

## **Olerup SSP<sup>®</sup> HLA-B low resolution**

Product number:	101.501-48u/12u – without <i>Taq</i> pol.
Lot number:	98M
Expiry date:	2014-July-01
Number of tests:	48 tests – Product No. 101.501-48u 12 tests – Product No. 101.501-12u
Number of wells per test:	47 + 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. 98M.**

### **CHANGES COMPARED TO THE PREVIOUS *OLERUP SSP*<sup>®</sup> HLA-B LOW RESOLUTION LOT**

The HLA-B low resolution specificity and interpretation tables have been updated for the HLA-B alleles reported since the previous *Olerup SSP*<sup>®</sup> HLA-B low resolution lot (**Lot No. 63M**) was made.

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

Changes in revision R01 compared to R00:

1. Primer mix 19 does not amplify the B\*44:10 allele. This has been corrected in the Specificity and Interpretation Tables.

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Lot-specific information

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Well **48** 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>
	<sup>5</sup> -CAC <sup>3</sup>	<sup>5</sup> -Agg <sup>3</sup>	<sup>5</sup> -TTA <sup>3</sup>	<sup>5</sup> -Tgg <sup>3</sup>	<sup>5</sup> -Tgg <sup>3</sup>	<sup>5</sup> -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>
	<sup>5</sup> -TgC <sup>3</sup>	<sup>5</sup> -AAA <sup>3</sup>	<sup>5</sup> -TTg <sup>3</sup>	<sup>5</sup> -CTC <sup>3</sup>	<sup>5</sup> -ggC <sup>3</sup>	<sup>5</sup> -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-B low resolution SSP typing

#### CONTENT

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.

#### PLATE LAYOUT

Each test consists of 48 PCR reactions in a 48 well cut 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

Wells 1 to 47 – HLA-B low resolution primers.

Well 48 – Negative Control.

The 48 well cut PCR plate is marked with ‘HLA-B low’ in silver/gray ink.

Well No. 1 is marked with the Lot No. ‘98M’.

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.

**Please note:** When removing each 48 well PCR plate, make sure that the remaining plates stay covered. Use a scalpel or a similar instrument to carefully cut the foil between the plates.

#### INTERPRETATION

Only HLA-B alleles will be amplified by the HLA-B low resolution typing kit, except that primer mix 1 will amplify the C\*02:23 and C\*04:77 alleles, primer mix 3 will amplify the C\*03:05, C\*03:25 and C\*03:27 alleles, primer mix 4 will amplify the C\*01:30 allele, primer mix 6 will amplify the A\*23:31, A\*24:106 and C\*16:10 alleles, the C\*07:46 allele will be amplified by primer mix 8, primer mix 13 will amplify the A\*24:174 allele, primer mix 17 will amplify the C\*03:102 allele, primer mix 21 will amplify the C\*15:51 allele, primer mix 25 will amplify the C\*03:129 allele, primer mix 29 will amplify the C\*15:25 allele, primer mix 31 will amplify the C\*15:39 allele, primer mix 40 will amplify the C\*15:02:04 allele, primer mix 41 will amplify the C\*03:12, C\*03:19 and C\*03:102 alleles, primer mix 43 will weakly amplify the C\*02:06 and C\*02:47 alleles and primer mix 45 will amplify the A\*26:68, A\*68:56, C\*06:20 and C\*12:50 alleles.

Thus, the interpretation of HLA-B low resolution typings is only influenced by the A\*23:31, A\*24:106, A\*24:174, A\*26:68, A\*68:56, C\*01:30, C\*02:06, C\*02:23, C\*02:47, C\*03:05, C\*03:12, C\*03:19, C\*03:25, C\*03:27, C\*03:102, C\*03:129,

C\*04:77, C\*06:20, C\*07:46, C\*12:50, C\*15:02:04, C\*15:25, C\*15:39, C\*15:51 and C\*16:10 alleles and not by other alleles of other HLA class I genes.

## UNIQUELY IDENTIFIED ALLELES

All the HLA-B alleles recognized by the HLA Nomenclature Committee in October 2011<sup>1</sup> will be amplified by the primers in the HLA-B low resolution SSP kit. The HLA-B alleles will be grouped into their corresponding serological specificities<sup>2,3</sup>.

<sup>1</sup>HLA-B alleles listed on the IMGT/HLA web page 2011-October-10, release 3.6.0, [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla).

<sup>2</sup>It is not possible to identify all serological splits and combinations of the B15 group of alleles, as the serological reactivity of several of the B\*15 alleles is not known.

The resolution has been updated to fulfill the NMDP medium resolution confirmatory typing requirements effective from February 1<sup>st</sup> 2001.

DNA-based HLA-B typing resolution required:

B\*07:xx, B\*08:xx, B\*13:xx, B\*14:xx, B\*18:xx, B\*27:xx, B\*15:22, B\*35:xx, B\*37:xx, B\*38:xx, B\*39:xx, B\*40:05, B\*41:xx, B\*42:xx, B\*44:xx, B\*45:xx, B\*46:xx, B\*47:xx, B\*48:xx, B\*49:xx, B\*50:xx, B\*51:xx, B\*52:xx, B\*53:xx, B\*54:xx, B\*55:xx, B\*56:xx, B\*57:xx, B\*58:xx, B\*59:xx, B\*67:xx, B\*73:xx, B\*78:xx, B\*81:xx, B\*82:xx,

B\*40EJD<sup>a</sup> 40:01, 40:07, 40:10, 40:12, 40:14, 40:15, 40:16

B\*40EJB<sup>b</sup> 40:02, 40:03, 40:04, 40:06, 40:08, 40:09, 40:11, 40:13,  
40:18, 40:19, 40:20

B\*15EJA<sup>c</sup> 15:01, 15:04, 15:05, 15:06, 15:07, 15:20, 15:24, 15:25,  
15:26N, 15:27, 15:28, 15:30, 15:32, 15:33, 15:34, 15:35,  
15:36, 15:38, 15:39, 15:40, 15:43, 15:45

B\*15AHM<sup>d</sup> 15:16, 15:17

B\*15EHZ<sup>e</sup> 15:03, 15:09, 15:10, 15:18, 15:23, 15:29, 15:37, 15:47

B\*15CYP<sup>f</sup> 15:02, 15:08, 15:11, 15:15, 15:21, 15:31, 15:44

B\*15AND<sup>g</sup> 15:12, 15:14, 15:19

B\*15I3<sup>h</sup>

<sup>a</sup>B60 serologic equivalent cluster.

<sup>b</sup>B61 serologic equivalent cluster.

<sup>c</sup>B62 serologic equivalent cluster.

<sup>d</sup>B63 serologic equivalent cluster.

<sup>e</sup>B70 serologic equivalent cluster.

<sup>f</sup>B75 serologic equivalent cluster.

<sup>g</sup>B76 serologic equivalent cluster.

<sup>h</sup>B77 serologic equivalent cluster.

<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\*13:21 and 13:35 and the B\*44:135 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\*35:32:01-35:32:02, 35:37, 35:53N, 35:64, 35:66, 35:68:01-35:68:02, 35:99, 35:118-35:119 and 35:174 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 B\*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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The B\*54:01:02 and the B\*55:01:07, 55:02:01-55:02:06, 55:07, 55:10, 55:12, 55:16, 55:19, 55:26, 55:30, 55:35, 55:37, 55:39, 55:41-55:43, 55:47-55:48 and 55:50 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\*55:04, 55:08, 55:13, 55:27, 55:46 and 55:49 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, 56:31-56:32 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\*57:01:01-57:01:04, 57:01:06-57:01:12, 57:06, 57:08, 57:10, 57:15-57:16, 57:18-57:20, 57:22-57:23, 57:25-57:27, 57:29-57:30, 57:33-57:38, 57:40-57:41, 57:43-57:44, 57:48-57:50 and 57:52 and the B\*58:36 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.

## SPECIFICITY TABLE

### HLA-B low resolution SSP typing

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>1<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, 07:101-07:121, 07:123-07:138, 07:140-07:143, 15:138, 15:230, 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>2</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, 08:66-08:78, 15:142, 15:180, 44:49, 51:68
<b>3</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, 07:131, 08:21, 08:25, 13:01:01-13:04, 13:06-13:08Q, 13:10-13:23, 13:25-13:38, 13:40-13:52, 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, 35:164, 40:05, 40:71, 40:174, 44:08 <sup>W</sup> , 44:54, 44:57 <sup>W</sup> , 44:60, 44:106, 44:110, 44:135, 46:12, 46:20, 51:64, 53:14, 55:51, 58:18, <b>C*03:05, C*03:25, C*03:27</b>
<b>4<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, 13:25-13:52, 14:01:01-14:04, 14:07N, 14:09, 14:11-14:12, 14:14-14:28, 15:46, 15:53, 15:106, 15:212, 18:44, 35:46-35:47, 35:63, 35:154, 40:01:01-40:01:23, 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, 40:160, 40:163-40:164, 40:166, 40:168, 40:171-40:172, 40:175, 41:01-41:19, 44:02:01:01-44:03:06, 44:03:08-44:05:03, 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, 44:112-44:129, 44:132-44:133, 44:135-44:137, 45:01-45:13, 47:01:01:01-47:08, 49:01:01-49:02, 49:04-49:20, 50:01:01-50:02, 50:04-50:06, 50:08-50:15, 57:45, 57:51, <b>C*01:30</b>

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<b>5<sup>B</sup></b>	185 bp, 235 bp	<b>800 bp</b>	7, 16, 17, 27, 2708, 37, 38, 3901, 3902, 39, 64, 67	*14:01:01-14:01:02, 14:07N-14:08, 14:10, 14:12, 14:14, 14:19, 14:26, 27:01-27:05:15, 27:05:17-27:06, 27:08-27:10, 27:12-27:13, 27:16-27:18, 27:20, 27:23, 27:26-27:27, 27:29, 27:31, 27:35-27:37, 27:39-27:42, 27:44-27:46, 27:48-27:61, 27:64N- 27:69, 27:72-27:75, 27:77-27:80, 27:82-27:86, 37:02, 38:01:01-38:02:02, 38:03, 38:07-38:24, 38:26-38:32, 38:34N-38:37, 39:01:01:01- 39:01:01:02L, 39:01:03-39:01:08, 39:01:10-39:02:01, 39:03, 39:05:01-39:09, 39:11, 39:14-39:15, 39:18, 39:19:02, 39:22, 39:24:01-39:44, 39:46-39:48, 39:50-39:62, 39:64-39:68, 47:04-47:05, 48:21, 48:26, 67:01:01, 67:03
<b>6</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, 14:20, 14:22-14:23, 14:25, 14:27, 15:77, 15:189, 15:233, 35:26, 38:05, 38:33, 39:04, 44:16, 44:37, 44:64:01-44:64:02, 44:91, 44:132, 52:26, 57:04, <b>A*23:31, A*24:106, C*16:10</b>
<b>7</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, 15:211, 15:213-15:219, 15:223- 15:225, 15:227-15:228, 15:230-15:234, 15:236, 46:01:01-46:30
<b>8</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, 08:56-08:69, 08:71-08:73, 08:75-08:76, 08:78, 13:46, 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, 15:210, 15:212, 15:220- 15:221, 15:226N, 15:229, 15:235, 35:87, 37:12, 38:30, 40:12, 40:136, 41:01-41:03:02, 41:05-41:09,

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				41:11-41:17, 41:19, 42:01:01-42:02, 42:04-42:08, 42:10-42:15, 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>9<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, 15:216, 15:222, 15:230, 35:01:10, 35:04:02, 40:26, 40:28, 44:62, 49:18, 50:14, 51:01:01-51:01:03, 51:01:05-51:02:03, 51:02:05-51:09:02, 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, 51:100-51:126, 52:01:01:01-52:01:04, 52:01:06-52:13, 52:15-52:24, 52:26-52:27, 56:05:01-56:06, 56:21, 58:08:01-58:08:02, 78:01:01-78:07
<b>10</b>	180 bp	<b>800 bp</b>	13, 22, 55, 60	*07:78, 13:01:01-13:02:12, 13:07N-13:09, 13:11, 13:14-13:20, 13:22:01-13:23, 13:25, 13:27-13:34, 13:36-13:45, 13:47, 13:49N-13:50, 13:52, 40:48, 45:10, 49:07, 55:09, 55:22, 55:24
<b>11<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, 15:210, 15:220, 15:235, 18:37, 27:18, 27:29, 37:28, 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, 44:130, 45:01, 45:05-45:07, 45:11-45:13, 48:01:01-48:05, 48:07-48:27, 49:20, 50:02, 52:16, 55:18, 82:01-82:03
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<b>32<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> , 27:02:01-27:11, 27:13-27:15, 27:17, 27:19-27:21, 27:24-27:28, 27:30-27:38, 27:40-27:58, 27:60-27:76, 27:78-27:86, 35:76, 35:186, 44:90, 44:97, 47:01:01:01-47:03, 47:06-47:08, 54:01:01- 54:24, 55:01:01-55:05, 55:07-55:17, 55:19-55:54, 56:01:01-56:16, 56:18-56:22, 56:24-56:32, 81:01, 82:01-82:03, 83:01
<b>33<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, 15:13:01-15:13:02, 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, 15:213-15:215, 15:223, 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, 48:27, 81:01-81:05
<b>34</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, 49:01:01-49:01:03, 49:04-49:20, 51:112, 54:12, 56:21, 57:45, 57:51, 59:01:01:01-59:05
<b>35<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> , 13:48, 15:04 <sup>W</sup> , 15:16:01-15:16:03, 15:42, 15:67, 15:95, 15:137 <sup>W</sup> , 40:95, 40:148, 40:161, 49:01:01, 49:01:03-49:10, 49:12-49:20, 50:01:01-50:02, 50:04-50:11, 50:13- 50:15, 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, 51:82-51:126, 52:01:01:01- 52:27, 54:20, 55:01:01-55:01:06, 55:01:08, 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, 55:52-55:54, 56:05:01-56:06, 56:21, 56:25, 58:08:01-58:08:02, 78:01:01-78:07
<b>36</b>	430 bp	1070 bp	5, 17, 27, 44, 51, 5102, 5103, 52, 53, 57, 58, 61	*18:67, 27:02:01-27:02:02, 27:30, 27:53, 27:57, 27:62, 27:65N, 27:75, 27:77, 27:83, 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, 51:79-51:126, 52:01:01:01-52:19, 52:21- 52:27, 53:01:01-53:02, 53:04-53:08:02, 53:10, 53:14-53:27, 57:01:01-57:11, 57:13-57:52, 58:01:01- 58:02, 58:04-58:16, 58:18-58:36
<b>37</b>	145 bp	1070 bp	12, 21, 35, 40, 4005, 41, 45, 47, 50, 60, 61	*07:133, 15:46, 15:53, 15:106, 15:143, 15:212, 18:48, 35:19, 35:47, 35:63, 35:154, 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, 40:158-40:177, 41:01-41:04, 41:05 <sup>?</sup> , 41:06-41:19, 44:09, 44:46, 44:75, 44:90,

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				44:129, 44:131, 45:01-45:13, 47:02, 47:03 <sup>W</sup> , 50:01:01-50:02, 50:04-50:05, 50:07-50:15
<b>38</b>	300 bp	1070 bp	7, 12, 13, 15, 17, 18, 21, 27, 2708, 35, 37, 38, 39, 3902, 40, 4005, 41, 44, 45, 47, 48, 49, 50, 52, 60, 61, 62, 70, 72, 76	*07:54, 07:123, 08:17, 08:38, 08:54, 13:01:01-13:04, 13:06, 13:08Q-13:23, 13:25-13:35, 13:37-13:52, 15:01:01:01-15:01:04, 15:01:06-15:01:18, 15:01:20- 15:01:24, 15:03:01-15:07:02, 15:12, 15:14, 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, 15:210-15:212, 15:217-15:220, 15:224-15:225, 15:227-15:228, 15:231-15:236, 18:12, 27:01-27:21, 27:24-27:86, 35:10, 35:13, 35:16, 35:28, 35:63, 35:69, 35:80, 37:01:01-37:07, 37:09-37:31, 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, 40:107-40:165, 40:167-40:177, 41:01-41:19, 42:11, 44:02:01:01-44:05:03, 44:07-44:11, 44:13-44:137, 45:01-45:13, 47:01:01:01-47:08, 48:01:01-48:05, 48:07-48:15, 48:17-48:27, 49:01:01-49:20, 50:01:01- 50:02, 50:04-50:14, 52:01:01:01-52:27, 53:17:01- 53:17:02, 55:18, 55:34, 55:40, 78:05-78:06
<b>39<sup>8,9</sup></b>	160 bp, 330 bp	1070 bp	22, 44, 45, 47, 54	*44:02:01:01-44:02:21, 44:06, 44:08-44:09, 44:11- 44:12, 44:16, 44:19N-44:24, 44:27:01-44:27:02, 44:33-44:34, 44:41:01-44:41:02, 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, 44:116, 44:118- 44:119, 44:121, 44:126-44:127, 44:131-44:132, 44:137, 54:01:01, 54:02-54:24, 83:01
<b>40</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, 15:224, 18:04, 35:08:05, 35:42:02, 35:60, 35:185, 39:17, 39:63, 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, 54:16-54:24, 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, 55:50, 55:52-55:54, 56:05:01, 56:06, 56:10, 56:23,

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				59:01:01:01-59:01:01:02, 59:05, 78:01:01-78:01:02, 78:02:02-78:03, 78:07, <b>C*15:02:04</b>
<b>41</b>	180 bp	1070 bp	12, 15, 21, 22, 44, 45, 49, 50, 51, 56, 61, 62, 82	*13:03, 13:48, 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, 49:08-49:17, 49:19N-49:20, 50:01:01-50:02, 50:04-50:08, 50:10-50:13, 50:15, 51:15, 51:62, 51:106, 52:25, 54:03, 56:01:01-56:02, 56:04, 56:07-56:08, 56:13-56:14, 56:16-56:17, 56:20:01-56:20:02, 56:24-56:30, 59:04, 82:01-82:03, <b>C*03:12, C*03:19, C*03:102</b>
<b>42<sup>6,10</sup></b>	90 bp, 240 bp	<b>800 bp</b>	57	*55:14, 57:01:01-57:44, 57:46-57:50, 57:52, 58:36
<b>43<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, 15:224, 39:17, 40:48, 40:71, 51:62, 52:25, 56:02, 56:04, 56:10, 58:01:01-58:02, 58:04-58:35, <b>C*02:06<sup>w</sup>, C*02:47<sup>w</sup></b>
<b>44<sup>6</sup></b>	95 bp	1070 bp	8, 18, 22, 35, 37, 38, 39, 44, 51, 5102, 5103, 53, 78	*07:65 <sup>w</sup> , 07:134 <sup>w</sup> , 08:32, 18:01:01-18:11, 18:13-18:15, 18:17N-18:36, 18:38-18:47, 18:49-18:65, 18:67-18:68, 35:01:01:01-35:08:04, 35:09:01-35:09:03, 35:11:01-35:12:03, 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, 35:81-35:153, 35:155-35:185, 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, 51:105-51:111, 51:113-51:117, 51:119-51:126, 53:01:01-53:16, 53:18-53:27, 56:06 <sup>w</sup> , 78:01:01-78:04, 78:07
<b>45<sup>6,8</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, 13:41, 15:01:01:01-15:01:04, 15:01:06-15:01:16, 15:01:18-15:01:24, 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, 15:211-15:212, 15:215, 15:217, 15:225, 15:227-15:228, 15:231-15:234, 15:236, 18:19, 27:25, 27:75, 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, 35:163, 35:185, 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, 46:27-46:30, 51:61, 52:21, 54:06, 55:21, 56:03, 73:01-73:02, <b>A*26:68, A*68:56, C*06:20, C*12:50</b>
<b>46</b> <sup>14</sup>	360 bp	1070 bp	Bw4	
<b>47</b>	350 bp	1070 bp	Bw6	
<b>48</b> <sup>15</sup>	-	-		<b>Negative Control</b>

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

In addition, wells number 4 to 6, 10, 17, 20, 21, 30, 35 and 42 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 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\*13:21 and 13:35 and the B\*44:135 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\*35:32:01-35:32:02, 35:37, 35:53N, 35:64, 35:66, 35:68:01-35:68:02, 35:99, 35:118-35:119 and 35:174 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 B\*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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The B\*54:01:02 and the B\*55:01:07, 55:02:01-55:02:06, 55:07, 55:10, 55:12, 55:16, 55:19, 55:26, 55:30, 55:35, 55:37, 55:39, 55:41-55:43, 55:47-55:48 and 55:50 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\*55:04, 55:08, 55:13, 55:27, 55:46 and 55:49 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, 56:31-56:32 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\*57:01:01-57:01:04, 57:01:06-57:01:12, 57:06, 57:08, 57:10, 57:15-57:16, 57:18-57:20, 57:22-57:23, 57:25-57:27, 57:29-57:30, 57:33-57:38, 57:40-57:41, 57:43-57:44, 57:48-57:50 and 57:52 and the B\*58:36 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>Due to sharing of sequence motifs, primer mix 1 will amplify the C\*02:23 and C\*04:77 alleles, primer mix 3 will amplify the C\*03:05, C\*03:25 and C\*03:27 alleles, primer mix 4 will amplify the C\*01:30 allele, primer mix 6 will amplify the A\*23:31, A\*24:106 and C\*16:10 alleles, the C\*07:46 allele will be amplified by primer mix 8, primer mix 13 will amplify the A\*24:174 allele, primer mix 17 will amplify the C\*03:102 allele, primer mix 21 will amplify the C\*15:51 allele, primer mix 25 will amplify the C\*03:129 allele, primer mix 29 will amplify the C\*15:25 allele, primer mix 31 will amplify the C\*15:39 allele, primer mix 40 will amplify the C\*15:02:04 allele, primer mix 41 will amplify the C\*03:12, C\*03:19 and C\*03:102 alleles, primer mix 43 will weakly amplify the C\*02:06 and C\*02:47 alleles and primer mix 45 will amplify the A\*26:68, A\*68:56, C\*06:20 and C\*12:50 alleles.

<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 4 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 4, 5, 9, 39 and 45 give a lower yield of specific PCR product than the other HLA-B low resolution primer mixes.

<sup>9</sup>Primer mixes 9, 20 and 39 may give rise to nonspecific amplifications, most pronounced in primer mix 9.

<sup>10</sup>Primer mixes 1, 15, 19, 20 and 42 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 9.

<sup>12</sup>The C\*17:01 to C\*17:04 alleles might be faintly amplified by primer mix 25.

<sup>13</sup>Primer mixes 32 and 43 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 46.

<sup>15</sup>Primer mix 48 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.

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



INTERPRETATION TABLE																																																						
HLA-B low resolution SSP																																																						
Amplification patterns of the B*07:02 to B*83:01 alleles <sup>15</sup>																																																						
Well																																																						
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48																										Neg. Control					
180	290	105	325	115	215	130	90	90	145	145	430	210	430	160	180	180	90	90	95	115	360	350																										Length of spec. PCR product(s)		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				195		270	410	175						330	210					150																													Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>	
1070	1070	1070	1070	1070	800	1070	1070	1070	1070	1070	1070	1070	1070	1070	1070	1070	800	1070	1070	1070	1070	1070																										Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
5'-Agg 3'				5'-TCT 3'	5'-Tgg 3'	5'-ggg 3'	5'-gTT 3'	5'-AgC 3'	5'-gAA 3'	5'-gAA 3'				5'-Agg 3'	5'-TTA 3'	5'-TTA 3'	5'-ggA 3'	5'-TAC 3'	5'-gAC 3'	5'-TgA 3'																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				499	538	309	299	282	259	309	435	309	311				362	369	206	165																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
5'-ggA 3'	5'-CgT 3'	5'-gTg 3'	5'-gCC 3'	5'-gTC 3'	5'-ATC 3'	5'-TCA 3'	5'-GCC 3'	5'-gTT 3'	5'-ATC 3'	5'-TCT 3'	5'-ATC 3'	5'-ggT 3'	5'-CTC 3'	5'-CCg 3'	5'-ggT 3'	5'-CAG 3'	5'-CCC 3'	5'-CCC 3'	5'-gTT 3'	5'-TgC 3'	5'-ggA 3'	5'-ggT 3'																										Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
	5'-TgT 3'	5'-gCT 3'		572	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
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				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
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				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
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				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
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				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
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				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499		527				538	559		559	420		538																												Neg. Control		Length of int. pos. control <sup>1</sup>		5'-primer(s) <sup>2</sup>		
				538	538	583	418	499																																														

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HLA-B allele <sup>4</sup>	ser. <sup>5</sup>																								
*07:02:01-07:02:29, 07:05:01-07:07, 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, 07:66-07:68:03, 07:70- 07:72, 07:74-07:77, 07:79- 07:80, 07:82-07:83, 07:86- 07:99, 07:101-07:121, 07:124-07:130, 07:132, 07:135N-07:138, 07:140- 07:143	B7, B42, Null, -	1																							24
*07:03, 07:08, 07:16, 07:32, 07:37	B703, B7, -	1																							24
*07:04, 07:25	B7	1													14										24
*07:09, 07:11, 07:17	B7	1											12												24
*07:19, 07:33, 07:40, 07:48, 07:51, 07:53, 07:122, 07:139	B7, 42, -																								24
*07:20, 07:24, 07:131	B7, -	1		3																					24
*07:27	-	1										11									20				
*07:28	B7	1				6																			24
*07:36, 07:81	B7, -	1																							
*07:38	-	1																							
*07:47	B7	1																							24
*07:50	-	1										11													24
*07:54, 07:123	B7, -	1																							24
*07:60	-			3																					24
*07:65	-	1																		18					
*07:69, 07:85	-	1																						23	24
*07:73	-	1															16								24
*07:78	-	1										10													24
*07:84	-	1																							24
*07:100	-			3																					24
*07:133	-	1																							24
*07:134	-	1																		18					24
Well No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

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			28																			47		B7, B42, Null, –	*07:02:01-07:02:29, 07:05:01-07:07, 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, 07:66-07:68:03, 07:70-07:72, 07:74-07:77, 07:79-07:80, 07:82-07:83, 07:86-07:99, 07:101-07:121, 07:124-07:130, 07:132, 07:135N-07:138, 07:140-07:143	
																						47		B703, B7, –	*07:03, 07:08, 07:16, 07:32, 07:37	
		27	28																				47		B7	*07:04, 07:25
			28																				47		B7	*07:09, 07:11, 07:17
																							47		B7, 42, –	*07:19, 07:33, 07:40, 07:48, 07:51, 07:53, 07:122, 07:139
																							47		B7, –	*07:20, 07:24, 07:131
																						46			–	*07:27
			28																				47		B7	*07:28
			28																				46		B7, –	*07:36, 07:81
																							46		–	*07:38
			w																				47		B7	*07:47
																							47		–	*07:50
			28										38										47		B7, –	*07:54, 07:123
			28																				47		–	*07:60
			28				32								40				w				47		–	*07:65
																							47		–	*07:69, 07:85
			28																				47		–	*07:73
			28										35										47		–	*07:78
			28										35										47		–	*07:84
			28																			45	47		–	*07:100
			28										37										47		–	*07:133
			28																	w			47		–	*07:134
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48		Well No.	

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*08:01:01-08:01:16, 08:05, 08:08N, 08:10- 08:12:03, 08:15-08:16, 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, 08:66-08:69, 08:71- 08:73, 08:75	B8, -, Null		2						8																24
*08:02-08:03, 08:52, 08:78	B8, -		2						8																
*08:04	B8, -		2						8			11													24
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*08:09	B8		2						8																24
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*08:17, 08:54	-		2						8			11													24
*08:21	B8		2	3					8																24
*08:25	B8		2	3																					24
*08:26, 08:50, 08:62, 42:07 <sup>6</sup>	B8, -								8																24
*08:28, 08:37	B8, -		2										12												24
*08:32	B8		2						8										18						24
*08:35	-		2						8				12												24
*08:36	-		2						8																
*08:38	-		2						8																24
*08:49	-		2															17			20				24
*08:55	-		2																			21			24
*08:60, 08:76	-		2						8																24
*08:65	-								8															23	24
*13:01:01-13:01:06, 13:17, 13:20, 13:22:01- 13:23, 13:25, 13:28- 13:29, 13:43, 13:50, 13:52	B13, -			3	4							10							17						
*13:02:01-13:02:12, 13:08Q, 13:15, 13:18- 13:19, 13:27, 13:30, 13:32-13:34, 13:37-13:38, 13:40, 13:42, 13:44- 13:45, 13:47, 13:49N	B13, Null, -			3	4							10													
*13:03	B15, B49			3	4																				
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		27																				47		B8, -, Null	*08:01:01-08:01:16, 08:05, 08:08N, 08:10-08:12:03, 08:15-08:16, 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, 08:66-08:69, 08:71-08:73, 08:75	
		27																			46			B8, -	*08:02-08:03, 08:52, 08:78	
		27																				47			B8, -	*08:04
		27																				47			B8, -	*08:07, 08:14, 08:74, 08:77
		27		30																		47			B8	*08:09
																						47			B8, -	*08:13, 08:20, 08:40, 08:70
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		27																				47			B8, -	*08:28, 08:37
		27																	44			47			B8	*08:32
		27																				47			-	*08:35
		27																				47			-	*08:36
		27											38									47			-	*08:38
		27		29																		47			-	*08:49
																						47			-	*08:55
		27		29																		47			-	*08:60, 08:76
		27																				47			-	*08:65
													38									46			B13, -	*13:01:01-13:01:06, 13:17, 13:20, 13:22:01-13:23, 13:25, 13:28-13:29, 13:43, 13:50, 13:52
													38									46			B13, Null, -	*13:02:01-13:02:12, 13:08Q, 13:15, 13:18-13:19, 13:27, 13:30, 13:32-13:34, 13:37-13:38, 13:40, 13:42, 13:44-13:45, 13:47, 13:49N
												38				41						46			B15, B49	*13:03
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*13:04, 13:10	B13, B15, B49			3	4								12												
*13:06	B13			3	4													17							
*13:07N	Null			3	4						10							17							
*13:09	–				4						10														
*13:11	B13			3	4						10														
*13:12-13:13, 13:51	B13, –			3	4													17							
*13:14	B13			3							10														
*13:16	B13			3	4						10														
*13:21, 13:35, 44:135 <sup>7</sup>	–			3	4																				
*13:26	–			3	4								12					17							
*13:31	–			3	4						10														
*13:36	–			3	4						10							17							
*13:39	–				4						10							17							
*13:41	–			3	4						10														
*13:46	–			3	4				8																
*13:48	–			3	4																				
*14:01:01-14:01:02, 14:07N, 14:12, 14:14, 14:19, 14:26	B64, Null, –				4	5																		23	24
*14:02:01-14:02:02, 14:02:04, 14:03-14:04, 14:09, 14:11, 14:15- 14:18, 14:20, 14:22- 14:23, 14:25, 14:27	B14, B65, –				4		6																	23	24
*14:02:03, 14:02:06, 14:24, 14:28	B65, –				4																			23	24
*14:02:05	B65				4		6																	23	
*14:05-14:06:02, 14:13	B14, –						6																	23	24
*14:08, 39:25N, 39:30, 39:32-39:34, 39:47, 39:50 <sup>8</sup>	B16, B39, Null, –					5																		23	24
*14:10	–					5												17						23	24
*14:21	–				4																				24
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													38									46			B13, B15, B49	*13:04, 13:10
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													38										46		-	*13:26
										w			38									45	46		-	*13:31
								33															46		-	*13:36
													38										47		-	*13:39
													38									45	46		-	*13:41
					30								38										46		-	*13:46
										35			38			41							46		-	*13:48
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*15:43	B15							7					12							19					
*15:45	B62			3				7												19					
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*15:54	B72								8			11	12							19					
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*15:57	B62							7					12							19					
*15:62	–								8			11	12					17		19					
*15:64	B71								8			11	12							19					
*15:66	B62							7					12		14					19					
*15:68	–			3								11	12												
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*15:73	B62							7												19					
*15:74	B72								8				12							19					
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*15:77	B62						6	7										17	19						
*15:80	B70								8				12		14			17	19						
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*15:116	B62							7					12							19					
*15:124	B71								8				12		14					19					
*15:137	–							7												19					
*15:138	–	1						7					12							19					
*15:142	–		2					7					12							19					
*15:143	–							7	8				12							19					
*15:144	–							7					12					17	19						
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*15:186	–								8				12		14					19		21			
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								33												45	47			-	*15:189
												38								45	47			-	*15:202
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*18:19	B18												12			15			18						
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*18:49	-												12			15									
*18:54	-												12	13		15				20					
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																			44		46			B18	*18:09
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*35:08:05	–												12					17							
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*40:01:11	-				4																				24
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	26											37											47		B61, -	*40:08
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												37	38										47		B61, -	*40:10:01-40:10:02, 40:22N, 40:30, 40:33- 40:34, 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, 40:160, 40:163, 40:168, 40:171-40:172, 40:175
25	?											37	38										47		B60, Null, -	*40:12
	26									34	36	38											46		-	*40:13
	?											37	38										47		B60, -	*40:14:01-40:14:03, 40:121, 40:129, 40:164
	?											37	38										47		B40, -	*40:15, 40:32
												37	38										47		B61	*40:16
	?									34	36	38											46		B61	*40:19
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48		Well No.	

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*40:21, 40:137	B40, B15, –																								?	
*40:23	B40	1			4																					24
*40:25, 40:69, 40:106	B40, B60, –				4																					?
*40:26	B21									9																?
*40:28	–									9								17								?
*40:31, 40:45, 40:80	B60, –				4																					?
*40:38, 40:52	B60				4								12													?
*40:40	B61																									
*40:44, 40:75, 40:86, 40:103, 40:127, 40:131, 40:162, 40:165, 40:167	B61, –																									24
*40:46	B60											11					16									?
*40:47	B40				4																					
*40:48	B60				4							10														?
*40:53, 40:72:02	B61, B60				4																					24
*40:58	B40				4																					?
*40:59-40:60	B40, –				4								12													24
*40:68	–																									?
*40:71	B61				3																					?
*40:74, 40:149	B60, –																									?
*40:76	B60				4																					
*40:83, 40:177	–																									24
*40:93	–											11					16									24
*40:95	–																									?
*40:96	–																									24
*40:98	–	1																								?
*40:105	–												12													?
*40:109	–																									24
*40:110	–				4																					24
*40:117	–				4																					
*40:132	–				4																					?
*40:135	–				4																					
*40:136	–	1			4				8						14											?
*40:138	–																									24
*40:148, 40:161	–																									24
*40:157	–																									
*40:158	–	1			4								12													?
*40:159	–												12													24
*40:166	–				4																					?
*40:170	–																									?
*40:174	–				3																					?
*41:01, 41:06-41:07, 41:12, 41:14, 41:16-41:17	B41, –				4				8																	24
Well No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	

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25												38										47		B40, B15, –	*40:21, 40:137
25												37	38									47		B40	*40:23
25	?											37										47		B40, B60, –	*40:25, 40:69, 40:106
	?											37	38									47		B21	*40:26
	?				31							37	38									47		–	*40:28
	?							33				37	38									47		B60, –	*40:31, 40:45, 40:80
25	?											37	38									47		B60	*40:38, 40:52
												37	38									47		B61	*40:40
	?											37	38									47		B61, –	*40:44, 40:75, 40:86, 40:103, 40:127, 40:131, 40:162, 40:165, 40:167
25												38										47		B60	*40:46
25	?											38									46			B40	*40:47
25	?											37	38				43					47		B60	*40:48
	?											37	38									47		B61, B60	*40:53, 40:72:02
	?											37	38		40							47		B40	*40:58
25												37	38									47		B40, –	*40:59-40:60
	?											37										47		–	*40:68
	?											37	38			41		43				47		B61	*40:71
25	?											37	38									47		B60, –	*40:74, 40:149
25	?											38												B60	*40:76
												37	38									47		–	*40:83, 40:177
												38										47		–	*40:93
	?									35		37	38									47		–	*40:95
	?											38										46		–	*40:96
	?											37	38									47		–	*40:98
	?											37	38									47		–	*40:105
	?									34	36	38										46		–	*40:109
	?											38										46		–	*40:110
25	?									34	36	38										46		–	*40:117
25	?			29								37	38									47		–	*40:132
25	?											37	38									47		–	*40:135
	?	27										37	38									47		–	*40:136
25												37	38									47		–	*40:138
	?									35		37	38									47		–	*40:148, 40:161
	?											38										46		–	*40:157
	?											37	38									47		–	*40:158
	?											37	38									47		–	*40:159
25	?		28									37										47		–	*40:166
25												37	38									47		–	*40:170
	?											37	38									47		–	*40:174
	27				30							37	38									47		B41, –	*41:01, 41:06-41:07, 41:12, 41:14, 41:16-41:17
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48		Well No.

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*41:02:01-41:03:02, 41:11, 41:13, 41:15, 41:19	B41, –				4				8																24
*41:04, 41:10, 41:18	B41, –				4																				24
*41:05	B41				4				8																24
*41:08	B41	1			4				8						14										24
*41:09, 45:02-45:03 <sup>10</sup>	B45, –				4				8																24
*42:01:01-42:02, 42:06, 42:10, 42:12, 42:14-42:15	B42, –								8																24
*42:04	B42								8																24
*42:05:01-42:05:02	B42	1							8						14										24
*42:08	B42								8																24
*42:09	B42												12												24
*42:11	–								8			11													24
*42:13	–								8																24
*42:16	–																								24
*44:02:01:01-44:02:21, 44:11, 44:19N, 44:21- 44:24, 44:27:01-44:27:02, 44:33-44:34, 44:48, 44:52N, 44:55, 44:59, 44:63, 44:66-44:68, 44:71- 44:74, 44:80, 44:84, 44:86-44:87, 44:89, 44:93, 44:101-44:102, 44:104, 44:112-44:113, 44:116, 44:118-44:119, 44:121, 44:126, 44:137	B44, Null, –				4													17							
*44:03:01-44:03:06, 44:03:08-44:05:03, 44:13, 44:26, 44:28:01-44:30, 44:32, 44:35-44:36, 44:38- 44:39, 44:42, 44:45, 44:51, 44:56N, 44:58N, 44:61N, 44:69-44:70, 44:76-44:79, 44:82, 44:85, 44:88, 44:92, 44:94, 44:96, 44:98, 44:105, 44:107-44:109, 44:114-44:115, 44:117, 44:120, 44:122-44:125, 44:128, 44:133, 44:136	B44, Null, –				4													17							
*44:03:07, 44:07, 44:81, 44:103, 44:111, 44:134	B44, –																	17							
*44:06	B44																	17							
*44:08	B44			w														17							
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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		27										37	38									47		B41, -	*41:02:01-41:03:02, 41:11, 41:13, 41:15, 41:19			
		27										37	38									47		B41, -	*41:04, 41:10, 41:18			
		27		30								?	38									47		B41	*41:05			
		27										37	38									47		B41	*41:08			
				30								37	38									47		B45, -	*41:09, 45:02-45:03 <sup>10</sup>			
		27	28																			47		B42, -	*42:01:01-42:02, 42:06, 42:10, 42:12, 42:14-42:15			
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		27	28																			47		B42	*42:05:01-42:05:02			
			28																			47		B42	*42:08			
		27	28																			47		B42	*42:09			
		27											38									47		-	*42:11			
		27	28	29																		47		-	*42:13			
		27	28																			47		-	*42:16			
																								Negative Control	B44, Null, -	*44:02:01:01-44:02:21, 44:11, 44:19N, 44:21- 44:24, 44:27:01-44:27:02, 44:33-44:34, 44:48, 44:52N, 44:55, 44:59, 44:63, 44:66-44:68, 44:71- 44:74, 44:80, 44:84, 44:86-44:87, 44:89, 44:93, 44:101-44:102, 44:104, 44:112-44:113, 44:116, 44:118-44:119, 44:121, 44:126, 44:137		
				29								38	39								46						*44:03:01-44:03:06, 44:03:08-44:05:03, 44:13, 44:26, 44:28:01-44:30, 44:32, 44:35-44:36, 44:38- 44:39, 44:42, 44:45, 44:51, 44:56N, 44:58N, 44:61N, 44:69-44:70, 44:76-44:79, 44:82, 44:85, 44:88, 44:92, 44:94, 44:96, 44:98, 44:105, 44:107-44:109, 44:114-44:115, 44:117, 44:120, 44:122-44:125, 44:128, 44:133, 44:136	
				29								38									46						B44, -	*44:03:07, 44:07, 44:81, 44:103, 44:111, 44:134
				29	30						36		39					44			46						B44	*44:06
				29								38	39								46						B44	*44:08
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48				Well No.	

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*44:09	B45				4													17							
*44:10	B44				4							11						17							
*44:12	B44				4													17							
*44:14	B44				4				8									17							
*44:15	B12				4				8			11													
*44:16, 44:91, 44:132	B47, B44, –				4		6											17							
*44:17, 44:43:01-44:43:02	B44, –				4								12	13				17							
*44:18	B44				4				8			11													
*44:20, 44:100	B44, –				4				8																
*44:25, 44:50	B44				4													17							
*44:31	B44				4																				
*44:37, 44:64:01-44:64:02	B44, –				4		6											17							
*44:40, 44:130	B44, –											11					16	17							
*44:41:01-44:41:02, 44:53, 44:99	B44, –				4																				
*44:44	B44											11					16	17							
*44:46, 44:75, 44:129	B12, –				4													17							
*44:47, 44:65	B44, –				4																				
*44:49	B44		2		4													17							
*44:54	B44			3	4																				
*44:57	–			w														17							
*44:60, 44:110	–			3	4													17							
*44:62	–				4				8	9								17							
*44:83	–																	17							
*44:90	–				4													17							
*44:95	–				4													17							
*44:97	–				4													17							
*44:106	–			3	4																				
*44:127	–				4													17							
*44:131	–																	17							
*45:01, 45:05, 45:07, 45:11-45:13	B45, –				4				8			11													24
*45:04	B21				4				8																24
*45:06	B45				4				8			11													24
*45:08	–				4				8																24
*45:09	–				4				8				12	13											24
*45:10	–				4				8		10														24
*46:01:01-46:01:07, 46:04- 46:05, 46:07N, 46:09- 46:10, 46:14-46:16, 46:22- 46:24, 46:27-46:30	B46, Null, –							7					12												
*46:02	B46							7					12												
*46:03, 46:08, 46:13:01- 46:13:03, 46:19, 46:21:01- 46:21:02, 46:25-46:26	B46, –							7					12												
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				29								37	38	39								47		B45	*44:09
				29									38			41						46		B44	*44:10
				29										39								46		B44	*44:12
				29									38									46		B44	*44:14
					30								38			41						46		B12	*44:15
				29									38	39								46		B47, B44, –	*44:16, 44:91, 44:132
				29									38									46		B44, –	*44:17, 44:43:01-44:43:02
					30				34				38			41						46		B44	*44:18
				29	30								38	39								46		B44, –	*44:20, 44:100
				29					34		36		38									46		B44	*44:25, 44:50
25				29									38									46		B44	*44:31
													38									46		B44, –	*44:37, 44:64:01-44:64:02
				29									38									46		B44, –	*44:40, 44:130
				29									38	39								46		B44, –	*44:41:01-44:41:02, 44:53, 44:99
				29									38	39								46		B44	*44:44
				29								37	38									47		B12, –	*44:46, 44:75, 44:129
				29									38									46		B44, –	*44:47, 44:65
				29									38	39								46		B44	*44:49
				29									38									46		B44	*44:54
				29									38									46		–	*44:57
				29									38									46		–	*44:60, 44:110
				29									38									46		–	*44:62
				29									38	39								46		–	*44:83
				28	29		32					37	38	39								47		–	*44:90
				29					34		36		38	39								46		–	*44:95
				28	29		32						38	39								46		–	*44:97
				29									38	39								46		–	*44:106
				29									38	39										–	*44:127
				29								37	38	39								47		–	*44:131
					30							37	38			41						47		B45, –	*45:01, 45:05, 45:07, 45:11-45:13
					30							37	38			41						47		B21	*45:04
				28	30							37	38			41						47		B45	*45:06
					30							37	38		40							47		–	*45:08
					30							37	38									47		–	*45:09
					30							37	38									47		–	*45:10
				28		31																45	47	B46, Null, –	*46:01:01-46:01:07, 46:04 46:05, 46:07N, 46:09- 46:10, 46:14-46:16, 46:22 46:24, 46:27-46:30
				w		31																45	47	B46	*46:02
				28		31																	47	B46, –	*46:03, 46:08, 46:13:01- 46:13:03, 46:19, 46:21:01- 46:21:02, 46:25-46:26
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48		Well No.

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*46:06	–							7					12												
*46:11	B22							7																	
*46:12, 46:20	–			3				7					12												
*46:17	–							7					12	13											
*46:18	–							7																	
*47:01:01-47:01:02, 47:06-47:08	B47, –				4																				
*47:02	B47				4																				
*47:03	B47				4																				
*47:04-47:05	B17, –				4	5																			
*48:01:01-48:01:03, 48:04, 48:07, 48:09, 48:11, 48:19-48:20, 48:22, 48:24, 48:27	B48, –												11												24
*48:02:01-48:02:02, 48:25	B48, B70, –												11	12				17							24
*48:03:01-48:03:02, 48:17	B48, –												11												24
*48:05, 48:08	B48, –	1											11												24
*48:06	–																								24
*48:10, 48:12-48:13	B48, –												11												24
*48:14	B48												11	12											24
*48:15	B48	1											11												24
*48:16	B48												11												24
*48:18	B48												11												24
*48:21, 48:26	–					5							11												24
*48:23	–												11	12											24
*49:01:01, 49:01:03, 49:06, 49:08-49:10, 49:12- 49:17, 49:19N	B49, Null, –				4																				
*49:01:02, 49:11	B49, –				4																				
*49:02	B49				4																				
*49:03	B49				4																				
*49:04-49:05	B49				4								12												
*49:07	–				4							10													
*49:18	–				4					9															
*49:20	–				4							11													
*50:01:01-50:01:03, 50:04- 50:05, 50:08, 50:10- 50:11, 50:13	B50, –				4																				24
*50:02	B45				4							11													24
*50:06	–				4																				24
*50:07	–				4																				24
*50:09	–				4																				24
*50:12	–				4																				24
*50:14	–				4					9															24
*50:15	–				4																				24
Well No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24



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*51:01:01, 51:01:03, 51:01:05-51:01:08, 51:01:10-51:01:20, 51:01:22-51:01:24, 51:01:26-51:02:01, 51:02:03, 51:02:05-51:03, 51:07:01, 51:09:01, 51:11N-51:12, 51:13:02- 51:14, 51:16-51:19, 51:21- 51:23, 51:26-51:33, 51:38- 51:41N, 51:43, 51:48- 51:53, 51:55, 51:57- 51:58, 51:60, 51:65- 51:67, 51:69-51:77, 51:79- 51:80, 51:82-51:88, 51:90- 51:91, 51:94-51:96, 51:98N, 51:100, 51:102, 51:105, 51:107-51:111, 51:113-51:115, 51:117, 51:120-51:126	B51, -, B5102, B5103, Null, -									9																
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*51:06:01-51:06:02, 51:59	B51, -									9																
*51:08, 51:20, 51:44N	B51, Null								8	9																
*51:10	B51																								24	
*51:15	-																									
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*51:54, 51:78	-									9																
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*51:64	-				3					9																
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										35	36								44		46			B51	*51:01:09	
					30					35	36								44		46			B51, -	*51:01:21, 51:01:25, 51:24:03-51:24:04	
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					30					35	36								44		46			B51	*51:24:02	
					30					35	36								44		46			B51	*51:36	
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*51:68	-		2							9															
*51:81	-																								
*51:93	-																								
*51:97	-								8	9		12													
*51:101	-									9												21			
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*51:106	-									9															
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*52:01:10	-									9													22		
*52:16	-									9	11														
*52:19	-								8	9															
*52:20	-									9															
*52:21	-									9															
*52:25	-																								
*52:26	-					6				9															
*53:01:01-53:01:05, 53:05, 53:08:01-53:08:02, 53:10, 53:15-53:16, 53:18, 53:20-53:21, 53:23- 53:27	B53, -												12					17							
*53:02	B53												12					17							
*53:03, 53:09, 53:11- 53:13	B53, B35												12					17							
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					30					35	36								44		46			-	*51:68
					30						36								44		46			-	*51:81
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					30					35	36								44		46			-	*51:97
					30					35	36								44		46			-	*51:101
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					30				34	35	36											46		-	*51:112
										35	36		38									46		B52, -	*52:01:01:01-52:01:01:02, 52:01:03, 52:01:06- 52:01:08, 52:04-52:05, 52:07-52:08, 52:10:01- 52:13, 52:15, 52:17- 52:18, 52:22-52:24, 52:27
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										35	36		38									46		-	*52:16
					30					35	36		38									46		-	*52:19
										35			38									46		-	*52:20
					30					35	36		38								45	46		-	*52:21
										35	36		38			41		43				46		-	*52:25
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*54:01:02, 55:01:07, 55:02:01-55:02:06, 55:07, 55:10, 55:12, 55:16, 55:19, 55:26, 55:30, 55:35, 55:37, 55:39, 55:41-55:43, 55:47-55:48, 55:50 <sup>11</sup>	B54, B55, –																								
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*54:20	–																								
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*55:14	–												12					17							
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*55:18	–											11													
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*55:21	B55																								
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*55:34	–																								
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*56:07	B56																								
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			28				32								40							47		B54, B55, –	*54:01:02, 55:01:07, 55:02:01-55:02:06, 55:07, 55:10, 55:12, 55:16, 55:19, 55:26, 55:30, 55:35, 55:37, 55:39, 55:41-55:43, 55:47-55:48, 55:50 <sup>11</sup>
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			28				32							39									47	B54	*54:11
			28				32	34						39	40								46	–	*54:12
			28				32		35					39	40								47	–	*54:20
			28				32		35						40								47	B55, –	*55:01:01-55:01:06, 55:01:08, 55:03, 55:05, 55:11, 55:15, 55:25, 55:29, 55:31, 55:33, 55:36, 55:38, 55:44-55:45, 55:52-55:54
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			28				32		35														47	B22, B55	*55:09, 55:24
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			28				32		35														47	B55, –	*55:17, 55:28
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			28				32		w						40							45	47	B55	*55:21
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			28				32									41							47	B56, Null, –	*56:01:01-56:01:04, 56:08, 56:14, 56:16, 56:20:01, 56:24, 56:26-56:30
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			28				32									41						46		B56	*56:07
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*56:09	B56												12					17							
*56:10	B55																								
*56:11-56:12	B56, B22																	17							
*56:13	B56								8																
*56:17	B56																								
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*56:21	-									9															
*56:23	-																								
*56:25	-																								
*57:01:01-57:01:04, 57:01:06-57:01:12, 57:06, 57:08, 57:10, 57:15- 57:16, 57:18-57:20, 57:22- 57:23, 57:25-57:27, 57:29- 57:30, 57:33-57:38, 57:40- 57:41, 57:43-57:44, 57:48- 57:50, 57:52, 58:36 <sup>14</sup>	B57, -												12					17							
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*57:04	B57						6											17							
*57:07	B57																	17							
*57:09	B57								8									17							
*57:12	B57																	17							
*57:14	-												12					17							
*57:24	-												12					17							
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*58:01:03, 58:02, 58:06, 58:16, 58:25-58:26	B58, -												12												
*58:07	B58												12	13											
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*58:09	B17												12					17							
*58:17N	Null												12					17							
*58:18	-			3									12												
*58:20	-																								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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			28				32																47	B56	*56:09
			28				32								40		43						47	B55	*56:10
			28				32																47	B56, B22	*56:11-56:12
			28		30		32									41							47	B56	*56:13
																41							47	B56	*56:17
			28				32									41							47	-	*56:20:02
			28				32			34	35												46	-	*56:21
															40								47	-	*56:23
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				29							36						42						46	B57	*57:07
				29							36						42						46	B57	*57:09
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											36							43					46	-	*58:18
											36							43					46	-	*58:20
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48		Well No.

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*58:27	–																								
*58:28, 58:34	–																	17							
*59:01:01:01-59:01:01:02, 59:05	B59, –																								
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*67:01:01, 67:03	B67, –					5																21		24	
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*73:01-73:02	B73, –																								24
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*83:01	–																	17							
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C *02:06, C *02:47																									
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C *07:46									8																
C *15:02:04																									
C *15:25																									
C *15:39																									
C *15:51																							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

Lot No.: **98M**

Lot-specific information

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25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48		Well No.	
										36							43			46				-	*58:27	
										36							43			46				-	*58:28, 58:34	
									34					40						46				B59, -	*59:01:01:01-59:01:01:02, 59:05	
									34											46				B59, -	*59:02-59:03	
									34						41					46				-	*59:04	
			28																			47		B67, -	*67:01:01, 67:03	
			28																			47		B67, -	*67:01:02-67:02	
			28																		45	47		B73, -	*73:01-73:02	
										35					40				44			47		B78, -	*78:01:01-78:01:02, 78:02:02-78:03, 78:07	
										35									44			47		B78, B35	*78:02:01, 78:04	
										35				38								47		-	*78:05	
										35				38								47		-	*78:06	
			28				32	33														47		B81	*81:01	
			28					33														47		B81	*81:02	
			28					33														47		Null, -	*81:03-81:05	
			28				32									41						47		B82, -	*82:01-82:03	
			28	29			32								39							47		-	*83:01	
																										A *23:31, A *24:106, C *16:10
																										A *24:174
																					45					A *26:68, A *68:56, C *06:20, C *12:50
																										C *01:30
																		w								C *02:06, C *02:47
																										C *02:23, C *04:77
																										C *03:05, C *03:25, C *03:27
																	41									C *03:12, C *03:19
																41										C *03:102
25																										C *03:129
																										C *07:46
															40											C *15:02:04
				29																						C *15:25
						31																				C *15:39
																										C *15:51
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48		Well No.	

<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-B low resolution typing. In addition, wells number 4 to 6, 10, 17, 20, 21, 30, 35 and 42 contain the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to allow kit identification.

Lot No.: **98M**

Lot-specific information

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<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\*35:43:02 allele has been renamed B\*35:185.

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 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.

<sup>7</sup>The B\*13:21 and 13:35 and the B\*44:135 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\*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>9</sup>The B\*18:29 and the B\*35:32:01-35:32:02, 35:37, 35:53N, 35:64, 35:66, 35:68:01-35:68:02, 35:99, 35:118-35:119 and 35:174 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>10</sup>The B\*41:09 and the B\*45:02 and B\*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.

<sup>11</sup>The B\*54:01:02 and the B\*55:01:07, 55:02:01-55:02:06, 55:07, 55:10, 55:12, 55:16, 55:19, 55:26, 55:30, 55:35, 55:37, 55:39, 55:41-55:43, 55:47-55:48 and 55:50 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.

Lot No.: **98M**

Lot-specific information

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<sup>12</sup>The B\*55:04, 55:08, 55:13, 55:27, 55:46 and 55:49 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>13</sup>The B\*55:23 and 55:32 and the B\*56:18, 56:31-56:32 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>14</sup>The B\*57:01:01-57:01:04, 57:01:06-57:01:12, 57:06, 57:08, 57:10, 57:15-57:16, 57:18-57:20, 57:22-57:23, 57:25-57:27, 57:29-57:30, 57:33-57:38, 57:40-57:41, 57:43-57:44, 57:48-57:50 and 57:52 and the B\*58:36 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>15</sup>Primer mix 48 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.

‘ser’, serological HLA specificity.

‘w’, might be weakly amplified.

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

<b>CELL LINE VALIDATION SHEET</b>																				
<b>HLA-B low resolution SSP kit</b>																				
				Prod. No.:	Well															
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
					201190001	201190002	201190003	201190004	201190005	201190006	201190007	201190008	201190009	201190010	201190011	201190012	201190013	201190014	201190015	201190016
	IHWC cell line	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		-	-	-	+	-	-	-	-	-	+	-	-	-	-		



<b>CELL LINE VALIDATION SHEET</b>																				
<b>HLA-B low resolution SSP kit</b>																				
				Prod. No.:	Well															
					17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
					201190017	201190018	201190019	201195520	201190021	201190022	201190023	201190024	201190025	201190026	201190027	201190028	201190029	201190030	201190031	201190032
	<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	+	+	-	-	-	-	-	-	-	-	-	-	+	-	-	-

<b>CELL LINE VALIDATION SHEET</b>																				
<b>HLA-B low resolution SSP kit</b>																				
				Prod. No.:	Well															
					33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	
					201190033	201190034	201190035	201190036	201190037	201190038	201190039	201190040	201190041	201190042	201190043	201190044	201190045	201190046	201190047	
	<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	-	-	-	-	-	+	-	-	-	-	-	+	-	+	+	

## CERTIFICATE OF ANALYSIS

### Olerup SSP® HLA-B low resolution SSP

Product number: 101.501-48u/12u – without *Taq* pol.

Lot number: 98M

Expiry date: 2014-July-01

Number of tests: 48 tests – Product No. 101.501-48u

12 tests – Product No. 101.501-12u

Number of wells per test: 47 + 1

#### Well specifications:

Well No.	Production No.	Well No.	Production No.	Well No.	Production No.
1	2011-900-01	17	2011-900-17	33	2011-900-33
2	2011-900-02	18	2011-900-18	34	2011-900-34
3	2011-900-03	19	2011-900-19	35	2011-900-35
4	2011-900-04	20	2011-955-20	36	2011-900-36
5	2011-900-05	21	2011-900-21	37	2011-900-37
6	2011-900-06	22	2011-900-22	38	2011-900-38
7	2011-900-07	23	2011-900-23	39	2011-900-39
8	2011-900-08	24	2011-900-24	40	2011-900-40
9	2011-900-09	25	2011-900-25	41	2011-900-41
10	2011-900-10	26	2011-900-26	42	2011-900-42
11	2011-900-11	27	2011-900-27	43	2011-900-43
12	2011-900-12	28	2011-900-28	44	2011-900-44
13	2011-900-13	29	2011-900-29	45	2011-900-45
14	2011-900-14	30	2011-900-30	46	2011-900-46
15	2011-900-15	31	2011-900-31	47	2011-900-47
16	2011-900-16	32	2011-900-32		

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 3, 6, 14, 19, 29, 31 and 40 were tested by separately adding one additional 3'-primer, respectively one additional 5'-primer. Additional 3'-primers in primer solutions 2, 13, 15 and 35 were tested by separately adding one additional 5'-primer. Additional 5'-primers in primer solutions 1, 21 and 25 were tested by separately adding one additional 3'-primer. In primer solution 31, one 5'-primer was not possible to test, in primer solution 38, one 3'-primer was not possible to test, and in primer solution 42, one 5'-primer and one 3'-primer was not possible to test.

The negative control primer pairs, **Production No. 2011-917-01**, can detect contamination with PCR products diluted  $10^{-7}$ .

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

**Date of approval:** 2012-January-09

**Approved by:**

#### Production Quality Control

Lot No.: **98M**

Lot-specific information

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

## Declaration of Conformity

**Product name:** *Olerup* SSP® HLA-B low resolution  
**Product number:** 101.501-48u/12u  
**Lot number:** 98M

**Intended use:** HLA-B low resolution histocompatibility 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.

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  
2012-January-09

Ann-Cathrin Jareman  
Head of QA and Regulatory Affairs







Lot No.: **98M**

Lot-specific information

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

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