

## Olerup SSP<sup>®</sup> DR low resolution

Product number:	101.101-48/12 – including <i>Taq</i> pol.
Lot number:	05L
Expiry date:	2013-July-01
Number of tests:	48 tests – Product No. 101.101-48 12 tests – Product No. 101.101-12
Number of wells per test:	23 + 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. 05L.**

### CHANGES COMPARED TO THE PREVIOUS OLERUP SSP<sup>®</sup> DR LOW RESOLUTION LOT

The DR low resolution specificity and interpretation tables have been updated for the HLA-DRB1 alleles described since the previous *Olerup SSP<sup>®</sup>* DR low resolution lot was made (**Lot No. 76G**).

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

Well	5'-primer	3'-primer	rationale
1	Added	-	Primer added for the DRB1*01:33N allele.
3	-	Added	Primer added for the DRB1*15:50N allele.
4	-	Exchanged	Improved allelic resolution.
11	Modified	-	Improved specificity of amplification.
15	Added	-	Primer added for the DRB1*13:103 allele.
16	Added	-	Primer added for the DRB1*13:103 allele.
21	Exchanged	-	Improved allelic resolution.

Change in revision R01 compared to R00:

1. An error in the amplification pattern of some DRB1\*12 alleles has been corrected in the interpretation table.

Change in revision R02 compared to R01:

2. Primer mix 4 may have a tendency of giving rise to nonspecific amplifications.

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Lot-specific information

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Well **24** contains Negative Control primer pairs, that will amplify more than 95% of the *Olerup SSP*<sup>®</sup> HLA Class I, DRB, DQB1 and DPB1 amplicons as well as the amplicons generated by control primer pairs.

PCR product sizes range from 75 to 430 base pairs.

The PCR product generated by the control primer pair is 430 base pairs.

Length of PCR product	105	200	105	80	75	80
<b>5'-primer<sup>1</sup></b>	<b>164</b>	<b>340</b>	<b>440</b>	<b>45</b>	<b>45</b>	<b>43</b>
	5'-CAC <sup>3'</sup>	5'-Agg <sup>3'</sup>	5'-TTA <sup>3'</sup>	5'-Tgg <sup>3'</sup>	5'-Tgg <sup>3'</sup>	5'-Tgg <sup>3'</sup>
<b>3'-primer<sup>2</sup></b>	<b>231</b>	<b>2<sup>nd</sup> I</b>	<b>507</b>	<b>59</b>	<b>58</b>	<b>57</b>
	5'-TgC <sup>3'</sup>	5'-AAA <sup>3'</sup>	5'-TTg <sup>3'</sup>	5'-CTC <sup>3'</sup>	5'-ggC <sup>3'</sup>	5'-CTC <sup>3'</sup>
<b>A*</b>	<b>+</b>	<b>+</b>	<b>+</b>			
<b>B*</b>	<b>+</b>	<b>+</b>	<b>+</b>			
<b>C*</b>	<b>+</b>	<b>+</b>	<b>+</b>			
<b>DRB1</b>				<b>+</b>	<b>+</b>	
<b>DRB3</b>				<b>+</b>	<b>+</b>	
<b>DRB5</b>				<b>+</b>		
<b>DQB1</b>					<b>+</b>	
<b>DPB1</b>						<b>+</b>

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

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

## PRODUCT DESCRIPTION

### DR low resolution

#### CONTENT

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

#### PLATE LAYOUT

Each test consists of 24 PCR reactions in a 24 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

Wells 1 to 23 – DR low resolution primers.

Well 24 – Negative Control.

The 24 well cut PCR plate is marked with ‘DR low’ in silver/gray ink.

Well No. 1 is marked with the Lot No. ‘05L’.

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 24 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-DRB alleles will be amplified by the 23 wells of the DR low resolution primer set, **wells 1 to 23**. Thus, the interpretation of DR low resolution typings is not influenced by other HLA class II genes.

#### UNIQUELY IDENTIFIED ALLELES

All the HLA-DRB1, -DRB3, -DRB4<sup>1</sup> and -DRB5 alleles, i.e. **DRB1\*01:01:01 to 10:03, DRB3\*01:01:02:01 to DRB3\*03:03, DRB4\*01:01:01:01 to DRB4\*01:08, DRB5\*01:01:01 to DRB5\*02:05**, recognized by the HLA Nomenclature Committee in October 2010<sup>2</sup> will be amplified by the primers in the DR low resolution SSP kit. The HLA-DRB alleles will be grouped into their corresponding serological specificities<sup>3</sup>.

<sup>1</sup>The DRB4\*02:01N and DRB4\*03:01N null alleles will not be amplified by the DR low resolution primer set.

<sup>2</sup>DRB alleles listed on the IMGT/HLA web page 2010-October-15, release 3.2.0, [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla).

<sup>3</sup>The DRB1\*08:09 and the DRB1\*14:15 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets. The DRB1\*08:20 and the DRB1\*13:18, 13:47 and 13:55 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

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

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

## SPECIFICITY TABLE

### DR low resolution primer set

Specificities and sizes of the PCR products of the 24 primer mixes of the DR low resolution primer set

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

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<b>9<sup>6</sup></b>	210 bp, 230 bp	430 bp	7, 13, 14	*07:01:01:01-07:01:03, 07:03-07:19, 12:22, 13:17, 14:50
<b>10<sup>6</sup></b>	170 bp, 215 bp, 250 bp	<b>515 bp</b>	8, 11, 12, 14	*08:01:01-08:19, 08:21-08:41, 11:67, 12:04, 12:16, 12:22, 14:11, 14:15, 14:68, 14:93
<b>11<sup>5-7</sup></b>	85 bp, 135 bp, 180 bp	430 bp	3, 9, 11	*03:08, 09:01:02-09:09, 11:07, 11:53
<b>12<sup>8</sup></b>	205 bp	430 bp	10	*10:01:01-10:03
<b>13<sup>5,6</sup></b>	100 bp, 170 bp	430 bp	3, 8, 11, 13, 14	*03:08, 08:31, 08:41, 11:01:01-11:70, 11:72-11:98
<b>14<sup>5,6</sup></b>	85 bp, 105 bp	430 bp	12	*08:32, 12:01:01-12:26
<b>15</b>	215 bp	430 bp	6, 11, 13, 14, 1403	*08:20-08:21, 11:01:01-11:04:06, 11:06:01- 11:06:02, 11:08:01-11:12:02, 11:14:01- 11:16, 11:18-11:21, 11:23-11:25, 11:27:01- 11:33, 11:35-11:51, 11:54:01-11:54:02, 11:56-11:66, 11:68, 11:70, 11:72-11:81, 11:83-11:88, 11:90-11:97, 13:01:01-13:08, 13:10-13:16, 13:18-13:43, 13:45-13:85, 13:87-13:103, 14:03:01-14:03:02, 14:12:01-14:12:02, 14:16, 14:19, 14:21- 14:22, 14:25, 14:27, 14:40, 14:53, 14:63, 14:67, 14:69, 14:74, 14:77-14:78, 14:84- 14:85, 14:98
<b>16<sup>6</sup></b>	195 bp, 215 bp	430 bp	6, 8, 11, 12, 13, 14	*08:01:01-08:02:03, 08:04:01-08:09, 08:11, 08:16-08:17, 08:20-08:22, 08:24, 08:26, 08:28, 08:31, 08:39, 08:41, 11:01:01- 11:06:02, 11:09-11:12:02, 11:14:01-11:16, 11:20-11:21, 11:23-11:25, 11:27:01-11:30, 11:32-11:33, 11:35-11:41, 11:43-11:44, 11:46-11:51, 11:54:01-11:56, 11:58:01- 11:63, 11:65:01-11:70, 11:72, 11:74-11:78, 11:80-11:88, 11:90-11:97, 12:02:01- 12:02:05, 12:13, 12:15-12:16, 12:18-12:21, 12:23, 12:26, 13:01:01-13:02:01, 13:02:03- 13:02:04, 13:04-13:05:02, 13:07:01-13:09, 13:11:01-13:11:02, 13:14:01-13:24, 13:26- 13:29, 13:31-13:32, 13:34-13:36, 13:38- 13:43, 13:45-13:55, 13:57, 13:59, 13:61- 13:65, 13:67-13:76, 13:78-13:80, 13:83- 13:84, 13:87, 13:91-13:93, 13:96-13:100, 13:102-13:103, 14:15-14:16, 14:22, 14:24- 14:25, 14:27, 14:37, 14:53, 14:73
<b>17<sup>11</sup></b>	175 bp	430 bp	3, 6, 11, 13, 14,	*03:01:01:01-03:07, 03:09, 03:11:01-03:41, 03:43-03:45, 03:47-03:58, 08:20,

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			1403, 17, 18	13:01:01-13:16, 13:18-13:42, 13:44, 13:46-13:66:02, 13:68-13:102, 14:02-14:03:02, 14:05:01-14:06:02, 14:09, 14:12:01-14:14, 14:17-14:21, 14:23:01, 14:23:03-14:24, 14:27, 14:29-14:30, 14:33, 14:36-14:37, 14:40-14:45, 14:47-14:48, 14:51, 14:56, 14:59, 14:63-14:65, 14:67, 14:77-14:78, 14:80-14:81, 14:83-14:85, 14:89, 14:91, 14:94-14:96, 14:98, 14:100
<b>18<sup>5,6,10</sup></b>	100 bp, 140 bp, 155 bp	430 bp	4, 6, 8, 13, 14, 1404	*04:62, 04:69, 04:73, 08:08, 11:69, 11:82, 13:45, 14:01:01-14:01:02, 14:04, 14:07:01-14:07:02, 14:10, 14:16, 14:22, 14:25-14:26, 14:28, 14:31-14:32:02, 14:35, 14:37-14:39, 14:49-14:50, 14:53-14:55, 14:57-14:58, 14:60-14:62, 14:68-14:71, 14:73-14:76, 14:79, 14:82, 14:86-14:88, 14:90, 14:93, 14:99, <b>DRB4*01:03:01:02N</b>
<b>19<sup>5,6,9</sup></b>	110 bp, 135 bp, 170 bp	430 bp	3, 4, 6, 9, 11, 13, 14, 1404	*03:10, 09:01:02-09:01:05, 09:01:07-09:02:02, 09:04-09:09, 11:13:01-11:13:02, 11:17, 11:52, 13:43, 14:01:01-14:02, 14:04-14:11, 14:13-14:14, 14:16-14:18, 14:19 <sup>w</sup> , 14:20, 14:21 <sup>w</sup> , 14:22-14:23:03, 14:26, 14:28-14:36, 14:38-14:39, 14:41, 14:43-14:52, 14:54-14:57, 14:59-14:62, 14:64-14:65, 14:68, 14:70-14:76, 14:79-14:83, 14:86-14:88, 14:90-14:97, 14:99-14:100, 15:27, 15:34
<b>20<sup>5,6,8</sup></b>	110 bp, 175 bp, 225 bp	430 bp	2 <sup>w</sup> , 3, 4, 6, 8, 11, 13, 14, 1403, 1404, 16 <sup>w</sup>	*03:10, 08:09, 08:20-08:21, 08:32, 08:35, 11:13:01-11:13:02, 11:17, 11:23, 11:25, 11:31, 11:45, 11:52, 11:55, 11:64, 11:89, 11:96, 13:13, 13:18, 13:43, 13:45, 13:47, 13:55, 14:01:01-14:01:03, 14:03:01-14:05:03, 14:07:01-14:08, 14:10-14:12:02, 14:14-14:16, 14:18, 14:22-14:23:03, 14:25-14:28, 14:31-14:32:02, 14:34-14:36, 14:38-14:40, 14:42-14:45, 14:49-14:50, 14:53-14:65, 14:67-14:79, 14:81-14:82, 14:84-14:93, 14:95-14:97, 14:99-14:100, 15:21 <sup>w</sup> , 16:04 <sup>w</sup>
<b>21<sup>6,11</sup></b>	160 bp, 240 bp	430 bp	52	<b>DRB3*01:01:02:01-01:14, DRB3*02:01-02:25, DRB3*03:01:01-03:03</b>
<b>22<sup>10</sup></b>	215 bp	430 bp	53	<b>DRB4*01:01:01:01-01:08</b>
<b>23</b>	175 bp	430 bp	51	<b>DRB5*01:01:01-01:14, DRB5*02:02-02:05</b>
<b>24<sup>12</sup></b>	-	-		<b>Negative control</b>

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

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

Nonspecific amplifications, i.e. a ladder or a smear of bands, may sometimes be seen. GC-rich primers have a higher tendency of giving rise to nonspecific amplifications than other primers, e.g. the primers in wells 3, 18, 19 and 20.

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

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

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

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

Well number 1 contains the primer pair giving rise to the longer, 515 bp, internal positive control band in order to help in the correct orientation of the DR low resolution typing.

In addition, well number 10 contains the primer pair giving rise to the longer, 515 bp, internal positive control band in order to allow kit identification.

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

<sup>3</sup> The serological reactivity of all DRB alleles is not known. In this table we use the information in the HLA Dictionary 2004 on the [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla) web site, the information available at the [www.worldmarrow.org](http://www.worldmarrow.org) web site and the expert-assigned serological grouping in Tissue Antigens (2009) **73**:95-170.

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

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

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

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

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

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

<sup>6</sup> Individual alleles can give rise to two differently sized specific PCR fragments in primer mix 1, 3, 5 to 11, 13, 14, 16 and 18 to 21.

<sup>7</sup> Primer mixes 4 and 11 may give rise to nonspecific amplifications.

<sup>8</sup> Primer mixes 1, 12 and 20 may give rise to primer oligomer formation.

<sup>9</sup> Primer mix 19 has a tendency of primer oligomer formation and also has an intense primer cloud due to the high number of primers present in the primer mix.

<sup>10</sup> The DRB4\*01:03:01:02N allele is amplified by the primer pairs in well No. 18 and 22, whereas the DRB4\*02:01N and DRB4\*03:01N null alleles are not amplified by these primer pairs.

<sup>11</sup> Due to sharing of sequence motifs in codon 38, DRB3\*01:14 will also be amplified in primer mixes 5, 6 and 17 in addition to primer mix 21.

<sup>12</sup> Primer mix 24 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.

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Lot-specific information

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INTERPRETATION TABLE													
DR low resolution SSP typing													
Amplification patterns of the DRB1*01:01 to DRB1*10:03 alleles													
	DR	Well <sup>6</sup>											
		1	2	3	4	5	6	7	8	9	10	11	12
Length of spec.		200	200	200	210	120	80	85	100	210	170	85	205
PCR product(s)		255		215		220	210	210	175	230	215	135	
											250	180	
Length of int.													
pos. control <sup>1</sup>		515	430	430	430	430	430	430	430	430	515	430	430
5'-primer(s) <sup>2</sup>		13 (124)	14 (129)	13 (126)	13 (126)	13 (125)	13 (125)	13 (125)	13 (125)	14 (127)	16 (133)	26 (165)	31 (178)
		5'-A.T <sup>3'</sup>	5'-gAA <sup>3'</sup>	5'-Agg <sup>3'</sup>	5'-Agg <sup>3'</sup>	5'-gTC <sup>3'</sup>	5'-gTC <sup>3'</sup>	5'-gTC <sup>3'</sup>	5'-ACA <sup>3'</sup>	5'-ATA <sup>3'</sup>	5'-gTT <sup>3'</sup>	5'-TAT <sup>3'</sup>	5'-gCg <sup>3'</sup>
		14 (129)		13 (126)	13 (126)	47 (227)	16 (133)		13 (125)	14 (127)	16 (133)	58 (261)	
		5'-gAA <sup>3'</sup>		5'-Aag <sup>3'</sup>	5'-Aag <sup>3'</sup>	5'-gTT <sup>3'</sup>	5'-gTT <sup>3'</sup>		5'-ACC <sup>3'</sup>	5'-ATA <sup>3'</sup>	5'-gTT <sup>3'</sup>	5'-gag <sup>3'</sup>	
									13 (125)	16 (133)			
									5'-ATA <sup>3'</sup>	5'-gTT <sup>3'</sup>			
									13 (125)				
									5'-gTC <sup>3'</sup>				
3'-primer(s) <sup>3</sup>		67 (286)	67 (286)	67 (286)	67 (286)	73 (305)	26 (164)	28 (171)	33 (184)	71 (298)	58 (260)	57 (257)	86 (344)
		5'-gAg <sup>3'</sup>	5'-gAT <sup>3'</sup>	5'-gAT <sup>3'</sup>	5'-gAA <sup>3'</sup>	5'-ggC <sup>3'</sup>	5'-ggT <sup>3'</sup>	5'-CTC <sup>3'</sup>	5'-gTg <sup>3'</sup>	5'-CTC <sup>3'</sup>	5'-CCT <sup>3'</sup>	5'-CgA <sup>3'</sup>	5'-CAC <sup>3'</sup>
		67 (286)		70 (295)	67 (286)	73 (305)	71 (299)	70 (295)	58 (260)	73 (305)	74 (307)	73 (305)	86 (344)
		5'-gAg <sup>3'</sup>		5'-CTg <sup>3'</sup>	5'-gAg <sup>3'</sup>	5'-ggC <sup>3'</sup>	5'-gCT <sup>3'</sup>	5'-CTg <sup>3'</sup>	5'-Cgg <sup>3'</sup>	5'-ggC <sup>3'</sup>	5'-Cag <sup>3'</sup>	5'-ggC <sup>3'</sup>	5'-CCA <sup>3'</sup>
		67 (286)		70 (295)	70 (297)	74 (308)				77 (317)	86 (344)	78 (319)	
		5'-gAT <sup>3'</sup>		5'-Tg <sup>3'</sup>	5'-CTg <sup>3'</sup>	5'-CCC <sup>3'</sup>				5'-AAT <sup>3'</sup>	5'-CAC <sup>3'</sup>	5'-CAC <sup>3'</sup>	
		71 (299)		71 (298)	72 (301)					78 (319)			
		5'-gCg <sup>3'</sup>		5'-CgC <sup>3'</sup>	5'-ggC <sup>3'</sup>					5'-CAC <sup>3'</sup>			
		86 (344)		71 (299)									
		5'-CCA <sup>3'</sup>		5'-gCT <sup>3'</sup>									
				73 (305)									
				5'-ggC <sup>3'</sup>									
Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12



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INTERPRETATION TABLE													
DR low resolution SSP typing													
Amplification patterns of the DRB1*01:01 to DRB1*10:03 alleles													
Well <sup>6</sup>													
13	14	15	16	17	18	19	20	21	22	23	24		
100	85	215	195	175	100	110	110	160	215	175	Neg. Control	Length of spec. PCR product(s)	
170	105		215		140	135	175	240				Length of int. pos. control <sup>1</sup>	
430	430	430	430	430	430	430	430	430	430	430	Negative Control	5'-primer(s) <sup>2</sup>	
13 (125)	16 (133)	10 (116)	10 (116)	13 (125)	1 <sup>st</sup> 5'-CAA <sup>3</sup>	26 (164)	13 (125)	10 (116)	28 (170)	13 (125)		3'-primer(s) <sup>3</sup>	
5'-gTC <sup>3</sup>	5'-gTT <sup>3</sup>	5'-gCT <sup>3</sup>	5'-gCT <sup>3</sup>	5'-gTC <sup>3</sup>	5'-CAA <sup>3</sup>	5'-gTA <sup>3</sup>	5'-gTC <sup>3</sup>	5'-gCT <sup>3</sup>	5'-gAT <sup>3</sup>	5'-gTA <sup>3</sup>			
16 (133)		12 (122)	12 (122)		37 (197)	34 (189)	34 (189)	10 (116)					
5'-gTC <sup>3</sup>		5'-TAT <sup>3</sup>	5'-TAT <sup>3</sup>		5'-gTT <sup>3</sup>	5'-CAG <sup>3</sup>	5'-CAG <sup>3</sup>	5'-gCT <sup>3</sup>					
38 (200)		13 (125)	13 (125)		37 (197)			38 (199)					
5'-CgT <sup>3</sup>		5'-gTC <sup>3</sup>	5'-gTC <sup>3</sup>		5'-gTA <sup>3</sup>			5'-TCC <sup>3</sup>					
			16 (133)										
			5'-gTT <sup>3</sup>										
			16 (133)										
			5'-gTC <sup>3</sup>										
58 (260)	30 (175)	70 (295)	67 (286)	58 (260)	42 (213)	57 (257)	57 (257)	51 (239)	87 (346)	57 (258)			
5'-CCT <sup>3</sup>	5'-gTg <sup>3</sup>	5'-gTC <sup>3</sup>	5'-gAA <sup>3</sup>	5'-Cgg <sup>3</sup>	5'-TCA <sup>3</sup>	5'-CAG <sup>3</sup>	5'-CAG <sup>3</sup>	5'-CCC <sup>3</sup>	5'-CTC <sup>3</sup>	5'-gCg <sup>3</sup>			
58 (260)	38 (199)	71 (299)	71 (298)	58 (260)	57 (257)	70 (295)	60 (265)	77 (317)	87 (346)	58 (260)			
5'-CCT <sup>3</sup>	5'-CAG <sup>3</sup>	5'-gCT <sup>3</sup>	5'-CgC <sup>3</sup>	5'-CAG <sup>3</sup>	5'-CAG <sup>3</sup>	5'-CTg <sup>3</sup>	5'-gTg <sup>3</sup>	5'-AAT <sup>3</sup>	5'-CTT <sup>3</sup>	5'-CCT <sup>3</sup>			
58 (260)			71 (298)		71 (298)	70 (296)	70 (296)						
5'-CCT <sup>3</sup>			5'-CTC <sup>3</sup>		5'-CgC <sup>3</sup>	5'-TCC <sup>3</sup>	5'-TCC <sup>3</sup>						
							74 (307)						
							5'-CAG <sup>3</sup>						
13	14	15	16	17	18	19	20	21	22	23	24	DR	Well No.

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Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12
<b>DRB1 allele<sup>4</sup></b>	<b>ser<sup>5</sup></b>												
*01:01:01-01:02:05, 01:04-01:34	DR1, Null, –	1											
*01:03	DR1, DR 103		2										
*03:01:01-01-03:01:09, 03:04-03:06, 03:09, 03:11:01-03:16, 03:18- 03:20, 03:22-03:23, 03:25- 03:26, 03:28, 03:30-03:31, 03:33-03:34, 03:36-03:37, 03:43-03:45, 03:47-03:48, 03:50-03:52, 03:54-03:58	DR17, DR3, –					5	6						
*03:02:01-03:03, 03:27, 03:29, 03:38, 03:53	DR3, DR18, –					5		7					
*03:07, 03:17, 03:21, 03:24, 03:32, 03:35, 03:39-03:41, 03:49	DR3, –					5							
*03:08	DR3					5	6					11	
*03:10	DR3					5	6						
*03:42	–					5							
*03:46	–					5	6						
*04:01:01-04:61, 04:63- 04:68, 04:70-04:72:02, 04:74-04:92	DR3, DR4, Null, –								8				
*04:62, 04:69, 04:73	DR4, –								8				
*07:01:01-01-07:01:03, 07:03-07:19	DR7, Null, –									9			
*08:01:01-08:02:03, 08:04:01-08:07, 08:11, 08:16-08:17, 08:22, 08:24, 08:26, 08:28, 08:39	DR8, –										10		
*08:03:02, 08:10, 08:12- 08:15, 08:18-08:19, 08:23, 08:25, 08:27, 08:29- 08:30:02, 08:33-08:34, 08:36-08:38	DR8, –										10		
*08:08	DR8										10		
*08:09, 14:15 <sup>7</sup>	DR8										10		
Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12

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13	14	15	16	17	18	19	20	21	22	23	24	DR	Well No.
												DR ser <sup>5</sup>	DRB1 allele <sup>4</sup>
												DR1, Null, -	*01:01:01-01:02:05, 01:04-01:34
												DR1, DR 103	*01:03
				17								DR17, DR3, -	*03:01:01:01-03:01:09, 03:04-03:06, 03:09, 03:11:01-03:16, 03:18-03:20, 03:22-03:23, 03:25-03:26, 03:28, 03:30-03:31, 03:33-03:34, 03:36-03:37, 03:43-03:45, 03:47-03:48, 03:50-03:52, 03:54-03:58
				17								DR3, DR18, -	*03:02:01-03:03, 03:27, 03:29, 03:38, 03:53
				17								DR3, -	*03:07, 03:17, 03:21, 03:24, 03:32, 03:35, 03:39-03:41, 03:49
13												DR3	*03:08
						19	20					DR3	*03:10
												-	*03:42
												-	*03:46
												DR3, DR4, Null, -	*04:01:01-04:61, 04:63-04:68, 04:70-04:72:02, 04:74-04:92
					18							DR4, -	*04:62, 04:69, 04:73
												DR7, Null, -	*07:01:01:01-07:01:03, 07:03-07:19
			16									DR8, -	*08:01:01-08:02:03, 08:04:01-08:07, 08:11, 08:16-08:17, 08:22, 08:24, 08:26, 08:28, 08:39
												DR8, -	*08:03:02, 08:10, 08:12-08:15, 08:18-08:19, 08:23, 08:25, 08:27, 08:29-08:30:02, 08:33-08:34, 08:36-08:38
			16		18							DR8	*08:08
			16				20					DR8	*08:09, 14:15 <sup>7</sup>
13	14	15	16	17	18	19	20	21	22	23	24	DR	Well No.

Negative Control

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Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12
*08:20, 13:18, 13:47, 13:55 <sup>8</sup>	DR13, –												
*08:21	DR8										10		
*08:31, 08:41, 11:67 <sup>9</sup>	DR8, DR11, –										10		
*08:32	–										10		
*08:35	–										10		
*08:40	–						6				10		
*09:01:02-09:01:05, 09:01:07-09:02:02, 09:04- 09:09	DR9, –											11	
*09:01:06, 09:03	DR9											11	
*10:01:01-10:03	DR10, –												12
*11:01:01-11:01:12, 11:04:01-11:04:06, 11:06:01- 11:06:02, 11:09-11:10:02, 11:12:01-11:12:02, 11:15, 11:24, 11:27:01-11:30, 11:32-11:33, 11:35, 11:37- 11:39, 11:43-11:44, 11:46- 11:47, 11:49-11:51, 11:54:01-11:54:02, 11:56, 11:58:01-11:58:02, 11:60- 11:62, 11:66, 11:72, 11:74- 11:75, 11:77-11:78, 11:81, 11:84, 11:88, 11:90-11:92, 11:94-11:95, 11:97	DR11, –												
*11:02:01-11:03, 11:11:01- 11:11:02, 11:14:01- 11:14:02, 11:16, 11:20- 11:21, 11:36, 11:40-11:41, 11:48, 11:59, 11:63, 11:65:01-11:65:02, 11:68, 11:70, 11:76, 11:80, 11:83, 11:85-11:87, 11:93	DR11, DR13, –						6						
*11:05	DR11												
*11:07, 11:53	DR11					5						11	
*11:08:01-11:08:02, 11:18- 11:19:02, 11:42, 11:57	DR11												
*11:13:01-11:13:02	DR11							w					
*11:17, 11:52	DR11, DR14												
*11:22, 11:98	–												
Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12

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13	14	15	16	17	18	19	20	21	22	23	24	DR	Well No.
		15	16	17			20					DR13, -	*08:20, 13:18, 13:47, 13:55 <sup>8</sup>
		15	16				20					DR8	*08:21
13			16									DR8, DR11, -	*08:31, 08:41, 11:67 <sup>9</sup>
	14						20					-	*08:32
							20					-	*08:35
												-	*08:40
						19						DR9, -	*09:01:02-09:01:05, 09:01:07-09:02:02, 09:04- 09:09
												DR9	*09:01:06, 09:03
												DR10, -	*10:01:01-10:03
13		15	16									DR11, -	*11:01:01-11:01:12, 11:04:01-11:04:06, 11:06:01- 11:06:02, 11:09-11:10:02, 11:12:01-11:12:02, 11:15, 11:24, 11:27:01-11:30, 11:32-11:33, 11:35, 11:37- 11:39, 11:43-11:44, 11:46- 11:47, 11:49-11:51, 11:54:01-11:54:02, 11:56, 11:58:01-11:58:02, 11:60- 11:62, 11:66, 11:72, 11:74- 11:75, 11:77-11:78, 11:81, 11:84, 11:88, 11:90-11:92, 11:94-11:95, 11:97
13		15	16									DR11, DR13, -	*11:02:01-11:03, 11:11:01- 11:11:02, 11:14:01- 11:14:02, 11:16, 11:20- 11:21, 11:36, 11:40-11:41, 11:48, 11:59, 11:63, 11:65:01-11:65:02, 11:68, 11:70, 11:76, 11:80, 11:83, 11:85-11:87, 11:93
13			16									DR11	*11:05
13												DR11	*11:07, 11:53
13		15										DR11	*11:08:01-11:08:02, 11:18- 11:19:02, 11:42, 11:57
13						19	20					DR11	*11:13:01-11:13:02
13						19	20					DR11, DR14	*11:17, 11:52
13												-	*11:22, 11:98
13	14	15	16	17	18	19	20	21	22	23	24	DR	Well No.

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Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12
*11:23, 11:25, 11:96	DR11, -												
*11:26, 11:34	DR11							7					
*11:31, 11:45, 11:64	DR11, -												
*11:55	DR11												
*11:69, 11:82	-												
*11:73, 11:79	-						6						
*11:89	-												
*12:01:01-12:01:03, 12:03:02, 12:05-12:12, 12:14, 12:17, 12:24N-12:25	DR12, Null, -												
*12:02:01-12:02:05, 12:13, 12:15, 12:18-12:21, 12:23, 12:26	DR12, -												
*12:04	DR12										10		
*12:16	-										10		
*12:22	-									9	10		
*13:01:01-13:02:01, 13:02:03-13:02:04, 13:04, 13:08, 13:16, 13:20, 13:22- 13:24, 13:27-13:29, 13:31- 13:32, 13:34-13:36, 13:38- 13:41, 13:48, 13:51-13:52, 13:54, 13:59, 13:61, 13:63- 13:65, 13:68-13:76, 13:78- 13:80, 13:83-13:84, 13:87, 13:91-13:93, 13:96-13:99, 13:102	DR11, DR13, DR14, -						6						
*13:02:02, 13:03:01- 13:03:06, 13:10, 13:33:01- 13:33:03, 13:37, 13:66:01- 13:66:02, 13:81, 13:88- 13:90, 13:94-13:95, 13:101	DR13, -						6						
*13:05:01-13:05:02, 13:07:01-13:07:02, 13:11:01- 13:11:02, 13:14:01- 13:14:03, 13:21:01- 13:21:02, 13:42, 13:46, 13:49-13:50:02, 13:62, 13:100	DR6, DR11, DR13, -												
Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12

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13	14	15	16	17	18	19	20	21	22	23	24	DR	Well No.
13		15	16				20					DR11, -	*11:23, 11:25, 11:96
13												DR11	*11:26, 11:34
13		15					20					DR11, -	*11:31, 11:45, 11:64
13			16				20					DR11	*11:55
13			16		18							-	*11:69, 11:82
13		15										-	*11:73, 11:79
13							20					-	*11:89
	14											DR12, Null, -	*12:01:01-12:01:03, 12:03:02, 12:05-12:12, 12:14, 12:17, 12:24N-12:25
	14		16									DR12, -	*12:02:01-12:02:05, 12:13, 12:15, 12:18-12:21, 12:23, 12:26
	14											DR12	*12:04
	14		16									-	*12:16
	14											-	*12:22
		15	16	17								DR11, DR13, DR14, -	*13:01:01-13:02:01, 13:02:03-13:02:04, 13:04, 13:08, 13:16, 13:20, 13:22- 13:24, 13:27-13:29, 13:31- 13:32, 13:34-13:36, 13:38- 13:41, 13:48, 13:51-13:52, 13:54, 13:59, 13:61, 13:63- 13:65, 13:68-13:76, 13:78- 13:80, 13:83-13:84, 13:87, 13:91-13:93, 13:96-13:99, 13:102
		15		17								DR13, -	*13:02:02, 13:03:01- 13:03:06, 13:10, 13:33:01- 13:33:03, 13:37, 13:66:01- 13:66:02, 13:81, 13:88- 13:90, 13:94-13:95, 13:101
		15	16	17								DR6, DR11, DR13, -	*13:05:01-13:05:02, 13:07:01-13:07:02, 13:11:01- 13:11:02, 13:14:01- 13:14:03, 13:21:01- 13:21:02, 13:42, 13:46, 13:49-13:50:02, 13:62, 13:100
13	14	15	16	17	18	19	20	21	22	23	24	DR	Well No.

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Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12
*13:06, 13:12, 13:25, 13:30, 13:56, 13:58, 13:60, 13:77, 13:82	DR6, DR11, DR13, –												
*13:09	DR13												
*13:13, 14:84 <sup>10</sup>	DR13, –												
*13:15, 13:19, 13:53, 13:57	DR13						6	7					
*13:17	DR13						6			9			
*13:26	DR14							7					
*13:43	DR13						6						
*13:44, 13:86	–							7					
*13:45	DR13						6						
*13:67, 13:103	DR13, –												
*13:85	–						6	7					
*14:01:01-14:01:02, 14:04, 14:07:01-14:07:02, 14:10, 14:26, 14:28, 14:31, 14:35, 14:38-14:39, 14:54-14:55, 14:57, 14:60-14:62, 14:70- 14:71, 14:75-14:76, 14:79, 14:86-14:88, 14:90, 14:99	DR4, DR6, DR14, DR 1404, –												
*14:01:03, 14:08, 14:23:02, 14:34, 14:72, 14:92N, 14:97	DR14, Null, –												
*14:02, 14:06:01-14:06:02, 14:09, 14:13, 14:17, 14:20, 14:29-14:30, 14:33, 14:41, 14:47-14:48, 14:51, 14:80, 14:83, 14:94	DR6, DR14, –							7					
*14:03:01-14:03:02, 14:12:01-14:12:02, 14:40, 14:63, 14:67, 14:77-14:78, 14:85	DR14, DR 1403, DR6, –							7					
*14:05:01-14:05:03, 14:14, 14:23:01, 14:23:03, 14:36, 14:43-14:45, 14:56, 14:59, 14:64, 14:91, 14:96, 14:100	DR14, –												
*14:11	DR14										10		
*14:16	DR6						6						
*14:18, 14:81	DR14, –							7					
*14:19, 14:21	DR14						6	7					
*14:22	DR14												
Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12



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13	14	15	16	17	18	19	20	21	22	23	24	DR	Well No.
		15		17								DR6, DR11, DR13, –	*13:06, 13:12, 13:25, 13:30, 13:56, 13:58, 13:60, 13:77, 13:82
			16	17								DR13	*13:09
		15		17			20					DR13, –	*13:13, 14:84 <sup>10</sup>
		15	16	17								DR13	*13:15, 13:19, 13:53, 13:57
			16									DR13	*13:17
		15	16	17								DR14	*13:26
		15	16			19	20					DR13	*13:43
				17								–	*13:44, 13:86
		15	16		18		20					DR13	*13:45
		15	16									DR13, –	*13:67, 13:103
		15		17								–	*13:85
					18	19	20					DR4, DR6, DR14, DR 1404, –	*14:01:01-14:01:02, 14:04, 14:07:01-14:07:02, 14:10, 14:26, 14:28, 14:31, 14:35, 14:38-14:39, 14:54-14:55, 14:57, 14:60-14:62, 14:70- 14:71, 14:75-14:76, 14:79, 14:86-14:88, 14:90, 14:99
						19	20					DR14, Null, –	*14:01:03, 14:08, 14:23:02, 14:34, 14:72, 14:92N, 14:97
				17		19						DR6, DR14, –	*14:02, 14:06:01-14:06:02, 14:09, 14:13, 14:17, 14:20, 14:29-14:30, 14:33, 14:41, 14:47-14:48, 14:51, 14:80, 14:83, 14:94
		15		17			20					DR14, DR 1403, DR6, –	*14:03:01-14:03:02, 14:12:01-14:12:02, 14:40, 14:63, 14:67, 14:77-14:78, 14:85
				17		19	20					DR14, –	*14:05:01-14:05:03, 14:14, 14:23:01, 14:23:03, 14:36, 14:43-14:45, 14:56, 14:59, 14:64, 14:91, 14:96, 14:100
						19	20					DR14	*14:11
		15	16		18	19	20					DR6	*14:16
				17		19	20					DR14, –	*14:18, 14:81
		15		17		w						DR14	*14:19, 14:21
		15	16		18	19	20					DR14	*14:22
13	14	15	16	17	18	19	20	21	22	23	24	DR	Well No.

Negative Control

Lot No.: **05L**

Lot-specific information

www.olerup-ssp.com

Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12
*14:24	DR14							7					
*14:25, 14:53	DR6, DR13, 14												
*14:27	DR14							7					
*14:32:01-14:32:02	DR14							w					
*14:37	DR14												
*14:42	-												
*14:46, 14:52	DR14												
*14:49	DR14							7					
*14:50	DR14									9			
*14:58	DR14												
*14:65	DR6							w					
*14:68, 14:93	DR14, -										10		
*14:69	-												
*14:73	-												
*14:74	-												
*14:82	-						6						
*14:89	-							7					
*14:95	-						6						
*14:98	-							7					
*15:01:01:01-15:20, 15:22-15:24, 15:26, 15:28-15:33, 15:35-15:51	DR2,D R15, Null, -			3									
*15:21	DR2			3									
*15:25	-			3		5							
*15:27, 15:34	-			3									
*16:01:01-16:03, 16:05:01-16:05:02, 16:07-16:17	DR16, Null, -				4								
*16:04	DR16				4								
<i>DRB3*01:01:02:01-01:14, DRB3*02:01-02:25, DRB3*03:01:01-03:03</i>	DR52, -												
<i>DRB4*01:01:01:01-01:03:01:01, 01:03:02-01:08</i>	DR53, -												
<i>DRB4*01:03:01:02N</i>	Null												
<i>DRB5*01:01:01-01:14, DRB5*02:02-02:05</i>	DR51, Null, -												
Well No.	ser <sup>5</sup>	1	2	3	4	5	6	7	8	9	10	11	12

Lot No.: **05L**

Lot-specific information

www.olerup-ssp.com

13	14	15	16	17	18	19	20	21	22	23	24	DR	Well No.
			16	17								DR14	*14:24
												DR6, DR13, 14	*14:25, 14:53
		15	16		18		20					DR14	*14:27
												DR14	*14:32:01-14:32:02
		15	16	17			20					DR14	*14:37
					18	19	20					-	*14:42
			16	17	18							DR14	*14:46, 14:52
												DR14	*14:49
												DR14	*14:50
												DR14	*14:58
												DR6	*14:65
				17		19	20					DR14,	*14:68, 14:93
					18	19	20					-	
		15			18		20					-	*14:69
			16		18	19	20					-	*14:73
		15			18	19	20					-	*14:74
					18	19	20					-	*14:82
												-	*14:89
				17			20					-	*14:95
				17		19	20					-	*14:98
		15		17								-	
												DR2,D R15, Null, -	*15:01:01:01-15:20, 15:22- 15:24, 15:26, 15:28-15:33, 15:35-15:51
							w					DR2	*15:21
												-	*15:25
						19						-	*15:27, 15:34
												DR16, Null, -	*16:01:01-16:03, 16:05:01- 16:05:02, 16:07-16:17
							w					DR16	*16:04
								21				DR52, -	DRB3*01:01:02:01-01:14, DRB3*02:01-02:25, DRB3*03:01:01-03:03
									22			DR53, -	DRB4*01:01:01:01- 01:03:01:01, 01:03:02- 01:08
					18				22			Null	DRB4*01:03:01:02N
										23		DR51, Null, -	DRB5*01:01:01-01:14, DRB5*02:02-02:05
13	14	15	16	17	18	19	20	21	22	23	24	ser <sup>5</sup>	Well No.

Negative Control

Lot No.: **05L**

Lot-specific information

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

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

Well number 1 contains the primer pair giving rise to the longer, 515 bp, internal positive control band in order to help in the correct orientation of the DR low resolution typing.

In addition, well number 10 contains the primer pair giving rise to the longer, 515 bp, internal positive control band in order to allow kit identification.

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

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

<sup>4</sup>The sequence of the DRB1\*07:02 allele has been shown to be identical to DRB1\*07:01:01:01.

The sequence of the DRB1\*08:031 allele has been shown to be identical to DRB1\*08:03:02.

The sequence of the DRB1\*09:011 allele has been shown to be identical to DRB1\*09:01:02.

The sequence of the DRB1\*11:71 allele has been shown to be identical to DRB1\*11:02:01.

The sequence of the DRB1\*12:031 allele has been shown to be identical to DRB1\*12:01:01.

The DRB1\*14:66 allele has been renamed DRB1\*14:32:02.

The sequence of the DRB1\*16:06 allele has been shown to be identical to DRB1\*16:05:01.

The sequence of the DRB3\*01:01:01 allele has been shown to be identical to DRB3\*01:01:02:01.

The DRB4\*0101102N allele has been shown to be identical to DRB4\*01:03:10:02N.

The sequence of the DRB5\*02:01 allele has been shown to be identical to DRB5\*02:02.

Due to sharing of sequence motifs in codon 38, DRB3\*01:14 will also be amplified in primer mixes 5, 6 and 17 in addition to primer mix 21.

<sup>5</sup>The serological reactivity of all DRB alleles is not known. In this table we use the information in the HLA Dictionary 2004 on the [www.ebi.ac.uk/imgt/hla](http://www.ebi.ac.uk/imgt/hla) web site and the information available at the [www.worldmarrow.org](http://www.worldmarrow.org) web site, the expert-assigned serological grouping in Tissue Antigens (2009) 73:95-170 and have also inferred the serological grouping from the naming of the sequence-defined allele.

<sup>6</sup>Primer mix 24 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.

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

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

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

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

'ser', serological HLA specificity.

'w', may be weakly amplified.

CELL LINE VALIDATION SHEET																				
DR low resolution primer set																				
				Well																
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
				Prod. No.:	201078901	201068902	201182203	201078904	201068905	201068906	201068907	201068908	201068909	201068910	201182211	201068912	201068913	201068914	201078915	201078916
IHWC cell line		DRB1																		
1	9001	SA	*01:01		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280	LK707	*15:02	*04:05	-	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-
3	9011	E4181324	*15:02		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
4	9275	GU373	*03:01		-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-
5	9009	KAS011	*16:01		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
6	9353	SM	*04:07	*08:03	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	-
7	9020	QBL	*03:01		-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-
8	9025	DEU	*04:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
9	9026	YAR	*04:02		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
10	9107	LKT3	*04:05		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
11	9051	PITOUT	*07:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
12	9052	DBB	*07:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
13	9004	JESTHOM	*01:01		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071	OLGA	*08:02		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+
15	9075	DKB	*09:01		-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
16	9037	SWEIG007	*11:01		-	-	-	-	-	-	-	-	-	-	-	+	-	+	+	+
17	9282	CTM3953540	*03:01	*13:01	-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	+
18	9257	32367	*09:01	*11:01	-	-	-	-	-	-	-	-	-	-	+	-	+	-	+	+
19	9038	BM16	*12:01		-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
20	9059	SLE005	*13:02		-	-	-	-	-	+	-	-	-	-	-	-	-	+	+	+
21	9064	AMALA	*14:02		-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
22	9056	KOSE	*13:02	*14:54	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	+
23	9124	IHL	*08:03	*14:14	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
24	9035	JBUSH	*11:01		-	-	-	-	-	-	-	-	-	-	-	+	-	+	+	+
25	9049	IBW9	*07:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
26	9285	WT49	*03:01		-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-
27	9191	CH1007	*04:05	*10:01	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-
28	9320	BEL5GB	*04:16	*07:01	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-
29	9050	MOU	*07:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
30	9021	RSH	*03:02		-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-
31	9019	DUCAF	*03:01		-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-
32	9297	HAG	*13:03		-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-
33	9098	MT14B	*04:04		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
34	9104	DHIF	*11:01		-	-	-	-	-	-	-	-	-	-	-	+	-	+	+	+
35	9302	SSTO	*04:03		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
36	9024	KT17	*04:03	*04:06	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
37	9065	HHKB	*13:01		-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	+
38	9099	LZL	*14:02		-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
39	9315	CML	*03:01	*04:01	-	-	-	-	+	+	-	+	-	-	-	-	-	-	-	-
40	9134	WHONP199	*07:01	*09:01	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-
41	9055	H0301	*13:02		-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	+
42	9066	TAB089	*08:03		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
43	9076	T7526	*09:01		-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
44	9057	TEM	*14:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	9239	SHJO	*07:01		-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
46	9013	SCHU	*15:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
47	9045	TUBO	*11:04	*12:01	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+	+
48	9303	TER-ND	*01:03		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-

<b>CELL LINE VALIDATION SHEET</b>											
<b>DR low resolution primer set</b>											
				Prod. No.:	Well						
					17	18	19	20	21	22	23
					201078917	201068918	201068919	201068920	201078921	201068922	201068923
	IHWC cell line		DRB1								
1	9001 SA		*01:01		-	-	-	-	-	-	-
2	9280 LK707		*15:02	*04:05	-	-	-	-	-	+	+
3	9011 E4181324		*15:02		-	-	-	-	-	-	+
4	9275 GU373		*03:01		+	-	-	-	+	-	-
5	9009 KAS011		*16:01		-	-	-	-	-	-	+
6	9353 SM		*04:07	*08:03	-	-	-	-	-	+	-
7	9020 QBL		*03:01		+	-	-	-	+	-	-
8	9025 DEU		*04:01		-	-	-	-	-	+	-
9	9026 YAR		*04:02		-	-	-	-	-	+	-
10	9107 LKT3		*04:05		-	-	-	-	-	+	-
11	9051 PITOUT		*07:01		-	-	-	-	-	+	-
12	9052 DBB		*07:01		-	+	-	-	-	+	-
13	9004 JESTHOM		*01:01		-	-	-	-	-	-	-
14	9071 OLGA		*08:02		-	-	-	-	-	-	-
15	9075 DKB		*09:01		-	-	+	-	-	+	-
16	9037 SWEIG007		*11:01		-	-	-	-	+	-	-
17	9282 CTM3953540		*03:01	*13:01	+	-	-	-	+	-	-
18	9257 32367		*09:01	*11:01	-	-	-	-	+	+	-
19	9038 BM16		*12:01		-	-	-	-	+	-	-
20	9059 SLE005		*13:02		+	-	-	-	+	-	-
21	9064 AMALA		*14:02		+	-	+	-	+	-	-
22	9056 KOSE		*13:02	*14:54	+	+	+	+	+	-	-
23	9124 IHL		*08:03	*14:14	+	-	+	+	+	-	-
24	9035 JBUSH		*11:01		-	-	-	-	+	-	-
25	9049 IBW9		*07:01		-	-	-	-	-	+	-
26	9285 WT49		*03:01		+	-	-	-	+	-	-
27	9191 CH1007		*04:05	*10:01	-	-	-	-	-	+	-
28	9320 BEL5GB		*04:16	*07:01	-	-	-	-	-	+	-
29	9050 MOU		*07:01		-	-	-	-	-	+	-
30	9021 RSH		*03:02		+	-	-	-	+	-	-
31	9019 DUCAF		*03:01		+	-	-	-	+	-	-
32	9297 HAG		*13:03		+	-	-	-	+	-	-
33	9098 MT14B		*04:04		-	-	-	-	-	+	-
34	9104 DHIF		*11:01		-	-	-	-	+	-	-
35	9302 SSTO		*04:03		-	-	-	-	-	+	-
36	9024 KT17		*04:03	*04:06	-	-	-	-	-	+	-
37	9065 HHKB		*13:01		+	-	-	-	+	-	-
38	9099 LZL		*14:02		+	-	+	-	+	-	-
39	9315 CML		*03:01	*04:01	+	-	-	-	+	+	-
40	9134 WHONP199		*07:01	*09:01	-	-	+	-	-	+	-
41	9055 H0301		*13:02		+	-	-	-	+	-	-
42	9066 TAB089		*08:03		-	-	-	-	-	-	-
43	9076 T7526		*09:01		-	-	+	-	-	+	-
44	9057 TEM		*14:01		-	+	+	+	+	-	-
45	9239 SHJO		*07:01		-	-	-	-	-	+	-
46	9013 SCHU		*15:01		-	-	-	-	-	-	+
47	9045 TUBO		*11:04	*12:01	-	-	-	-	+	-	-
48	9303 TER-ND		*01:03		-	-	-	-	-	-	-

## CERTIFICATE OF ANALYSIS

### **Olerup SSP<sup>®</sup> DR low resolution**

**Product number:** 101.101-48/12 – including *Taq* pol.  
**Lot number:** 05L  
**Expiry date:** 2013-July-01  
**Number of tests:** 48 tests – Product No. 101.101-48  
12 tests – Product No. 101.101-12  
**Number of wells per test:** 23 + 1

### **Well specifications:**

Well No.	Production No.	Well No.	Production No.	Well No.	Production No.
1	2010-789-01	9	2010-689-09	17	2010-789-17
2	2010-689-02	10	2010-689-10	18	2010-689-18
3	2011-822-03	11	2011-822-11	19	2010-689-19
4	2010-789-04	12	2010-689-12	20	2010-689-20
5	2010-689-05	13	2010-689-13	21	2010-789-21
6	2010-689-06	14	2010-689-14	22	2010-689-22
7	2010-689-07	15	2010-789-15	23	2010-689-23
8	2010-689-08	16	2010-789-16		

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

The reactivities of additional 3'-primers in primer solutions 1, 3, 4, 9 to 12, 18 and 20 were tested by separately adding another 5'-primer.

Additional 5'-primers in primer solutions 6, 9, 11, 15, 16 and 18 were tested by separately adding another 3'-primer.

One or more of the 5'-primers in primer solutions 1, 3, 4, 8 to 10, 13, 15 and 16 and one or two of the 3'-primers in primer solutions 1, 3, 4, 13 and 22 were not possible to test.

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

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

**Date of approval:** 2011-June-22

**Approved by:**

### **Production Quality Control**

Lot No.: **05L**

Lot-specific information

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

## Declaration of Conformity

**Product name:** *Olerup* SSP® DR low resolution  
**Product number:** 101.101-48/12  
**Lot number:** 05L

**Intended use:** DRB1 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.

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

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

Stockholm, Sweden  
2011-June-22

Ann-Cathrin Jareman  
Head of QA and Regulatory Affairs









Lot No.: **05L**

Lot-specific information

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

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