

Lot No.: **44M**

Lot-specific information

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## **Olerup SSP<sup>®</sup> HLA-A-B-DR SSP Combi Tray**

**Product number:** 101.701-24/06 – including *Taq* pol.  
**Lot number:** 44M  
**Expiry date:** 2014-February-01  
**Number of tests:** 24 tests – Product No. 101.701-24  
6 tests – Product No. 101.701-06  
**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. 44M.**

### **CHANGES COMPARED TO THE PREVIOUS OLERUP SSP<sup>®</sup> 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<sup>®</sup>* HLA-A-B-DR SSP Combi Tray lot was made (**Lot No. 23M**).

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

The **HLA-B low resolution** specificity and interpretation tables have been updated for the HLA-B alleles described since the previous *Olerup SSP<sup>®</sup>* HLA-A-B-DR SSP Combi Tray lot was made (**Lot No. 23M**).

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

Well	5'-primer	3'-primer	rationale
72	-	Modified	Exchanged positive control primer pair. Improved specificity of amplification.

The **HLA-DR low resolution** specificity and interpretation tables have been updated for the HLA-DRB alleles described since the previous *Olerup SSP<sup>®</sup>* HLA-A-B-DR SSP Combi Tray lot was made (**Lot No. 23M**).

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

Change in revision R01 compared to R00:

1. Primer mix 2 may give a lower yield of HLA-specific PCR product than the other HLA-A low primer mixes.

Change in revision R02 compared to R01:

1. Primer mix 43 does not amplify the B\*15:101 allele. This has been corrected in the Specificity and Interpretation tables.

Changes in revision R03 compared to R02:

1. In primer mix 5, the specific PCR product of 535 base pairs may be difficult to distinguish from the internal control band. A foot note has been added to the Specificity Table.
2. Primer mix 17 does not amplify the HLA-A\*36:02 allele. This has been corrected in the Specificity and Interpretation Tables.

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Well 96 contains Negative Control primer pairs, that will amplify more than 95% of the Olerup SSP<sup>®</sup> 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
<b>5'-primer<sup>1</sup></b>	<b>164</b>	<b>340</b>	<b>440</b>	<b>45</b>	<b>45</b>	<b>43</b>
	5'-CAC <sup>3'</sup>	5'-Agg <sup>3'</sup>	5'-TTA <sup>3'</sup>	5'-Tgg <sup>3'</sup>	5'-Tgg <sup>3'</sup>	5'-Tgg <sup>3'</sup>
<b>3'-primer<sup>2</sup></b>	<b>231</b>	<b>2<sup>nd</sup> I</b>	<b>507</b>	<b>59</b>	<b>58</b>	<b>57</b>
	5'-TgC <sup>3'</sup>	5'-AAA <sup>3'</sup>	5'-TTg <sup>3'</sup>	5'-CTC <sup>3'</sup>	5'-ggC <sup>3'</sup>	5'-CTC <sup>3'</sup>
<b>A*</b>	<b>+</b>	<b>+</b>	<b>+</b>			
<b>B*</b>	<b>+</b>	<b>+</b>	<b>+</b>			
<b>C*</b>	<b>+</b>	<b>+</b>	<b>+</b>			
<b>DRB1</b>				<b>+</b>	<b>+</b>	
<b>DRB3</b>				<b>+</b>	<b>+</b>	
<b>DRB5</b>				<b>+</b>		
<b>DQB1</b>					<b>+</b>	
<b>DPB1</b>						<b>+</b>

<sup>1</sup>The nucleotide position for HLA class I genes and the codon for HLA class II genes, in the 2<sup>nd</sup> or 3<sup>rd</sup> 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](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.

<sup>2</sup>The nucleotide position for HLA class I genes and the codon for HLA class II genes, in the 2<sup>nd</sup> or 3<sup>rd</sup> exon or the 2<sup>nd</sup> 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](http://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\*01:01 to A\*80:02 alleles into the corresponding serological groups A1 to A80.

The primer set contains 5'- and 3'-primers for grouping the B\*07:02 to B\*83:01 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\*01:01 to DRB1\*10:03 alleles into the corresponding serological groups DR1 to DR18 as well as primer pairs for recognizing the DRB3, DRB4 and DRB5 groups of alleles.

#### PLATE LAYOUT

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

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

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

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

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

Well 96 – Negative Control.

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

Well No. 1 is marked with the Lot No. '44M'.

A faint row of numbers is seen between wells 1 and 2 or wells 7 and 8 of the PCR trays. These stem from the manufacture of the trays, and should be disregarded.

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\*18:27 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 A\*23:31, A\*24:106 and C\*16:10 alleles

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will be amplified by primer mix 30, the A\*68:56, C\*06:20 and C\*12:50 alleles will be amplified by primer mix 69, the C\*01:30 allele will be amplified by primer mix 28, the C\*02:06 allele will be weakly amplified by primer mix 67, the C\*02:23 and C\*04:77 alleles will be amplified by primer mix 25, the C\*03:05, 03:25 and 03:27 alleles will be amplified by primer mix 27, the C\*03:12 and 03:19 alleles will be amplified by primer mix 65, the C\*03:102 allele will be amplified by primer mixes 41 and 65, the C\*07:46 allele will be amplified by primer mix 32, the C\*15:02:04 allele will be amplified by primer mix 64, the C\*15:25 allele will be amplified by primer mix 53 and the C\*15:39 allele will be amplified by primer mix 55. Thus, the interpretation of HLA-B low resolution typings is only influenced by these 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\*01:01 to A\*80:02**, recognized by the HLA Nomenclature Committee in October 2010<sup>1</sup> 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 specificities<sup>2</sup>.

All the HLA-B alleles, i.e. **B\*07:02 to B\*83:01**, recognized by the HLA Nomenclature Committee in October 2010<sup>1</sup> 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 specificities<sup>3</sup>.

All the HLA-DRB1, -DRB3, -DRB4<sup>4</sup> and -DRB5 alleles, i.e. **DRB1\*01:01:01 to 10:03, DRB3\*01:01:02:01 to DRB3\*03:03, DRB4\*01:01:01:01 to DRB4\*01:08, DRB5\*01:01:01 to DRB5\*02:05**, recognized by the HLA Nomenclature Committee in October 2010<sup>1</sup> 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 specificities<sup>5</sup>.

<sup>1</sup>HLA-A, HLA-B and HLA-DRB alleles listed on the IMGT/HLA web page 2010-October-15, release 3.2.0, [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla).

<sup>2</sup>The A\*23:14, 24:05, 24:13:02 and 24:24 alleles will give rise to identical amplification patterns. These four alleles can be separated by the respective high resolution SSP primer sets.

<sup>3</sup>The B\*08:26, 08:50 and 08:62 and the B\*42:07 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\*14:08 and the B\*39:25N, 39:30, 39:32-39:34, 39:47 and 39:50 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\*18:29 and the B\*35:32, 35:37, 35:53N, 35:64, 35:68:01-35:68:02, 35:99 and 35:118-35:119 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\*41:09 and the B\*45:02 and 45:03 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\*55:04, 55:08, 55:13, 55:27 and 55:46 and the B\*56:15, 56:19N and 56:22 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.

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The B\*55:23 and 55:32 and the B\*56:18 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.

<sup>4</sup>The DRB4\*02:01N and DRB4\*03:01N null alleles will not be amplified by the DR low resolution primer set.

<sup>5</sup>The DRB1\*08:09 and the DRB1\*14:15 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The DRB1\*08:20 and the DRB1\*13:18, 13:47 and 13:55 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The DRB1\*08:31, 08:41 and DRB1\*11:67 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The DRB1\*13:13 and DRB1\*14:84 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

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## SPECIFICITY TABLE

### HLA-A low resolution primer set

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

Primer Mix	Size of spec. PCR product <sup>1</sup>	Size of control band <sup>2</sup>	HLA-A serology <sup>3</sup>	Amplified HLA-A alleles <sup>4-6</sup>
<b>1<sup>7,8,13</sup></b>	120 bp, 140 bp, 225 bp	<b>800 bp</b>	A1, A36	*01:01:01:01-01:04N, 01:06-01:33, 01:01:38L, 01:35-01:81, 03:18, 36:01-36:05
<b>2<sup>8,12</sup></b>	210 bp, 255 bp, 365 bp, 415 bp	<b>800 bp</b>	A2, A203, A210, A19, A28	*02:01:01:01-02:01:15, 02:01:17-02:01:19, 02:01:21-02:22:02, 02:24:01-02:35:01, 02:35:03-02:47, 02:49-02:77, 02:78 <sup>w</sup> , 02:79:01-02:97:02, 02:99, 02:101:01-02:128, 02:130-02:282
<b>3<sup>9</sup></b>	205 bp, 235 bp	1070 bp	A1, A3, A11, A32, A34, A36	*01:12, 01:19, 01:21, 03:01:01:01-03:17, 03:19-03:74, 03:76-03:94, 03:96-03:112, 11:25, 11:60, 24:92, 32:04, 34:02:01-34:04, 34:07-34:09, 36:02
<b>4</b>	190 bp	<b>800 bp</b>	A1, A3, A11, A30, A36	*01:01:01:01-01:01:22, 01:01:24-01:04N, 01:06-01:07, 01:09-01:11N, 01:13, 01:16N-01:18N, 01:20-01:29, 01:31N-01:33, 01:01:38L, 01:35-01:78, 01:80-01:81, 02:78, 02:169, 03:12, 03:18, 03:88, 11:01:01-11:27, 11:29-11:80, 26:19, 30:08, 36:04, 68:66
<b>5<sup>14</sup></b>	160 bp, 535 bp	<b>800 bp</b>	A3, A9, A23, A24, A2403, A31, A32	*03:30, 23:01:01-23:31, 24:02:01:01-24:11N, 24:13:01-24:15, 24:17-24:64, 24:66-24:88, 24:90N-24:128, 24:130-24:155N, 31:08, 32:05, 32:13
<b>6<sup>10</sup></b>	135 bp, 175 bp, 210 bp	<b>800 bp</b>	A2, A9, A23, A24, A29, A80	*23:01:01-23:31, 24:05, 24:13:02, 24:24, 29:07, 31:29, 80:01-80:02, <b>B*18:27</b>
<b>7</b>	175 bp, 200 bp	1070 bp	A2, A3, A9, A23, A24, A2403, A26	*02:17:01 <sup>w</sup> -02:17:02 <sup>w</sup> , 23:14, 24:02:01:01-24:11N, 24:13:01-24:13:02, 24:17-24:50, 24:54-24:56, 24:58-24:63, 24:66-24:91, 24:93, 24:95-24:113, 24:115-24:137, 24:139-24:155N, 26:16, 33:19, 68:45
<b>8</b>	165 bp, 200 bp	<b>800 bp</b>	A2, A3, A10, A11, A25, A26, A28, A32, A34, A66, A68, A69	*01:51, 02:55, 03:24, 03:50, 11:10, 25:01:01-25:13, 26:01:01-26:06, 26:08-26:15, 26:17-26:18, 26:20-26:43:02, 26:45-26:56, 32:15, 34:01:01-34:09, 66:01-66:15, 68:01:01:01-68:66, 69:01
<b>9<sup>7</sup></b>	75 bp	<b>800 bp</b>	A3, A25, A32	*25:01:01-25:13, 32:01:01-32:02, 32:04, 32:06-32:30
<b>10<sup>7</sup></b>	85 bp	1070 bp	A10, A26	*01:51, 02:146, 26:01:01-26:02, 26:04, 26:07:01-26:18, 26:20, 26:22-26:29,

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				26:31-26:43:02, 26:45-26:56, 33:13
<b>11<sup>7,8</sup></b>	80 bp, 175 bp, 500 bp	1070 bp	A1, A9, A10, A11, A26, A31, A34, A66	*01:13, 01:28, 03:63, 03:88, 11:01:01-11:27, 11:29-11:80, 24:19, 24:44, 26:03:01-26:03:02, 26:06, 26:21, 31:03, 34:01:01-34:08, 66:01, 66:04-66:11, 66:13-66:15, 80:02
<b>12</b>	185 bp	<b>800 bp</b>	A10, A25, A26, A31, A34, A43, A66	*03:01:19, 11:11, 25:06, 26:09, 31:03-31:04, 34:01:01-34:09, 43:01, 66:02-66:03
<b>13<sup>12</sup></b>	175 bp, 225 bp	1070 bp	A1, A2, A3, A10, A25, A26, A34, A43, A66	*01:13, 02:34-02:35:03, 02:56:01-02:56:02, 02:62, 02:103, 02:135, 03:01:01:01-03:01:22, 03:02-03:07, 03:09-03:11N, 03:13-03:31, 03:33-03:35, 03:37-03:40, 03:42-03:56, 03:58, 03:60-03:71, 03:73-03:87, 03:90-03:106, 03:109-03:110, 03:112, 25:01:01-25:05, 25:07-25:13, 26:01:01-26:01:18, 26:02 <sup>w</sup> , 26:03:01-26:03:02, 26:05-26:08, 26:10-26:33, 26:35-26:43:02, 26:45-26:56, 34:08, 43:01, 66:01, 66:04-66:15, 74:13
<b>14<sup>7</sup></b>	100 bp, 200 bp, 240 bp	1070 bp	A2, A29	*02:237, 03:95, 26:19, 26:22, 29:01:01:01-29:27, 31:03-31:04, 33:13, 34:04, 66:09
<b>15<sup>7,8,12</sup></b>	90 bp, 135 bp, 205 bp	1070 bp	A1, A30	*01:13, 01:28, 03:43, 03:82, 30:01:01-30:04:02, 30:06-30:20, 30:22-30:46, 31:35
<b>16</b>	240 bp, 370 bp, 395 bp	1070 bp	A2, A24, A31, A32	*02:237, 03:95, 29:14, 31:01:02-31:46, 32:05
<b>17</b>	140 bp, 180 bp	1070 bp	A32	*03:43, 03:82, 29:13, 31:35, 32:01:01-32:03, 32:05-32:30, 74:07
<b>18</b>	200 bp	1070 bp	A33, A68	*02:243, 33:01:01-33:01:05, 33:03:01-33:34, 68:29
<b>19<sup>12</sup></b>	160 bp, 200 bp	<b>800 bp</b>	A74	*29:19, 74:01-74:14N
<b>20<sup>10</sup></b>	220 bp, 245 bp	<b>800 bp</b>	A2, A210, A25, A68	*02:34-02:35:03, 02:46, 02:48, 02:56:01-02:56:02, 02:62, 02:70, 02:78, 02:103, 02:129, 25:05, 26:54, 68:01:01:01-68:66
<b>21</b>	240 bp, 375 bp	<b>800 bp</b>	A2, A26, A28, A68, A69	*02:55, 02:243, 24:82, 26:22, 33:22, 66:09, 68:29, 69:01
<b>22<sup>7,11</sup></b>	85 bp, 240 bp	<b>800 bp</b>	A2, A36	*02:34-02:35:03, 02:46, 02:48, 02:56:01-02:56:02, 02:62, 02:70, 02:78, 02:103, 02:129, 36:01-36:05
<b>23<sup>7,10,13</sup></b>	75 bp, 160 bp, 240 bp, 495 bp	<b>800 bp</b>	A2, A26, A28, A36, A68, A80	*02:55, 03:41, 03:63, 03:75, 03:88, 24:18, 26:03:01-26:03:02, 26:05-26:06, 26:21, 26:30, 33:24, 36:02, 68:05, 68:15, 68:20, 80:01
<b>24<sup>12</sup></b>	360 bp	1070 bp	A10, A26, A31, A66	*02:135, 03:01:19, 25:13, 26:30, 31:04, 34:09, 66:02-66:03, 66:12

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<sup>1</sup>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 lengths 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.

<sup>2</sup>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 2, 4, 5, 6, 8, 9, 12 and 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.

<sup>3</sup>The serological reactivity of all HLA-A alleles is not known. In this table we use the expert-assigned serological grouping in Tissue Antigens (2009) **73**:95-170 and the serological grouping of the sequence-defined allele.

<sup>4</sup>For several HLA-A alleles only partial 1<sup>st</sup> 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.

<sup>5</sup>The A\*23:14, 24:05, 24:13:02 and 24:24 alleles will give rise to identical amplification patterns. These four alleles can be separated by the respective high resolution SSP primer sets.

<sup>6</sup>Primer mix 6 will amplify the B\*18:27 allele.

<sup>7</sup>Specific PCR fragments shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR bands.

<sup>8</sup>The primer pairs in wells 1, 2, 11 and 15 will in many samples give rise to two or three HLA-specific PCR fragments.

<sup>9</sup>Primer mix 3 may faintly amplify the A\*30:04, 30:06, 30:17 and 30:29 alleles.

<sup>10</sup>Primer mixes 6, 20 and 23 may have a tendency of primer dimer formation.

<sup>11</sup>Primer mix 22 might faintly amplify most A\*11 alleles.

<sup>12</sup>Primer mixes 2, 13, 15 and 24 may yield less specific PCR product than the other HLA-A low primer mixes.

<sup>13</sup>In primer mixes 1 and 23 the positive control band may be slightly weaker than for other HLA-A low primer mixes.

<sup>14</sup>In primer mix 5, the specific PCR product of 535 base pairs may be difficult to distinguish from the internal control band. The alleles giving rise to a product of this size are the following:

A\*23:09, 24:02:06, 24:02:27, 24:08, 24:24, 24:29, 24:42, 24:67, 24:116, 24:137, 24:140 and 24:145.

‘w’, might be weakly amplified.



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## 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 <sup>1</sup>	Size of control band <sup>2</sup>	HLA-B serol. <sup>3</sup>	Amplified HLA-B alleles <sup>4,5</sup>
<b>25<sup>6,10</sup></b>	110 bp	<b>800 bp</b>	7, 703, 40, 41, 42, 48, 61	*07:02:01-07:18:02, 07:20-07:32, 07:34-07:39, 07:41-07:47, 07:49N-07:50, 07:52, 07:54-07:59, 07:61-07:99, 07:101-07:117, 15:138, 37:07, 40:15-40:16, 40:23, 40:32, 40:98, 40:136, 40:158, 41:08, 42:05:01-42:05:02, 48:05, 48:08, 48:15, <b>C*02:23, C*04:77</b>
<b>26</b>	215 bp	1070 bp	8, 44	*08:01:01-08:05, 08:07-08:25, 08:27-08:49, 08:51-08:61, 08:63-08:64, 08:66, 15:142, 15:180, 44:49, 51:68
<b>27</b>	140 bp, 235 bp	1070 bp	7, 8, 13, 15, 35, 4005, 44, 49, 61, 62, 77	*07:20, 07:24, 07:60, 07:100, 08:21, 08:25, 13:01:01-13:04, 13:06-13:08Q, 13:10-13:23, 13:25-13:38, 13:40, 15:07:01-15:07:02, 15:36 <sup>w</sup> , 15:45, 15:55, 15:68, 15:89 <sup>w</sup> , 15:126, 15:205, 15:207, 35:05:01-35:05:02, 35:16-35:17, 35:22, 35:30, 35:51, 35:58, 35:72, 35:89, 35:97, 35:113-35:114, 35:125, 40:05, 40:71, 44:08 <sup>w</sup> , 44:54, 44:57 <sup>w</sup> , 44:60, 44:106, 44:110, 46:12, 46:20, 51:64, 53:14, 58:18, <b>C*03:05, C*03:25, C*03:27</b>
<b>28<sup>7,8</sup></b>	130 bp, 265 bp	<b>800 bp</b>	12, 13, 14, 17, 21, 35, 40, 41, 44, 45, 47, 49, 50, 60, 61, 64, 65	*13:01:01-13:04, 13:06-13:13, 13:15-13:23, 13:25-13:40, 14:01:01-14:04, 14:07N, 14:09, 14:11-14:12, 14:14-14:19, 15:46, 15:53, 15:106, 18:44, 35:46-35:47, 35:63, 40:01:01-40:01:17, 40:07, 40:10:01-40:10:02, 40:14:01-40:16, 40:22N-40:23, 40:25, 40:30-40:34, 40:36, 40:38, 40:42-40:43, 40:45, 40:47-40:49, 40:51-40:55, 40:58-40:63, 40:65-40:67, 40:69, 40:72:01-40:73, 40:76-40:77, 40:79-40:81, 40:84, 40:87:01-40:88, 40:92, 40:100-40:102, 40:106, 40:108, 40:110, 40:112-40:114, 40:116-40:118N, 40:121, 40:123-40:126, 40:128-40:130, 40:132, 40:134-40:136, 40:139-40:141, 40:146-40:147, 40:150-40:156, 40:158, 41:01-41:16, 44:02:01:01-44:03:06, 44:03:08-44:05:02, 44:09-44:39, 44:41:01-44:43:02, 44:45-44:56N, 44:58N-44:80, 44:82, 44:84-44:102, 44:104-44:110, 44:112-44:115, 45:01-45:13, 47:01:01:01-47:07, 49:01:01-49:02, 49:04-49:15, 50:01:01-50:02, 50:04-50:06, 50:08-50:12, <b>C*01:30</b>
<b>29<sup>8</sup></b>	185 bp, 235 bp	<b>800 bp</b>	7, 16, 17, 27, 2708, 37, 38,	*14:01:01-14:01:02, 14:07N-14:08, 14:10, 14:12, 14:14, 14:19, 27:01-27:06, 27:08-27:10, 27:12-27:13, 27:16-27:18, 27:20, 27:23, 27:26-27:27,

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<b>30</b>	190 bp	<b>800 bp</b>	14, 35, 38, 39, 65	*07:28, 14:02:01-14:02:02, 14:02:04-14:02:05, 14:03-14:06:02, 14:09, 14:11, 14:13, 14:15-14:18, 15:77, 15:189, 35:26, 38:05, 39:04, 44:16, 44:37, 44:64:01-44:64:02, 44:91, 57:04, <b>A*23:31, A*24:106, C*16:10</b>
<b>31</b>	290 bp	1070 bp	15, 22, 62, 63, 71, 72, 75, 76, 77, 46	*15:01:01:01-15:01:03, 15:01:06-15:02:05, 15:03:03-15:08, 15:10:02-15:11:03, 15:11:05-15:15, 15:17:01:01-15:17:02, 15:19-15:21, 15:24-15:28, 15:30-15:36, 15:38:01-15:40, 15:42-15:46, 15:48, 15:50, 15:55-15:58, 15:60, 15:63, 15:65-15:66, 15:70-15:71, 15:73, 15:75-15:79N, 15:81-15:89, 15:92, 15:94N, 15:96-15:97, 15:101-15:102, 15:104-15:107, 15:109-15:113, 15:116-15:118, 15:120-15:122, 15:125-15:126, 15:128-15:129, 15:135-15:150, 15:152, 15:154-15:155, 15:157, 15:159-15:160, 15:162-15:172, 15:174-15:175, 15:177-15:179, 15:181N-15:185, 15:187-15:196, 15:199, 15:201-15:209N, 46:01:01-46:26
<b>32</b>	165 bp, 220 bp, 330 bp	1070 bp	5, 8, 12, 21, 22, 37, 41, 42, 44, 45, 48, 51, 56, 57, 60, 62, 70, 71, 72, 82	*08:01:01-08:05, 08:08N-08:12:03, 08:15-08:19N, 08:21-08:24, 08:26-08:27, 08:29-08:36, 08:38-08:39, 08:41-08:48, 08:50-08:54, 08:56-08:66, 15:03:01-15:03:03, 15:09-15:10:02, 15:18:01-15:18:04, 15:23, 15:29, 15:37, 15:46-15:47, 15:49, 15:51-15:54, 15:61-15:62, 15:64, 15:69, 15:72, 15:74, 15:80, 15:83, 15:90-15:91, 15:93, 15:98-15:99, 15:103, 15:106, 15:108, 15:114-15:115, 15:119, 15:123-15:124, 15:127, 15:131-15:134, 15:143, 15:151, 15:153, 15:156, 15:158, 15:161, 15:173, 15:176, 15:186, 15:197-15:198, 15:200, 35:87, 37:12, 40:12, 40:136, 41:01-41:03:02, 41:05-41:09, 41:11-41:16, 42:01:01-42:02, 42:04-42:08, 42:10-42:14, 44:14-44:15, 44:18, 44:20, 44:62, 44:100, 45:01-45:13, 51:08, 51:20, 51:36, 51:44N, 51:97, 52:19, 55:20, 56:13, 57:09, 82:01-82:03, <b>C*07:46</b>
<b>33<sup>8,9,11</sup></b>	165 bp, 190 bp, 390 bp	1070 bp	5, 17, 21, 35, 51, 5102, 5103, 52, 56, 62, 63, 70, 78	*15:01:02, 15:09, 15:16:01-15:17:02, 15:67, 15:95, 15:162, 15:168, 15:177, 15:196, 15:208, 35:01:10, 35:04:02, 40:26, 40:28, 44:62, 51:01:01-51:01:03, 51:01:05-51:02:03, 51:03-51:09:02, 51:11N-51:12, 51:13:02-51:14, 51:16-51:23, 51:24:03-51:24:04, 51:26-51:33, 51:37-51:41N, 51:43-51:44N, 51:46, 51:48-51:61, 51:63-51:80, 51:82-51:91, 51:94-51:98N,

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<b>34<sup>9</sup></b>	180 bp	<b>800 bp</b>	13, 22, 55, 60	*07:78, 13:01:01-13:02:09, 13:07N-13:09, 13:11, 13:14-13:20, 13:22:01-13:23, 13:25, 13:27-13:34, 13:36-13:40, 40:48, 45:10, 49:07, 55:09, 55:22, 55:24
<b>35<sup>6</sup></b>	105 bp, 195 bp	1070 bp	8, 12, 27, 38, 39, 3902, 40, 44, 45, 48, 60, 70, 71, 72, 82	*07:27, 07:50, 08:04, 08:17, 08:54, 15:03:01-15:03:03, 15:47, 15:49, 15:54, 15:61-15:62, 15:64, 15:68-15:69, 15:91, 15:98, 15:103, 15:123, 15:127, 15:131-15:132, 15:151, 15:156, 15:158, 15:173, 18:37, 27:18, 27:29, 38:03, 39:02:01-39:02:02, 39:08, 39:13:01-39:13:02, 39:23, 39:39, 39:49, 40:12, 40:46, 40:93, 42:11, 44:10, 44:15, 44:18, 44:40, 44:44, 45:01, 45:05-45:07, 45:11-45:13, 48:01:01-48:05, 48:07-48:24, 50:02, 52:16, 55:18, 82:01-82:03
<b>36</b>	280 bp	1070 bp	5, 7, 8, 13, 15, 16, 17, 18, 22, 35, 40, 42, 44, 46, 48, 49, 51, 53, 55, 56, 57, 58, 60, 61, 62, 63, 70, 71, 72, 75, 76, 77, 78	*07:09, 07:11, 07:17, 08:28, 08:35, 08:37, 13:04, 13:10, 13:26, 15:01:01:01-15:01:04, 15:01:06-15:08, 15:11:01-15:16:01, 15:18:01-15:21, 15:23-15:29, 15:31-15:36, 15:38:01-15:40, 15:43-15:44, 15:46-15:47, 15:49-15:57, 15:60-15:62, 15:64-15:72, 15:74-15:76, 15:78:01-15:82, 15:84-15:85, 15:87-15:89, 15:91-15:98, 15:101-15:129, 15:131-15:132, 15:134-15:136, 15:138-15:149N, 15:151-15:161, 15:163-15:167, 15:169-15:176, 15:178-15:187, 15:189-15:195, 15:197-15:207, 15:209N, 18:01:01-18:15, 18:17N-18:25, 18:27-18:40, 18:42-18:52, 27:41, 35:01:01:01-35:01:22, 35:05:01-35:05:02, 35:07-35:08:04, 35:10-35:11:02, 35:14:01-35:17, 35:19-35:21, 35:23-35:30, 35:32, 35:35, 35:37, 35:40N-35:43:02, 35:45-35:54, 35:57-35:58, 35:61-35:64, 35:66-35:69, 35:71-35:72, 35:76-35:80, 35:82, 35:86, 35:89-35:94, 35:97, 35:99-35:105, 35:107-35:108:02, 35:110-35:126, 35:130N-35:135, 35:137-35:148, 39:07, 39:43, 40:03, 40:20, 40:38, 40:52, 40:59-40:60, 40:105, 40:158, 42:09, 44:17, 44:43:01-44:43:02, 45:09, 46:01:01-46:10, 46:12-46:17, 46:19-46:26, 48:02:01-48:02:02, 48:14, 48:23, 49:04-49:05, 51:37, 51:45, 51:63, 51:97, 53:01:01-53:03, 53:05-53:06, 53:08:01-53:18, 53:20-53:24, 54:06, 54:09, 54:14, 55:14, 55:23, 55:32, 56:03, 56:09, 56:18, 57:01:01-57:01:10, 57:06, 57:08, 57:10-57:11, 57:13-57:16, 57:18-57:27, 57:29-57:31, 57:33-57:37, 58:01:01-58:02, 58:04-58:07, 58:09-58:19, 58:21-58:26, 58:29-58:31N
<b>37</b>	195 bp	1070 bp	27, 35, 37, 44, 58, 76	*15:12, 15:14, 15:19, 15:91, 15:131, 15:161, 35:45, 35:71, 37:01:01-37:09, 37:12-37:13, 37:15-37:21, 37:23-37:25, 38:17, 44:17, 44:43:01-44:43:02, 45:09, 46:17, 53:22, 58:07

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<b>38<sup>6</sup></b>	105 bp, 395 bp, 435 bp	1070 bp	5, 7, 15, 41, 42, 62, 63, 70, 71, 75, 77	*07:04, 07:25, 15:09-15:10:02, 15:13, 15:16:01-15:18:04, 15:21, 15:23-15:24, 15:37, 15:44, 15:51-15:52, 15:66-15:67, 15:72, 15:80, 15:87, 15:90, 15:93, 15:95, 15:99, 15:108, 15:114-15:115, 15:119, 15:124, 15:133-15:134, 15:153, 15:157, 15:161-15:162, 15:168, 15:176-15:177, 15:186, 15:189, 15:196-15:198, 15:200, 15:208, 40:136, 41:08, 42:05:01-42:05:02
<b>39<sup>6</sup></b>	115 bp, 150 bp	1070 bp	18	*18:01:01-18:15, 18:17N-18:28, 18:30-18:52
<b>40<sup>6</sup></b>	80 bp	1070 bp	7, 27, 2708, 44, 60	*07:73, 27:01-27:21, 27:23-27:51, 27:53-27:66N, 27:68-27:73, 38:22, 40:46, 40:93, 44:40, 44:44
<b>41</b>	150 bp	<b>800 bp</b>	12, 13, 17, 18, 22, 27, 35, 37, 39, 44, 45, 47, 48, 51, 53, 56, 57, 58, 62, 70, 75, 77, 78	*08:49, 13:01:01-13:01:05, 13:06-13:07N, 13:12-13:13, 13:17, 13:20, 13:22:01-13:23, 13:25-13:26, 13:28-13:29, 13:36, 13:39, 14:10, 15:02:01-15:02:05, 15:13, 15:20-15:21, 15:25:01-15:25:03, 15:36, 15:44, 15:62, 15:77, 15:80, 15:85, 15:88-15:89, 15:106, 15:112, 15:121, 15:139, 15:144, 15:154, 15:165, 15:170, 15:194, 15:204, 18:22, 27:19, 27:30, 35:01:01:01-35:04:03, 35:06-35:08:04, 35:10-35:17, 35:19-35:21, 35:23-35:30, 35:33-35:36, 35:38-35:42:02, 35:45-35:50, 35:52, 35:54-35:57, 35:59, 35:61-35:63, 35:65Q, 35:69-35:71, 35:74, 35:76-35:78, 35:80-35:85, 35:90-35:96, 35:98, 35:100-35:101:02, 35:103-35:113, 35:115-35:116, 35:120-35:126, 35:128-35:134N, 35:136-35:150, 37:01:01-37:01:07, 37:03N-37:06, 37:08, 37:10-37:11, 37:13-37:25, 38:20, 39:42, 40:28, 44:02:01:01-44:14, 44:16-44:17, 44:19N, 44:21-44:30, 44:32-44:40, 44:42-44:46, 44:48-44:52N, 44:55-44:64:02, 44:66-44:98, 44:101-44:105, 44:107-44:115, 48:02:01-48:02:02, 51:04, 51:42, 51:46, 51:56:01, 53:01:01-53:13, 53:15-53:24, 55:14, 56:09, 56:11-56:12, 57:01:01-57:01:04, 57:01:06-57:10, 57:12, 57:14-57:20, 57:22-57:30, 57:32-57:37, 58:01:01-58:01:02, 58:01:04-58:01:08, 58:04-58:05, 58:09-58:15, 58:17N, 58:19, 58:21-58:24, 58:28-58:31N, 83:01, <b>C*03:102</b>
<b>42<sup>8</sup></b>	135 bp	1070 bp	8, 18, 22, 35, 39, 78	*07:65, 08:32, 15:202, 18:01:01-18:08, 18:10-18:15, 18:17N-18:36, 18:38-18:47, 18:50-18:52, 35:01:01:01-35:03:02, 35:03:04-35:18, 35:20:01-35:24:02, 35:28-35:45, 35:48, 35:50-35:55, 35:57-35:62, 35:64-35:72, 35:74-35:151, 37:11, 39:19:01-39:19:02, 56:06, 78:01-78:05, 78:07
<b>43<sup>6,10</sup></b>	60 bp, 245 bp, 400 bp	1070 bp	5, 15, 44, 48, 60, 62, 63, 70, 71, 72, 75, 76, 77, 82	*15:01:01:01-15:01:04, 15:01:06-15:21, 15:23-15:40, 15:42-15:58, 15:60-15:67, 15:69-15:99, 15:102-15:129, 15:131-15:179, 15:181N-15:209N, 40:12, 44:10, 82:01-82:03

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<b>45</b> <sup>8</sup>	170 bp	<b>800 bp</b>	16, 35, 38, 39, 3901, 3902, 67, 72	*08:55, 15:69, 15:186, 35:35, 38:01:01-38:09, 38:11-38:21, 38:23-38:26, 39:01:01:01- 39:01:01:02L, 39:01:03-39:20, 39:22-39:24:01, 39:26-39:29, 39:31, 39:35, 39:37-39:42, 39:44- 39:46, 39:48-39:49, 39:51-39:62, 51:101, 58:20, 67:01:01-67:03
<b>46</b> <sup>6,8,10</sup>	110 bp	1070 bp	38	*38:01:01-38:02:02, 38:03, 38:05, 38:08-38:24, 38:26
<b>47</b>	395 bp	1070 bp	14, 16, 38, 39, 3901, 64, 65	*07:69, 07:85, 08:65, 14:01:01-14:19, 38:01:01- 38:02:03, 38:04-38:05, 38:08-38:25, 39:01:01:01- 39:01:01:02L, 39:01:03-39:01:12, 39:03-39:07, 39:09, 39:11-39:12, 39:14-39:15, 39:18-39:19:02, 39:22, 39:24:01-39:38Q, 39:40N-39:48, 39:50- 39:57, 39:59-39:62
<b>48</b>	160 bp, 425 bp	1070 bp	7, 703, 8, 14, 15, 16, 21, 39, 3901, 3902, 40, 41, 42, 45, 48, 50, 60, 61, 64, 65, 67, 70, 73, 81	*07:02:01-07:26, 07:28-07:35, 07:37, 07:39- 07:64, 07:66-07:80, 07:82-07:117, 08:01:01- 08:01:13, 08:04-08:05, 08:07-08:35, 08:37-08:51, 08:53-08:66, 14:01:01-14:02:04, 14:02:06-14:19, 27:14, 39:01:01:01-39:01:01:02L, 39:01:03-39:20, 39:22-39:62, 40:01:01-40:01:17, 40:06:01:01- 40:07, 40:09 <sup>?</sup> -40:11:02 <sup>?</sup> , 40:14:01 <sup>?</sup> -40:15 <sup>?</sup> , 40:16, 40:18 <sup>?</sup> , 40:21 <sup>?</sup> -40:22N <sup>?</sup> , 40:23, 40:24 <sup>?</sup> -40:38 <sup>?</sup> , 40:42 <sup>?</sup> -40:43 <sup>?</sup> , 40:44, 40:45 <sup>?</sup> -40:46 <sup>?</sup> , 40:48 <sup>?</sup> - 40:50 <sup>?</sup> , 40:51, 40:52 <sup>?</sup> , 40:53, 40:54 <sup>?</sup> -40:58 <sup>?</sup> , 40:59-40:60, 40:61 <sup>?</sup> -40:65 <sup>?</sup> , 40:66, 40:67 <sup>?</sup> -40:69 <sup>?</sup> , 40:70, 40:71 <sup>?</sup> , 40:72:01-40:73, 40:74 <sup>?</sup> , 40:75, 40:77, 40:78 <sup>?</sup> , 40:79, 40:80 <sup>?</sup> -40:82 <sup>?</sup> , 40:83, 40:84 <sup>?</sup> -40:85 <sup>?</sup> , 40:86, 40:87:01 <sup>?</sup> -40:88 <sup>?</sup> , 40:90 <sup>?</sup> - 40:92 <sup>?</sup> , 40:93, 40:95 <sup>?</sup> , 40:96, 40:98 <sup>?</sup> -40:102 <sup>?</sup> , 40:103, 40:104 <sup>?</sup> -40:108 <sup>?</sup> , 40:109-40:110, 40:111 <sup>?</sup> - 40:116 <sup>?</sup> , 40:118N <sup>?</sup> -40:121 <sup>?</sup> , 40:123 <sup>?</sup> , 40:124:01, 40:124:02 <sup>?</sup> -40:126 <sup>?</sup> , 40:127, 40:128 <sup>?</sup> -40:130 <sup>?</sup> , 40:131, 40:132 <sup>?</sup> -40:134 <sup>?</sup> , 40:136 <sup>?</sup> -40:137 <sup>?</sup> , 40:138-40:140, 40:141 <sup>?</sup> , 40:145 <sup>?</sup> , 40:146-40:148, 40:149 <sup>?</sup> , 40:150, 40:151 <sup>?</sup> , 40:152-40:153, 40:154 <sup>?</sup> , 40:155N, 40:156 <sup>?</sup> , 40:158 <sup>?</sup> , 41:01-41:16, 42:01:01-42:02, 42:04-42:14, 45:01-45:13, 48:01:01-48:17, 48:19-48:24, 50:01:01-50:02, 50:04-50:12, 51:01:09, 51:10, 51:24:02-51:24:04, 54:11, 67:01:01-67:03, 73:01-73:02, 81:02
<b>49</b> <sup>12</sup>	180 bp	1070 bp	15, 40, 44, 48, 60, 62, 71	*15:116, 15:124, 40:01:01-40:01:06, 40:01:08- 40:01:17, 40:07, 40:10:01-40:10:02, 40:12, 40:21- 40:23, 40:25, 40:30, 40:33-40:34, 40:36, 40:38, 40:42-40:43, 40:46-40:49, 40:51-40:52, 40:54- 40:55, 40:59-40:63, 40:65-40:67, 40:69, 40:73- 40:74, 40:76, 40:79, 40:81, 40:84, 40:87:01- 40:88, 40:92, 40:100-40:102, 40:106, 40:108, 40:112-40:114, 40:116-40:118N, 40:123-40:126, 40:128, 40:130, 40:132, 40:134-40:135,

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<b>50</b>	290 bp	1070 bp	21, 4005, 41, 50, 60, 61	40:137-40:141, 40:146-40:147, 40:149-40:156, 44:31, 46:06, 48:03:01-48:03:02, 48:17, 48:23 *18:48, 40:02:01-40:06:03, 40:08, 40:09 <sup>?</sup> -40:11:02 <sup>?</sup> , 40:13, 40:14:01 <sup>?</sup> -40:15 <sup>?</sup> , 40:18 <sup>?</sup> -40:19 <sup>?</sup> , 40:20, 40:22N <sup>?</sup> , 40:24 <sup>?</sup> -40:38 <sup>?</sup> , 40:39, 40:42 <sup>?</sup> -40:45 <sup>?</sup> , 40:47 <sup>?</sup> -40:50 <sup>?</sup> , 40:52 <sup>?</sup> -40:58 <sup>?</sup> , 40:61 <sup>?</sup> -40:65 <sup>?</sup> , 40:67 <sup>?</sup> -40:69 <sup>?</sup> , 40:70, 40:71 <sup>?</sup> , 40:72:02 <sup>?</sup> , 40:74 <sup>?</sup> -40:76 <sup>?</sup> , 40:78 <sup>?</sup> , 40:80 <sup>?</sup> -40:82 <sup>?</sup> , 40:84 <sup>?</sup> -40:88 <sup>?</sup> , 40:89, 40:90 <sup>?</sup> -40:92 <sup>?</sup> , 40:94, 40:95 <sup>?</sup> -40:96 <sup>?</sup> , 40:97, 40:98 <sup>?</sup> -40:121 <sup>?</sup> , 40:122, 40:123 <sup>?</sup> , 40:124:02 <sup>?</sup> -40:136 <sup>?</sup> , 40:141 <sup>?</sup> , 40:142N-40:144N, 40:145 <sup>?</sup> , 40:148 <sup>?</sup> -40:149 <sup>?</sup> , 40:151 <sup>?</sup> , 40:154 <sup>?</sup> , 40:156 <sup>?</sup> -40:158 <sup>?</sup> , 47:01:01:01-47:07
<b>51<sup>6</sup></b>	105 bp	1070 bp	7, 8, 22, 41, 42	*07:04, 07:25, 08:01:01-08:05, 08:07-08:12:03, 08:14-08:19N, 08:21-08:24, 08:26-08:39, 08:41-08:54, 08:56-08:66, 35:87, 40:136, 41:01-41:08, 41:10-41:16, 42:01:01-42:02, 42:04-42:07, 42:09-42:14, 55:20
<b>52</b>	325 bp	1070 bp	7, 22, 27, 2708, 35, 42, 45, 46, 54, 55, 56, 67, 73, 78, 81, 82	*07:02:01-07:02:20, 07:04-07:07, 07:09-07:15, 07:17-07:26, 07:28-07:31, 07:33-07:36, 07:39-07:46, 07:47 <sup>w</sup> , 07:48-07:49N, 07:51-07:68:02, 07:70-07:84, 07:86-07:117, 15:76, 15:101, 27:01-27:11, 27:13-27:15, 27:17, 27:19-27:21, 27:24-27:28, 27:30-27:38, 27:40-27:58, 27:60-27:73, 35:76, 38:26, 42:01:01-42:02, 42:04-42:06, 42:08-42:10, 42:12-42:14, 44:90, 44:97, 45:06, 46:01:01-46:01:05, 46:02 <sup>w</sup> , 46:03-46:26, 54:01:01-54:23, 55:01:01-55:05, 55:07-55:17, 55:19-55:48, 56:01:01-56:16, 56:18-56:22, 56:24-56:30, 67:01:01-67:03, 73:01-73:02, 81:01-81:05, 82:01-82:03, 83:01
<b>53<sup>6</sup></b>	115 bp, 195 bp, 225 bp, 260 bp	1070 bp	35, 37, 44, 47, 57	*08:49, 08:60, 35:38, 35:45, 35:71, 35:115, 37:01:01-37:01:07, 37:03N-37:06, 37:08, 37:10-37:25, 40:132, 42:13, 44:02:01:01-44:14, 44:16-44:17, 44:19N-44:36, 44:38-44:63, 44:65-44:115, 51:42, 53:22, 57:07, 57:09, 57:24, 83:01, <b>C*15:25</b>
<b>54</b>	215 bp	<b>800 bp</b>	5, 8, 12, 17, 21, 22, 41, 42, 44, 45, 51, 5102, 5103, 52, 53, 56, 62	*08:09, 15:83, 41:01, 41:05-41:07, 41:09, 41:12, 41:14, 41:16, 42:04, 44:06, 44:15, 44:18, 44:20, 44:100, 45:01-45:13, 51:01:01, 51:01:03-51:01:08, 51:01:10-51:02:01, 51:02:03-51:04, 51:06:01-51:07:01, 51:08-51:09:01, 51:10-51:14, 51:16-51:24:04, 51:26-51:46, 51:48-51:53, 51:55-51:77, 51:79-51:88, 51:90-51:92, 51:94-51:102, 51:104-51:106, 52:01:02, 52:01:04, 52:02-52:03, 52:06:01-52:06:02, 52:09, 52:19, 52:21, 53:06, 55:20, 56:13, 58:08
<b>55</b>	130 bp, 270 bp	1070 bp	17, 18, 22, 35, 37, 46, 51, 53, 62, 78	*14:10, 15:57 <sup>w</sup> , 18:22, 35:21, 35:24:01-35:24:02, 35:81, 35:96, 35:109, 37:04:01-37:04:02, 40:28, 46:01:01-46:26, 51:04, 51:46, 51:56:01, 53:02, 53:06, 57:14, 58:09, <b>C*15:39</b>

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<b>56<sup>6,13</sup></b>	90 bp, 410 bp	1070 bp	15, 22, 27, 35, 47, 54, 55, 56, 78, 81, 82	*07:65, 27:01 <sup>w</sup> , 27:02-27:11, 27:13-27:15, 27:17, 27:19-27:21, 27:24-27:28, 27:30-27:38, 27:40- 27:58, 27:60-27:73, 35:76, 44:90, 44:97, 47:01:01-47:03, 47:06-47:07, 54:01:01-54:23, 55:01:01-55:05, 55:07-55:17, 55:19-55:48, 56:01:01-56:16, 56:18-56:22, 56:24-56:30, 81:01, 82:01-82:03, 83:01
<b>57<sup>6</sup></b>	90 bp, 175 bp	1070 bp	15, 27, 35, 48, 60, 62, 75, 77, 81	*13:36, 15:02:01-15:02:05, 15:08, 15:11:01- 15:11:05, 15:13, 15:15, 15:21, 15:31, 15:44, 15:55, 15:76 <sup>w</sup> , 15:88-15:89, 15:112, 15:121, 15:139, 15:144, 15:148, 15:170, 15:189, 15:191, 15:194, 15:209N, 27:24, 35:46, 40:31, 40:45, 40:80, 48:01:01-48:01:03, 48:04, 48:06-48:07, 48:09, 48:11, 48:15-48:16, 48:18-48:20, 48:22, 48:24, 81:01-81:05
<b>58</b>	145 bp, 430 bp	1070 bp	44, 49, 59, 61	*40:13, 40:19, 40:109, 40:117, 44:18, 44:25, 44:50, 44:95, 49:01:01-49:01:02, 49:04-49:15, 54:12, 56:21, 59:01:01-59:05
<b>59<sup>6</sup></b>	120 bp, 210 bp	<b>800 bp</b>	5, 13, 15, 17, 22, 35, 45, 49, 50, 51, 5102, 5103, 52, 55, 56, 62, 63, 78	*07:78, 07:84, 13:16, 13:31 <sup>w</sup> , 15:04 <sup>w</sup> , 15:16:01, 15:42, 15:67, 15:95, 15:137 <sup>w</sup> , 40:95, 40:148, 49:01:01, 49:02-49:10, 49:12-49:15, 50:01:01- 50:02, 50:04-50:11, 51:01:01-51:03, 51:05, 51:07:01-51:09:02, 51:11N-51:14, 51:16- 51:24:04, 51:26-51:41N, 51:43-51:44N, 51:48- 51:55, 51:57-51:58, 51:60, 51:61 <sup>w</sup> , 51:63, 51:65- 51:80, 51:82-51:106, 52:01:01-52:22, 54:20, 55:01:01-55:01:06, 55:03, 55:05, 55:09, 55:11, 55:15, 55:17, 55:21 <sup>w</sup> , 55:24-55:25, 55:28-55:29, 55:31, 55:33, 55:36, 55:38, 55:40, 55:44-55:45, 56:05:01-56:06, 56:21, 56:25, 58:08, 78:01-78:07
<b>60</b>	430 bp	1070 bp	5, 17, 27, 44, 51, 5102, 5103, 52, 53, 57, 58, 61	*27:02, 27:30, 27:53, 27:57, 27:62, 27:65N, 40:13, 40:19, 40:109, 40:117, 44:06, 44:25, 44:50, 44:95, 51:01:01-51:24:04, 51:26-51:46, 51:48-51:53, 51:55-51:77, 51:79-51:106, 52:01:01-52:19, 52:21-52:22, 53:01:01-53:02, 53:04-53:08:02, 53:10, 53:14-53:24, 57:01:01- 57:11, 57:13-57:37, 58:01:01-58:02, 58:04-58:16, 58:18-58:31N
<b>61</b>	145 bp	1070 bp	12, 21, 35, 40, 4005, 41, 45, 47, 50, 60, 61	*15:46, 15:53, 15:106, 15:143, 18:48, 35:19, 35:47, 35:63, 40:01:01-40:11:02, 40:14:01-40:16, 40:18, 40:20, 40:22N-40:40, 40:42-40:45, 40:48- 40:75, 40:77-40:92, 40:94-40:95, 40:97-40:108, 40:111-40:116, 40:118N-40:136, 40:138-40:156, 40:158, 41:01-41:04, 41:05 <sup>?</sup> , 41:06-41:16, 44:09, 44:46, 44:75, 44:90, 45:01-45:13, 47:02, 47:03 <sup>w</sup> , 50:01:01-50:02, 50:04-50:05, 50:07-50:12
<b>62</b>	300 bp	1070 bp	7, 12, 13, 15, 17, 18, 21, 27, 2708, 35,	*07:54, 08:17, 08:38, 08:54, 13:01:01-13:04, 13:06, 13:08Q-13:23, 13:25-13:35, 13:37-13:40, 15:01:01-15:01:04, 15:01:06-15:01:18, 15:01:20, 15:03:01-15:07:02, 15:12, 15:14,

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			37, 38, 39, 3902, 40, 4005, 41, 44, 45, 47, 48, 49, 50, 52, 60, 61, 62, 70, 72, 76	15:19-15:20, 15:24-15:27:03, 15:30, 15:32-15:36, 15:38:01-15:40, 15:42-15:43, 15:45-15:50, 15:53- 15:54, 15:56-15:58, 15:60-15:63, 15:65-15:66, 15:68-15:71, 15:73-15:75, 15:77-15:79N, 15:81- 15:87, 15:91-15:92, 15:94N, 15:96-15:98, 15:101- 15:107, 15:109-15:111N, 15:113, 15:116-15:118, 15:122-15:123, 15:125-15:129, 15:131-15:132, 15:135-15:138, 15:140-15:142, 15:145-15:147, 15:150-15:152, 15:154-15:160, 15:163-15:167, 15:169, 15:171-15:175, 15:178-15:179, 15:181N- 15:185, 15:187-15:188, 15:190N, 15:192-15:193, 15:195, 15:199, 15:201-15:207, 18:12, 27:01- 27:21, 27:24-27:73, 35:10, 35:13, 35:16, 35:28, 35:63, 35:69, 35:80, 37:01:01-37:07, 37:09-37:25, 38:03-38:04, 38:25, 39:02:01-39:02:02, 39:08, 39:13:01-39:13:02, 39:22-39:23, 39:49, 40:01:01- 40:07, 40:09-40:16, 40:18-40:24, 40:26-40:40, 40:42-40:67, 40:70-40:105, 40:107-40:158, 41:01- 41:16, 42:11, 44:02:01:01-44:05:02, 44:07-44:11, 44:13-44:115, 45:01-45:13, 47:01:01:01-47:07, 48:01:01-48:05, 48:07-48:15, 48:17-48:24, 49:01:01-49:15, 50:01:01-50:02, 50:04-50:12, 52:01:01:01-52:22, 53:17:01, 55:18, 55:34, 55:40, 78:05-78:06
<b>63<sup>8,9</sup></b>	160 bp, 330 bp	1070 bp	22, 44, 45, 47, 54	*44:02:01:01-44:02:14, 44:06, 44:08-44:09, 44:11-44:12, 44:16, 44:19N-44:24, 44:27:01, 44:33-44:34, 44:41:01, 44:44, 44:48-44:49, 44:52N-44:53, 44:55, 44:59, 44:63, 44:66-44:68, 44:71-44:74, 44:80, 44:83-44:84, 44:86-44:87, 44:89-44:91, 44:93, 44:95, 44:97, 44:99-44:102, 44:104, 44:106, 44:112-44:113, 54:01:01-54:23, 83:01
<b>64</b>	180 bp, 210 bp	1070 bp	13, 15, 18, 35, 39, 40, 54, 55, 56, 59, 78	*07:65, 13:06, 15:42, 15:86, 18:04, 35:42:02, 35:43:02, 35:60, 39:17, 40:01:11, 40:58, 45:08, 46:18, 54:01:01-54:02, 54:05N, 54:07-54:08N, 54:10, 54:12-54:13, 54:16-54:23, 55:01:01-55:03, 55:05, 55:07, 55:10-55:12, 55:15-55:16, 55:18- 55:19, 55:21, 55:25-55:26, 55:29-55:31, 55:33- 55:45, 55:47-55:48, 56:05:01, 56:06, 56:10, 56:23, 59:01:01:01, 59:05, 78:01, 78:02:02-78:03, 78:07, <b>C*15:02:04</b>
<b>65</b>	180 bp	1070 bp	12, 15, 21, 22, 44, 45, 49, 50, 51, 56, 61, 62, 82	*13:03, 15:73, 40:71, 44:10, 44:15, 44:18, 45:01, 45:04-45:07, 45:11-45:13, 46:11, 49:01:01-49:03, 49:06, 49:08-49:15, 50:01:01-50:02, 50:04-50:08, 50:10-50:12, 51:15, 51:62, 51:106, 54:03, 56:01:01-56:02, 56:04, 56:07-56:08, 56:13-56:14, 56:16-56:17, 56:20, 56:24-56:30, 59:04, 82:01- 82:03, <b>C*03:12, C*03:19, C*03:102</b>
<b>66<sup>6,10</sup></b>	90 bp, 240 bp	<b>800 bp</b>	57	*55:14, 57:01:01-57:37



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<b>67<sup>6,13</sup></b>	90 bp	1070 bp	5, 13, 15, 17, 39, 55, 56, 58, 60, 61, 62, 71	*13:11, 15:18:03, 15:73, 39:17, 40:48, 40:71, 51:62, 56:02, 56:04, 56:10, 58:01:01-58:02, 58:04-58:31N, <b>C*02:06<sup>W</sup></b>
<b>68<sup>6,8</sup></b>	95 bp	1070 bp	8, 18, 22, 35, 37, 38, 39, 44, 51, 5102, 5103, 53, 78	*07:65 <sup>W</sup> , 08:32, 18:01:01-18:11, 18:13-18:15, 18:17N-18:36, 18:38-18:47, 18:49-18:52, 35:01:01:01-35:09:02, 35:11:01-35:12:02, 35:14:01-35:15, 35:17-35:18, 35:20:01-35:24:02, 35:27, 35:29-35:45, 35:48, 35:50-35:62, 35:64- 35:68:02, 35:70-35:72, 35:74-35:75, 35:76 <sup>W</sup> , 35:77-35:79, 35:81-35:151, 37:08, 38:06-38:07, 39:19:01-39:19:02, 44:06, 51:01:01-51:24:04, 51:26-51:46, 51:48-51:103, 51:105-51:106, 53:01:01-53:16, 53:18-53:24, 56:06 <sup>W</sup> , 78:01- 78:04, 78:07
<b>69<sup>6</sup></b>	115 bp, 150 bp	1070 bp	15, 18,22, 27, 35, 39, 46, 55, 62, 72, 73, 75, 76	*07:100, 13:31, 15:01:01:01-15:01:04, 15:01:06- 15:01:16, 15:01:18-15:01:20, 15:04, 15:07:01- 15:08, 15:11:01-15:12, 15:14-15:15, 15:19, 15:24, 15:26N-15:28, 15:30, 15:32, 15:34-15:35, 15:38:01-15:38:02, 15:43, 15:45-15:46, 15:50, 15:53-15:54, 15:56-15:58, 15:60, 15:63, 15:66, 15:68, 15:70-15:71, 15:73, 15:75-15:77, 15:79N, 15:81-15:82, 15:85, 15:87, 15:92, 15:94N, 15:96- 15:97, 15:101-15:102, 15:104-15:105, 15:109- 15:111N, 15:113, 15:117-15:118, 15:120, 15:122, 15:125-15:126, 15:128-15:129, 15:135, 15:137, 15:140, 15:142-15:149N, 15:152, 15:154, 15:157, 15:159-15:160, 15:163-15:167, 15:169, 15:171- 15:172, 15:174-15:175, 15:178, 15:180-15:184, 15:187, 15:189-15:193, 15:201-15:203, 15:205- 15:207, 15:209N, 18:19, 27:25, 35:14:01- 35:14:02, 35:43:01-35:44, 35:62, 35:67, 35:79, 35:86, 35:102, 35:117, 35:135, 39:18, 39:36, 46:01:01-46:02, 46:04-46:05, 46:07N, 46:09- 46:10, 46:12, 46:14-46:17, 46:20, 46:22-46:24, 51:61, 52:21, 54:06, 55:21, 56:03, 73:01-73:02, <b>A*68:56, C*06:20, C*12:50</b>
<b>70<sup>14</sup></b>	360 bp	1070 bp	Bw4	
<b>71</b>	350 bp	1070 bp	Bw6	
<b>72</b>	285 bp	<b>800 bp</b>	7, 703, 8, 35, 40, 41, 42, 48, 53, 60, 61, 81	*07:02:01-07:06, 07:08-07:18:02, 07:20-07:32, 07:34-07:39, 07:41-07:52, 07:54-07:59, 07:61- 07:76, 07:79-07:83, 07:85-07:99, 07:101-07:117, 08:01:01-08:05, 08:07-08:08N, 08:10-08:11, 08:13-08:15, 08:17-08:66, 35:66, 35:87, 37:07, 40:15-40:16, 40:30-40:32, 40:34, 40:45, 40:59, 40:80, 40:98, 40:137, 41:02:01-41:02:03, 41:04, 41:10-41:11, 41:13, 42:01:01-42:02, 42:05:01- 42:07, 42:09-42:13, 48:01:01-48:01:03, 48:05- 48:12, 48:14-48:20, 48:22, 53:15, 81:01-81:05

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<sup>1</sup>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-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 lengths 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.

<sup>2</sup>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 25 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 28 to 30, 34, 41, 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.

<sup>3</sup>The serological reactivity of all HLA-B alleles is not known. In this table we use the expert-assigned serological grouping in Tissue Antigens (2009) **73**:95-170 and the serological grouping of the sequence-defined allele.

<sup>4</sup>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 B\*08:26, 08:50 and 08:62 and B\*42:07 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\*14:08 and the B\*39:25N, 39:30, 39:32-39:34, 39:47 and 39:50 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\*18:29 and the B\*35:32, 35:37, 35:53N, 35:64, 35:68:01-35:68:02, 35:99 and 35:118-35:119 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\*41:09 and the B\*45:02 and 45:03 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\*55:04, 55:08, 55:13, 55:27 and 55:46 and the B\*56:15, 56:19N and 56:22 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\*55:23 and 55:32 and the B\*56:18 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.

<sup>5</sup>The A\*23:31, A\*24:106 and C\*16:10 alleles will be amplified by primer mix 30, the A\*68:56, C\*06:20 and C\*12:50 alleles will be amplified by primer mix 69, the C\*01:30 allele will be amplified by primer mix 28, the C\*02:06 allele will be weakly amplified by primer mix 67, the C\*02:23 and C\*04:77 alleles will be amplified by primer mix 25, the C\*03:05, 03:25 and 03:27 alleles will be amplified by primer mix 27, the C\*03:12 and 03:19 alleles will be amplified by primer mix 65, the C\*03:102 allele will be amplified by primer mixes 41 and 65, the C\*07:46 allele will be amplified by primer mix 32, the C\*15:02:04 allele will be amplified by primer mix 64, the C\*15:25 allele will be amplified by primer mix 53 and the C\*15:39 allele will be amplified by primer mix 55.

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

<sup>7</sup>Primer 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.

<sup>8</sup>Primer mixes 28, 29, 33, 42, 45, 46, 63 and 68 give a lower yield of specific PCR product than the other HLA-B low resolution primer mixes.

<sup>9</sup>Primer mixes 33, 34, 44 and 63 may give rise to nonspecific amplifications, most pronounced in primer mix 33.

<sup>10</sup>Primer mixes 25, 43, 44, 46 and 66 may give rise to a primer oligomer artifact.

<sup>11</sup>The B\*57 and B\*58 alleles might be faintly amplified by primer mix 33.

<sup>12</sup>The C\*17:01 to C\*17:04 alleles might be faintly amplified by primer mix 49.

<sup>13</sup>Primer mixes 56 and 67 may generate a false positive band of about 800 base pairs. This band should be disregarded when interpreting HLA-B low resolution typings.

<sup>14</sup>The Bw4-associated HLA-A specificities A9, A23, A24, A2403, A25 and A32 are not amplified by the primer pair in primer mix 70.

‘w’, might be weakly amplified.

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

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## SPECIFICITY TABLE

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

Primer Mix	Size of spec. PCR product <sup>1</sup>	Size of control band <sup>2</sup>	DR serology <sup>3</sup>	Amplified HLA-DRB alleles <sup>4</sup>
<b>73<sup>6,8</sup></b>	200 bp, 255 bp	<b>515 bp</b>	1	*01:01:01-01:02:05, 01:04-01:34
<b>74</b>	200 bp	430 bp	103	*01:03
<b>75<sup>6</sup></b>	200 bp, 215 bp	430 bp	2, 15	*15:01:01-01-15:51
<b>76</b>	210 bp	430 bp	16	*16:01:01-16:05:02, 16:07-16:17
<b>77<sup>5,6,7</sup></b>	120 bp, 220 bp	430 bp	3, 17, 18, 11	*03:01:01-01-03:58, 11:07, 11:53, 15:25
<b>78<sup>5,6,7</sup></b>	80 bp, 210 bp	430 bp	3, 6, 17, 11, 13, 14	*03:01:01-01-03:01:09, 03:04:01-03:06, 03:08-03:16, 03:18-03:20, 03:22-03:23, 03:25-03:26, 03:28, 03:30-03:31, 03:33-03:34, 03:36-03:37, 03:43-03:48, 03:50-03:52, 03:54-03:58, 08:40, 11:02:01-11:03, 11:11:01-11:11:02, 11:14:01-11:14:02, 11:16, 11:20-11:21, 11:36, 11:40-11:41, 11:48, 11:59, 11:63, 11:65:01-11:65:02, 11:68, 11:70, 11:73, 11:76, 11:79-11:80, 11:83, 11:85-11:87, 11:93, 13:01:01-13:04, 13:08, 13:10, 13:15-13:17, 13:19-13:20, 13:22-13:24, 13:27-13:29, 13:31-13:41, 13:43, 13:45, 13:48, 13:51-13:54, 13:57, 13:59, 13:61:01, 13:63-13:66:02, 13:68-13:76, 13:78-13:81, 13:83-13:85, 13:87-13:99, 13:101-13:102, 14:16, 14:19, 14:21, 14:82, 14:95
<b>79<sup>5,6</sup></b>	85 bp, 210 bp	430 bp	3, 6, 11, 13, 14, 1403, 18	*03:02:01-03:03, 03:27, 03:29, 03:38, 03:53, 11:13:01 <sup>w</sup> -11:13:02 <sup>w</sup> , 11:26, 11:34, 13:15, 13:19, 13:26, 13:44, 13:53, 13:57, 13:85-13:86, 14:02-14:03:02, 14:06:01-14:06:02, 14:09, 14:12:01-14:13, 14:17-14:21, 14:24, 14:27, 14:29-14:30, 14:32:01 <sup>w</sup> -14:32:02 <sup>w</sup> , 14:33, 14:40-14:41, 14:47-14:49, 14:51, 14:63, 14:65 <sup>w</sup> , 14:67, 14:77-14:78, 14:80-14:81, 14:83, 14:85, 14:89, 14:94, 14:98
<b>80<sup>5,6</sup></b>	100 bp, 175 bp	430 bp	4	*04:01:01-04:92
<b>81<sup>6</sup></b>	210 bp, 230 bp	430 bp	7, 13, 14	*07:01:01-01-07:01:03, 07:03-07:19, 12:22, 13:17, 14:50
<b>82<sup>6</sup></b>	170 bp, 215 bp, 250 bp	<b>515 bp</b>	8, 12, 14	*08:01:01-08:19, 08:21-08:41, 11:67, 12:04, 12:16, 12:22, 14:11, 14:15, 14:68, 14:93
<b>83<sup>5,6</sup></b>	100 bp, 135 bp, 180 bp	430 bp	3, 9, 11	*03:08, 09:01:02-09:09, 11:07, 11:53

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<b>84<sup>8</sup></b>	205 bp	430 bp	10	*10:01:01-10:03
<b>85<sup>5,6</sup></b>	100 bp, 170 bp	430 bp	3, 8, 11, 14	*03:08, 08:31, 08:41, 11:01:01-11:70, 11:72-11:98
<b>86<sup>5,6</sup></b>	85 bp, 105 bp	430 bp	12	*08:32, 12:01:01-12:26
<b>87</b>	215 bp	430 bp	6, 8, 11, 13, 14, 1403	*08:20-08:21, 11:01:01-11:04:06, 11:06:01- 11:06:02, 11:08:01-11:12:02, 11:14:01- 11:16, 11:18-11:21, 11:23-11:25, 11:27:01- 11:33, 11:35-11:51, 11:54:01-11:54:02, 11:56-11:66, 11:68, 11:70, 11:72-11:81, 11:83-11:88, 11:90-11:97, 13:01:01-13:08, 13:10-13:16, 13:18-13:43, 13:45-13:85, 13:87-13:103, 14:03:01-14:03:02, 14:12:01- 14:12:02, 14:16, 14:19, 14:21-14:22, 14:25, 14:27, 14:40, 14:53, 14:63, 14:67, 14:69, 14:74, 14:77-14:78, 14:84-14:85, 14:98
<b>88<sup>6</sup></b>	195 bp, 215 bp	430 bp	6, 8, 11, 12, 13, 14	*08:01:01-08:02:03, 08:04:01-08:09, 08:11, 08:16-08:17, 08:20-08:22, 08:24, 08:26, 08:28, 08:31, 08:39, 08:41, 11:01:01- 11:06:02, 11:09-11:12:02, 11:14:01-11:16, 11:20-11:21, 11:23-11:25, 11:27:01-11:30, 11:32-11:33, 11:35-11:41, 11:43-11:44, 11:46:01-11:51, 11:54:01-11:56, 11:58:01- 11:63, 11:65:01-11:70, 11:72, 11:74:01- 11:78, 11:80-11:88, 11:90-11:97, 12:02:01- 12:02:05, 12:13, 12:15-12:16, 12:18-12:21, 12:23, 12:26, 13:01:01-13:02:01, 13:02:03- 13:02:04, 13:04-13:05:02, 13:07:01-13:09, 13:11:01-13:11:02, 13:14:01-13:24, 13:26- 13:29, 13:31-13:32, 13:34-13:36, 13:38- 13:43, 13:45-13:55, 13:57, 13:59, 13:61:01- 13:65, 13:67-13:76, 13:78-13:80, 13:83- 13:84, 13:87, 13:91-13:93, 13:96-13:100, 13:102-13:103, 14:15-14:16, 14:22, 14:24- 14:25, 14:27, 14:37, 14:53, 14:73
<b>89<sup>7</sup></b>	175 bp	430 bp	3, 6, 11, 13, 14, 1403, 17, 18	*03:01:01:01-03:07, 03:09, 03:11:01-03:41, 03:43-03:45, 03:47-03:58, 08:20, 13:01:01- 13:16, 13:18-13:42, 13:44, 13:46-13:66:02, 13:68-13:102, 14:02-14:03:02, 14:05:01- 14:06:02, 14:09, 14:12:01-14:14, 14:17- 14:21, 14:23:01, 14:23:03-14:24, 14:27, 14:29-14:30, 14:33, 14:36-14:37, 14:40- 14:45, 14:47-14:48, 14:51, 14:56, 14:59, 14:63-14:65, 14:67, 14:77-14:78, 14:80- 14:81, 14:83-14:85, 14:89, 14:91, 14:94- 14:96, 14:98, 14:100
<b>90<sup>5,6</sup></b>	100 bp, 140 bp, 155 bp	430 bp	4, 6, 8,13, 14, 1404	*04:62, 04:69, 04:73, 08:08, 11:69, 11:82, 13:45, 14:01:01-14:01:02, 14:04, 14:07:01- 14:07:02, 14:10, 14:16, 14:22, 14:25-14:26, 14:28, 14:31-14:32:02, 14:35, 14:37-14:39, 14:49-14:50, 14:53-14:55, 14:57-14:58,

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				14:60-14:62, 14:68-14:71, 14:73-14:76, 14:79, 14:82, 14:86-14:88, 14:90, 14:93, 14:99, <b>DRB4*01:03:01:02N</b>
<b>91</b> <sup>5,6,9</sup>	110 bp, 135 bp, 170 bp	430 bp	3, 4, 6, 9, 11, 13,14,1404	*03:10, 09:01:02-09:01:05, 09:01:07-09:02:02, 09:04-09:09, 11:13:01-11:13:02, 11:17, 11:52, 13:43, 14:01:01-14:02, 14:04-14:11, 14:13-14:14, 14:16-14:18, 14:19 <sup>w</sup> , 14:20, 14:21 <sup>w</sup> , 14:22-14:23:03, 14:26, 14:28-14:36, 14:38-14:39, 14:41, 14:43-14:52, 14:54-14:57, 14:59-14:62, 14:64-14:65, 14:68, 14:70-14:76, 14:79-14:83, 14:86-14:88, 14:90-14:97, 14:99-14:100, 15:27, 15:34
<b>92</b> <sup>5,6,8,10</sup>	110 bp, 175 bp, 225 bp	430 bp	2, 3, 4, 6, 8, 11,13, 14, 1403, 1404, 16	*03:10, 08:09, 08:20-08:21, 08:32, 08:35, 11:13:01-11:13:02, 11:17, 11:23, 11:25, 11:31, 11:45, 11:52, 11:55, 11:64, 11:89, 11:96, 13:13, 13:18, 13:43, 13:45, 13:47, 13:55, 14:01:01-14:01:03, 14:03:01-14:05:03, 14:07:01-14:08, 14:10-14:12:02, 14:14-14:16, 14:18, 14:22-14:23:03, 14:25-14:28, 14:31-14:32:02, 14:34-14:36, 14:38-14:40, 14:42-14:45, 14:49-14:50, 14:53-14:65, 14:67-14:79, 14:81-14:82, 14:84-14:93, 14:95-14:97, 14:99-14:100, 15:21 <sup>w</sup> , 16:04 <sup>w</sup>
<b>93</b> <sup>6,7</sup>	160 bp, 240 bp	430 bp	52	<b>DRB3*01:01:02:01-01:14, DRB3*02:01-02:25, DRB3*03:01:01-03:03</b>
<b>94</b> <sup>11</sup>	215 bp	430 bp	53	<b>DRB4*01:01:01:01-01:08</b>
<b>95</b>	175 bp	430 bp	51	<b>DRB5*01:01:01-01:14, DRB5*02:02-02:05</b>
<b>96</b> <sup>12</sup>	-	-		Negative Control

<sup>1</sup>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 DR low resolution SSP subtypings.

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 lengths 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 and 90 to 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.

<sup>2</sup>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 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

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order to help in the correct orientation of the DR low resolution typing.

In addition, well number 82 contains 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.

<sup>3</sup>The serological split of all DRB1 alleles is not known. In this table we use the expert-assigned serological grouping in Tissue Antigens (2009) **73**:95-170 and the serological grouping of the sequence-defined allele.

<sup>4</sup>For 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.

The DRB1\*08:09 and the DRB1\*14:15 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The DRB1\*08:20 and the DRB1\*13:18, 13:47 and 13:55 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The DRB1\*08:31, 08:41 and DRB1\*11:67 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The DRB1\*13:13 and DRB1\*14:84 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

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

<sup>6</sup>Individual alleles can give rise to two differently sized specific PCR fragments in primer mixes 73, 75, 77 to 83, 85, 86, 88 and 90 to 93.

<sup>7</sup>Due to sharing of sequence motifs in codon 38, DRB3\*01:14 will also be amplified in primer mixes 77, 78 and 89 in addition to primer mix 93.

<sup>8</sup>Primer mix 73, 84 and 92 may give rise to a primer oligomer formation.

<sup>9</sup>Primer mix 91 has a tendency to primer oligomer formation and also has an intense primer cloud due to the high number of primers present in the primer mix.

<sup>10</sup>In primer mixes 92 the positive control band may be slightly weaker than for other DR low primer mixes.

<sup>11</sup>The DRB4\*01:03:01:02N allele is amplified by the primer pair in well No. 94, whereas the DRB4\*02:01N and DRB4\*03:01N null alleles are not amplified by this primer pair.

<sup>12</sup>Primer mix 96 contains a negative control, which will amplify more than 95% of HLA amplicons as well as the amplicons generated by control primer pairs. PCR product sizes range from 75 to 200 base pairs. The PCR product generated by the control primer pair is 430 base pairs.

‘w’, might be weakly amplified.

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<b>INTERPRETATION TABLE</b>																								
<b>HLA-A low resolution SSP typing</b>																								
<b>Amplification patterns of the A*01:01 to A*80:02 alleles</b>																								
	<b>Well<sup>6</sup></b>																							
	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. PCR product(s)	225	140	120		535	160			75				225	175			180	140			375	240		360
Length of int. pos. control <sup>1</sup>	800	800	1070	800	800	800	1070	800	800	1070	1070	800	1070	1070	1070	1070	1070	1070	800	800	800	800	800	1070
5'-primer(s) <sup>2</sup>	98	48	363	98	144	176	98	98	266	257	301	103	98	98	203	41	180	98	180	78	28	78	176	341
3'-primer(s) <sup>3</sup>	203	240	527	256	265	270	259	259	302	299	341	257	282	257	299	299	290	256	299	265	97	265	292	418
Well No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24



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Well No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HLA-A allele <sup>4</sup>	ser <sup>5</sup>																								
*01:01:01:01-01:01:22, 01:01:24-01:04N, 01:06- 01:07, 01:09-01:11N, 01:16N-01:18N, 01:20, 01:22N-01:27N, 01:29, 01:31N-01:33, 01:01:38L, 01:35-01:50, 01:52N- 01:78, 01:80-01:81	A1, Null, –	1			4																				
*01:01:23, 01:08, 01:14- 01:15N, 01:30, 01:79	A1, Null, –	1																							
*01:12, 01:19	A1, –	1		3																					
*01:13	A1	1			4							11		13		15									
*01:21	A1	1		3	4																				
*01:28	–	1			4							11				15									
*01:51	–	1			4				8		10														
*02:01:01:01-02:01:15, 02:01:17-02:01:19, 02:01:21-02:16, 02:18- 02:22:02, 02:24:01-02:33, 02:36-02:45, 02:47, 02:49- 02:54, 02:57-02:61, 02:63- 02:69, 02:71-02:77, 02:79:01-02:97:02, 02:99, 02:101:01-02:102, 02:104- 02:128, 02:130-02:134, 02:136-02:145, 02:147- 02:168, 02:170-02:236, 02:238-02:242, 02:244- 02:282	A2, A19, A203, A210, Null, –		2																						
*02:17:01-02:17:02	A2		2					w																	
*02:34-02:35:01, 02:35:03, 02:56:01- 02:56:02, 02:62, 02:103	A2		2											13						20		22			
*02:35:02	A2													13						20		22			
*02:46, 02:70	A2		2																	20		22			
*02:48, 02:129	A2, –																			20		22			
*02:55	A2, A28		2						8													21		23	
*02:78	–		w		4															20		22			
*02:135	–		2											13											24
*02:146	–		2									10													
*02:169	–		2		4																				
*02:237	–		2												14		16								
*02:243	–		2																18			21			
Well No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

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Well No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HLA-A allele <sup>4</sup>	ser <sup>5</sup>																								
*03:01:01:01-03:01:18, 03:01:20-03:01:22, 03:02- 03:07, 03:09-03:11N, 03:13-03:17, 03:19- 03:23:01, 03:25-03:29, 03:31, 03:33-03:35, 03:37- 03:40, 03:42, 03:44-03:49, 03:51-03:56, 03:58, 03:60- 03:62, 03:64-03:71, 03:73- 03:74, 03:76-03:81, 03:83- 03:87, 03:90-03:94, 03:96- 03:106, 03:109-03:110, 03:112	A3, Null, –			3										13											
*03:01:19	–			3									12	13											24
*03:01:23, 03:08, 03:32, 03:36N, 03:57, 03:59, 03:72, 03:89, 03:107- 03:108, 03:111	A3, Null, –			3																					
*03:12	A3			3	4																				
*03:18	–	1			4									13											
*03:24, 03:50	A3, –			3					8					13											
*03:30	A3			3		5								13											
*03:41	–			3																				23	
*03:43, 03:82	–			3										13		15		17							
*03:63	–			3								11		13										23	
*03:75	–													13										23	
*03:88	–			3	4							11												23	
*03:95	–													13	14		16								
*11:01:01-11:09, 11:12- 11:24:02, 11:26-11:27, 11:29-11:59, 11:61-11:80	A11, Null, –				4								11												
*11:10	A11				4				8			11													
*11:11	–				4							11	12												
*11:25, 11:60	A11, –			3	4							11													
*23:01:01-23:13, 23:15- 23:31	A23, Null, –					5	6																		
*23:14, 24:05, 24:13:02, 24:24 <sup>7</sup>	A23, A9, A24					5	6	7																	
*24:02:01:01-24:04, 24:06- 24:11N, 24:13:01, 24:17, 24:20-24:23, 24:25-24:43, 24:45N-24:50, 24:54- 24:56, 24:58-24:63, 24:66- 24:81, 24:83N-24:88, 24:90N-24:91, 24:93, 24:95-24:113, 24:115- 24:128, 24:130-24:137, 24:139-24:155N	A24, A9, A2403, Null, –					5		7																	
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.: **44M**

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
HLA-A allele <sup>4</sup>	ser <sup>5</sup>																								
*24:14-24:15, 24:51-24:53, 24:57, 24:64, 24:94, 24:114, 24:138	A24, –					5																			
*24:18	A24, A3					5		7																23	
*24:19, 24:44	A9					5		7				11													
*24:82	–					5		7														21			
*24:89, 24:129	–							7																	
*24:92	–			3		5																			
*25:01:01-25:04, 25:07-25:12N	A25, Null, –								8	9				13											
*25:05	A25								8	9				13							20				
*25:06	A25								8	9		12													
*25:13	–								8	9				13											24
*26:01:01-26:01:18, 26:08, 26:10-26:15, 26:17-26:18, 26:20, 26:23-26:29, 26:31-26:33, 26:35-26:43:02, 26:45-26:53, 26:55-26:56	A26, A10, Null, –								8		10			13											
*26:02	A26								8		10			w											
*26:03:01-26:03:02, 26:06, 26:21	A26, –								8			11		13										23	
*26:04, 26:34	A26								8		10														
*26:05	A26								8					13										23	
*26:07:01-26:07:02	A26										10			13											
*26:09	A26								8		10		12												
*26:16	A26							7			10			13											
*26:19	–			4										13	14										
*26:22	A26								8		10			13	14							21			
*26:30	A26								8					13										23	24
*26:54	–								8		10			13							20				
*29:01:01-29:06, 29:08N-29:12, 29:15-29:18, 29:20-29:27	A29, Null, –													14											
*29:07	A29					6								14											
*29:13	–													14			17								
*29:14	–													14		16									
*29:19	–													14						19					
*30:01:01-30:04:02, 30:06-30:07, 30:09-30:20, 30:22-30:46	A30, Null, –															15									
*30:08	A30			4												15									
*31:01:02-31:02, 31:05-31:07, 31:09-31:28, 31:30-31:34, 31:36-31:46	A31, Null, –																16								
*31:03	A31											11	12		14		16								
*31:04	A31												12		14		16							24	
*31:08	A31, A24					5											16								
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.: **44M**

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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
HLA-A allele <sup>4</sup>	ser <sup>5</sup>																								
*31:29	–					6											16								
*31:35	–															15	16	17							
*32:01:01-32:02, 32:06-32:12, 32:14, 32:16-32:30	A32, Null, –									9								17							
*32:03	A32																	17							
*32:04	A32, A3			3						9															
*32:05	A32					5											16	17							
*32:13	A32					5				9								17							
*32:15	A32								8	9								17							
*33:01:01-33:01:05, 33:03:01-33:12, 33:14-33:18, 33:20-33:21, 33:23, 33:25-33:34	A33, –																	18							
*33:13	–									10					14			18							
*33:19	–						7											18							
*33:22	–																	18			21				
*33:24	–																	18					23		
*34:01:01-34:01:02, 34:05-34:06	A34, A10								8		11	12													
*34:02:01-34:03, 34:07	A34			3					8		11	12													
*34:04	A34			3					8		11	12		14											
*34:08	A34			3					8		11	12	13												
*34:09	–			3					8			12													24
*36:01, 36:03, 36:05	A36, –	1																					22		
*36:02	A36	1		3																			22	23	
*36:04	A36	1			4																		22		
*43:01	A43											12	13												
*66:01, 66:04-66:08, 66:10-66:11, 66:13-66:15	A66, A26, –								8		11	13													
*66:02-66:03	A66, A10								8			12													24
*66:09	–								8		11	13	14								21				
*66:12	–								8			13													24
*68:01:01-68:04, 68:06-68:14, 68:16-68:19, 68:21:01-68:28, 68:30-68:44, 68:46-68:65	A68, A28, Null, –								8												20				
*68:05, 68:15, 68:20	A68								8												20			23	
*68:29	A68								8									18	20	21					
*68:45	–							7	8												20				
*68:66	–				4				8												20				
*69:01	A69								8													21			
*74:01-74:06, 74:08-74:12N, 74:14N	A74, Null, –																			19					
*74:07	A74																	17	19						
*74:13	–													13					19						
*80:01	A80						6																	23	
*80:02	–						6				11														
B*18:27							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.: **44M**

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<sup>1</sup>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 SSP typing.

In addition, wells number 2, 4, 5, 6, 8, 9, 12 and 19 to 23 contain the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to allow kit identification.

<sup>2</sup>The nucleotide position, in the 1<sup>st</sup>, 2<sup>nd</sup> or 3<sup>rd</sup> exon, matching the specificity-determining 3'-end of the primer is given. Nucleotide numbering as on the [www.ebi.ac.uk, imgt, hla](http://www.ebi.ac.uk, imgt, hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.

<sup>3</sup>The nucleotide position, in the 2<sup>nd</sup> or 3<sup>rd</sup> 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](http://www.ebi.ac.uk, imgt, hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.

<sup>4</sup>The sequence of the A\*0105N has been shown to be identical to A\*01:04N.

The A\*01:34N allele has been renamed A\*01:01:38L.

The A\*020116 allele has been renamed to A\*02:134.

The A\*020120 allele has been shown to be identical to A\*02:01:18.

The sequence of the A\*0223 allele has been shown to be identical to A\*02:22:01.

The sequence of the A\*0298 allele has been shown to be identical to A\*02:96.

The A\*02:100 allele has never been assigned.

The A\*1128 allele has been renamed to A\*11:15:02.

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\*24:08.

The A\*2416 allele has been renamed to A\*31:08.

The A\*2465 allele has been renamed to A\*24:13:02.

The A\*26:44 allele has been renamed to A\*26:43:02.

The sequence of the A\*3005 allele has been shown to be identical to A\*30:04.

The A\*3021 allele has been renamed to A\*30:11:02.

The sequence of the A\*31011 allele has been shown to be identical to A\*31:01:02.

The sequence of the A\*3302 allele has been shown to be identical to A\*33:03:01.

<sup>5</sup>The serological reactivity of all HLA-A alleles is not known. In this table we use the expert-assigned serological grouping in Tissue Antigens (2009) **73**:95-170 and the serological grouping of the sequence-defined allele.

<sup>6</sup>The primer pairs in wells 1, 2, 11 and 15 will in many samples give rise to two or three HLA-specific PCR fragments.

<sup>7</sup>The A\*23:14, 24:05, 24:13:02 and 24:24 alleles will give rise to identical amplification patterns. These four alleles can be separated by the respective high resolution SSP primer sets.

'w', may be weakly amplified.

		<b>INTERPRETATION TABLE</b>																																																
		<b>HLA-B low resolution SSP</b>																																																
		<b>Amplification patterns of the B*07:02 to B*83:01 alleles</b>																																																
																										<b>Well</b>																								
		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	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	190	290	165	165	180	105	280	195	105	115	80	150	135	60	210	170	110	395	160	110	215	140	130	185	190	290	165	165	180	105	280	195	105	115	80	150	135	60	210	170	110	395	160	
PCR product(s)				235	265	235			330	390					435	150				400				425				235	265	235			330	390						435	150				400				425	
Length of int. pos. control <sup>1</sup>		800	1070	1070	800	800	800	1070	1070	1070	800	1070	1070	1070	1070	1070	1070	800	1070	1070	800	800	1070	1070	800	1070	1070	800	800	800	1070	1070	1070	1070	800	1070	1070	800	800	1070	1070	800	800	1070	1070	800	800	1070	1070	
5'-primer(s) <sup>2</sup>		5' -TgA 3' 527	5' -TCg 3' 97	5' -ggC 3' 209	5' -CCg 3' 103	5' -CCT 3' 103	5' -CCg 3' 103	5' -ggA 3' 45	5' -ggA 3' 45	5' -ggA 3' 45	5' -TTA 3' 420	5' -AGA 3' 206	5' -gTC 3' 419	5' -TCT 3' 142	5' -ggA 3' 45	5' -Cgg 3' 161	5' -gCT 3' 167	5' -TCA 3' 355	5' -gAC 3' 206	5' -ggA 3' 45	5' -TCT 3' 142	5' -ggC 3' 409	5' -gAA 3' 246	5' -ggC 3' 44	5' -TgA 3' 527	5' -TCg 3' 97	5' -ggC 3' 209	5' -CCg 3' 103	5' -CCT 3' 103	5' -CCg 3' 103	5' -ggA 3' 45	5' -ggA 3' 45	5' -TTA 3' 420	5' -AGA 3' 206	5' -gTC 3' 419	5' -TCT 3' 142	5' -ggA 3' 45	5' -Cgg 3' 161	5' -gCT 3' 167	5' -TCA 3' 355	5' -gAC 3' 206	5' -ggA 3' 45	5' -TCT 3' 142	5' -ggC 3' 409	5' -gAA 3' 246	5' -ggC 3' 44				
3'-primer(s) <sup>3</sup>		5' -gCT 3' 605	5' -Tgg 3' 272	5' -gTg 3' 309	5' -CgT 3' 193	5' -TAT 3' 246	5' -TAT 3' 246	5' -Tgg 3' 165	5' -CCT 3' 206	5' -TCC 3' 266	5' -CTC 3' 559	5' -Tgg 3' 272	5' -TAT 3' 3rd	5' -gTC 3' 301	5' -TgC 3' 272	5' -TCT 3' 234	5' -TCT 3' 204	5' -gCT 3' 463	5' -ggC 3' 302	5' -gTT 3' 259	5' -ggg 3' 311	5' -ggT 3' 544	5' -gGA 3' 317	5' -TgC 3' 272	5' -ggC 3' 302	5' -gCT 3' 605	5' -Tgg 3' 272	5' -gTg 3' 309	5' -CgT 3' 193	5' -TAT 3' 246	5' -TAT 3' 246	5' -Tgg 3' 165	5' -CCT 3' 206	5' -TCC 3' 266	5' -CTC 3' 559	5' -Tgg 3' 272	5' -TAT 3' 3rd	5' -gTC 3' 301	5' -TgC 3' 272	5' -TCT 3' 234	5' -TCT 3' 204	5' -gCT 3' 463	5' -ggC 3' 302	5' -gTT 3' 259	5' -ggg 3' 311	5' -ggT 3' 544	5' -gGA 3' 317	5' -TgC 3' 272	5' -ggC 3' 302	
<b>Well No.</b>		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	



**INTERPRETATION TABLE**

**HLA-B low resolution SSP**

**Amplification patterns of the B\*07:02 to B\*83:01 alleles**

Well																								
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	
180	290	105	325	115	215	130	90	90	145	120	430	145	300	160	180	180	90	95	115	360	350	285	Length of spec. PCR product(s)	
1070	1070	1070	1070	1070	800	1070	1070	1070	1070	800	1070	1070	1070	1070	1070	1070	800	1070	1070	1070	1070	1070	800	Length of int. pos. control <sup>1</sup>
5'-Agg <sup>3'</sup> 363	5'-gCT <sup>3'</sup> 72	5'-gAC <sup>3'</sup> 540	5'-CAG <sup>3'</sup> 1st I	5'-TCA <sup>3'</sup> 355	5'-ATT <sup>3'</sup> 141	5'-ggC <sup>3'</sup> 209	5'-CTg <sup>3'</sup> 41	5'-AgC <sup>3'</sup> 363	5'-gCC <sup>3'</sup> 48	5'-Tgg <sup>3'</sup> 357	5'-CAG <sup>3'</sup> 49	5'-gAA <sup>3'</sup> 206	5'-CAG <sup>3'</sup> 1st I	5'-gCA <sup>3'</sup> 15	5'-TTA <sup>3'</sup> 420	5'-TTA <sup>3'</sup> 420	5'-ggA <sup>3'</sup> 209	5'-gga <sup>3'</sup> 209	5'-gAC <sup>3'</sup> 206	5'-ACC <sup>3'</sup> 165	5'-CAG <sup>3'</sup> 1st I	5'-CAG <sup>3'</sup> 1st I	5'-TCA <sup>3'</sup> 355	5'-primer(s) <sup>2</sup>
5'-ggA <sup>3'</sup> 499	5'-TgT <sup>3'</sup> 193	5'-gTg <sup>3'</sup> 603	5'-gCC <sup>3'</sup> 282	5'-gCg <sup>3'</sup> 572	5'-ATC <sup>3'</sup> 309	5'-TCA <sup>3'</sup> 299	5'-gCC <sup>3'</sup> 282	5'-gCg <sup>3'</sup> 572	5'-ATC <sup>3'</sup> 309	5'-TCT <sup>3'</sup> 435	5'-ATC <sup>3'</sup> 309	5'-ggT <sup>3'</sup> 311	5'-CTC <sup>3'</sup> 259	5'-gTC <sup>3'</sup> 538	5'-ggT <sup>3'</sup> 311	5'-Cag <sup>3'</sup> 559	5'-CTT <sup>3'</sup> 259	5'-CCC <sup>3'</sup> 256	5'-gTT <sup>3'</sup> 259	5'-TgC <sup>3'</sup> 272	5'-ggA <sup>3'</sup> 317	5'-ggT <sup>3'</sup> 311	5'-gCT <sup>3'</sup> 605	3'-primer(s) <sup>3</sup>
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	Well No.

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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	
HLA-B allele <sup>4</sup>	ser. <sup>5</sup>																									
*07:02:01-07:02:20, 07:05:01-07:06, 07:10, 07:12-07:15, 07:18:01- 07:18:02, 07:21-07:23, 07:26, 07:29-07:31, 07:34- 07:35, 07:39, 07:41- 07:46, 07:49N, 07:52, 07:55-07:59, 07:61-07:64, 07:66-07:68:02, 07:70- 07:72, 07:74-07:76, 07:79- 07:80, 07:82-07:83, 07:86- 07:99, 07:101-07:117	B7, B42, Null, -	25																								48
*07:03, 07:08, 07:16, 07:32, 07:37	B703, B7, -	25																								48
*07:04, 07:25	B7	25													38											48
*07:07, 07:77	B7, -	25																								48
*07:09, 07:11, 07:17	B7	25											36													48
*07:19, 07:33, 07:40, 07:53	B7, 42																									48
*07:20, 07:24	B7, -	25		27																						48
*07:27	-	25										35								44						
*07:28	B7	25					30																			48
*07:36, 07:81	B7, -	25																								
*07:38	-	25																								
*07:47	B7	25																								48
*07:48, 07:51	B7																									48
*07:50	-	25										35														48
*07:54	B7	25																								48
*07:60	-			27																						48
*07:65	-	25																	42							
*07:69, 07:85	-	25																							47	48
*07:73	-	25																40								48
*07:78	-	25										34														48
*07:84	-	25																								48
*07:100	-			27																						48
*08:01:01-08:01:13, 08:05, 08:08N, 08:10- 08:11, 08:15, 08:18- 08:19N, 08:22-08:24, 08:27, 08:29-08:31, 08:33- 08:34, 08:39, 08:41- 08:48, 08:51, 08:53, 08:56- 08:59, 08:61, 08:63- 08:64, 08:66	B8, Null, -		26						32																	48
Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	



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49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	ser. <sup>5</sup>	Well No. HLA-B allele <sup>4</sup>	
			52																			71	72	B7, B42, Null, -	*07:02:01-07:02:20, 07:05:01-07:06, 07:10, 07:12-07:15, 07:18:01- 07:18:02, 07:21-07:23, 07:26, 07:29-07:31, 07:34 07:35, 07:39, 07:41- 07:46, 07:49N, 07:52, 07:55-07:59, 07:61-07:64, 07:66-07:68:02, 07:70- 07:72, 07:74-07:76, 07:79 07:80, 07:82-07:83, 07:86 07:99, 07:101-07:117	
																						71	72	B703, B7, -	*07:03, 07:08, 07:16, 07:32, 07:37	
		51	52																				71	72	B7	*07:04, 07:25
			52																				71		B7, -	*07:07, 07:77
			52																				71	72	B7	*07:09, 07:11, 07:17
			52																				71		B7, 42	*07:19, 07:33, 07:40, 07:53
			52																				71	72	B7, -	*07:20, 07:24
																					70	72			-	*07:27
			52																				71	72	B7	*07:28
			52																		70	72			B7, -	*07:36, 07:81
																					70	72			-	*07:38
		w																					71	72	B7	*07:47
			52																				71	72	B7	*07:48, 07:51
																							71	72	-	*07:50
			52									62											71	72	B7	*07:54
			52																				71		-	*07:60
			52				56						64					w					71	72	-	*07:65
																							71	72	-	*07:69, 07:85
			52																				71	72	-	*07:73
			52							59													71		-	*07:78
			52							59													71		-	*07:84
			52																		69	71			-	*07:100
			51																				71	72	B8, Null, -	*08:01:01-08:01:13, 08:05, 08:08N, 08:10- 08:11, 08:15, 08:18- 08:19N, 08:22-08:24, 08:27, 08:29-08:31, 08:33 08:34, 08:39, 08:41- 08:48, 08:51, 08:53, 08:56 08:59, 08:61, 08:63- 08:64, 08:66
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.: 44M

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	
HLA-B allele <sup>4</sup>	ser. <sup>5</sup>																									
*08:02-08:03, 08:52	B8, –		26						32																	
*08:04	B8, –		26						32			35														48
*08:07, 08:14	B8		26																							48
*08:09	B8		26						32																	48
*08:12:01-08:12:03, 08:16	B8		26						32																	48
*08:13, 08:20, 08:40	B8, –		26																							48
*08:17, 08:54	–, –		26						32			35														48
*08:21	B8		26	27					32																	48
*08:25	B8		26	27																						48
*08:26, 08:50, 08:62, 42:07 <sup>6</sup>	B8, –								32																	48
*08:28, 08:37	B8, –		26										36													48
*08:32	B8		26						32										42							48
*08:35	–		26						32				36													48
*08:36	–		26						32																	
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*27:14	B27																40								48	
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*27:19	B27																40	41								
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*27:24	B27																40									
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HLA-B allele <sup>4</sup>	ser. <sup>5</sup>																									
*39:18	B39					29																	45		47	48
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*40:10:01-40:10:02, 40:22N, 40:33, 40:36, 40:42-40:43, 40:49, 40:54- 40:55, 40:61-40:63, 40:65, 40:67, 40:81, 40:84, 40:87:01-40:88, 40:92, 40:100-40:102, 40:108, 40:112-40:114, 40:116, 40:118N, 40:123, 40:124:02-40:126, 40:128, 40:130, 40:134, 40:141, 40:151, 40:154, 40:156	B60, Null, –				28																					?
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*40:31, 40:45, 40:80	B60, –				28																					?
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*40:40	B61																									
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*40:46	B60											35						40								?
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*40:71	B61			27																						?
*40:74, 40:149	B60, –																									?
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49												62										71		B40, B15	*40:21
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49	?											61										71		B40, B60, –	*40:25, 40:69, 40:106
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49	?											61	62									71 72		B60	*40:30, 40:34
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49	?											61	62					67				71		B60	*40:48
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*40:95	-																									?
*40:96	-																									48
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*40:117	-				28																					
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	?											61	62									71	72	-	*40:98
	?											61	62									71		-	*40:105
	?								58	60		62										70		-	*40:109
	?											62										70		-	*40:110
49	?								58	60		62										70		-	*40:117
49	?			53								61	62									71		-	*40:132
49	?											61	62									71		-	*40:135
	?	51										61	62									71		-	*40:136
49												62										71	72	-	*40:137
49												61	62									71		-	*40:138
	?								59			61	62									71		-	*40:148
	?											62										70		-	*40:157
	?											61	62									71		-	*40:158
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HLA-B allele <sup>4</sup>	ser. <sup>5</sup>																									
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																							ser. <sup>5</sup>	HLA-B allele <sup>4</sup>	
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*82:01-82:03	B82, -								32		35										43				
*83:01	-																		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
HLA-B allele <sup>4</sup>	ser. <sup>5</sup>																								
Well No.																									
A*23:31, A*24:106, C*16:10							30																		
A*68:56, C*06:20, C*12:50																									
C*01:30	-				28																				
C*02:06																									
C*02:23, C*04:77		25																							
C*03:05, 03:25, 03:27				27																					
C*03:12, 03:19																									
C*03:102																						41			
C*07:46									32																
C*15:02:04																									
C*15:25																									
C*15:39																									
Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48

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												Well No.													
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	ser. <sup>5</sup>	HLA-B allele <sup>4</sup>
											60							67		70				B58	*58:07
				54						59	60							67		70				B17, B5	*58:08
					55						60							67		70				B17	*58:09
																		67		70				Null	*58:17N
											60							67		70				-	*58:18
											60							67		70				-	*58:20
											60							67		70				-	*58:27
											60							67		70				-	*58:28
								58					64							70				B59, -	*59:01:01:01, 59:05
								58												70				B59, -	*59:02-59:03
								58								65				70				-	*59:04
			52																			71		B67, -	*67:01:01, 67:03
			52																			71		B67, -	*67:01:02-67:02
			52																		69	71		B73, -	*73:01-73:02
										59			64					68			71			B78, -	*78:01, 78:02:02-78:03, 78:07
										59								68			71			B78, B35	*78:02:01, 78:04
										59		62									71			-	*78:05
										59		62									71			-	*78:06
			52				56	57													71	72		B81	*81:01
			52					57													71	72		B81	*81:02
			52					57													71	72		Null, -	*81:03-81:05
			52				56									65					71			B82, -	*82:01-82:03
			52	53			56						63									71		-	*83:01
												Well No.													
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	ser. <sup>5</sup>	HLA-B allele <sup>4</sup>
																					69				A*23:31, A*24:106, C*16:10
																								-	A*68:56, C*06:20, C*12:50
																								-	C*01:30
																		w							C*02:06
																									C*02:23, C*04:77
																									C*03:05, 03:25, 03:27
																65									C*03:12, 03:19
																65									C*03:102
																									C*07:46
													64												C*15:02:04
				53																					C*15:25
					55																				C*15:39
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.

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<sup>1</sup>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 25 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 28 to 30, 34, 41, 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.

<sup>2</sup>The nucleotide position, in the 1<sup>st</sup>, 2<sup>nd</sup> or 3<sup>rd</sup> exon or in the 1<sup>st</sup> intron, matching the specificity-determining 3'-end of the primer is given. Nucleotide numbering as on the [www.ebi.ac.uk, imgt, hla](http://www.ebi.ac.uk, imgt, hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.

<sup>3</sup>The nucleotide position, in the 2<sup>nd</sup>, or 3<sup>rd</sup> exon or the 1<sup>st</sup> or 3<sup>rd</sup> 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](http://www.ebi.ac.uk, imgt, hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.

<sup>4</sup>The sequence of the B\*0701 allele has been shown to be in error.

The sequence of the B\*08:06 allele has been shown to be identical to B\*08:20.

The sequence of the B\*1305 allele has been shown to be identical to B\*13:04.

The B\*1324 allele has been renamed B\*13:22:02

The B\*150105 allele has been corrected and renamed B\*15:120

The B\*1522 allele has been renamed B\*35:43.

The sequence of the B\*1541 allele has been shown to be identical to B\*15:39.

The B\*1559 allele has been renamed B\*35:44.

The B\*15:100 allele has never been assigned.

The sequence of the B\*1816 allele has been shown to be identical to B\*18:14.

The sequence of the B\*27051 allele has been shown to be identical to B\*27:05:02.

The sequence of the B\*2722 allele has been shown to be identical to the corrected B\*27:06 sequence.

The B\*3573 allele has been renamed B\*35:08:03.

The sequence of the B\*39012 allele has been shown to be identical to B\*39:01:01:01.

The sequence of the B\*3921 allele has been shown to be identical to B\*39:24.

The sequence of the B\*4017 allele has been shown to be identical to B\*40:16.

The sequence of the B\*4041 allele has been shown to be identical to B\*40:40.

The sequence of the B\*4203 allele has never been assigned.

The sequence of the B\*4401 allele has been shown to be identical to B\*44:02:01:01.

The sequence of the B\*5003 allele has been shown to be identical to B\*50:02.

The sequence of the B\*5125 allele has been shown to be identical to B\*51:22.

The B\*5147 allele has been renamed B\*51:09:02.

The sequence of the B\*5506 allele has been shown to be identical to B\*55:04.

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

The B\*7901 allele has been renamed B\*15:18:01.

The B\*9530 allele has been renamed B\*15:27:02.

<sup>5</sup>The serological reactivity of all HLA-B alleles is not known. In this table we use the expert-assigned serological grouping in Tissue Antigens (2009) 73:95-170 and the serological grouping of the sequence-defined allele.

<sup>6</sup>The B\*08:26, 08:50 and 08:62 and B\*42:07 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.

<sup>7</sup>The B\*14:08 and the B\*39:25N, 39:30, 39:32-39:34, 39:47 and 39:50 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.

<sup>8</sup>The B\*18:29 and the B\*35:32, 35:37, 35:53N, 35:64, 35:68:01-35:68:02, 35:99 and 35:118-35:119 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.

<sup>9</sup>The B\*41:09 and the B\*45:02 and 45:03 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.

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<sup>10</sup>The B\*55:04, 55:08, 55:13, 55:27 and 55:46 and the B\*56:15, 56:19N and 56:22 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.

<sup>11</sup>The B\*55:23 and 55:32 and the B\*56:18 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.

‘ser’, serological HLA specificity.

‘w’, might be weakly amplified.

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

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INTERPRETATION TABLE													
DR low resolution SSP typing													
Amplification patterns of the DRB1*01:01 to DRB1*10:03 alleles													
		Well <sup>6</sup>											
		73	74	75	76	77	78	79	80	81	82	83	84
Length of spec.		200	200	200	210	120	80	85	100	210	170	85	205
PCR product(s)		255		215		220	210	210	175	230	215	135	
Length of int.		515	430	430	430	430	430	430	430	430	515	430	430
pos. control <sup>1</sup>													
5'-primer(s) <sup>2</sup>		13 (124) 5'-A.T 3'	14 (129) 5'-gAA 3'	13 (126) 5'-Agg 3'	13 (126) 5'-Agg 3'	13 (125) 5'-gTC 3'	13 (125) 5'-gTC 3'	13 (125) 5'-gTC 3'	13 (125) 5'-ACA 3'	14 (127) 5'-ATA 3'	16 (133) 5'-gTT 3'	26 (165) 5'-TAT 3'	31 (178) 5'-gCg 3'
		14 (129) 5'-gAA 3'		13 (126) 5'-AAG 3'	13 (126) 5'-AAG 3'	47 (227) 5'-gTT 3'	16 (133) 5'-gTT 3'		13 (125) 5'-ACC 3'	14 (127) 5'-ATA 3'	16 (133) 5'-gTT 3'	58 (261) 5'-gAg 3'	
									13 (125) 5'-ATA 3'	16 (133) 5'-gTT 3'			
									13 (125) 5'-gTC 3'				
3'-primer(s) <sup>3</sup>		67 (286) 5'-gAg 3'	67 (286) 5'-gAT 3'	67 (286) 5'-gAT 3'	67 (286) 5'-gAA 3'	73 (305) 5'-ggC 3'	26 (164) 5'-ggT 3'	28 (171) 5'-CTC 3'	33 (184) 5'-gTg 3'	71 (298) 5'-CTC 3'	58 (260) 5'-CCT 3'	57 (257) 5'-CgA 3'	86 (344) 5'-CAC 3'
		67 (286) 5'-gAg 3'		70 (295) 5'-CTg 3'	67 (286) 5'-gAg 3'	73 (305) 5'-ggC 3'	71 (299) 5'-gCT 3'	70 (295) 5'-CTg 3'	58 (260) 5'-Cgg 3'	73 (305) 5'-ggC 3'	74 (307) 5'-CAg 3'	73 (305) 5'-ggC 3'	86 (344) 5'-CCA 3'
		67 (286) 5'-gAT 3'		70 (295) 5'-Tg 3'	70 (297) 5'-CTg 3'	74 (308) 5'-CCC 3'				77 (317) 5'-AAT 3'	86 (344) 5'-CAC 3'	78 (319) 5'-CAC 3'	
		71 (299) 5'-gCg 3'		71 (298) 5'-CgC 3'	72 (301) 5'-ggC 3'					78 (319) 5'-CAC 3'			
		86 (344) 5'-CCA 3'		71 (299) 5'-gCT 3'									
				73 (305) 5'-ggC 3'									
Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84
DRB1 allele <sup>4</sup>	ser <sup>5</sup>												
*01:01:01-01:02:05, 01:04-01:34	1, Null -	73											
*01:03	1, 103		74										
Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84



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INTERPRETATION TABLE														
DR low resolution SSP typing														
Amplification patterns of the DRB1*01:01 to DRB1*10:03 alleles														
Well <sup>6</sup>														
85	86	87	88	89	90	91	92	93	94	95	96			
100	85	215	195	175	100	110	110	160	215	175	Negative control	Length of spec. PCR product(s)		
170	105		215		140	135	175	240				Length of int. pos. control <sup>1</sup>		
430	430	430	430	430	430	430	430	430	430	430		5'-primer(s) <sup>2</sup>		
13 (125)	16 (133)	10 (116)	10 (116)	13 (125)	1st I	26 (164)	13 (125)	10 (116)	28 (170)	13 (125)		3'-primer(s) <sup>3</sup>		
5'-gTC 3'	5'-gTT 3'	5'-gCT 3'	5'-gCT 3'	5'-gTC 3'	5'-CAA 3'	5'-gTA 3'	5'-gTC 3'	5'-gCT 3'	5'-gAT 3'	5'-gTA 3'				
16 (133)		12 (122)	12 (122)		37 (197)	34 (189)	34 (189)	10 (116)						
5'-gTC 3'		5'-TAT 3'	5'-TAT 3'		5'-gTT 3'	5'-CAG 3'	5'-CAG 3'	5'-gCT 3'						
38(200)		13 (125)	13 (125)		37 (197)			38 (199)						
5'-CgT 3'		5'-gTC 3'	5'-gTC 3'		5'-gTA 3'			5'-TCC 3'						
			16 (133)											
			5'-gTT 3'											
			16 (133)											
			5'-gTC 3'											
58 (260)	30 (175)	70 (295)	67 (286)	58 (260)	42(213)	57 (257)	57 (257)	51 (239)	87 (346)	57 (258)				
5'-CCT 3'	5'-gTg 3'	5'-gTC 3'	5'-gAA 3'	5'-Cgg 3'	5'-TCA 3'	5'-CAg 3'	5'-CAg 3'	5'-CCC 3'	5'-CTC 3'	5'-gCg 3'				
58 (260)	38 (199)	71 (299)	71 (298)	58 (260)	57 (257)	70 (295)	60 (265)	77 (317)	87 (346)	58 (260)				
5'-CCT 3'	5'-CAg 3'	5'-gCT 3'	5'-CgC 3'	5'-CAg 3'	5'-CAg 3'	5'-CTg 3'	5'-gTg 3'	5'-AAT 3'	5'-CTT 3'	5'-CCT 3'				
58 (260)			71 (298)		71 (298)	70 (296)	70 (296)							
5'-CCT 3'			5'-CTC 3'		5'-CgC 3'	5'-TCC 3'	5'-TCC 3'							
							74 (307)							
							5'-CAg 3'							
85	86	87	88	89	90	91	92	93	94	95	96	DR ser <sup>5</sup>	Well No. DRB1 allele <sup>4</sup>	
												Neg. control	1, Null –	*01:01:01-01:02:05, 01:04-01:34
													1, 103	*01:03
85	86	87	88	89	90	91	92	93	94	95	96	DR	Well No.	

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Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84
DRB1 allele <sup>4</sup>	ser <sup>5</sup>												
*03:01:01-01-03:01:09, 03:04:01-03:06, 03:09, 03:11:01-03:16, 03:18- 03:20, 03:22-03:23, 03:25-03:26, 03:28, 03:30-03:31, 03:33- 03:34, 03:36-03:37, 03:43-03:45, 03:47- 03:48, 03:50-03:52, 03:54-03:58	3, 17, –					77	78						
*03:02:01-03:03, 03:27, 03:29, 03:38, 03:53	3, 18, –					77		79					
*03:07, 03:17, 03:21, 03:24, 03:32, 03:35, 03:39-03:41, 03:49	3, –					77							
*03:08	3					77	78					83	
*03:10	3					77	78						
*03:42	–					77							
*03:46	–					77	78						
*04:01:01-04:61, 04:63- 04:68, 04:70-04:72:02, 04:74-04:92	3, 4, Null, –								80				
*04:62, 04:69, 04:73	4, –								80				
*07:01:01-01-07:01:03, 07:03-07:19	7, Null, –									81			
*08:01:01-08:02:03, 08:04:01-08:07, 08:11, 08:16-08:17, 08:22, 08:24, 08:26, 08:28, 08:39	8, –										82		
*08:03:02, 08:10, 08:12- 08:15, 08:18-08:19, 08:23, 08:25, 08:27, 08:29-08:30:02, 08:33- 08:34, 08:36-08:38	8, –										82		
*08:08	8										82		
*08:09, 14:15 <sup>7</sup>	8										82		
*08:20, 13:18, 13:47, 13:55 <sup>8</sup>	13, –												
*08:21	8										82		
*08:31, 08:41, 11:67 <sup>9</sup>	8, 11, –										82		
*08:32	–										82		
*08:35	–										82		
*08:40	–						78				82		
*09:01:02-09:01:05, 09:01:07-09:02:02, 09:04-09:09	9, –											83	
Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84

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85	86	87	88	89	90	91	92	93	94	95	96	DR	Well No.
												ser <sup>5</sup>	DRB1 allele <sup>4</sup>
				89								3, 17, -	*03:01:01:01-03:01:09, 03:04:01-03:06, 03:09, 03:11:01-03:16, 03:18-03:20, 03:22-03:23, 03:25-03:26, 03:28, 03:30-03:31, 03:33-03:34, 03:36-03:37, 03:43-03:45, 03:47-03:48, 03:50-03:52, 03:54-03:58
				89								3, 18, -	*03:02:01-03:03, 03:27, 03:29, 03:38, 03:53
				89								3, -	*03:07, 03:17, 03:21, 03:24, 03:32, 03:35, 03:39-03:41, 03:49
85												3	*03:08
						91	92					3	*03:10
												-	*03:42
												-	*03:46
												3, 4, Null, -	*04:01:01-04:61, 04:63-04:68, 04:70-04:72:02, 04:74-04:92
					90							4, -	*04:62, 04:69, 04:73
												7, Null, -	*07:01:01:01-07:01:03, 07:03-07:19
			88									8, -	*08:01:01-08:02:03, 08:04:01-08:07, 08:11, 08:16-08:17, 08:22, 08:24, 08:26, 08:28, 08:39
												8, -	*08:03:02, 08:10, 08:12-08:15, 08:18-08:19, 08:23, 08:25, 08:27, 08:29-08:30:02, 08:33-08:34, 08:36-08:38
			88		90							8	*08:08
			88				92					8	*08:09, 14:15 <sup>7</sup>
		87	88	89			92					13, -	*08:20, 13:18, 13:47, 13:55 <sup>8</sup>
		87	88				92					8	*08:21
85			88									8, 11, -	*08:31, 08:41, 11:67 <sup>9</sup>
	86						92					-	*08:32
							92					-	*08:35
												-	*08:40
						91						9, -	*09:01:02-09:01:05, 09:01:07-09:02:02, 09:04-09:09
85	86	87	88	89	90	91	92	93	94	95	96	DR	Well No.

Negative control

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Lot-specific information

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Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84
DRB1 allele <sup>4</sup>	ser <sup>5</sup>												
*09:01:06, 09:03	9											83	
*10:01:01-10:03	10, –												84
*11:01:01-11:01:12, 11:04:01-11:04:06, 11:06:01-11:06:02, 11:09-11:10:02, 11:12:01-11:12:02, 11:15, 11:24, 11:27:01- 11:30, 11:32-11:33, 11:35, 11:37-11:39, 11:43-11:44, 11:46:01- 11:47, 11:49:01-11:51, 11:54:01-11:54:02, 11:56, 11:58:01- 11:58:02, 11:60-11:62, 11:66, 11:72, 11:74:01- 11:75, 11:77-11:78, 11:81, 11:84, 11:88, 11:90-11:92, 11:94- 11:95, 11:97	11, –												
*11:02:01-11:03, 11:11:01-11:11:02, 11:14:01-11:14:02, 11:16, 11:20-11:21, 11:36, 11:40-11:41, 11:48, 11:59, 11:63, 11:65:01-11:65:02, 11:68, 11:70, 11:76, 11:80, 11:83, 11:85- 11:87, 11:93	11, 13, –						78						
*11:05	11												
*11:07, 11:53	11					77						83	
*11:08:01-11:08:02, 11:18-11:19:02, 11:42, 11:57	11												
*11:13:01-11:13:02	11							w					
*11:17, 11:52	11, 14												
*11:22, 11:98	–												
*11:23, 11:25, 11:96	11, –												
*11:26, 11:34	11							79					
*11:31, 11:45, 11:64	11, –												
*11:55	11												
*11:69, 11:82	–												
*11:73, 11:79	–						78						
*11:89	–												
Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84

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85	86	87	88	89	90	91	92	93	94	95	96	DR	Well No.
												ser <sup>5</sup>	DRB1 allele <sup>4</sup>
												9	*09:01:06, 09:03
												10, –	*10:01:01-10:03
85		87	88									11, –	*11:01:01-11:01:12, 11:04:01-11:04:06, 11:06:01-11:06:02, 11:09-11:10:02, 11:12:01-11:12:02, 11:15, 11:24, 11:27:01- 11:30, 11:32-11:33, 11:35, 11:37-11:39, 11:43-11:44, 11:46:01- 11:47, 11:49:01-11:51, 11:54:01-11:54:02, 11:56, 11:58:01- 11:58:02, 11:60-11:62, 11:66, 11:72, 11:74:01- 11:75, 11:77-11:78, 11:81, 11:84, 11:88, 11:90-11:92, 11:94- 11:95, 11:97
85		87	88									11, 13, –	*11:02:01-11:03, 11:11:01-11:11:02, 11:14:01-11:14:02, 11:16, 11:20-11:21, 11:36, 11:40-11:41, 11:48, 11:59, 11:63, 11:65:01-11:65:02, 11:68, 11:70, 11:76, 11:80, 11:83, 11:85- 11:87, 11:93
85			88									11	*11:05
85												11	*11:07, 11:53
85		87										11	*11:08:01-11:08:02, 11:18-11:19:02, 11:42, 11:57
85						91	92					11	*11:13:01-11:13:02
85						91	92					11, 14	*11:17, 11:52
85												–	*11:22, 11:98
85		87	88				92					11, –	*11:23, 11:25, 11:96
85												11	*11:26, 11:34
85		87					92					11, –	*11:31, 11:45, 11:64
85			88				92					11	*11:55
85			88		90							–	*11:69, 11:82
85		87										–	*11:73, 11:79
85							92					–	*11:89
85	86	87	88	89	90	91	92	93	94	95	96	DR	Well No.

Negative control

Lot No.: **44M**

Lot-specific information

www.olerup-ssp.com

Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84
<b>DRB1 allele<sup>4</sup></b>	<b>ser<sup>5</sup></b>												
*12:01:01-12:01:03, 12:03:02, 12:05-12:12, 12:14, 12:17, 12:24N- 12:25	12, Null, –												
*12:02:01-12:02:05, 12:13, 12:15, 12:18- 12:21, 12:23, 12:26	12, –												
*12:04	12										82		
*12:16	–										82		
*12:22	–									81	82		
*13:01:01-13:02:01, 13:02:03-13:02:04, 13:04, 13:08, 13:16, 13:20, 13:22-13:24, 13:27-13:29, 13:31- 13:32, 13:34-13:36, 13:38-13:41, 13:48, 13:51-13:52, 13:54, 13:59, 13:61:01, 13:63- 13:65, 13:68-13:76, 13:78-13:80, 13:83- 13:84, 13:87, 13:91- 13:93, 13:96-13:99, 13:102	11, 13, 14, –						78						
*13:02:02, 13:03:01- 13:03:06, 13:10, 13:33:01-13:33:03, 13:37, 13:66:01- 13:66:02, 13:81, 13:88- 13:90, 13:94-13:95, 13:101	13, –						78						
*13:05:01-13:05:02, 13:07:01-13:07:02, 13:11:01-13:11:02, 13:14:01-13:14:03, 13:21:01-13:21:02, 13:42, 13:46, 13:49- 13:50:02, 13:62, 13:100	6, 11, 13, –												
*13:06, 13:12:01, 13:25, 13:30, 13:56, 13:58, 13:60, 13:77, 13:82	6, 11, 13, –												
*13:09	13												
*13:13, 14:84 <sup>10</sup>	13, –												
*13:15, 13:19, 13:53, 13:57	13						78	79					
*13:17	13						78			81			
*13:26	14							79					
*13:43	13						78						
*13:44, 13:86	–							79					
<b>Well No.</b>	<b>DR</b>	<b>73</b>	<b>74</b>	<b>75</b>	<b>76</b>	<b>77</b>	<b>78</b>	<b>79</b>	<b>80</b>	<b>81</b>	<b>82</b>	<b>83</b>	<b>84</b>

Lot No.: **44M**

Lot-specific information

www.olerup-ssp.com

85	86	87	88	89	90	91	92	93	94	95	96	DR	Well No.
												ser <sup>5</sup>	DRB1 allele <sup>4</sup>
	86											12, Null, –	*12:01:01-12:01:03, 12:03:02, 12:05-12:12, 12:14, 12:17, 12:24N- 12:25
	86		88									12, –	*12:02:01-12:02:05, 12:13, 12:15, 12:18- 12:21, 12:23, 12:26
	86											12	*12:04
	86		88									–	*12:16
	86											–	*12:22
		87	88	89								11, 13, 14, –	*13:01:01-13:02:01, 13:02:03-13:02:04, 13:04, 13:08, 13:16, 13:20, 13:22-13:24, 13:27-13:29, 13:31- 13:32, 13:34-13:36, 13:38-13:41, 13:48, 13:51-13:52, 13:54, 13:59, 13:61:01, 13:63- 13:65, 13:68-13:76, 13:78-13:80, 13:83- 13:84, 13:87, 13:91- 13:93, 13:96-13:99, 13:102
		87		89								13, –	*13:02:02, 13:03:01- 13:03:06, 13:10, 13:33:01-13:33:03, 13:37, 13:66:01- 13:66:02, 13:81, 13:88- 13:90, 13:94-13:95, 13:101
		87	88	89								6, 11, 13, –	*13:05:01-13:05:02, 13:07:01-13:07:02, 13:11:01-13:11:02, 13:14:01-13:14:03, 13:21:01-13:21:02, 13:42, 13:46, 13:49- 13:50:02, 13:62, 13:100
		87		89								6, 11, 13, –	*13:06, 13:12:01, 13:25, 13:30, 13:56, 13:58, 13:60, 13:77, 13:82
			88	89								13	*13:09
		87		89			92					13, –	*13:13, 14:84 <sup>10</sup>
		87	88	89								13	*13:15, 13:19, 13:53, 13:57
			88									13	*13:17
		87	88	89								14	*13:26
		87	88			91	92					13	*13:43
				89								–	*13:44, 13:86
85	86	87	88	89	90	91	92	93	94	95	96	DR	Well No.

Negative control

Lot No.: **44M**

Lot-specific information

[www.olerup-ssp.com](http://www.olerup-ssp.com)

Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84
DRB1 allele <sup>4</sup>	ser <sup>5</sup>												
*13:45	13						78						
*13:67, 13:103	13, –												
*13:85	–						78	79					
*14:01:01-14:01:02, 14:04, 14:07:01- 14:07:02, 14:10, 14:26, 14:28, 14:31, 14:35, 14:38-14:39, 14:54- 14:55, 14:57, 14:60- 14:62, 14:70-14:71, 14:75-14:76, 14:79, 14:86-14:88, 14:90, 14:99	4, 6, 14, 1404, –												
*14:01:03, 14:08, 14:23:02, 14:34, 14:72, 14:92N, 14:97	14, Null, –												
*14:02, 14:06:01- 14:06:02, 14:09, 14:13, 14:17, 14:20, 14:29- 14:30, 14:33, 14:41, 14:47-14:48, 14:51, 14:80, 14:83, 14:94	14, 6, –							79					
*14:03:01-14:03:02, 14:12:01-14:12:02, 14:40, 14:63, 14:67, 14:77-14:78, 14:85	6, 14, 1403, –							79					
*14:05:01-14:05:03, 14:14, 14:23:01, 14:23:03, 14:36, 14:43- 14:45, 14:56, 14:59, 14:64, 14:91, 14:96, 14:100	14, –												
*14:11	14										82		
*14:16	6						78						
*14:18, 14:81	14, –							79					
*14:19, 14:21	14						78	79					
*14:22	14												
*14:24	14							79					
*14:25, 14:53	6, 13, 14												
*14:27	14							79					
*14:32:01-14:32:02	14							w					
*14:37	14												
*14:42	–												
*14:46, 14:52	14												
*14:49	14							79					
*14:50	14									81			
*14:58	14												
Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84



Lot No.: **44M**

Lot-specific information

www.olerup-ssp.com

85	86	87	88	89	90	91	92	93	94	95	96	DR	Well No.
												ser <sup>5</sup>	DRB1 allele <sup>4</sup>
		87	88		90		92					13	*13:45
		87	88									13, -	*13:67, 13:103
		87		89								-	*13:85
						90	91	92				4, 6, 14, 1404, -	*14:01:01-14:01:02, 14:04, 14:07:01-14:07:02, 14:10, 14:26, 14:28, 14:31, 14:35, 14:38-14:39, 14:54-14:55, 14:57, 14:60-14:62, 14:70-14:71, 14:75-14:76, 14:79, 14:86-14:88, 14:90, 14:99
						91	92					14, Null, -	*14:01:03, 14:08, 14:23:02, 14:34, 14:72, 14:92N, 14:97
				89		91						14, 6, -	*14:02, 14:06:01-14:06:02, 14:09, 14:13, 14:17, 14:20, 14:29-14:30, 14:33, 14:41, 14:47-14:48, 14:51, 14:80, 14:83, 14:94
		87		89			92					6, 14, 1403, -	*14:03:01-14:03:02, 14:12:01-14:12:02, 14:40, 14:63, 14:67, 14:77-14:78, 14:85
				89		91	92					14, -	*14:05:01-14:05:03, 14:14, 14:23:01, 14:23:03, 14:36, 14:43-14:45, 14:56, 14:59, 14:64, 14:91, 14:96, 14:100
						91	92					14	*14:11
		87	88		90	91	92					6	*14:16
				89		91	92					14, -	*14:18, 14:81
		87		89		w						14	*14:19, 14:21
		87	88		90	91	92					14	*14:22
			88	89								14	*14:24
		87	88		90		92					6, 13, 14	*14:25, 14:53
		87	88	89			92					14	*14:27
					90	91	92					14	*14:32:01-14:32:02
			88	89	90							14	*14:37
				89			92					-	*14:42
						91						14	*14:46, 14:52
					90	91	92					14	*14:49
					90	91	92					14	*14:50
					90	91	92					14	*14:58
85	86	87	88	89	90	91	92	93	94	95	96	DR	Well No.

Negative control

Lot No.: **44M**

Lot-specific information

[www.olerup-ssp.com](http://www.olerup-ssp.com)

Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84
DRB1 allele <sup>4</sup>	ser <sup>5</sup>												
*14:65	6							w					
*14:68, 14:93	14, –										82		
*14:69	–												
*14:73	–												
*14:74	–												
*14:82	–						78						
*14:89	–							79					
*14:95	–						78						
*14:98	–							79					
*15:01:01:01-15:20, 15:22-15:24, 15:26, 15:28-15:33, 15:35- 15:51	15, 2, Null, –			75									
*15:21	2			75									
*15:25	–			75		77							
*15:27, 15:34	–			75									
*16:01:01-16:03, 16:05:01-16:05:02, 16:07-16:17	16, Null, –				76								
*16:04	16				76								
DRB3*01:01:02:01- 01:14, DRB3*02:01- 02:25, DRB3*03:01:01- 03:03	52, –												
DRB4*01:01:01:01- 01:03:01:01, DRB4*01:03:02-01:08	53, –												
DRB4*01:03:01:02N	Null												
DRB5*01:01:01-01:14, DRB5*02:02-02:05	51, Null, –												
DRB1 allele <sup>4</sup>	ser <sup>5</sup>												
Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84

<sup>1</sup>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 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, well number 82 contains the primer pair giving rise to the longer, 515 bp, internal positive control band in order to allow kit identification.

<sup>2</sup>The codon, and in parenthesis the nucleotide, in the 2<sup>nd</sup> exon, matching the specificity-determining 3'-end of the primer is given. Codon and nucleotide numbering as on the [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given. <sup>3</sup>The codon, and in parenthesis the nucleotide, in the 2<sup>nd</sup> exon, matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Codon and nucleotide numbering as on the [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.

<sup>3</sup>The codon, and in parenthesis the nucleotide, in the 2<sup>nd</sup> exon, matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Codon and nucleotide numbering as on the [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla) web site. The sequence of the 3 terminal nucleotides of the primer is given.

Lot No.: **44M**

Lot-specific information

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85	86	87	88	89	90	91	92	93	94	95	96	DR	Well No.
												ser <sup>5</sup>	DRB1 allele <sup>4</sup>
				89		91	92					6	*14:65
					90	91	92					14, –	*14:68, 14:93
		87			90		92					–	*14:69
			88		90	91	92					–	*14:73
		87			90	91	92					–	*14:74
					90	91	92					–	*14:82
				89			92					–	*14:89
				89		91	92					–	*14:95
		87		89								–	*14:98
												15, 2, Null, –	*15:01:01:01-15:20, 15:22-15:24, 15:26, 15:28-15:33, 15:35- 15:51
							w					2	*15:21
												–	*15:25
						91						–	*15:27, 15:34
												16, Null, –	*16:01:01-16:03, 16:05:01-16:05:02, 16:07-16:17
							w					16	*16:04
								93				52, –	DRB3*01:01:02:01- 01:14, DRB3*02:01- 02:25, DRB3*03:01:01- 03:03
									94			53, –	DRB4*01:01:01:01- 01:03:01:01, DRB4*01:03:02-01:08
					90				94			Null	DRB4*01:03:01:02N
										95		51, Null, –	DRB5*01:01:01-01:14, DRB5*02:02-02:05
85	86	87	88	89	90	91	92	93	94	95	96	ser <sup>5</sup>	DRB1 allele <sup>4</sup>
												DR	Well No.

Negative control

<sup>4</sup>The sequence of the DRB1\*0702 allele has been shown to be identical to DRB1\*07:01:01:01.  
The sequence of the DRB1\*080301 allele has been shown to be identical to DRB1\*08:03:02.  
The sequence of the DRB1\*09011 allele has been shown to be identical to DRB1\*09:01:02.  
The sequence of the DRB1\*1171 allele has been shown to be identical to DRB1\*11:02:01.  
The sequence of the DRB1\*12031 allele has been shown to be identical to DRB1\*12:01:01.  
The DRB1\*1466 allele has been renamed DRB1\*14:32:02.

The sequence of the DRB1\*1606 allele has been shown to be identical to DRB1\*16:05:01.  
The sequence of the DRB3\*010101 allele has been shown to be identical to DRB3\*01:01:02:01.  
The DRB4\*0101102N allele has been renamed DRB4\*01:03:10:02N.

The sequence of the DRB5\*0201 allele has been shown to be identical to DRB5\*02:02.  
Due to sharing of sequence motifs in codon 38, DRB3\*01:14 will also be amplified in primer mixes 77, 78 and 89 in addition to primer mix 93.

<sup>5</sup>The serological reactivity of all DRB alleles is not known. In this table we use the expert-assigned serological grouping in Tissue Antigens (2009) 73:95-170 and the serological grouping of the sequence-defined allele.

<sup>6</sup>Primer mix 96 contains a negative control, which will amplify more than 95% of HLA amplicons as well as the amplicons generated by control primer pairs. PCR product sizes range from 75 to 200 base pairs. The PCR product generated by the control primer pair is 430 base pairs.

Lot No.: **44M**

Lot-specific information

[www.olerup-ssp.com](http://www.olerup-ssp.com)

<sup>7</sup>The DRB1\*08:09 and the DRB1\*14:15 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

<sup>8</sup>The DRB1\*08:20 and the DRB1\*13:18, 13:47 and 13:55 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

<sup>9</sup>The DRB1\*08:31, 08:41 and DRB1\*11:67 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

<sup>10</sup>The DRB1\*13:13 and DRB1\*14:84 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

‘ser’, serological HLA specificity.

‘w’, may be weakly amplified.

Lot No.: **44M**

Lot-specific information

www.olerup-ssp.com

CELL LINE VALIDATION SHEET																			
HLA-A low resolution primer set																			
				Well															
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
				201078701	201078702	201073303	201073304	201073305	201078706	201188507	201073308	201073309	201078710	201078711	201187512	201073313	201078714	201073315	201078716
	IHWC cell line	A*	A*	Lot No.:															
1	9001 SA	*24:02		-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-
2	9280 LK707	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	9011 E4181324	*01:01		+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
4	9275 GU373	*30:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
5	9009 KAS011	*01:01		+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
6	9353 SM	*02:01	*26:03	-	+	-	-	-	-	-	+	-	-	+	-	+	-	-	-
7	9020 QBL	*26:01		-	-	-	-	-	-	-	+	-	+	-	-	+	-	-	-
8	9025 DEU	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
9	9026 YAR	*26:01		-	-	-	-	-	-	-	+	-	+	-	-	+	-	-	-
10	9107 LKT3	*24:02		-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-
11	9051 PITOUT	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
12	9052 DBB	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	9004 JESTHOM	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071 OLGA	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
15	9075 DKB	*24:02		-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-
16	9037 SWEIG007	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
17	9282 CTM3953540	*03:01	*80:01	-	-	+	-	-	+	-	-	-	-	-	-	+	-	-	-
18	9257 32367	*33:03	*74:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	9038 BM16	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	9059 SLE005	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	9064 AMALA	*02:17		-	+	-	-	-	-	W	-	-	-	-	-	-	-	-	-
22	9056 KOSE	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	9124 IHL	*02:01	*34:01	-	+	-	-	-	-	-	+	-	-	+	+	-	-	-	-
24	9035 JBUSH	*32:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
25	9049 IBW9	*33:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	9285 WT49	*02:05		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	9191 CH1007	*24:10	*29:01	-	-	-	-	+	-	+	-	-	-	-	-	-	+	-	-
28	9320 BEL5GB	*02:01	*29:02	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-
29	9050 MOU	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
30	9021 RSH	*30:01	*68:02	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+	-
31	9019 DUCAF	*30:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
32	9297 HAG	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	9098 MT14B	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
34	9104 DHIF	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
35	9302 SSTO	*32:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
36	9024 KT17	*02:06	*11:01	-	+	-	+	-	-	-	-	-	-	+	-	-	-	-	-
37	9065 HHKB	*03:01		-	-	+	-	-	-	-	-	-	-	-	+	-	-	-	-
38	9099 LZL	*02:17		-	+	-	-	-	-	W	-	-	-	-	-	-	-	-	-
39	9315 CML	*01:01	*03:01	+	-	+	+	-	-	-	-	-	-	-	-	+	-	-	-
40	9134 WHONP199	*02:07	*30:01	-	+	-	-	-	-	-	-	-	-	-	-	-	-	+	-
41	9055 H0301	*03:01		-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-
42	9066 TAB089	*02:07		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43	9076 T7526	*02:06	*02:07	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	9057 TEM	*66:01		-	-	-	-	-	-	-	+	-	-	+	-	+	-	-	-
45	9239 SHJO	*23:01	*24:02	-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-
46	9013 SCHU	*03:01		-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-
47	9045 TUBO	*02:16	*03:01	-	+	+	-	-	-	-	-	-	-	-	-	+	-	-	-
48	9303 TER-ND	*02:01	*11:01	-	+	-	+	-	-	-	-	-	-	+	-	-	-	-	-

Lot No.: **44M**

Lot-specific information

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CELL LINE VALIDATION SHEET														
HLA-A low resolution primer set														
				Lot No.:	Well									
					17	18	19	20	21	22	23	24		
					201078717	201073318	201073319	201078720	201073321	201078722	201188523	201078724		
	IHWC cell line	A*	A*											
1	9001 SA	*24:02			-	-	-	-	-	-	-	-	-	-
2	9280 LK707	*02:01			-	-	-	-	-	-	-	-	-	-
3	9011 E4181324	*01:01			-	-	-	-	-	-	-	-	-	-
4	9275 GU373	*30:01			-	-	-	-	-	-	-	-	-	-
5	9009 KAS011	*01:01			-	-	-	-	-	-	-	-	-	-
6	9353 SM	*02:01	*26:03		-	-	-	-	-	-	-	+	-	-
7	9020 QBL	*26:01			-	-	-	-	-	-	-	-	-	-
8	9025 DEU	*31:01			-	-	-	-	-	-	-	-	-	-
9	9026 YAR	*26:01			-	-	-	-	-	-	-	-	-	-
10	9107 LKT3	*24:02			-	-	-	-	-	-	-	-	-	-
11	9051 PITOUT	*29:02			-	-	-	-	-	-	-	-	-	-
12	9052 DBB	*02:01			-	-	-	-	-	-	-	-	-	-
13	9004 JESTHOM	*02:01			-	-	-	-	-	-	-	-	-	-
14	9071 OLGA	*31:01			-	-	-	-	-	-	-	-	-	-
15	9075 DKB	*24:02			-	-	-	-	-	-	-	-	-	-
16	9037 SWEIG007	*29:02			-	-	-	-	-	-	-	-	-	-
17	9282 CTM3953540	*03:01	*80:01		-	-	-	-	-	-	-	+	-	-
18	9257 32367	*33:03	*74:01		-	+	+	-	-	-	-	-	-	-
19	9038 BM16	*02:01			-	-	-	-	-	-	-	-	-	-
20	9059 SLE005	*02:01			-	-	-	-	-	-	-	-	-	-
21	9064 AMALA	*02:17			-	-	-	-	-	-	-	-	-	-
22	9056 KOSE	*02:01			-	-	-	-	-	-	-	-	-	-
23	9124 IHL	*02:01	*34:01		-	-	-	-	-	-	-	-	-	-
24	9035 JBUSH	*32:01			+	-	-	-	-	-	-	-	-	-
25	9049 IBW9	*33:01			-	+	-	-	-	-	-	-	-	-
26	9285 WT49	*02:05			-	-	-	-	-	-	-	-	-	-
27	9191 CH1007	*24:10	*29:01		-	-	-	-	-	-	-	-	-	-
28	9320 BEL5GB	*02:01	*29:02		-	-	-	-	-	-	-	-	-	-
29	9050 MOU	*29:02			-	-	-	-	-	-	-	-	-	-
30	9021 RSH	*30:01	*68:02		-	-	-	+	-	-	-	-	-	-
31	9019 DUCAF	*30:02			-	-	-	-	-	-	-	-	-	-
32	9297 HAG	*02:01			-	-	-	-	-	-	-	-	-	-
33	9098 MT14B	*31:01			-	-	-	-	-	-	-	-	-	-
34	9104 DHIF	*31:01			-	-	-	-	-	-	-	-	-	-
35	9302 SSTO	*32:01			+	-	-	-	-	-	-	-	-	-
36	9024 KT17	*02:06	*11:01		-	-	-	-	-	-	-	-	-	-
37	9065 HHKB	*03:01			-	-	-	-	-	-	-	-	-	-
38	9099 LZL	*02:17			-	-	-	-	-	-	-	-	-	-
39	9315 CML	*01:01	*03:01		-	-	-	-	-	-	-	-	-	-
40	9134 WHONP199	*02:07	*30:01		-	-	-	-	-	-	-	-	-	-
41	9055 H0301	*03:01			-	-	-	-	-	-	-	-	-	-
42	9066 TAB089	*02:07			-	-	-	-	-	-	-	-	-	-
43	9076 T7526	*02:06	*02:07		-	-	-	-	-	-	-	-	-	-
44	9057 TEM	*66:01			-	-	-	-	-	-	-	-	-	-
45	9239 SHJO	*23:01	*24:02		-	-	-	-	-	-	-	-	-	-
46	9013 SCHU	*03:01			-	-	-	-	-	-	-	-	-	-
47	9045 TUBO	*02:16	*03:01		-	-	-	-	-	-	-	-	-	-
48	9303 TER-ND	*02:01	*11:01		-	-	-	-	-	-	-	-	-	-

Lot No.: **44M**

Lot-specific information

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<b>CELL LINE VALIDATION SHEET</b>																				
<b>HLA-B low resolution SSP kit</b>																				
				<b>Well</b>																
				25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
				Prod. No.:	201073401	201073402	201078803	201073404	201185805	201073406	201073407	201073408	201073409	201073410	201073411	201073412	201073413	201073414	201078815	201073416
<b>IHWC cell line</b>		<b>B*</b>																		
1	9001	SA	*07:02		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280	LK707	*52:01	*73:01	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
3	9011	E4181324	*52:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
4	9275	GU373	*15:10	*53:01	-	-	-	-	-	-	-	+	-	-	-	+	-	+	-	-
5	9009	KAS011	*37:01		-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
6	9353	SM	*39:01	*51:01	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-
7	9020	QBL	*18:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
8	9025	DEU	*35:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
9	9026	YAR	*38:01		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
10	9107	LKT3	*54:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	9051	PITOUT	*44:03		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
12	9052	DBB	*57:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
13	9004	JESTHOM	*27:05		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+
14	9071	OLGA	*15:01	*15:20	-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-
15	9075	DKB	*40:01		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
16	9037	SWEIG007	*40:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	9282	CTM3953540	*08:01	*55:01	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-
18	9257	32367	*14:01	*56:01	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-
19	9038	BM16	*18:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
20	9059	SLE005	*40:01		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
21	9064	AMALA	*15:01		-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-
22	9056	KOSE	*35:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	9124	IHL	*40:02	*56:02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	9035	JBUSH	*38:01		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
25	9049	IBW9	*14:02		-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-
26	9285	WT49	*58:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
27	9191	CH1007	*07:05	*51:01	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
28	9320	BEL5GB	*44:02	*44:03	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
29	9050	MOU	*44:03		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
30	9021	RSH	*42:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
31	9019	DUCAF	*18:01		-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-
32	9297	HAG	*41:02		-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-
33	9098	MT14B	*40:01		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
34	9104	DHIF	*38:01		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
35	9302	SSTO	*44:02		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
36	9024	KT17	*15:01	*35:01	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-
37	9065	HHKB	*07:02		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	9099	LZL	*15:01		-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-
39	9315	CML	*08:01	*27:05	-	+	-	-	+	-	-	+	-	-	-	-	-	-	-	+
40	9134	WHONP199	*13:02	*46:01	-	-	+	+	-	-	+	-	-	+	-	+	-	-	-	-
41	9055	H0301	*14:02		-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-
42	9066	TAB089	*46:01		-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-
43	9076	T7526	*46:01		-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-
44	9057	TEM	*38:01		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
45	9239	SHJO	*42:01	*50:01	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-
46	9013	SCHU	*07:02		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	9045	TUBO	*51:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
48	9303	TER-ND	*35:01	*44:03	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-

Lot No.: **44M**

Lot-specific information

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<b>CELL LINE VALIDATION SHEET</b>																				
<b>HLA-B low resolution SSP kit</b>																				
				Prod. No.:	Well															
					41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
					201073417	201073418	201078819	201182320	201073421	201073422	201073423	201078824	201078825	201182326	201073427	201073428	201185829	201073430	201188631	201073432
	<b>IHWC cell line</b>	<b>B*</b>																		
1	9001 SA	*07:02			-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-
2	9280 LK707	*52:01	*73:01		-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-
3	9011 E4181324	*52:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	9275 GU373	*15:10	*53:01		+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
5	9009 KAS011	*37:01			+	-	-	+	-	-	-	-	-	-	-	-	+	-	-	-
6	9353 SM	*39:01	*51:01		-	-	-	-	+	-	+	+	-	-	-	-	-	+	-	-
7	9020 QBL	*18:01			-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	9025 DEU	*35:01			+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9026 YAR	*38:01			-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-
10	9107 LKT3	*54:01			-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+
11	9051 PITOUT	*44:03			+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
12	9052 DBB	*57:01			+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	9004 JESTHOM	*27:05			-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+
14	9071 OLGA	*15:01	*15:20		+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
15	9075 DKB	*40:01			-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-
16	9037 SWEIG007	*40:02			-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
17	9282 CTM3953540	*08:01	*55:01		-	-	-	-	-	-	-	+	-	-	+	+	-	-	-	+
18	9257 32367	*14:01	*56:01		-	-	-	-	-	-	+	+	-	-	-	+	-	-	-	+
19	9038 BM16	*18:01			-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	9059 SLE005	*40:01			-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-
21	9064 AMALA	*15:01			-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
22	9056 KOSE	*35:03			+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	9124 IHL	*40:02	*56:02		-	-	-	-	-	-	-	-	-	+	-	+	-	-	-	+
24	9035 JBUSH	*38:01			-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-
25	9049 IBW9	*14:02			-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-
26	9285 WT49	*58:01			+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	9191 CH1007	*07:05	*51:01		-	-	-	-	-	-	-	+	-	-	-	+	-	+	-	-
28	9320 BEL5GB	*44:02	*44:03		+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
29	9050 MOU	*44:03			+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
30	9021 RSH	*42:01			-	-	-	-	-	-	-	+	-	-	+	+	-	-	-	-
31	9019 DUCAF	*18:01			-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	9297 HAG	*41:02			-	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-
33	9098 MT14B	*40:01			-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-
34	9104 DHIF	*38:01			-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-
35	9302 SSTO	*44:02			+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
36	9024 KT17	*15:01	*35:01		+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-
37	9065 HHKB	*07:02			-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-
38	9099 LZL	*15:01			-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
39	9315 CML	*08:01	*27:05		-	-	-	-	-	-	-	+	-	-	+	+	-	-	-	+
40	9134 WHONP199	*13:02	*46:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
41	9055 H0301	*14:02			-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-
42	9066 TAB089	*46:01			-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
43	9076 T7526	*46:01			-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
44	9057 TEM	*38:01			-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-
45	9239 SHJO	*42:01	*50:01		-	-	-	-	-	-	-	+	-	-	+	+	-	-	-	-
46	9013 SCHU	*07:02			-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-
47	9045 TUBO	*51:01			-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
48	9303 TER-ND	*35:01	*44:03		+	+	-	-	-	-	-	-	-	-	-	-	+	-	-	-



Lot No.: **44M**

Lot-specific information

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<b>CELL LINE VALIDATION SHEET</b>																				
<b>HLA-B low resolution SSP kit</b>																				
				Prod. No.:	Well															
					57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72
					201182333	201073434	201073435	201078836	201073437	201078838	201073439	201073440	201073441	201073442	201073443	201073444	201073445	201073446	201073447	201188648
	<b>IHWC cell line</b>		<b>B*</b>																	
1	9001 SA		*07:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
2	9280 LK707		*52:01	*73:01	-	-	+	+	-	+	-	-	-	-	-	-	+	+	+	-
3	9011 E4181324		*52:01		-	-	+	+	-	+	-	-	-	-	-	-	-	+	-	-
4	9275 GU373		*15:10	*53:01	-	-	-	+	-	-	-	-	-	-	-	+	-	+	+	-
5	9009 KAS011		*37:01		-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-
6	9353 SM		*39:01	*51:01	-	-	+	+	-	-	-	-	-	-	-	+	-	+	+	-
7	9020 QBL		*18:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
8	9025 DEU		*35:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
9	9026 YAR		*38:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
10	9107 LKT3		*54:01		-	-	-	-	-	-	+	+	-	-	-	-	-	-	+	-
11	9051 PITOUT		*44:03		-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-
12	9052 DBB		*57:01		-	-	-	+	-	-	-	-	-	+	-	-	-	+	-	-
13	9004 JESTHOM		*27:05		-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-
14	9071 OLGA		*15:01	*15:20	-	-	-	-	-	+	-	-	-	-	-	-	+	-	+	-
15	9075 DKB		*40:01		-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	-
16	9037 SWEIG007		*40:02		-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	-
17	9282 CTM3953540		*08:01	*55:01	-	-	+	-	-	-	-	+	-	-	-	-	-	-	+	+
18	9257 32367		*14:01	*56:01	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+	-
19	9038 BM16		*18:01		-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-
20	9059 SLE005		*40:01		-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	-
21	9064 AMALA		*15:01		-	-	-	-	-	+	-	-	-	-	-	-	+	-	+	-
22	9056 KOSE		*35:03		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
23	9124 IHL		*40:02	*56:02	-	-	-	-	+	+	-	-	+	-	+	-	-	-	+	-
24	9035 JBUSH		*38:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
25	9049 IBW9		*14:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
26	9285 WT49		*58:01		-	-	-	+	-	-	-	-	-	-	+	-	-	+	-	-
27	9191 CH1007		*07:05	*51:01	-	-	+	+	-	-	-	-	-	-	-	+	-	+	+	+
28	9320 BEL5GB		*44:02	*44:03	-	-	-	-	-	+	+	-	-	-	-	-	-	+	-	-
29	9050 MOU		*44:03		-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-
30	9021 RSH		*42:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
31	9019 DUCAF		*18:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
32	9297 HAG		*41:02		-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	+
33	9098 MT14B		*40:01		-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	-
34	9104 DHIF		*38:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
35	9302 SSTO		*44:02		-	-	-	-	-	+	+	-	-	-	-	-	-	+	-	-
36	9024 KT17		*15:01	*35:01	-	-	-	-	-	+	-	-	-	-	-	+	+	-	+	-
37	9065 HHKB		*07:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
38	9099 LZL		*15:01		-	-	-	-	-	+	-	-	-	-	-	-	+	-	+	-
39	9315 CML		*08:01	*27:05	-	-	-	-	-	+	-	-	-	-	-	-	-	+	+	+
40	9134 WHONP199		*13:02	*46:01	-	-	-	-	-	+	-	-	-	-	-	-	+	+	+	-
41	9055 H0301		*14:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
42	9066 TAB089		*46:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
43	9076 T7526		*46:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
44	9057 TEM		*38:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
45	9239 SHJO		*42:01	*50:01	-	-	+	-	+	+	-	-	+	-	-	-	-	-	+	+
46	9013 SCHU		*07:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
47	9045 TUBO		*51:01		-	-	+	+	-	-	-	-	-	-	-	+	-	+	-	-
48	9303 TER-ND		*35:01	*44:03	-	-	-	-	-	+	-	-	-	-	-	+	-	+	+	-

Lot No.: **44M**

Lot-specific information

www.olerup-ssp.com

<b>CELL LINE VALIDATION SHEET</b>																					
<b>DR low resolution primer set</b>																					
				Prod. No.:	Well																
					73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	
					201185101	201185102	201185103	201185104	201185105	201185106	201185107	201185108	201185109	201185110	201185111	201185112	201185113	201185114	201185115	201185116	
	<b>IHWC cell line</b>	<b>DRB1</b>																			
1	9001 SA	*01:01			+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280 LK707	*15:02	*04:05		-	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-	-
3	9011 E4181324	*15:02			-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	9275 GU373	*03:01			-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-
5	9009 KAS011	*16:01			-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
6	9353 SM	*04:07	*08:03		-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	-	-
7	9020 QBL	*03:01			-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-
8	9025 DEU	*04:01			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
9	9026 YAR	*04:02			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
10	9107 LKT3	*04:05			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
11	9051 PITOUT	*07:01			-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
12	9052 DBB	*07:01			-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
13	9004 JESTHOM	*01:01			+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071 OPGA	*08:02			-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+
15	9075 DKB	*09:01			-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
16	9037 SWEIG007	*11:01			-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	+	+
17	9282 CTM3953540	*03:01	*13:01		-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	+	+
18	9257 32367	*09:01	*11:01		-	-	-	-	-	-	-	-	-	-	+	-	+	-	+	+	+
19	9038 BM16	*12:01			-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
20	9059 SLE005	*13:02			-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	+	+
21	9064 AMALA	*14:02			-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
22	9056 KOSE	*13:02	*14:54		-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	+	+
23	9124 IHL	*08:03	*14:14		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
24	9035 JBUSH	*11:01			-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	+	+
25	9049 IBW9	*07:01			-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
26	9285 WT49	*03:01			-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-
27	9191 CH1007	*04:05	*10:01		-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-	-
28	9320 BEL5GB	*04:16	*07:01		-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-
29	9050 MOU	*07:01			-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
30	9021 RSH	*03:02			-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-
31	9019 DUCAF	*03:01			-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-
32	9297 HAG	*13:03			-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-	-
33	9098 MT14B	*04:04			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
34	9104 DHIF	*11:01			-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	+	+
35	9302 SSTO	*04:03			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
36	9024 KT17	*04:03	*04:06		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
37	9065 HHKB	*13:01			-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	+	+
38	9099 LZL	*14:02			-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
39	9315 CML	*03:01	*04:01		-	-	-	-	+	+	-	+	-	-	-	-	-	-	-	-	-
40	9134 WHONP199	*07:01	*09:01		-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	-
41	9055 H0301	*13:02			-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	+	+
42	9066 TAB089	*08:03			-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
43	9076 T7526	*09:01			-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
44	9057 TEM	*14:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	9239 SHJO	*07:01			-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
46	9013 SCHU	*15:01			-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	9045 TUBO	*11:04	*12:01		-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+
48	9303 TER-ND	*01:03			-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Lot No.: **44M**

Lot-specific information

[www.olerup-ssp.com](http://www.olerup-ssp.com)

CELL LINE VALIDATION SHEET											
DR low resolution primer set											
				Well							
				89	90	91	92	93	94	95	
				Prod. No.:	201185117	201185118	201185119	201185120	201185121	201185122	201185123
IHWC cell line			DRB1								
1	9001	SA	*01:01		-	-	-	-	-	-	-
2	9280	LK707	*15:02	*04:05	-	-	-	-	-	+	+
3	9011	E4181324	*15:02		-	-	-	-	-	-	+
4	9275	GU373	*03:01		+	-	-	-	+	-	-
5	9009	KAS011	*16:01		-	-	-	-	-	-	+
6	9353	SM	*04:07	*08:03	-	-	-	-	-	+	-
7	9020	QBL	*03:01		+	-	-	-	+	-	-
8	9025	DEU	*04:01		-	-	-	-	-	+	-
9	9026	YAR	*04:02		-	-	-	-	-	+	-
10	9107	LKT3	*04:05		-	-	-	-	-	+	-
11	9051	PITOUT	*07:01		-	-	-	-	-	+	-
12	9052	DBB	*07:01		-	-	-	-	-	+	-
13	9004	JESTHOM	*01:01		-	-	-	-	-	-	-
14	9071	OLGA	*08:02		-	-	-	-	-	-	-
15	9075	DKB	*09:01		-	-	+	-	-	+	-
16	9037	SWEIG007	*11:01		-	-	-	-	+	-	-
17	9282	CTM3953540	*03:01	*13:01	+	-	-	-	+	-	-
18	9257	32367	*09:01	*11:01	-	-	+	-	+	+	-
19	9038	BM16	*12:01		-	-	-	-	+	-	-
20	9059	SLE005	*13:02		+	-	-	-	+	-	-
21	9064	AMALA	*14:02		+	-	+	-	+	-	-
22	9056	KOSE	*13:02	*14:54	+	+	+	+	+	-	-
23	9124	IHL	*08:03	*14:14	+	-	+	+	+	-	-
24	9035	JBUSH	*11:01		-	-	-	-	+	-	-
25	9049	IBW9	*07:01		-	-	-	-	-	+	-
26	9285	WT49	*03:01		+	-	-	-	+	-	-
27	9191	CH1007	*04:05	*10:01	-	-	-	-	-	+	-
28	9320	BEL5GB	*04:16	*07:01	-	-	-	-	-	+	-
29	9050	MOU	*07:01		-	-	-	-	-	+	-
30	9021	RSH	*03:02		+	-	-	-	+	-	-
31	9019	DUCAF	*03:01		+	-	-	-	+	-	-
32	9297	HAG	*13:03		+	-	-	-	+	-	-
33	9098	MT14B	*04:04		-	-	-	-	-	+	-
34	9104	DHIF	*11:01		-	-	-	-	+	-	-
35	9302	SSTO	*04:03		-	-	-	-	-	+	-
36	9024	KT17	*04:03	*04:06	-	-	-	-	-	+	-
37	9065	HHKB	*13:01		+	-	-	-	+	-	-
38	9099	LZL	*14:02		+	-	+	-	+	-	-
39	9315	CML	*03:01	*04:01	+	-	-	-	+	+	-
40	9134	WHONP199	*07:01	*09:01	-	-	+	-	-	+	-
41	9055	H0301	*13:02		+	-	-	-	+	-	-
42	9066	TAB089	*08:03		-	-	-	-	-	-	-
43	9076	T7526	*09:01		-	-	+	-	-	+	-
44	9057	TEM	*14:01		-	+	+	+	+	-	-
45	9239	SHJO	*07:01		-	-	-	-	-	+	-
46	9013	SCHU	*15:01		-	-	-	-	-	-	+
47	9045	TUBO	*11:04	*12:01	-	-	-	-	+	-	-
48	9303	TER-ND	*01:03		-	-	-	-	-	-	-

Lot No.: **44M**

Lot-specific information

[www.olerup-ssp.com](http://www.olerup-ssp.com)

## CERTIFICATE OF ANALYSIS

### Olerup SSP® HLA-A-B-DR SSP Combi Tray

Product number: 101.701-24/06 – including Taq pol.  
 Lot number: 44M  
 Expiry date: 2014-February-01  
 Number of tests: 24 tests – Product No. 101.701-24  
 6 tests – Product No. 101.701-06  
 Number of wells per test: 95 + 1

#### Well specifications:

Well No.	Production No.	Well No.	Production No.	Well No.	Production No.
1	2010-787-01	9	2010-733-09	17	2010-787-17
2	2010-787-02	10	2010-787-10	18	2010-733-18
3	2010-733-03	11	2010-787-11	19	2010-733-19
4	2010-733-04	12	2011-875-12	20	2010-787-20
5	2010-733-05	13	2010-733-13	21	2010-733-21
6	2010-787-06	14	2010-787-14	22	2010-787-22
7	2011-885-07	15	2010-733-15	23	2011-885-23
8	2010-733-08	16	2010-787-16	24	2010-787-24

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

Additional 5'- and 3'-primers in primer solutions 4, 5, 7, 8, 12, 14 to 17 and 20 to 23 were tested by separately adding one 3'-primer, respectively one 5'-primer. Additional 5'-primers in primer solutions 1 and 10 were tested by separately adding one 3'-primer. Additional 3'-primers in primer solutions 3, 6, 18 and 19 were tested by separately adding one 5'-primer.

In primer solutions 2, 10, 11 and 15 one 5'-primer was not possible to test, and in primer solutions 3, 18 and 19 one 3'-primer was not possible to test.

Well No.	Production No.	Well No.	Production No.	Well No.	Production No.
25	2010-734-01	41	2010-734-17	57	2011-823-33
26	2010-734-02	42	2010-734-18	58	2010-734-34
27	2010-788-03	43	2010-788-19	59	2010-734-35
28	2010-734-04	44	2011-823-20	60	2010-788-36
29	2011-858-05	45	2010-734-21	61	2010-734-37
30	2010-734-06	46	2010-734-22	62	2010-788-38
31	2010-734-07	47	2010-734-23	63	2010-734-39
32	2010-734-08	48	2010-788-24	64	2010-734-40
33	2010-734-09	49	2010-788-25	65	2010-734-41
34	2010-734-10	50	2011-823-26	66	2010-734-42
35	2010-734-11	51	2010-734-27	67	2010-734-43
36	2010-734-12	52	2010-734-28	68	2010-734-44
37	2010-734-13	53	2011-858-29	69	2010-734-45
38	2010-734-14	54	2010-734-30	70	2010-734-46
39	2010-788-15	55	2011-886-31	71	2010-734-47
40	2010-734-16	56	2010-734-32	72	2011-886-48

Lot No.: **44M**

Lot-specific information

[www.olerup-ssp.com](http://www.olerup-ssp.com)

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 27, 30, 38, 43, 53, 55 and 64 were tested by separately adding one additional 3'-primer, respectively one additional 5'-primer. Additional 3'-primers in primer solutions 26, 37, 39 and 59 were tested by separately adding one additional 5'-primer. Additional 5'-primers in primer solutions 25, 45, 49 and 72 were tested by separately adding one additional 3'-primer.

In primer mixes 55 and 66 one 5'-primer was not possible to test, and in primer mixes 62 and 66 one 3'-primer was not possible to test.

Well No.	Production No.	Well No.	Production No.	Well No.	Production No.
73	2011-851-01	81	2011-851-09	89	2011-851-17
74	2011-851-02	82	2011-851-10	90	2011-851-18
75	2011-851-03	83	2011-851-11	91	2011-851-19
76	2011-851-04	84	2011-851-12	92	2011-851-20
77	2011-851-05	85	2011-851-13	93	2011-851-21
78	2011-851-06	86	2011-851-14	94	2011-851-22
79	2011-851-07	87	2011-851-15	95	2011-851-23
80	2011-851-08	88	2011-851-16		

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

Additional 5'- and 3'-primers in primer solutions 81, 83 and 90 were tested by separately adding one 3'-primer, respectively one 5'-primer.

Additional 5'-primer in primer solutions 78, 87 and 88 were tested by separately adding one 3'-primer. Additional 3'-primers in primer solutions 73, 75, 76, 82, 84 and 92 were tested by separately adding one 5'-primer.

One, two or three of the 5'-primers in primer solution 73, 75, 76, 80 to 82, 85, 87 and 88 were not possible to test. One or two of the 3'-primers in primer solution 73, 75, 76, 85 and 94 were not possible to test.

The negative control primer pairs, **Production No. 2010-760-01**, can detect contamination with PCR products diluted  $10^{-7}$ .

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

**Date of approval:** 2011-October-06

**Approved by:**

## Production Quality Control

Lot No.: **44M**

Lot-specific information

[www.olerup-ssp.com](http://www.olerup-ssp.com)

## Declaration of Conformity

**Product name:**      *Olerup* SSP® HLA-A-B-DR SSP Combi Tray  
**Product number:**    101.701-24/06  
**Lot number:**          44M

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

**Manufacturer:**        *Olerup* SSP AB  
Franzengatan 5  
SE-112 51 Stockholm, 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 9001:2008 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, Franzengatan 5, SE-112 51 Stockholm, 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.)

Stockholm, Sweden  
2011-October-06

Ann-Cathrin Jareman  
Head of QA and Regulatory Affairs

Lot No.: **44M**

Lot-specific information

[www.olerup-ssp.com](http://www.olerup-ssp.com)

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