			62								69	71			*1504
													62									71		B62, B15	*1505, 1506, 1533, 1539, 1540, 1565, 1578, 1584, 9507
										57											69	71		B75	*1508, 151101-151103, 1515
																					71			B70	*1509

Lot No.: **98E**

Lot-specific information

www.olerup.com

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
*1510, 1537, 1590, 1599, 9533	B71								32		34									43					
*1512, 1514, 1519	B76							31				36	37							43					
*1513	B77							31				36		38				41		43					
*1516, 1567, 1595	B63									33		36		38						43					
*15170101-151702	B63							31		33					38					43					
*1518, 1551, 1552, 1572, 1593, 9508, 9514, 9519, 9534	B71								32		34		36							43					
*1520, 1525	B62							31				36						41		43					
*1521, 1544	B75							31			34	36						41		43					
*1523	-								32		34	36		38						43					
*1524, 1587	B62							31				36		38						43					
*152702	-			27								36								43					
*152703	-			27				31				36								43					
*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					

Lot No.: **98E**

Lot-specific information

www.olerup.com

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		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
													62								69	71		-	*152703
																					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

Lot No.: **98E**

Lot-specific information

www.olerup.com

Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
*9506	-				28			31	32				36					41		43					
*9515	-								32		34		36							43	44				
*9516	-							31					36							43					
*9520	-							31					36							43					
*9524	-								32		34		36							43					
*9526, 9535, 9540, 9545-9547	-			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					
*9541	-			27				31					36							43					
*9542	-		26	27				31					36							43					
*9543	-							31	32				36							43					
*9544	-			27				31					36					41		43					
*9548	-			27				31					36							43					
*9549N	-			27				31					36							43					
*180101-1803, 1805- 1808, 1810, 1811, 1813- 1815, 1817N, 1818, 1820, 1821, 1823N- 1825, 1827, 1828	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					
*1829, 3532, 3537, 3553N, 3564, 356801- 356802													36							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, 2743	B27																40								
*2708, 2726, 2740, 2742	B2708					29											40								
*2712	-					29											40								
*2716, 2739	-					29											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

Lot No.: **98E**

Lot-specific information

www.olerup.com

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, 9540, 9545-9547
													62										71	-	*9536
									59				62									69	71	-	*9537
													62										71	-	*9538
								57															71	-	*9539
													62										71	-	*9541
													62									69	71	-	*9542
												61										69	71	-	*9543
								57														69	71	-	*9544
								57														69	71	-	*9548
																						69	71	-	*9549N
																				68			71	B18	*180101-1803, 1805-1808, 1810, 1811, 1813, 1815, 1817N, 1818, 1820, 1821, 1823N-1825, 1827, 1828
													64								68		71	-	*1804
																					68	70		-	*1809
													62										71	-	*1812
																				68	69		71	-	*1819
						55															68		71	-	*1822
																					68		71	-	*1826
																					68		71	-	*1829, 3532, 3537, 3553N, 3564, 356801-356802
			52										62										70	B27	*2701
			52				56				60		62										70	B27	*2702
			52				56						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, 2743
			52				56						62										71	B2708	*2708, 2726, 2740, 2742
													62										71	-	*2712
													62										70	-	*2716, 2739
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.

Lot No.: **98E**

Lot-specific information

www.olerup.com

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
*2718	-					29						35					40								
*2719	-																40	41							
*2723	-					29											40								
*2724	-																40								
*2725	-																40								
*2729	-					29						35					40								
*2730	-																40	41							
*2733	-																40								
*2741	-					29							36				40								
*350101-350107, 3507-350803, 3511, 3515, 352001-352002, 3523, 3529, 3540N-3542, 3548, 3550, 3552, 3554, 3557, 3561, 3577, 3578, 3582, 3590-3594	B35												36					41	42						
*350201-350401, 350403, 3506, 3512, 3533, 3534, 3536, 3539, 3555, 3559, 3565Q, 3570, 3574, 3583-3585	B35																	41	42						
*350402	-									33								41	42						
*3505, 3551, 3558, 3572	B35			27									36						42						
*350901-350902, 3518, 3531, 3575, 3588	B35																		42						
*3510, 3528, 3569, 3580	-												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							
*3535	-												36					41	42			45			
*3538	-																	41	42						
*3543, 3567, 3579, 3586	B35												36						42						

Lot No.: **98E**

Lot-specific information

www.olerup.com

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									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
			52				56						62									70		-	*2741
																			68			71	B35		*350101-350107, 3507-350803, 3511, 3515, 352001-352002, 3523, 3529, 3540N-3542, 3548, 3550, 3552, 3554, 3557, 3561, 3577, 3578, 3582, 3590 3594
																			68			71	B35		*350201-350401, 350403, 3506, 3512, 3533, 3534, 3536, 3539, 3555, 3559, 3565Q, 3570, 3574, 3583-3585
																			68			71	-		*350402
																			68			71	B35		*3505, 3551, 3558, 3572
																			68			71	B35		*350901-350902, 3518, 3531, 3575, 3588
													62									71	-		*3510, 3528, 3569, 3580
													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	-		*3535
						53																68	71	-	*3538
																				68	69	71	B35		*3543, 3567, 3579, 3586
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.

Lot No.: **98E**

Lot-specific information

www.olerup.com

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
*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						
*3581	-																	41	42						
*3587	-								32										42						
*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				
*3714	-																		42						
*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, 390103-390105, 3903, 3905-390602, 3909, 3911, 3914, 3915, 3924, 3926-3929, 3931, 3935, 3937, 3938Q, 3940N, 3941, 3944	B3901, B39					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

Lot No.: **98E**

Lot-specific information

www.olerup.com

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	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
						55														68			71			-	*3581
		51																		68			71	72		-	*3587
				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	
													62										70	71	-	*3714	
																							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, 390103-390105, 3903, 3905-390602, 3909, 3911, 3914, 3915, 3924, 3926-3929, 3931, 3935, 3937, 3938Q, 3940N, 3941, 3944	
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.		

Lot No.: **98E**

Lot-specific information

www.olerup.com

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
*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, 3945	-																					45		47	48
*3917	-																					45			48
*3918	-					29																45		47	48
*391901	-																	42				45		47	48
*391902	-					29												42				45		47	48
*3922	-					29																45		47	48
*3936	-					29																		47	48
*3939	-					29						35										45			48
*3942	-					29												41				45			48
*3943	-					29						36													48
*400101-400106, 4007	B60, B40				28																				48
*400201-400203, 4004, 40060101-400602, 4039	B61, B40																								
*4003, 4020	B40											36													
*4005	B4005			27																					
*4008	-																								
*4009, 4011, 4018, 4024, 4027, 4029, 4035, 4037, 4040, 4044, 4050, 4056, 4057, 4064, 4075, 4078, 4082, 4085, 4086	B61, B40																								?
*4010, 4022N, 4033, 4036, 4042, 4043, 4049, 4054, 4055, 4061, 4063, 4065-4067, 4073, 4081, 4084, 4087, 4088	Null, B40, B60				28																				?
*4012	-								32			35								43					
*4013, 4019	-																								
*401401-401403, 4053, 407201	-				28																				?
*4015, 4016, 4032	B61	25			28																				?
*4021	-																								?
*4023	-	25			28																				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

Lot No.: **98E**

Lot-specific information

www.olerup.com

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										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, 3945
													64				67					71		-	*3917
																			69			71		-	*3918
																			68			71		-	*391901
																			68			71		-	*391902
												62										71		-	*3922
																					69	71		-	*3936
																						71		-	*3939
																						71		-	*3942
																						71		-	*3943
49												61	62									71		B60, B40	*400101-400106, 4007
	50											61	62									71		B61, B40	*400201-400203, 4004, 40060101-400602, 4039
	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, 4075, 4078, 4082, 4085, 4086
49												61	62									71		Null, B40, B60	*4010, 4022N, 4033, 4036, 4042, 4043, 4049, 4054, 4055, 4061, 4063, 4065-4067, 4073, 4081, 4084, 4087, 4088
49												62										71		-	*4012
	50							58	60			62										70		-	*4013, 4019
												61	62									71		-	*401401-401403, 4053, 407201
												61	62									71	72	B61	*4015, 4016, 4032
49												62										71		-	*4021
49												61	62									71		-	*4023
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.

Lot No.: **98E**

Lot-specific information

www.olerup.com

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	
*4025	-				28																				?	
*4026	B21									33																?
*4028	-									33								41								?
*4030, 4034	-				28																					?
*4031, 4045, 4080	-				28																					?
*4038, 4052	-				28								36													?
*4046	-											35					40									?
*4047	-				28																					?
*4048	-				28						34															?
*4051, 4079	-				28																					48
*4058	-				28																					?
*4059	-				28								36													48
*4060	-				28								36													48
*4068	-																									?
*4069	-				28																					?
*4070, 4089-4091	-																									?
*4071	-				27																					?
*407202, 4077	-				28																					48
*4074	-																									?
*4076	-				28																					?
*4083	-																									?
*4092	-				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
*44020101-440205, 4411, 4416, 4419N, 4421-4424, 4427, 4433, 4434, 4448, 4451, 4452N, 4455, 4459, 4463	B44, B47, Null				28													41								
*440301-4405, 4413, 4426, 442801-4430, 4432, 4435, 4436, 4438, 4439, 4442, 4445, 4456N, 4458N, 4461N	B44				28													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	

Lot No.: **98E**

Lot-specific information

www.olerup.com

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.
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, 4080
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, 4079
												61	62		64							71		-	*4058
												61	62									71	72	-	*4059
49												61	62									71		-	*4060
	50											61										71		-	*4068
49												61										71		-	*4069
	50											61	62									71		-	*4070, 4089-4091
	50											61	62			65	67					71		-	*4071
												61	62									71		-	*407202, 4077
49	50											61	62									71		-	*4074
49													62											-	*4076
												61	62									71		-	*4083
49												61	62									71		-	*4092
		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	*44020101-440205, 4411, 4416, 4419N, 4421-4424, 4427, 4433, 4434, 4448, 4451, 4452N, 4455, 4459, 4463
					53								62									70		B44	*440301-4405, 4413, 4426, 442801-4430, 4432, 4435, 4436, 4438, 4439, 4442, 4445, 4456N, 4458N, 4461N
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.

Lot No.: **98E**

Lot-specific information

www.olerup.com

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
*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, 4450	-				28													41							
*4431	-				28																				
*4437	-				28													41							
*4440	-											35					40	41							
*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							
*4460	-				27	28												41							
*4462	-				28				32	33								41							
*446401-446402	-				28													41							
*4501, 4505, 4507	B45				28				32			35													48
*4502, 4503	-				28				32																48
*4504	-				28				32																48
*4506	-				28				32			35													48
*4508	-				28				32																48
*4509	-				28				32				36	37											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, 4614-4616	-				27				31				36												
*4613	-				27				31				36												
*47010101-47010102	B47				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

Lot No.: **98E**

Lot-specific information

www.olerup.com

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	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, 4450	
49				53									62									70			-	*4431	
													62									70			-	*4437	
				53									62									70			-	*4440	
				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	
				53									62									70			-	*4460	
				53									62									70			-	*4462	
													62									70			-	*446401-446402	
					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	
					54							61	62		64								71		-	*4508	
					54							61	62										71		-	*4509	
				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, 4614-4616	
				52			55						62										71		-	*4613	
							56						62										70		B47	*47010101-47010102	
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.		

Lot No.: **98E**

Lot-specific information

www.olerup.com

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
*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													48
*4901	B49				28																				
*4902	-				28																				
*4903	-																								
*4904, 4905	-				28								36												
*5001, 5004	B50				28																				48
*5002	B45				28							35													48
*510101, 510103, 510105-510108, 510201, 510203, 5103, 5107, 510901, 5111N, 5112, 511302, 5114, 5117-5119, 5122, 5123, 5126-5130, 5132, 5133, 5138- 5141N, 5143, 5148, 5149, 5151-5153, 5155	B51, B5102, B5103, Null										33														
*510102, 510109, 510202, 5105, 510902	B51										33														
*510104, 511301, 5116, 5121, 512401- 512402, 5131, 5134, 5135	B51, B52																								
*5104, 5146	B51										33							41							
*5106	B51										33														
*5108, 5120, 5144N	B51								32	33															
*5110	-																								
*5115	-																								
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

Lot No.: **98E**

Lot-specific information

www.olerup.com

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.	
							56					61	62									71		-	*4702	
							56						62									70	w	-	*4703	
													62									70		-	*4704, 4705	
								57					62										71	72	B48	*480101-480102, 4807, 4809, 4811, 4819
													62										71		-	*4802
49													62										71		B48	*480301-480302
								57					62										71		B48	*4804
													62										71	72	B48	*4805, 4808
								57															71	72	-	*4806
													62										71	72	-	*4810, 4812
													62										71		-	*4813
													62										71	72	-	*4814
								57					62										71	72	-	*4815
								57															71	72	-	*4816
49													62										71	72	-	*4817
								57					62									70	72	-	*4818	
									58	59			62			65						70		B49	*4901	
										59			62			65						70		-	*4902	
										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, 510105-510108, 510201, 510203, 5103, 5107, 510901, 5111N, 5112, 511302, 5114, 5117-5119, 5122, 5123, 5126-5130, 5132, 5133, 5138-5141N, 5143, 5148, 5149, 5151-5153, 5155	
										59	60							68				70		B51	*510102, 510109, 510202, 5105, 510902	
					54					59	60							68				70		B51, B52	*510104, 511301, 5116, 5121, 512401-512402, 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, 5144N	
					54						60							68				70		-	*5110	
											60					65						68	70	-	*5115	
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.	

Lot No.: **98E**

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	
*5136	-								32																	
*5137	-									33			36													
*5142	-																	41								
*5145	-												36													
*5150, 5154	-									33																
*5156	-									33								41								
*5157	-									33																
*520101, 520103, 5204, 5205, 5207, 5210 5212	B52									33																
*520102, 520104-5203, 520601-520602, 5209	B52									33																
*5208	-																									
*5213	-									33																
*5214	-																									
*530101-530104, 5305, 5308, 5310, 5316	B53												36					41								
*5302	B53												36					41								
*5303, 5309, 5311- 5313	-												36					41								
*5304, 5307	-																	41								
*5306	B53												36					41								
*5314	-			27									36													
*5315	-												36					41								
*5401, 5402, 5405N, 5407, 5408N, 5410, 5413	B54																									
*5403	-																									
*5404, 5411, 5415	-																									
*5406	-												36													
*5409, 5414	-												36													
*5412	-																									
*550101-550104, 5503, 5505, 5511, 5515, 5525, 5529, 5531	B55																									
*550201-550202, 5507, 5510, 5512, 5516, 5519, 5526, 5530	B54, B55																									
*5504, 5508, 5513, 5527, 5615, 5619N, 5622	B55																									
*5509, 5517, 5528	-																									
*5514	-												36					41								
*5518	-												35													
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	

Lot No.: **98E**

Lot-specific information

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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.	
				54						59	60								68		70			-	*5136	
				54						59	60								68		70			-	*5137	
				53	54						60								68		70			-	*5142	
				54							60								68		70			-	*5145	
										59									68		70			-	*5150, 5154	
				54	55														68		70			-	*5156	
				54						59									68		70			-	*5157	
										59	60		62									70		B52	*520101, 520103, 5204, 5205, 5207, 5210 5212	
				54						59	60		62									70		B52	*520102, 520104-5203, 520601-520602, 5209	
										59	60		62									70		-	*5208	
										59			62									70		-	*5213	
										59			62									70		-	*5214	
											60								68		70			B53	*530101-530104, 5305, 5308, 5310, 5316	
						55					60								68		70			B53	*5302	
																			68		70			-	*5303, 5309, 5311- 5313	
											60								68		70			-	*5304, 5307	
				54	55						60								68		70			B53	*5306	
											60								68		70			-	*5314	
											60								68		70		72	-	*5315	
			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, 5415	
			52				56						63								69		71	-	*5406	
			52				56						63										71	-	*5409, 5414	
			52				56						63	64									70	-	*5412	
			52				56			59					64									71	B55	*550101-550104, 5503, 5505, 5511, 5515, 5525, 5529, 5531
			52				56								64									71	B54, B55	*550201-550202, 5507, 5510, 5512, 5516, 5519, 5526, 5530
			52				56																	71	B55	*5504, 5508, 5513, 5527, 5615, 5619N, 5622
			52				56			59														71	-	*5509, 5517, 5528
			52				56										66							71	-	*5514
												62		64										71	-	*5518
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.	

Lot No.: **98E**

Lot-specific information

www.olerup.com

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
*5520	-																								
*5521	-																								
*5522	-										34														
*5523, 5532, 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												
*5623	-																								
*570101-570103, 5706, 5708, 5710	B57												36						41						
*5702-5705	B57																		41						
*5707	-																		41						
*5709	-										32								41						
*5711	-												36												
*5712	-																		41						
*5713	-												36												
*5714	-				27								36						41						
*5715	-				27								36						41						
*5716	-												36						41						
*5717	-				27														41						
*580101, 5804, 5805, 5810N-5814	B58												36						41						
*580102, 5815	-												36						41						
*5802, 5806	B58												36												
*5807	-												36	37											
*5808	-										33														
*5809	-												36						41						
*5816	-												36												
*5817N, 5819	-												36						41						
*5818	-				27								36												
*5901	B59																								
*5902	-																								
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

Lot No.: **98E**

Lot-specific information

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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.
		51	52		54		56															71		-	*5520
			52				56			59					64						69	71		-	*5521
			52				56															71		-	*5522
			52				56															71		-	*5523, 5532, 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							71		-	*5610
			52				56															71		-	*5611, 5612
			52		54		56									65						71		-	*5613
																65						71		-	*5617
			52				56			59												70		-	*5621
															64							71		-	*5623
										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
															62							71		-	*5712
										60					62							70		-	*5713
						55				60					62							70		-	*5714
										60					62							70		-	*5715
										60					62							70		-	*5716
															62							70		-	*5717
										60								67				70		B58	*580101, 5804, 5805, 5810N-5814
										60					62							70		-	*580102, 5815
										60												70		B58	*5802, 5806
										60												70		-	*5807
						54				59	60											70		-	*5808
						55				60												70		-	*5809
										60					62							70		-	*5816
															62							70		-	*5817N, 5819
															62							70		-	*5818
															64							70		B59	*5901
										60												70		-	*5902
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.

Lot No.: **98E**

Lot-specific information

www.olerup.com

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
*5903	-																								
*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						
*7806	-									33															
*8101	B81																								
*8102	-																								48
*8103, 8104N	-																								
*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											w														
Cw*0305, 0325, 0327				27																					
Cw*0746									32																
Cw*150204																									

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, 66 and 72 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. Nucleotide 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. Nucleotide 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 nucleotide sequences of the B*3589 and B*4093 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*270502.

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*390101.

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.

Lot No.: **98E**

Lot-specific information

www.olerup.com

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.
																					70			-	*5903
			52																			71		B67	*670101
			52																			71		B67	*670102
			w																			71		-	*6702
			52																		69	71		B73	*7301
									59				64					68				71		B78	*7801, 780202, 7803
									59									68				71		B78	*780201, 7804
									59			62										71		-	*7805
									59			62										71		-	*7806
			52				56	57														71	72	B81	*8101
			52					57														71	72	-	*8102
			52					57														71	72	-	*8103, 8104N
			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.
																									Cw*0206
																									Cw*0305, 0325, 0327
																									Cw*0746
															64										Cw*150204
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.

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

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*9530 allele has been renamed B*152702.

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

The B*1408 and the B*3925N, B*3930 and B*3932 to 3934 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The B*1829 and the B*3523, B*3537, B*3553N, B*3564, B*3566 and B*356801-356802 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The B*5504, B*5508, B*5513, B*5527 and the B*5615, B*5619N and B*5622 give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The B*5523, B*5532 and the B*5618 give rise to identical amplification patterns with the HLA-B low resolution primer set. These 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																							
		DR low resolution SSP typing																							
		Amplification patterns of the DRB1*0101 to DRB1*1001 alleles																							
		Well																							
		73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	
Length of spec.		205	195	215	210	220	80	80	100	205	165	85	205	100	85	210	195	175	100	110	110	230	215	260	
PCR product(s)				260			210	210	175	230	215	130		170	105		210		140	135	175				
											250	180								170	225				
Length of int.		515	430	430	430	430	430	430	430	430	515	430	430	430	430	430	430	430	430	515	430	430	430	430	
pos. control ¹																									
5'-primer(s) ²		14	14	13	13	13	13	13	13	14	16	26	31	13	16	10	10	13	37	26	13	10	28	13	
		5'-gAA ^{3'}	5'-gAA ^{3'}	5'-Agg ^{3'}	5'-Agg ^{3'}	5'-g TC ^{3'}	5'-g TC ^{3'}	5'-g TC ^{3'}	5'-A CA ^{3'}	5'-AT A ^{3'}	5'-gT T ^{3'}	5'-TAT ^{3'}	5'-gC g ^{3'}	5'-g TC ^{3'}	5'-gT T ^{3'}	5'-g CT ^{3'}	5'-g CT ^{3'}	5'-g TC ^{3'}	5'-g TA ^{3'}	5'-g TA ^{3'}	5'-g TC ^{3'}	5'-g CT ^{3'}	5'-g AT ^{3'}	5'-g TA ^{3'}	
				13	13		16		13	14	16	58		16		13	13		37	34	34	10		13	
				5'-AAg ^{3'}	5'-AAg ^{3'}		5'-gT T ^{3'}		5'-A CC ^{3'}	5'-AT A ^{3'}	5'-gT T ^{3'}	5'-gAg ^{3'}		5'-gT C ^{3'}		5'-g TC ^{3'}	5'-g TC ^{3'}		5'-g TT ^{3'}	5'-CAG ^{3'}	5'-CAG ^{3'}	5'-g CT ^{3'}		5'-g TA ^{3'}	
									13	16				38		16									
									5'-A TA ^{3'}	5'-gT T ^{3'}				5'-C gT ^{3'}		5'-gT T ^{3'}									
																16									
3'-primer(s) ³		73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	
		5'-gAg ^{3'}	5'-gAT ^{3'}	5'-CTg ^{3'}	5'-gAA ^{3'}	5'-g gC ^{3'}	5'-g gT ^{3'}	5'-CT C ^{3'}	5'-gTg ^{3'}	5'-CTC ^{3'}	5'-C CT ^{3'}	5'-C gA ^{3'}	5'-C AC ^{3'}	5'-C CT ^{3'}	5'-gTg ^{3'}	5'-gTC ^{3'}	5'-gAA ^{3'}	5'-C gg ^{3'}	5'-C Ag ^{3'}	5'-C Ag ^{3'}	5'-C Ag ^{3'}	5'-g gC ^{3'}	5'-CTC ^{3'}	5'-CTC ^{3'}	
		71		71	67	73	71	70	58	73	74	73	86	58	38	71	67	58	71	58	60	73			
		5'-gC g ^{3'}		5'-CgC ^{3'}	5'-gAg ^{3'}	5'-g gC ^{3'}	5'-g CT ^{3'}	5'-CTg ^{3'}	5'-C gg ^{3'}	5'-g gC ^{3'}	5'-C Ag ^{3'}	5'-g gC ^{3'}	5'-C CA ^{3'}	5'-C CT ^{3'}	5'-C Ag ^{3'}	5'-g CT ^{3'}	5'-gAA ^{3'}	5'-C Ag ^{3'}	5'-CgC ^{3'}	5'-C CT ^{3'}	5'-gTg ^{3'}	5'-g gC ^{3'}			
				86	72					77	86	78				71				70	70				
				5'-C CA ^{3'}	5'-gC g ^{3'}					5'-A AT ^{3'}	5'-C AC ^{3'}	5'-CAC ^{3'}				5'-CTC ^{3'}				5'-CTg ^{3'}	5'-T CC ^{3'}				
										78						71				70	74				
										5'-CAC ^{3'}						5'-CgC ^{3'}				5'-T CC ^{3'}	5'-CAG ^{3'}				
Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	
DRB1 allele ⁴	ser ⁵																								
*010101-010204, 0104-0120	1	73																							
*0103	103		74																						
Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	

Lot No.: **98E**

Lot-specific information

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Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
*030101-030106, 0304-0306, 0309, 0311-0316, 0318-0320, 0322, 0323, 0325, 0326, 0328, 0330, 0331, 0333, 0334, 0336, 0337	17					77	78											89						
*030201-0303, 0327, 0329, 0338	18					77		79										89						
*0307, 0317, 0321, 0324, 0332, 0335, 0339, 0340	-					77												89						
*0308	-					77	78					83		85						91				
*0310	-					77	78													91	92			
*040101-0461, 0463-0468, 0470-0472, 0474-0477	4								80															
*0462, 0469, 0473	-								80										90					
*070101-070102, 0703-0715	7									81														
*080101-080203, 080401-0807, 0811, 0816, 0817, 0822, 0824, 0826, 0828	8										82						88							
*080302, 0810, 0812-0815, 0818, 0819, 0823, 0825, 0827, 0829, 0830, 0833, 0834	8										82													
*0808	-										82						88		90					
*0809, 0821, 1415	8										82						88				92			
*0820, 1318, 1347, 1355	8,13															87	88	89		92				
*0831, 1167	-										82			85			88							
*0832	-										82				86						92			
*0835											82										92			
*090102-090103, 0902, 0904-0906	9											83								91				
*090104												83								91	92			
*0903	9											83												
*0907												83								91				95
*100101-1003	10												84											
*110101-110107, 110401-110403, 110601-110602, 111201, 1115, 1124, 112701-1130, 1132, 1133, 1135, 1137-1139, 1143, 1144, 1147, 1149-1151, 115401-115402, 1156, 1160-1162, 1166	11													85		87	88							
Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95

Lot No.: **98E**

Lot-specific information

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Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
*110201-1103, 111101-111102, 111401-111402, 1121, 1136, 1141, 1148, 1163, 116501-116502, 1168	11						78							85		87	88							
*110404, 1109, 1110, 111202, 1146, 1158	11													85		87	88			91				
*1105	11													85			88							
*1107, 1153	-					77						83		85										
*110801-110802, 1118-111902, 1142, 1157	11													85		87								
*1113, 1117, 1152	11													85						91	92			
*1116, 1120, 1140, 1159	-						78							85		87	88			91				
*1122	-													85						91				
*1123, 1125	11													85		87	88					92		
*1126, 1134	11							79						85										
*1131, 1145, 1164	-													85		87					92			
*1155	-													85			88				92			
*1169	-													85			88			90				
*120101-120102, 120302, 1205-1212, 1214	12														86									
*120201-120203, 1213, 1215	12														86		88							
*1204	-											82			86					91				
*1216	-											82			86		88							
*130101-130201, 130203, 1304, 1308, 1316, 1320, 1322-1324, 1327-1329, 1331, 1332, 1334-1336, 1338-1341, 1348, 1351, 1352, 1354, 1359, 1361, 1363-1365, 1368-1376, 1378-1380, 1383, 1384	13						78									87	88	89						
*130202, 130301-130302, 1310, 1333, 1337, 1366, 1381	13						78									87		89						
*130501-130502, 130701-130702, 131101-131102, 131401-131403, 1321, 1342, 1346, 1349-135002, 1362	13															87	88	89						
*1306, 1312, 1325, 1330, 1356, 1358, 1360, 1377, 1382	13															87		89						
Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95

Lot No.: **98E**

Lot-specific information

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Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
*1309	13																88	89						
*1313	-																87	89			92			
*1315, 1319, 1353, 1357	-						78	79									87	88	89					
*1317	13						78			81							88							
*1326	-							79									87	88	89					
*1343	-						78										87	88			91	92		
*1344, 1386	-							79										89						
*1345	-						78										87	88	90		92			
*1367	-																87	88						
*1385	-						78	79									87	89						
*140101-140102, 1404, 140701-140702, 1410, 1426, 1428, 1431-143202, 1435, 1438, 1439, 1454, 1455, 1457, 1460-1462, 1470, 1471, 1475, 1476, 1479	14																		90	91	92			
*140103, 1408, 142302, 1434, 1472	-																				91	92		
*1402, 1406, 1409, 1413, 1417, 1420, 1429, 1430, 1433, 1441, 1447, 1448, 1451, 1480	14							79										89		91				
*140301-140302, 1412, 1440, 1463, 1467, 1477, 1478	14							79								87	89			92				
*140501-140503, 1414, 142301, 1436, 1443-1445, 1456, 1459, 1464, 1465	14																	89		91	92			
*1411	-										82									91	92			
*1416	6						78										87	88	90	91	92			
*1418, 1481	-							79										89	91	92				
*1419, 1421	-						78	79									87	89	91					
*1422	-																87	88	90	91	92			
*1424	-							79										88	89					
*1425, 1453	-																87	88	90		92			
*1427	14							79									87	88	89			92		
*1437	-																88	89	90					
*1442																		89			92			
*1446, 1452	-																			91				
*1449	-							79											90	91	92			
*1450	-									81									90	91	92			
*1458	-																		90		92			
*1468	-										82								90	91	92			
Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95

Lot No.: **98E**

Lot-specific information

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Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
*1469	-															87		90		92				
*1473	-																88	90	91	92				
*1474	-															87		90	91	92				
*150101-1520, 1522-1526, 1528-1531	15			75																				
*1521	-			75																	w			
*1527	-			75																91				
*160101-1603, 160501- 160502, 1607-1613N	16				76																			
*1604	16				76																w			
Well No.		73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
DRB1 allele ⁴	ser ⁵																							
DRB3*01010201-0111, 0201-0223, 030101-0303	52																						93	
DRB4*01010101-0107	53																						94	
DRB5*010101-0113, 0202- 0205	51																							95
Well No.	ser ⁵	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95

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

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

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

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

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

⁴The DRB1*0809, DRB1*0821 and DRB4*1415 alleles yield identical amplification patterns except for the specific PCR product yielded by the DRB3 gene in linkage disequilibrium with the DRB1*1415 allele.

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

The DRB1*0831 and DRB1*1167 alleles yield identical amplification patterns except for the specific PCR product yielded by the DRB3 gene in linkage disequilibrium with the DRB1*1167 allele.

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

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

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

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

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

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

The sequence of the DRB3*010101 allele has been shown to be identical to DRB3*01010201.

The DRB4*0101102N allele has been renamed DRB4*01030102N.

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

⁵The serological reactivity of all DRB alleles is not known. In this table we use the information in the HLA Dictionary 2004 on the www.ebi.ac.uk/imgt/hla web site and the information available at

Lot No.: **98E**

Lot-specific information

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the www.worldmarrow.org web site and have also inferred the serological grouping from the naming of the sequence-defined allele.

‘ser’, serological HLA specificity.

‘w’, may be weakly amplified.

‘f’, may be faintly amplified.

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

Lot No.: **98E**

Lot-specific information

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CELL LINE VALIDATION SHEET																				
HLA-A low resolution primer set																				
				Lot No.:	Well															
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
					200739101	200739102	200739103	200739104	200847005	200739106	200739107	200739108	200739109	200739110	200739111	200739112	200739113	200739114	20847015	200847016
	IHWC cell line	A*	A*																	
1	9001 SA	*2402			-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-
2	9280 LK707	*0201			-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	9011 E4181324	*0101			+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
4	9275 GU373	*3001			+	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
5	9009 KAS011	*0101			+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
6	9353 SM	*0201	*2603		-	+	-	-	-	-	-	+	-	-	+	-	+	-	-	-
7	9020 QBL	*2601			-	-	-	-	-	-	-	+	-	+	-	-	+	-	-	-
8	9007 DEM	*0201			-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9026 YAR	*2601			-	-	-	-	-	-	-	+	-	+	-	-	+	-	-	-
10	9107 LKT3	*2402			-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-
11	9051 PITOUT	*2902			-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
12	9052 DBB	*0201			-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	9067 BTB	*0201			-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071 OLGA	*3101			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	9075 DKB	*2402			-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-
16	9037 SWEIG007	*2902			-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
17	9008 WILJON	*2501			-	-	-	-	-	-	-	+	+	-	-	-	+	-	-	-
18	9257 32367	*3303	*7401		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	9038 BM16	*0201			-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	9059 SLE005	*0201			-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	9064 AMALA	*0217			-	+	-	-	-	-	W	-	-	-	-	-	-	-	-	-
22	9056 KOSE	*0201			-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	9124 IHL	*0201	*3401		-	+	-	-	-	-	-	+	-	-	+	+	-	-	-	-
24	9035 JBUSH	*3201			-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
25	9049 IBW9	*3301			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	9285 WT49	*0205			-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	9191 CH1007	*2410	*2901		-	-	-	-	+	-	+	-	-	-	-	-	-	+	-	-
28	9320 BEL5GB	*0201	*2902		-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-
29	9050 MOU	*2902			-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
30	9021 RSH	*3001	*6802		-	-	-	-	-	-	-	+	-	-	-	-	-	-	+	+
31	9019 DUCAF	*3002			-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
32	9297 HAG	*0201			-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	9098 MT14B	*3101			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	9104 DHIF	*3101			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	9302 SSTO	*3201			-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
36	9024 KT17	*0206	*1101		-	+	-	+	-	-	-	-	-	-	+	-	-	-	-	-
37	9065 HHKB	*0301			-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-
38	9099 LZL	*0217			-	+	-	-	-	-	W	-	-	-	-	-	-	-	-	-
39	9315 CML	*0101	*0301		+	-	+	+	-	-	-	-	-	-	-	-	+	-	-	-
40	9134 WHONP199	*0207	*3001		-	+	-	-	-	-	-	-	-	-	-	-	-	-	+	+
41	9055 H0301	*0301			-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-
42	9066 TAB089	*0207			-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43	9076 T7526	*0207			-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	9057 TEM	*6601			-	-	-	-	-	-	-	+	-	-	+	-	+	-	-	-
45	9239 SHJO	*2301	*2402		-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-
46	9013 SCHU	*0301			-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-
47	9045 TUBO	*0216	*0301		-	+	+	-	-	-	-	-	-	-	-	-	+	-	-	-
48	9303 TER-ND	*0201	*1101		-	+	-	+	-	-	-	-	-	-	+	-	-	-	-	-

Lot No.: **98E**

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
	IHC 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.: **98E**

Lot-specific information

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CELL LINE VALIDATION SHEET																				
HLA-B low resolution SSP kit																				
				Prod. No.:	Well															
					25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
					2008480101	2008480102	2008480103	2008480104	2008480105	2008480106	2008480107	2008480108	2008480109	2008480110	2008480111	2008480112	2008480113	2008480114	2008480115	2008480116
	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.: **98E**

Lot-specific information

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CELL LINE VALIDATION SHEET																				
HLA-B low resolution SSP kit																				
				Prod. No.:	Well															
					41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
					200848017	200848018	200848019	200848020	200848021	200848022	200848023	200848024	200848025	200848026	200848027	200848028	200848029	200848030	200848031	200848032
	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.: **98E**

Lot-specific information

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CELL LINE VALIDATION SHEET																					
HLA-B low resolution SSP kit																					
				Prod. No.:	Well																
					57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	
					200848033	200848034	200848035	200848036	200848037	200848038	200848039	200848040	200848041	200848042	200848043	200848044	200848045	200848046	200848047	200848048	
	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.: **98E**

Lot-specific information

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CELL LINE VALIDATION SHEET																					
DR low resolution primer set																					
				Prod. No.:	Well																
					73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	
	IHWC cell line	DRB1			200850201	200850202	200850203	200850204	200850205	200850206	200850207	200850208	200850209	200850210	200850211	200850212	200850213	200850214	200850215	200850216	
1	9001 SA	*0101			+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280 LK707	*1502	*0405		-	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-
3	9011 E4181324	*1502			-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	9275 GU373	*0301			-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-
5	9009 KAS011	*1601			-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
6	9353 SM	*0407	*0803		-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	-	-
7	9020 QBL	*0301			-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-
8	9007 DEM	*0401	*1602		-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-	-
9	9026 YAR	*0402			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
10	9107 LKT3	*0405			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
11	9051 PITOUT	*0701			-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
12	9052 DBB	*0701			-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
13	9067 BTB	*0801			-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+
14	9071 OLGA	*0802			-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+
15	9075 DKB	*0901			-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
16	9037 SWEIG007	*1101			-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	+	+
17	9008 WILJON	*1501			-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	9257 32367	*0901	*1101		-	-	-	-	-	-	-	-	-	-	+	-	+	-	+	+	+
19	9038 BM16	*1201			-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
20	9059 SLE005	*1302			-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	+
21	9064 AMALA	*1402			-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
22	9056 KOSE	*1302	*1401		-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	+
23	9124 IHL	*0803	*1414		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
24	9035 JBUSH	*1101			-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	+	+
25	9049 IBW9	*0701			-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
26	9285 WT49	*0301			-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-
27	9191 CH1007	*0405	*1001		-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-
28	9320 BEL5GB	*0416	*0701		-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-
29	9050 MOU	*0701			-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
30	9021 RSH	*0302			-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-
31	9019 DUCAF	*0301			-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-
32	9297 HAG	*1303			-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	-
33	9098 MT14B	*0404			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
34	9104 DHIF	*1101			-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	+	+
35	9302 SSTO	*0403			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
36	9024 KT17	*0403	*0406		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
37	9065 HHKB	*1301			-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	+
38	9099 LZL	*1402			-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
39	9315 CML	*0301	*0401		-	-	-	-	+	+	-	+	-	-	-	-	-	-	-	-	-
40	9134 WHONP199	*0701	*0901		-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	-
41	9055 H0301	*1302			-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	+
42	9066 TAB089	*0803			-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
43	9076 T7526	*0901			-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
44	9057 TEM	*1401			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	9239 SHJO	*0701			-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
46	9013 SCHU	*1501			-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	9045 TUBO	*1104	*1201		-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+
48	9303 TER-ND	*0103			-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

CELL LINE VALIDATION SHEET												
DR low resolution primer set												
				Prod. No.:	Well							
					89	90	91	92	93	94	95	
					200850217	200850218	200850219	200850220	200850221	200850222	200850223	
	IHWC cell line		DRB1									
1	9001 SA		*0101		-	-	-	-	-	-	-	
2	9280 LK707		*1502	*0405	-	-	-	-	-	+	+	
3	9011 E4181324		*1502		-	-	-	-	-	-	+	
4	9275 GU373		*0301		+	-	-	-	+	-	-	
5	9009 KAS011		*1601		-	-	-	-	-	-	+	
6	9353 SM		*0407	*0803	-	-	-	-	-	+	-	
7	9020 QBL		*0301		+	-	-	-	+	-	-	
8	9007 DEM		*0401	*1602	-	-	-	-	-	+	+	
9	9026 YAR		*0402		-	-	-	-	-	+	-	
10	9107 LKT3		*0405		-	-	-	-	-	+	-	
11	9051 PITOUT		*0701		-	-	-	-	-	+	-	
12	9052 DBB		*0701		-	-	-	-	-	+	-	
13	9067 BTB		*0801		-	-	-	-	-	-	-	
14	9071 OLGA		*0802		-	-	-	-	-	-	-	
15	9075 DKB		*0901		-	-	+	-	-	+	-	
16	9037 SWEIG007		*1101		-	-	-	-	+	-	-	
17	9008 WILJON		*1501		-	-	-	-	-	-	+	
18	9257 32367		*0901	*1101	-	-	+	-	+	+	-	
19	9038 BM16		*1201		-	-	-	-	+	-	-	
20	9059 SLE005		*1302		+	-	-	-	+	-	-	
21	9064 AMALA		*1402		+	-	+	-	+	-	-	
22	9056 KOSE		*1302	*1401	+	+	+	+	+	-	-	
23	9124 IHL		*0803	*1414	+	-	+	+	+	-	-	
24	9035 JBUSH		*1101		-	-	-	-	+	-	-	
25	9049 IBW9		*0701		-	-	-	-	-	+	-	
26	9285 WT49		*0301		+	-	-	-	+	-	-	
27	9191 CH1007		*0405	*1001	-	-	-	-	-	+	-	
28	9320 BEL5GB		*0416	*0701	-	-	-	-	-	+	-	
29	9050 MOU		*0701		-	-	-	-	-	+	-	
30	9021 RSH		*0302		+	-	-	-	+	-	-	
31	9019 DUCAF		*0301		+	-	-	-	+	-	-	
32	9297 HAG		*1303		+	-	-	-	+	-	-	
33	9098 MT14B		*0404		-	-	-	-	-	+	-	
34	9104 DHIF		*1101		-	-	-	-	+	-	-	
35	9302 SSTO		*0403		-	-	-	-	-	+	-	
36	9024 KT17		*0403	*0406	-	-	-	-	-	+	-	
37	9065 HHKB		*1301		+	-	-	-	+	-	-	
38	9099 LZL		*1402		+	-	+	-	+	-	-	
39	9315 CML		*0301	*0401	+	-	-	-	+	+	-	
40	9134 WHONP199		*0701	*0901	-	-	+	-	-	+	-	
41	9055 H0301		*1302		+	-	-	-	+	-	-	
42	9066 TAB089		*0803		-	-	-	-	-	-	-	
43	9076 T7526		*0901		-	-	+	-	-	+	-	
44	9057 TEM		*1401		-	+	+	+	+	-	-	
45	9239 SHJO		*0701		-	-	-	-	+	-	-	
46	9013 SCHU		*1501		-	-	-	-	-	-	+	
47	9045 TUBO		*1104	*1201	-	-	-	-	+	-	-	
48	9303 TER-ND		*0103		-	-	-	-	-	-	-	

Lot No.: **98E**

Lot-specific Information

www.olerup.com/goto/HLA

CERTIFICATE OF ANALYSIS

Olerup SSP® HLA-A-B-DR SSP Combi Tray

Product number: 101.701-24/06 – including *Taq* pol.
 101.701-24u/06u – without *Taq* pol.

Lot number: 98E

Expiry date: 2010-August-01

Number of tests: 24 tests – Product No. 101.701-24/24u
 6 tests – Product No. 101.702-06/06u

Number of wells per test: 95 + 1

Well specifications:

Well No.	Production No.	Well No.	Production No.	Well No.	Production No.
1	2007-397-01	9	2007-397-09	17	2007-397-17
2	2007-397-02	10	2007-397-10	18	2007-397-18
3	2007-397-03	11	2007-332-11	19	2007-397-29
4	2007-397-04	12	2007-397-12	20	2007-397-20
5	2008-470-05	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	2008-470-15	23	2007-397-23
8	2007-397-08	16	2008-470-16	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	2008-480-01	41	2008-480-17	57	2008-480-33
26	2008-480-02	42	2008-480-18	58	2008-480-34
27	2008-480-03	43	2008-480-19	59	2008-480-35
28	2008-480-04	44	2008-480-20	60	2008-480-36
29	2008-480-05	45	2008-480-21	61	2008-480-37
30	2008-480-06	46	2008-480-22	62	2008-480-38
31	2008-480-07	47	2008-480-23	63	2008-480-39
32	2008-480-08	48	2008-480-24	64	2008-480-40
33	2008-480-09	49	2008-480-25	65	2008-480-41
34	2008-480-10	50	2008-480-26	66	2008-480-42
35	2008-480-11	51	2008-480-27	67	2008-480-43
36	2008-480-12	52	2008-480-28	68	2008-480-44
37	2008-480-13	53	2008-480-29	69	2008-480-45
38	2008-480-14	54	2008-480-30	70	2008-480-47
39	2008-480-15	55	2008-480-31	71	2008-480-48
40	2008-480-16	56	2008-480-32	72	2008-480-48

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	2008-502-01	81	2008-502-09	89	2008-502-17
74	2008-502-02	82	2008-502-10	90	2008-502-41
75	2008-502-03	83	2008-502-11	91	2008-502-19
76	2008-502-04	84	2008-502-12	92	2008-502-20
77	2008-502-05	85	2008-502-13	93	2008-502-21
78	2008-502-06	86	2008-502-14	94	2008-502-22
79	2008-502-07	87	2008-502-15	95	2008-502-23
80	2008-502-08	88	2008-502-16		

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

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

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

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

Date of approval: 2008-August-26

Approved by:

Quality Control, Supervisor

Lot No.: **98E**

Lot-specific Information

www.olerup.com/goto/HLA

Declaration of Conformity

Product name: *Olerup* SSP® HLA-A-B-DRD SSP Combi Tray
Product number: 101.701-24/06, 101.701-24u/06u
Lot number: 98E

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-August-26

Olle Olerup
Managing Director

HLA-A-B-DR SSP Combi Tray Product Insert
101.701-24/06 – including *Taq* polymerase
101.701-24u/06u – without *Taq* polymerase

Page 72 of 72
General “Instructions for Use”
can be downloaded from

Lot No.: **98E**

Lot-specific Information

www.olerup.com/goto/HLA

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