

101.101-48/12 – including *Taq* pol., IFU-01
101.101-48u/12u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for
“Instructions for Use” (IFU)

Lot No.: **93S**

Lot-specific information

Olerup SSP[®] DR low resolution

Product number: 101.101-48/12 – including *Taq* pol.
101.101-48u/12u – without *Taq* pol.
Lot number: 93S
Expiry date: 2016-April-01
Number of tests: 48 tests – Product No. 101.101-48/48u
12 tests – Product No. 101.101-12/12u
Number of wells per test: 31 + 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. 93S.

CHANGES COMPARED TO THE PREVIOUS OLERUP SSP[®] DR LOW RESOLUTION LOT (13R)

The DR low resolution specificity and interpretation tables have been updated for the HLA-DRB1 alleles described since the previous *Olerup SSP[®]* DR low resolution lot was made (**Lot No. 13R**).

The Lot-specific information for DR low resolution including and without *Taq* polymerase is now described in one common Product Insert.

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	3'-primer added for the DRB1*01:55 allele.
9	-	Added	3'-primer added for the DRB1*07:25 allele.
20	Added	-	5'-primer added for the DRB1*08:53 allele.
24	Added	Added	Primer pair added for resolution of the DRB5*01:08N allele.
27	Added	Added	Primer pair added for the DRB1*14:141 allele.

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Well **32** contains Negative Control primer pairs, that will amplify more than 95% of the *Olerup SSP*® HLA Class I, DRB, DQB1 and DPB1 amplicons as well as the amplicons generated by control primer pairs.

PCR product sizes range from 75 to 430 base pairs.

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

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

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

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

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PRODUCT DESCRIPTION

DR low resolution

CONTENT

The primer set contains 5'- and 3'-primers for grouping the DRB1*01:01 to DRB1*10:06 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 32 PCR reactions in a 32 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

Wells 1 to 31 – DR low resolution primers.

Well 32 – Negative Control.

The 32 well cut PCR plate is marked with 'DR low' in silver/gray ink.

Well No. 1 is marked with the Lot No. '93S'.

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 32 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 31 wells of the DR low resolution primer set, **wells 1 to 31**. 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, -DRB4¹ and -DRB5 alleles, i.e. **DRB1*01:01 to 10:06**, **DRB3*01:01 to DRB3*03:03**, **DRB4*01:01 to DRB4*01:08**, **DRB5*01:01 to DRB5*02:06**, recognized by the HLA Nomenclature Committee in July 2013² 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.

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

²DRB alleles listed on the IMGT/HLA web page 2013-July-25, release 3.13.1, www.ebi.ac.uk/imgt/hla.

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SPECIFICITY TABLE

DR low resolution primer set

Specificities and sizes of the PCR products of the 31+1 primer mixes of the DR low resolution primer set

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	DR serology ³	Amplified HLA-DRB alleles ^{4,6}
1⁷	205 bp, 230 bp, 255 bp	515 bp	1	*01:01:01-01:02:08, 01:04-01:38, 01:40N-01:59
2	200 bp	430 bp	1/103	*01:03, 01:39N, 01:42
3	200 bp, 215 bp	430 bp	2, 15	*15:01:01:01-15:98
4⁹	210 bp	430 bp	16	*16:01:01-16:05:02, 16:07-16:24
5^{5,7,12}	120 bp, 220 bp	430 bp	3, 11, 17, 18	*03:01:01:01-03:75, 03:77-03:84, 03:86-03:93, 11:07, 11:53, 11:103, 11:105, 11:107, 11:125, 15:25
6^{5,12}	80 bp, 210 bp	430 bp	3, 6, 11, 13, 14, 17	*03:01:01:01-03:01:22, 03:04:01-03:06, 03:08- 03:16, 03:18-03:20, 03:22-03:23, 03:25-03:26, 03:28, 03:30-03:31, 03:33-03:34, 03:36-03:37, 03:43-03:48, 03:50-03:52, 03:54-03:68N, 03:70- 03:73, 03:75-03:84, 03:86, 03:89, 03:91-03:93, 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, 11:118, 11:122, 11:124, 11:127, 11:131-11:132, 11:135, 11:138-11:139, 11:142, 13:01:01-13:04, 13:08, 13:10, 13:15-13:17, 13:19-13:20, 13:22-13:24, 13:27-13:29, 13:31-13:41, 13:43, 13:45, 13:48, 13:51-13:54, 13:57, 13:59, 13:61:01-13:61:02, 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, 13:104-13:107, 13:109, 13:111-13:117, 13:120- 13:131, 13:133, 13:135, 13:137N-13:145, 13:147-13:149, 13:151-13:153, 13:155, 13:159, 13:162, 14:16, 14:19, 14:21, 14:82, 14:95, 14:109, 14:132, 14:137N
7⁵	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, 03:74, 03:88, 03:90, 11:13:01 ^W -11:13:02 ^W , 11:26, 11:34, 13:15, 13:19, 13:26:01-13:26:02, 13:44, 13:53, 13:57, 13:85-13:86, 13:104,

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8^{5,7}	100 bp, 175 bp	430 bp	3, 4	*04:01:01-04:05:11, 04:05:13-04:163
9	235 bp	430 bp	7	*07:01:01:01-07:01:07, 07:03-07:26N
10	170 bp, 215 bp, 250 bp	515 bp	8, 11, 12, 14	*08:01:01-08:19, 08:21-08:54, 11:67, 12:04, 12:16:01-12:16:02, 12:22, 12:39, 14:11, 14:15, 14:68, 14:93
11^{5,7}	85 bp, 135 bp, 180 bp	430 bp	3, 9, 11	*03:08, 03:65, 09:01:02-09:20, 11:07, 11:53, 11:103, 11:105, 11:107, 11:125
12	180 bp	430 bp	10	*03:76, 10:01:01-10:06, 11:59, 11:80, 11:83, 11:87, 11:135, 11:142, 13:27, 13:41, 13:71, 13:129
13^{5,7}	100 bp, 170 bp	430 bp	3, 8, 11, 13, 14	*03:08, 03:65, 08:31, 08:41, 11:01:01-11:70, 11:72-11:147
14⁵	95 bp	430 bp	12	*08:32, 08:53, 12:01:01-12:40
15¹¹	215 bp	430 bp	6, 8, 11, 13, 14, 1403	*03:76, 08:20-08:21, 11:01:01-11:04:11, 11:06:01-11:06:03, 11:08:01-11:12:02, 11:14:01-11:16, 11:18-11:21, 11:23:01-11:25, 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, 11:99-11:102:02, 11:106, 11:108-11:124, 11:126-11:135, 11:137-11:142, 11:144-11:147, 13:01:01-13:02:01, 13:02:03-13:08, 13:10-13:16, 13:18-13:43, 13:45-13:85, 13:87-13:115, 13:117-13:128, 13:130-13:145, 13:147-13:164, 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, 14:102, 14:105, 14:109, 14:115-14:116, 14:128, 14:135, 14:137N, DRB3*02:27
16⁷	195 bp, 215 bp	430 bp	6, 8, 11, 12, 13, 14	*08:01:01-08:02:04, 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, 08:41-08:44, 08:50, 08:52, 08:54, 11:01:01-11:01:17, 11:02:01-11:06:03, 11:09-11:12:02, 11:14:01-11:16, 11:20-11:21, 11:23:01-11:25, 11:27:01-11:30, 11:32-11:33, 11:35-11:41, 11:43-11:44, 11:46:01-11:51,

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				11:54:01-11:56, 11:58:01-11:63, 11:65:01-11:70, 11:72, 11:74:01-11:78, 11:80-11:88, 11:90-11:97, 11:99-11:102:02, 11:106, 11:108-11:118, 11:120-11:124, 11:126-11:129, 11:133-11:135, 11:137-11:142, 11:144-11:147, 12:02:01-12:02:05, 12:13, 12:15-12:16:02, 12:18-12:21, 12:23, 12:26-12:27, 12:31N-12:33, 12:37, 13:01:01-13:02:01, 13:02:03-13:02:08, 13:04-13:05:02, 13:07:01-13:09, 13:11:01-13:11:02, 13:14:01-13:24, 13:26:01-13:29, 13:31-13:32, 13:34-13:36, 13:38-13:43, 13:45-13:55, 13:57, 13:59, 13:61:01-13:65, 13:67-13:76, 13:78-13:80, 13:83-13:84, 13:87, 13:91-13:93, 13:96:01-13:100, 13:102-13:109, 13:111-13:114, 13:116-13:117, 13:121, 13:123-13:132, 13:135-13:136, 13:138-13:150, 13:153, 13:155, 13:158-13:160, 13:162, 13:164, 14:15-14:16, 14:22, 14:24-14:25, 14:27, 14:37, 14:53, 14:73, 14:105, 14:128
17¹²	175 bp	430 bp	3, 6, 11, 13, 14, 1403, 17, 18	*03:01:01:01-03:07, 03:09, 03:11:01-03:41, 03:43-03:45, 03:47-03:63, 03:66-03:68N, 03:70-03:84, 03:86, 03:88-03:91, 03:93, 08:20, 13:01:01-13:16, 13:18-13:42, 13:44, 13:46-13:66:02, 13:68-13:102, 13:104-13:115, 13:117-13:121, 13:123-13:158, 13:161-13:164, 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, 14:102-14:103, 14:106, 14:108-14:109, 14:115-14:116, 14:121, 14:123, 14:127:01-14:127:02, 14:134-14:136
18^{5,7,10}	100 bp, 140 bp, 155 bp	430 bp	4, 6, 8,13, 14, 1404	*04:62, 04:69, 04:73, 04:105:01-04:105:02, 04:122, 04:146, 08:08, 11:69, 11:82, 13:45, 14:01:01-14:01:02, 14:01:04, 14:04, 14:07:01-14:07:02, 14:10, 14:16, 14:22, 14:25-14:26, 14:28, 14:31-14:32:03, 14:35, 14:37-14:39, 14:49-14:50, 14:53-14:54:01, 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, 14:101, 14:104-14:105, 14:107, 14:110-14:114, 14:117-14:120, 14:122, 14:124-14:125, 14:128-14:129, 14:131, 14:137N-14:140, 14:142, DRB4*01:03:01:02N

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19^{5,8}	110 bp, 140 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, 09:04-09:20, 11:13:01-11:13:02, 11:17, 11:52, 13:43, 13:159, 14:01:01-14:02, 14:04-14:11, 14:13-14:14, 14:16-14:18, 14:19 ^w , 14:20, 14:21 ^w , 14:22-14:23:04, 14:26, 14:28-14:36, 14:38-14:39, 14:41, 14:43-14:52, 14:54:01- 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, 14:99-14:101, 14:103-14:108, 14:109 ^w , 14:110- 14:114, 14:117-14:127:02, 14:129-14:134, 14:137N-14:140, 14:142, 15:27, 15:34, 15:66
20⁵	110 bp, 160 bp, 225 bp	430 bp	2 ^w , 3, 6, 8, 11, 13, 14, 1403, 1404, 16 ^w	*03:10, 08:09, 08:20-08:21, 08:32, 08:35, 08:36:02, 08:53, 11:13:01-11:13:02, 11:17, 11:23:01-11:23:02, 11:25, 11:31, 11:45, 11:52, 11:55, 11:64, 11:89, 11:96, 11:119, 13:13, 13:18, 13:43, 13:45, 13:47, 13:55, 13:119, 13:144, 13:146, 13:154, 13:156, 13:158-13:159, 13:164, 14:01:01-14:01:04, 14:03:01-14:05:04, 14:07:01-14:08, 14:10-14:12:02, 14:14-14:16, 14:18, 14:22-14:23:04, 14:25-14:28, 14:31- 14:32:03, 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- 14:105, 14:107, 14:110-14:120, 14:122-14:140, 14:142, 15:21 ^w , 16:04 ^w , 16:18 ^w
21	165 bp	430 bp	8, 12, 13, 14	*03:92, 08:01:01-08:04:05, 08:04:07-08:06, 08:09-08:10, 08:12-08:14, 08:16-08:18, 08:21- 08:24, 08:26-08:30:03, 08:32-08:33, 08:35- 08:40, 08:42-08:51, 08:53-08:54, 12:09, 13:17, 13:116, 14:15, 14:52, 14:126
22^{5,7}	75 bp, 175 bp	430 bp	2, 4, 8, 11, 13, 14	*04:12, 04:18, 04:25, 04:58, 08:04:01, 08:04:02 ^w -08:04:03 ^w , 08:04:04-08:04:07, 08:06, 08:10, 08:12, 08:14, 08:20, 08:22, 08:28, 08:54, 11:25, 11:67, 11:119, 13:18, 13:144, 13:156, 13:164, 14:12:01-14:12:02, 14:15, 14:78, 14:84, 15:21
23	135 bp	430 bp	8, 12, 13	*03:92, 08:17, 08:28, 08:37, 08:45, 11:67, 12:01:01-12:20, 12:22-12:37, 12:39-12:40, 13:17, 14:138
24	170 bp, 195 bp	430 bp	3, 6, 11, 13, 14	*03:12, 13:03:01-13:04, 13:12:01-13:13, 13:21:01-13:21:02, 13:30, 13:32-13:33:03, 13:38, 13:48-13:49, 13:55, 13:58, 13:65- 13:66:02, 13:75, 13:81, 13:88-13:90, 13:93- 13:95, 13:101, 13:108, 13:115, 13:118, 13:120, 13:122, 13:133-13:134, 13:139, 13:151-13:152, 13:154, 13:161, 13:164, 14:13, 14:63, 14:65, 14:78, 14:85, DRB5*01:08N

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25	150 bp	430 bp	2, 4, 6, 11, 13	*11:16, 11:20, 11:40, 11:59, 11:118, 11:122, 13:01:01-13:02:01, 13:02:03-13:02:08, 13:08, 13:15-13:16, 13:19-13:20, 13:27-13:29, 13:31- 13:32, 13:34-13:36, 13:39-13:41, 13:43, 13:51- 13:53, 13:57, 13:59, 13:61:01-13:61:02, 13:63- 13:65, 13:67-13:69, 13:71-13:74, 13:76, 13:78- 13:80, 13:83-13:84, 13:87, 13:91-13:93, 13:96:01-13:97:01, 13:98-13:99, 13:102-13:107, 13:109, 13:111-13:114, 13:117, 13:121, 13:123- 13:128, 13:130-13:131, 13:135, 13:138-13:143, 13:145, 13:147-13:148, 13:153, 13:155, 13:159- 13:160, 14:16, 14:57, 15:10
26	145 bp	430 bp	3, 6, 11, 13, 14, 17	*03:01:01:01-03:01:22, 03:04:01-03:05:03, 03:07-03:16, 03:18-03:25, 03:28-03:30, 03:32- 03:34, 03:36-03:37, 03:39-03:40, 03:43-03:52, 03:54-03:59, 03:61-03:68N, 03:70-03:73, 03:76- 03:79, 03:81, 03:83-03:84, 03:86, 03:89, 03:91, 03:93, 11:01:01-11:01:06, 11:01:08-11:04:11, 11:06:01-11:16, 11:18-11:21, 11:23:01-11:29, 11:31-11:36, 11:38-11:40, 11:42-11:47, 11:49:01-11:49:02, 11:51, 11:53-11:55, 11:57- 11:66, 11:68-11:70, 11:72-11:82, 11:84:01- 11:87, 11:89-11:103, 11:105-11:106, 11:108- 11:144, 11:146-11:147, 13:01:01-13:01:08, 13:01:10-13:02:08, 13:04-13:06, 13:09- 13:11:02, 13:14:01-13:16, 13:18, 13:20-13:25, 13:27-13:31, 13:34, 13:39, 13:41-13:46, 13:50:01-13:52, 13:54, 13:56-13:57, 13:59, 13:61:01-13:64, 13:66:01-13:66:02, 13:68- 13:69, 13:71, 13:73-13:75, 13:77-13:80, 13:82- 13:83, 13:86-13:87, 13:91-13:93, 13:96:01- 13:100, 13:102, 13:104-13:107, 13:109-13:114, 13:117, 13:119, 13:121, 13:123-13:132, 13:136- 13:148, 13:150, 13:153-13:158, 13:162-13:163, 14:17, 14:21, 14:30, 14:33, 14:35, 14:42, 14:53, 14:64-14:65, 14:72, 14:95, 14:128, 14:132, 14:134
27⁷	145 bp, 215 bp, 240 bp	430 bp	6, 8, 11, 13, 14, 1403, 1404	*08:09, 08:20-08:21, 08:35, 11:13:01-11:13:02, 11:17, 11:23:01-11:23:02, 11:25, 11:45, 11:52, 11:55, 11:64, 11:89, 11:119, 13:08, 13:13, 13:18, 13:47, 13:55, 13:119, 13:144, 13:146, 13:154, 13:156, 13:158, 13:164, 14:01:01- 14:01:04, 14:03:01-14:05:04, 14:07:01-14:08, 14:09 [?] , 14:10-14:12:02, 14:14-14:15, 14:16 [?] -14:17 [?] , 14:18, 14:19 [?] -14:20 [?] , 14:22 [?] , 14:23:01-14:23:04, 14:24 [?] -14:25 [?] , 14:26-14:28,

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				14:29 ² -14:30 ² , 14:31-14:32:02, 14:33 ² , 14:34-14:36, 14:37 ² , 14:38-14:40, 14:41 ² , 14:42-14:45, 14:47 ² -14:49 ² , 14:50, 14:51 ² -14:53 ² , 14:54:01-14:65, 14:67-14:68, 14:69 ² , 14:70-14:72, 14:73 ² -14:74 ² , 14:75, 14:76 ² , 14:77-14:78, 14:79 ² -14:80 ² , 14:81-14:82, 14:83 ² , 14:84-14:93, 14:94 ² , 14:95-14:97, 14:98 ² , 14:99-14:103, 14:104 ² -14:109 ² , 14:110, 14:111 ² , 14:112-14:118, 14:119 ² , 14:120, 14:121 ² , 14:122-14:127:02, 14:128 ² , 14:129-14:142
28	140 bp	430 bp	6, 13, 14	*03:76, 13:10, 13:85, 13:120, 14:02, 14:06:01-14:06:02, 14:09, 14:13, 14:17, 14:19, 14:21, 14:29-14:30, 14:33, 14:46-14:48, 14:51-14:52, 14:80, 14:83, 14:106, 14:108-14:109, 14:121
29^{11,12}	160 bp, 240 bp	430 bp	52	*14:141, DRB3*01:01:02:01-01:15, DRB3*02:01-02:29N, DRB3*03:01:01-03:03
30^{7,10}	215 bp	430 bp	53	DRB4*01:01:01:01-01:08
31	175 bp	430 bp	51	DRB5*01:01:01-01:14, DRB5*02:02-02:06
32¹³	-	-		Negative control

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

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

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.

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

Well number 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.

³The serological reactivity of all DRB alleles is not known. In this table we use the information in the HLA Dictionary 2004 on the www.ebi.ac.uk/imgt/hla web site and the expert-assigned serological grouping in Tissue Antigens (2009) 73:95-170.

⁴For several DRB alleles 1st and/or 3rd exon(s) and beyond, as well as intron nucleotide sequences, are not available. In these instances it is not known whether some of the primers of the SSP sets

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are completely matched with the target sequences or not. We assume that unknown sequences in these regions are conserved within allelic groups.

⁵HLA-specific PCR products shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR products.

⁶Individual alleles can give rise to two differently sized specific PCR fragments in primer mix 1, 3, 5 to 8, 10, 11, 13, 14, 16, 19, 20 and 29.

⁷Primer mixes 1, 5, 8, 11, 13, 16, 18, 22, 27 and 30 have a tendency to giving rise to primer oligomer formation.

⁸Primer 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.

⁹Primer mix 4 may have tendency of unspecific amplification.

¹⁰The DRB4*01:03:01:02N allele is amplified by the primer pairs in wells 18 and 30, whereas the DRB4*02:01N and DRB4*03:01N null alleles are not amplified by these primer pairs.

¹¹Due to sharing of sequence motifs, DRB3*02:27 is amplified by the primer pairs in well 15 in addition to primer mix 29.

¹²Due 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 29.

¹³Primer mix 32 contains a negative control, which will amplify more than 95% of HLA amplicons as well as the amplicons generated by control primer pairs. PCR product sizes range from 75 to 200 base pairs. The PCR product generated by the control primer pair is 430 base pairs.

‘w’, might be weakly amplified.

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Lot-specific information

INTERPRETATION TABLE																
DR low resolution SSP typing																
Amplification patterns of the DRB1*01:01 to DRB1*10:06 alleles																
		Well ⁴														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Length of spec.		205	200	200	210	120	80	85	100	235	170	85	180	100	95	215
PCR product(s)		230		215		220	210	210	175		215	135		170		215
		255									250	180				
Length of int. pos. control ¹		515	430	430	430	430	430	430	430	430	515	430	430	430	430	430
Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
DRB1 allele ²	ser ³															
*01:01:01-01:02:08, 01:04-01:38, 01:40N-01:41, 01:43-01:59	DR1, Null, -	1														
*01:03, 01:39N	DR103/ DR1, Null		2													
*01:42	-	1	2													
*03:01:01-03:01:22, 03:04:01- 03:05:03, 03:09, 03:11:01, 03:13:01- 03:16, 03:18-03:20, 03:22-03:23, 03:25, 03:28, 03:30, 03:33-03:34, 03:36-03:37, 03:43-03:45, 03:47- 03:48, 03:50-03:52, 03:54-03:59, 03:61-03:63, 03:66-03:68N, 03:70- 03:73, 03:77-03:79, 03:81, 03:83- 03:84, 03:86, 03:89, 03:91, 03:93	DR17, DR3, Null, -					5	6									
*03:02:01-03:03, 03:27, 03:38, 03:53, 03:74, 03:88, 03:90	DR18, DR3, -					5		7								
*03:06, 03:26, 03:31, 03:60, 03:75, 03:80, 03:82	DR3, -					5	6									
*03:07, 03:21, 03:24, 03:32, 03:39- 03:40, 03:49	DR3, -					5										
*03:08, 03:65	DR3, -					5	6				11			13		
*03:10	DR3					5	6									
*03:12	DR3					5	6									
*03:17, 03:35, 03:41	DR3, -					5										
*03:29	DR3					5		7								
*03:42, 03:69, 03:87	-					5										
*03:46, 03:64	-					5	6									
*03:76	-						6					12			15	
*03:92	-					5	6									
Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

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Lot-specific information

INTERPRETATION TABLE**DR low resolution SSP typing**

Amplification patterns of the DRB1*01:01 to DRB1*10:06 alleles

Well ⁴																		
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32			
175	100	110	110	165	75	135	170	150	145	145	140	160	215	175	Neg. Control		Length of spec.	
	140	140	160		175		195			215		240					PCR product(s)	
	155	170	225							240								
430	430	430	430	430	430	430	430	430	430	430	430	430	430	430			Length of int. pos. control ¹	
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	DR	Well No.	
																ser ³	DRB1 allele ²	
																DR1, Null, -	*01:01:01-01:02:08, 01:04-01:38, 01:40N-01:41, 01:43-01:59	
																DR103/ DR1, Null	*01:03, 01:39N	
																-	*01:42	
17									26							Negative Control	DR17, DR3, Null, -	*03:01:01-01:03:01:22, 03:04:01- 03:05:03, 03:09, 03:11:01, 03:13:01- 03:16, 03:18-03:20, 03:22-03:23, 03:25, 03:28, 03:30, 03:33-03:34, 03:36-03:37, 03:43-03:45, 03:47- 03:48, 03:50-03:52, 03:54-03:59, 03:61-03:63, 03:66-03:68N, 03:70- 03:73, 03:77-03:79, 03:81, 03:83- 03:84, 03:86, 03:89, 03:91, 03:93
17																	DR18, DR3, -	*03:02:01-03:03, 03:27, 03:38, 03:53, 03:74, 03:88, 03:90
17																	DR3, -	*03:06, 03:26, 03:31, 03:60, 03:75, 03:80, 03:82
17									26								DR3, -	*03:07, 03:21, 03:24, 03:32, 03:39- 03:40, 03:49
									26								DR3, -	*03:08, 03:65
		19	20						26								DR3	*03:10
17							24		26								DR3	*03:12
17																	DR3, -	*03:17, 03:35, 03:41
17									26								DR3	*03:29
																	-	*03:42, 03:69, 03:87
									26								-	*03:46, 03:64
17									26		28						-	*03:76
				21		23											-	*03:92
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	DR	Well No.	

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Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
DRB1 allele ²	ser ³																
*04:01:01-04:05:11, 04:05:13-04:11:03, 04:13-04:17:02, 04:19-04:24, 04:26-04:57, 04:59-04:61, 04:63-04:68, 04:70-04:72:02, 04:74-04:104, 04:106-04:121, 04:123-04:145, 04:147-04:163	DR4, DR4/DR3, Null, -								8								
*04:12, 04:18, 04:25, 04:58	DR4								8								
*04:62, 04:69, 04:73, 04:105:01-04:105:02, 04:122, 04:146	DR4, -								8								
*07:01:01-07:01:07, 07:03-07:26N	DR7, Null, -									9							
*08:01:01-08:02:04, 08:05, 08:16, 08:24, 08:26, 08:39, 08:42-08:44, 08:50	DR8, -									10							16
*08:03:02-08:03:03, 08:13, 08:18, 08:23, 08:27, 08:29-08:30:03, 08:33, 08:36:01, 08:38, 08:46-08:49, 08:51	DR8, -									10							
*08:04:01, 08:04:04-08:04:05, 08:04:07, 08:06, 08:22, 08:54	DR8, -									10							16
*08:04:02-08:04:03	DR8									10							16
*08:04:06	-									10							16
*08:07, 08:11, 08:52	DR8, -									10							16
*08:08	DR8									10							16
*08:09	DR8									10							16
*08:10, 08:12, 08:14	DR8									10							
*08:15, 08:19, 08:25, 08:34	DR8, -									10							
*08:17	DR8									10							16
*08:20	-															15	16
*08:21	DR8									10						15	16
*08:28	DR8									10							16
*08:31, 08:41	DR8/DR11, -									10				13			16
*08:32, 08:53	-									10				14			
*08:35	-									10							
*08:36:02	-									10							
*08:37, 08:45	-									10							
*08:40	-						6			10							
*09:01:02-09:01:05, 09:01:07-09:02:02, 09:04-09:20	DR9, -										11						
*09:01:06, 09:03	DR9										11						
*10:01:01-10:06	DR10, -											12					
Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

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17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	DR	Well No.
																ser ³	DRB1 allele ²
																DR4, DR4/DR 3, Null, -	*04:01:01-04:05:11, 04:05:13- 04:11:03, 04:13-04:17:02, 04:19- 04:24, 04:26-04:57, 04:59-04:61, 04:63-04:68, 04:70-04:72:02, 04:74- 04:104, 04:106-04:121, 04:123- 04:145, 04:147-04:163
					22											DR4	*04:12, 04:18, 04:25, 04:58
18																DR4, -	*04:62, 04:69, 04:73, 04:105:01- 04:105:02, 04:122, 04:146
																DR7, Null, -	*07:01:01:01-07:01:07, 07:03- 07:26N
				21												DR8, -	*08:01:01-08:02:04, 08:05, 08:16, 08:24, 08:26, 08:39, 08:42-08:44, 08:50
				21												DR8, -	*08:03:02-08:03:03, 08:13, 08:18, 08:23, 08:27, 08:29-08:30:03, 08:33, 08:36:01, 08:38, 08:46-08:49, 08:51
				21	22											DR8, -	*08:04:01, 08:04:04-08:04:05, 08:04:07, 08:06, 08:22, 08:54
				21	w											DR8	*08:04:02-08:04:03
					22											-	*08:04:06
																DR8, -	*08:07, 08:11, 08:52
18																DR8	*08:08
			20	21						27						DR8	*08:09
				21	22											DR8	*08:10, 08:12, 08:14
																DR8, -	*08:15, 08:19, 08:25, 08:34
				21		23										DR8	*08:17
17			20		22					27						-	*08:20
			20	21						27						DR8	*08:21
				21	22	23										DR8	*08:28
																DR8/DR 11, -	*08:31, 08:41
			20	21												-	*08:32, 08:53
			20	21						27						-	*08:35
			20	21												-	*08:36:02
				21		23										-	*08:37, 08:45
				21												-	*08:40
19																DR9, -	*09:01:02-09:01:05, 09:01:07- 09:02:02, 09:04-09:20
																DR9	*09:01:06, 09:03
																DR10, -	*10:01:01-10:06
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	DR	Well No.

Negative Control

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Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
DRB1 allele ²	ser ³																
*11:01:01-11:01:06, 11:01:08-11:01:17, 11:04:01-11:04:11, 11:06:01-11:06:03, 11:09-11:10:02, 11:12:01-11:12:02, 11:15, 11:24, 11:27:01-11:29, 11:32-11:33, 11:35, 11:38-11:39, 11:43-11:44, 11:46:01-11:47, 11:49:01-11:49:02, 11:51, 11:54:01-11:54:02, 11:58:01-11:58:02, 11:60-11:62, 11:66, 11:72, 11:74:01-11:75, 11:77-11:78, 11:81, 11:84:01-11:84:03, 11:90-11:92, 11:94-11:95, 11:97, 11:99-11:102:02, 11:106, 11:108-11:117, 11:120-11:121, 11:123, 11:126, 11:128-11:129, 11:133-11:134, 11:137, 11:140-11:141, 11:144, 11:146-11:147	DR11, -													13		15	16
*11:01:07, 11:30, 11:37:01-11:37:02, 11:50, 11:56, 11:88, 11:145	DR11, -													13		15	16
*11:01:18-11:01:19, 11:08:01-11:08:02, 11:18-11:19:03, 11:42, 11:57, 11:130	DR11, -													13		15	
*11:02:01-11:03, 11:11:01-11:11:02, 11:14:01-11:14:02, 11:21, 11:36, 11:63, 11:65:01-11:65:02, 11:68, 11:70, 11:76, 11:85-11:86, 11:93, 11:124, 11:127, 11:138-11:139	DR11, -						6							13		15	16
*11:05	DR11													13			16
*11:07, 11:53, 11:103, 11:105, 11:125	DR11, -					5					11			13			
*11:13:01-11:13:02	DR11							w						13			
*11:16, 11:20, 11:40, 11:118, 11:122	DR11/D R13, -						6							13		15	16
*11:17, 11:52	DR14, DR11													13			
*11:22, 11:104	-													13			
*11:23:01-11:23:02	DR11, -													13		15	16
*11:25	DR11													13		15	16
*11:26, 11:34	DR11							7						13			
*11:31	DR11													13		15	
*11:41, 11:48	DR11						6							13		15	16
Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

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17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	DR	Well No.
																ser ³	DRB1 allele ²
									26							DR11, -	*11:01:01-11:01:06, 11:01:08-11:01:17, 11:04:01-11:04:11, 11:06:01-11:06:03, 11:09-11:10:02, 11:12:01-11:12:02, 11:15, 11:24, 11:27:01-11:29, 11:32-11:33, 11:35, 11:38-11:39, 11:43-11:44, 11:46:01-11:47, 11:49:01-11:49:02, 11:51, 11:54:01-11:54:02, 11:58:01-11:58:02, 11:60-11:62, 11:66, 11:72, 11:74:01-11:75, 11:77-11:78, 11:81, 11:84:01-11:84:03, 11:90-11:92, 11:94-11:95, 11:97, 11:99-11:102:02, 11:106, 11:108-11:117, 11:120-11:121, 11:123, 11:126, 11:128-11:129, 11:133-11:134, 11:137, 11:140-11:141, 11:144, 11:146-11:147
																DR11, -	*11:01:07, 11:30, 11:37:01-11:37:02, 11:50, 11:56, 11:88, 11:145
									26							DR11, -	*11:01:18-11:01:19, 11:08:01-11:08:02, 11:18-11:19:03, 11:42, 11:57, 11:130
									26							DR11, -	*11:02:01-11:03, 11:11:01-11:11:02, 11:14:01-11:14:02, 11:21, 11:36, 11:63, 11:65:01-11:65:02, 11:68, 11:70, 11:76, 11:85-11:86, 11:93, 11:124, 11:127, 11:138-11:139
																DR11	*11:05
									26							DR11, -	*11:07, 11:53, 11:103, 11:105, 11:125
		19	20						26	27						DR11	*11:13:01-11:13:02
								25	26							DR11/D R13, -	*11:16, 11:20, 11:40, 11:118, 11:122
		19	20							27						DR14, DR11	*11:17, 11:52
																-	*11:22, 11:104
			20						26	27						DR11, -	*11:23:01-11:23:02
			20		22				26	27						DR11	*11:25
									26							DR11	*11:26, 11:34
			20						26							DR11	*11:31
																DR11	*11:41, 11:48
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	DR	Well No.

Negative Control

101.101-48/12 – including *Taq* pol., IFU-01
 101.101-48u/12u – without *Taq* pol., IFU-02

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 “Instructions for Use” (IFU)

Lot No.: **93S**

Lot-specific information

Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
DRB1 allele ²	ser ³																
*11:45, 11:64	DR11, -													13		15	
*11:55	DR11													13			16
*11:59	DR11						6						12	13		15	16
*11:67	-										10			13			16
*11:69, 11:82	-													13			16
*11:73, 11:79, 11:131-11:132	-						6							13		15	
*11:80, 11:87, 11:135, 11:142	-						6						12	13		15	16
*11:83	-						6						12	13		15	16
*11:89	-													13			
*11:96	-													13		15	16
*11:98, 11:136, 11:143	-													13			
*11:107	-					5						11		13			
*11:119	-													13		15	
*12:01:01-12:01:05, 12:03:02-12:03:03, 12:05-12:08, 12:10-12:12, 12:14, 12:17, 12:24N-12:25, 12:28-12:30, 12:34-12:36, 12:40	DR12, Null, -														14		
*12:02:01-12:02:05, 12:13, 12:15, 12:18-12:20, 12:23, 12:26-12:27, 12:31N-12:33, 12:37	DR12, Null, -														14		16
*12:04, 12:22, 12:39	DR12, -										10			14			
*12:09	DR12													14			
*12:16:01-12:16:02	-										10			14		16	
*12:21	-													14		16	
*12:38	-													14			
*13:01:01-13:01:08, 13:01:10-13:02:01, 13:02:03-13:02:08, 13:16, 13:20, 13:28-13:29, 13:31, 13:34, 13:39, 13:51-13:52, 13:59, 13:61:01-13:61:02, 13:63-13:64, 13:68-13:69, 13:73-13:74, 13:78-13:80, 13:83, 13:87, 13:91-13:92, 13:96:01-13:97:01, 13:98-13:99, 13:102, 13:105-13:107, 13:109, 13:111-13:114, 13:117, 13:121, 13:123-13:128, 13:130-13:131, 13:138, 13:140-13:143, 13:145, 13:147-13:148, 13:153, 13:155	DR13, Null, -						6									15	16
*13:01:09, 13:35-13:36, 13:40, 13:72, 13:76, 13:84, 13:135	DR13, -						6									15	16
*13:02:02	DR13						6										
Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

101.101-48/12 – including *Taq* pol., IFU-01
 101.101-48u/12u – without *Taq* pol., IFU-02

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 “Instructions for Use” (IFU)

Lot No.: **93S**

Lot-specific information

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	DR	Well No.
																ser ³	DRB1 allele ²
			20						26	27						DR11, -	*11:45, 11:64
			20						26	27						DR11	*11:55
								25	26							DR11	*11:59
				22	23											-	*11:67
18									26							-	*11:69, 11:82
									26							-	*11:73, 11:79, 11:131-11:132
									26							-	*11:80, 11:87, 11:135, 11:142
																-	*11:83
			20						26	27						-	*11:89
			20						26							-	*11:96
									26							-	*11:98, 11:136, 11:143
																-	*11:107
			20	22					26	27						-	*11:119
						23										DR12, Null, -	*12:01:01-12:01:05, 12:03:02-12:03:03, 12:05-12:08, 12:10-12:12, 12:14, 12:17, 12:24N-12:25, 12:28-12:30, 12:34-12:36, 12:40
						23										DR12, Null, -	*12:02:01-12:02:05, 12:13, 12:15, 12:18-12:20, 12:23, 12:26-12:27, 12:31N-12:33, 12:37
						23										DR12, -	*12:04, 12:22, 12:39
				21		23										DR12	*12:09
						23										-	*12:16:01-12:16:02
																-	*12:21
																-	*12:38
17								25	26							DR13, Null, -	*13:01:01-13:01:08, 13:01:10-13:02:01, 13:02:03-13:02:08, 13:16, 13:20, 13:28-13:29, 13:31, 13:34, 13:39, 13:51-13:52, 13:59, 13:61:01-13:61:02, 13:63-13:64, 13:68-13:69, 13:73-13:74, 13:78-13:80, 13:83, 13:87, 13:91-13:92, 13:96:01-13:97:01, 13:98-13:99, 13:102, 13:105-13:107, 13:109, 13:111-13:114, 13:117, 13:121, 13:123-13:128, 13:130-13:131, 13:138, 13:140-13:143, 13:145, 13:147-13:148, 13:153, 13:155
17								25								DR13, -	*13:01:09, 13:35-13:36, 13:40, 13:72, 13:76, 13:84, 13:135
17									26							DR13	*13:02:02
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	DR	Well No.

Negative Control

101.101-48/12 – including *Taq* pol., IFU-01
 101.101-48u/12u – without *Taq* pol., IFU-02

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 “Instructions for Use” (IFU)

Lot No.: **93S**

Lot-specific information

Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
DRB1 allele ²	ser ³																
*13:03:01-13:03:06, 13:33:01-13:33:03, 13:81, 13:88-13:90, 13:94:01-13:95, 13:101, 13:115, 13:133, 13:151-13:152	DR13, -					6										15	
*13:04, 13:75	DR13, -					6										15	16
*13:05:01-13:05:02, 13:11:01-13:11:02, 13:14:01-13:14:03, 13:42, 13:46, 13:50:01-13:50:02, 13:62, 13:100, 13:132, 13:136, 13:150	DR13, DR6, DR11, -															15	16
*13:06, 13:25, 13:56, 13:77, 13:82, 13:110, 13:157, 13:163	DR13, DR11, DR6, -															15	
*13:07:01-13:07:02	DR13															15	16
*13:08	DR13					6										15	16
*13:09	DR13																16
*13:10	DR13					6										15	
*13:12:01-13:12:03, 13:58, 13:118, 13:134, 13:161	DR13, -															15	
*13:13	DR13															15	
*13:15, 13:57, 13:104	DR13, -					6	7									15	16
*13:17	DR13					6											16
*13:18	DR13															15	16
*13:19, 13:53	DR13					6	7									15	16
*13:21:01-13:21:02	DR13/D R11															15	16
*13:22-13:24, 13:54, 13:97:02, 13:162	DR13, DR11, DR14, -					6										15	16
*13:26:01-13:26:02	DR14, -						7									15	16
*13:27, 13:41, 13:71	DR13					6						12				15	16
*13:30	-															15	
*13:32, 13:65	DR13					6										15	16
*13:37	DR13					6										15	
*13:38, 13:48	DR13					6										15	16
*13:43	DR13					6										15	16
*13:44, 13:86	-						7										
*13:45	DR13					6										15	16
*13:47	-															15	16
*13:49, 13:108	DR6, -															15	16
*13:55	-															15	16
*13:60	DR6															15	
*13:66:01-13:66:02	DR13, -					6										15	
*13:67, 13:103, 13:160	DR13, -															15	16
Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

101.101-48/12 – including *Taq* pol., IFU-01
 101.101-48u/12u – without *Taq* pol., IFU-02

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 “Instructions for Use” (IFU)

Lot No.: **93S**

Lot-specific information

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	DR	Well No.
																ser ³	DRB1 allele ²
17							24									DR13, -	*13:03:01-13:03:06, 13:33:01-13:33:03, 13:81, 13:88-13:90, 13:94:01-13:95, 13:101, 13:115, 13:133, 13:151-13:152
17							24		26							DR13, -	*13:04, 13:75
17									26							DR13, DR6, DR11, -	*13:05:01-13:05:02, 13:11:01-13:11:02, 13:14:01-13:14:03, 13:42, 13:46, 13:50:01-13:50:02, 13:62, 13:100, 13:132, 13:136, 13:150
17									26							DR13, DR11, DR6, -	*13:06, 13:25, 13:56, 13:77, 13:82, 13:110, 13:157, 13:163
17																DR13	*13:07:01-13:07:02
17								25		27						DR13	*13:08
17									26							DR13	*13:09
17									26		28					DR13	*13:10
17							24									DR13, -	*13:12:01-13:12:03, 13:58, 13:118, 13:134, 13:161
17		20					24			27						DR13	*13:13
17								25	26							DR13, -	*13:15, 13:57, 13:104
				21		23										DR13	*13:17
17		20			22				26	27						DR13	*13:18
17								25								DR13	*13:19, 13:53
17							24		26							DR13/D R11	*13:21:01-13:21:02
17									26							DR13, DR11, DR14, -	*13:22-13:24, 13:54, 13:97:02, 13:162
17																DR14, -	*13:26:01-13:26:02
17								25	26							DR13	*13:27, 13:41, 13:71
17							24		26							-	*13:30
17							24	25								DR13	*13:32, 13:65
17																DR13	*13:37
17							24									DR13	*13:38, 13:48
		19	20					25	26							DR13	*13:43
17									26							-	*13:44, 13:86
	18		20						26							DR13	*13:45
17		20								27						-	*13:47
17							24									DR6, -	*13:49, 13:108
17		20					24			27						-	*13:55
17																DR6	*13:60
17							24		26							DR13, -	*13:66:01-13:66:02
								25								DR13, -	*13:67, 13:103, 13:160
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	DR	Well No.

Negative Control

101.101-48/12 – including *Taq* pol., IFU-01
 101.101-48u/12u – without *Taq* pol., IFU-02

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 “Instructions for Use” (IFU)

Lot No.: **93S**

Lot-specific information

Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
DRB1 allele ²	ser ³																
*13:70, 13:149	DR13, -					6										15	16
*13:85	-					6	7									15	
*13:93, 13:139	-					6										15	16
*13:116	-					6											16
*13:119	-															15	
*13:120	-					6										15	
*13:122	-					6										15	
*13:129	-					6						12					16
*13:137N	-					6										15	
*13:144	-					6										15	16
*13:146	-																16
*13:154	-															15	
*13:156	-															15	
*13:158	-															15	16
*13:159	-					6										15	16
*13:164	-															15	16
*14:01:01-14:01:02, 14:01:04, 14:04, 14:07:01-14:07:02, 14:10, 14:26, 14:28, 14:31, 14:38-14:39, 14:50, 14:54:01, 14:55, 14:60-14:62, 14:70-14:71, 14:75, 14:86-14:88, 14:90, 14:99, 14:101, 14:110, 14:112-14:114, 14:117-14:118, 14:120, 14:122, 14:124-14:125, 14:129, 14:131, 14:139-14:140, 14:142	DR14, DR1404/DR14, -																
*14:01:03, 14:08, 14:23:02, 14:34, 14:54:02, 14:92N, 14:97, 14:130, 14:133	DR14, Null, -																
*14:02, 14:06:01-14:06:02	DR14							7									
*14:03:01-14:03:02, 14:40, 14:67, 14:77, 14:102, 14:115, 14:135	DR1403/DR14, DR6, -							7								15	
*14:05:01-14:05:04, 14:14, 14:23:01, 14:23:03-14:23:04, 14:36, 14:43-14:45, 14:56, 14:59, 14:91, 14:96, 14:100, 14:103, 14:123, 14:127:01-14:127:02	DR14, -																
*14:09, 14:29, 14:47-14:48, 14:51, 14:80, 14:83, 14:106, 14:108, 14:121	DR14, -							7									
*14:11	DR14										10						
*14:12:01-14:12:02	DR14, -							7								15	
Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

101.101-48/12 – including *Taq* pol., IFU-01
 101.101-48u/12u – without *Taq* pol., IFU-02

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Lot No.: **93S**

Lot-specific information

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	DR	Well No.
																ser ³	DRB1 allele ²
17																DR13, -	*13:70, 13:149
17											28					-	*13:85
17							24	25	26							-	*13:93, 13:139
				21												-	*13:116
17			20						26	27						-	*13:119
17							24				28					-	*13:120
							24									-	*13:122
17									26							-	*13:129
17									26							-	*13:137N
17			20		22				26	27						-	*13:144
17			20						26	27						-	*13:146
17			20				24		26	27						-	*13:154
17			20		22				26	27						-	*13:156
17			20						26	27						-	*13:158
		19	20					25								-	*13:159
17			20		22		24			27						-	*13:164
																Negative Control	*14:01:01-14:01:02, 14:01:04, 14:04, 14:07:01-14:07:02, 14:10, 14:26, 14:28, 14:31, 14:38-14:39, 14:50, 14:54:01, 14:55, 14:60-14:62, 14:70- 14:71, 14:75, 14:86-14:88, 14:90, 14:99, 14:101, 14:110, 14:112- 14:114, 14:117-14:118, 14:120, 14:122, 14:124-14:125, 14:129, 14:131, 14:139-14:140, 14:142
																	*14:01:03, 14:08, 14:23:02, 14:34, 14:54:02, 14:92N, 14:97, 14:130, 14:133
																	*14:02, 14:06:01-14:06:02
																	*14:03:01-14:03:02, 14:40, 14:67, 14:77, 14:102, 14:115, 14:135
																	*14:05:01-14:05:04, 14:14, 14:23:01, 14:23:03-14:23:04, 14:36, 14:43- 14:45, 14:56, 14:59, 14:91, 14:96, 14:100, 14:103, 14:123, 14:127:01- 14:127:02
																	*14:09, 14:29, 14:47-14:48, 14:51, 14:80, 14:83, 14:106, 14:108, 14:121
																	*14:11
																	*14:12:01-14:12:02
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	DR	Well No.

101.101-48/12 – including *Taq* pol., IFU-01
 101.101-48u/12u – without *Taq* pol., IFU-02

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Lot No.: **93S**

Lot-specific information

Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
DRB1 allele ²	ser ³																
*14:13	DR14							7									
*14:15	DR8									10							16
*14:16	DR6						6									15	16
*14:17, 14:30, 14:33	DR6							7									
*14:18, 14:81	DR14, -							7									
*14:19, 14:109	DR14, -						6	7								15	
*14:20, 14:41, 14:94	DR14, -							7									
*14:21	DR14						6	7								15	
*14:22, 14:105	DR14, -															15	16
*14:24	DR14							7									16
*14:25	DR6															15	16
*14:27	DR14							7								15	16
*14:32:01-14:32:02	DR14							w									
*14:32:03	-																
*14:35	DR14																
*14:37	DR14																16
*14:42	-																
*14:46	DR14																
*14:49, 14:119	DR14, -							7									
*14:52	DR14																
*14:53, 14:128	DR13/14 , -															15	16
*14:57	DR4/DR 6																
*14:58	DR14																
*14:63, 14:85	DR6, -							7								15	
*14:64, 14:134	DR14, -																
*14:65	DR6							w									
*14:68, 14:93	DR14, -									10							
*14:69	-															15	
*14:72	-																
*14:73	-																16
*14:74	-															15	
*14:76, 14:79, 14:104, 14:107, 14:111	-																
*14:78	-							7								15	
*14:82	-						6										
*14:84	-															15	
*14:89	-							7									
*14:95	-						6										
*14:98	-							7								15	
*14:116	-															15	
Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

101.101-48/12 – including *Taq* pol., IFU-01
 101.101-48u/12u – without *Taq* pol., IFU-02

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Lot No.: **93S**

Lot-specific information

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	DR	Well No.
																ser ³	DRB1 allele ²
17		19					24				28					DR14	*14:13
			20	21	22					27						DR8	*14:15
	18	19	20					25		?						DR6	*14:16
17		19							26	?	28					DR6	*14:17, 14:30, 14:33
17		19	20							27						DR14, -	*14:18, 14:81
17		w								?	28					DR14, -	*14:19, 14:109
17		19								?						DR14, -	*14:20, 14:41, 14:94
17		w							26		28					DR14	*14:21
	18	19	20							?						DR14, -	*14:22, 14:105
17										?						DR14	*14:24
	18		20							?						DR6	*14:25
17			20							27						DR14	*14:27
	18	19	20							27						DR14	*14:32:01-14:32:02
	18	19	20													-	*14:32:03
	18	19	20						26	27						DR14	*14:35
17	18									?						DR14	*14:37
17			20						26	27						-	*14:42
		19									28					DR14	*14:46
	18	19	20							?						DR14, -	*14:49, 14:119
		19		21						?	28					DR14	*14:52
	18		20						26	?						DR13/14	*14:53, 14:128
																, -	
	18	19	20					25		27						DR4/DR6	*14:57
	18		20							27						DR14	*14:58
17			20				24			27						DR6, -	*14:63, 14:85
17		19	20						26	27						DR14, -	*14:64, 14:134
17		19	20				24		26	27						DR6	*14:65
	18	19	20							27						DR14, -	*14:68, 14:93
	18		20							?						-	*14:69
		19	20						26	27						-	*14:72
	18	19	20							?						-	*14:73
	18	19	20							?						-	*14:74
	18	19	20							?						-	*14:76, 14:79, 14:104, 14:107, 14:111
17			20		22		24			27						-	*14:78
	18	19	20							27						-	*14:82
17			20		22					27						-	*14:84
17			20							27						-	*14:89
17		19	20						26	27						-	*14:95
17										?						-	*14:98
17			20							27						-	*14:116
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	DR	Well No.

Negative Control

101.101-48/12 – including *Taq* pol., IFU-01
 101.101-48u/12u – without *Taq* pol., IFU-02

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Lot No.: **93S**

Lot-specific information

Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
DRB1 allele ²	ser ³																
*14:126	-																
*14:132	-					6											
*14:136	-																
*14:137N	Null					6										15	
*14:138	-																
*14:141	-																
*15:01:01:01-15:09, 15:11-15:20, 15:22-15:24, 15:26, 15:28-15:33, 15:35-15:65, 15:67-15:98	DR15, DR2, Null, -			3													
*15:10	DR2			3													
*15:21	DR2			3													
*15:25	-			3		5											
*15:27, 15:34, 15:66	-			3													
*16:01:01-16:03, 16:05:01-16:05:02, 16:07-16:17, 16:19-16:24	DR16, Null, -				4												
*16:04, 16:18	DR16, -				4												
DRB3*01:01:02:01-01:15, DRB3*02:01:02:26, DRB3*02:28- 02:29N, DRB3*03:01:01-03:03	DR52, Null, -																
DRB3*02:27	-															15	
DRB4*01:01:01:01-01:03:01:01, DRB4*01:03:01:03-01:08	DR53, -																
DRB4*01:03:01:02N	Null																
DRB5*01:01:01-01:07, DRB5*01:09-01:14, DRB5*02:02- 02:06	DR51, Null, -																
DRB5*01:08N	Null																
Well No.	DR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

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

Well number 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.

101.101-48/12 – including *Taq* pol., IFU-01
101.101-48u/12u – without *Taq* pol., IFU-02

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Lot No.: **93S**

Lot-specific information

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	DR	Well No.
																ser ³	DRB1 allele ²
		19	20	21						27						-	*14:126
		19	20						26	27						-	*14:132
17			20							27						-	*14:136
	18	19	20							27						Null	*14:137N
	18	19	20			23				27						-	*14:138
										27		29				-	*14:141
																DR15, DR2, Null, -	*15:01:01:01-15:09, 15:11-15:20, 15:22-15:24, 15:26, 15:28-15:33, 15:35-15:65, 15:67-15:98
								25								DR2	*15:10
		w		22												DR2	*15:21
																-	*15:25
	19															-	*15:27, 15:34, 15:66
																DR16, Null, -	*16:01:01-16:03, 16:05:01-16:05:02, 16:07-16:17, 16:19-16:24
		w														DR16, -	*16:04, 16:18
												29				DR52, Null, -	DRB3*01:01:02:01-01:15, DRB3*02:01-02:26, DRB3*02:28- 02:29N, DRB3*03:01:01-03:03
												29				-	DRB3*02:27
													30			DR53, -	DRB4*01:01:01:01-01:03:01:01, DRB4*01:03:01:03-01:08
	18												30			Null	DRB4*01:03:01:02N
														31		DR51, Null, -	DRB5*01:01:01-01:07, DRB5*01:09-01:14, DRB5*02:02- 02:06
							24							31		Null	DRB5*01:08N
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	DR	Well No.

²The DRB1*03:11:02 allele has been renamed DRB1*03:81.

The sequence of the DRB1*04:05:12 allele has been shown to be identical to DRB1 *04:05:14.

The sequence of the DRB1*0702 allele has been shown to be identical to DRB1*07:01:01:01.

The sequence of the DRB1*08031 allele has been shown to be identical to DRB1*08:03:02.

The sequence of the DRB1*09011 allele has been shown to be identical to DRB1*09:01:02.

The sequence of the DRB1*1171 allele has been shown to be identical to DRB1*11:02:01.

The sequence of the DRB1*12031 allele has been shown to be identical to DRB1*12:01:01.

The DRB1*1466 allele has been renamed DRB1*14:32:02.

The sequence of the DRB1*1606 allele has been shown to be identical to DRB1*16:05:01.

The sequence of the DRB3*010101 allele has been shown to be identical to DRB3*01:01:02:01.

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

The sequence of the DRB5*0201 allele has been shown to be identical to DRB5*02:02.

Due to sharing of sequence motifs in codon 38, DRB3*01:14 will also be amplified in primer mixes 5, 6 and 17 in addition to primer mix 29.

101.101-48/12 – including *Taq* pol., IFU-01
101.101-48u/12u – without *Taq* pol., IFU-02

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Lot No.: 93S

Lot-specific information

³The serological reactivity of all DRB alleles is not known. In this table we use the information in the HLA Dictionary 2004 on the www.ebi.ac.uk/imgt/hla web site and the expert-assigned serological grouping in Tissue Antigens (2009) 73:95-170.

⁴Primer mix 32 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’, may be weakly amplified.

101.101-48/12 – including *Taq* pol., IFU-01
 101.101-48u/12u – without *Taq* pol., IFU-02

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Lot No.: **93S**

Lot-specific information

Primers

Well No.	1	2	3	4	5	6	7	8
Length of spec.	205	200	200	210	120	80	85	100
PCR product(s)	230		215		220	210	210	175
	255							
Length of int.	515	430	430	430	430	430	430	430
pos. control ¹								
5'-primer(s) ²	12(124) 5'-A.T 3'	14(129) 5'-gAA 3'	13(126) 5'-Agg 3'	13(126) 5'-Agg 3'	13(125) 5'-gTC 3'	13(125) 5'-gTC 3'	13(125) 5'-gTC 3'	13(125) 5'-ACA 3'
	14(129) 5'-gAA 3'		13(126) 5'-AAg 3'	13(126) 5'-AAg 3'	47(227) 5'-gTT 3'	15(133) 5'-gTT 3'		13(125) 5'-ACC 3'
								13(125) 5'-ATA 3'
								13(125) 5'-gTC 3'
3'-primer(s) ³	66(286) 5'-gAg 3'	66(286) 5'-gAT 3'	66(286) 5'-gAT 3'	66(286) 5'-gAA 3'	73(305) 5'-ggC 3'	26(164) 5'-ggT 3'	28(171) 5'-CTC 3'	32(184) 5'-gTg 3'
	66(286) 5'-gAg 3'		69(295) 5'-CTg 3'	66(286) 5'-gAg 3'	73(305) 5'-ggC 3'	71(299) 5'-gCT 3'	69(295) 5'-CTg 3'	58(260) 5'-Cgg 3'
	66(286) 5'-gAT 3'		69(295) 5'-Tg 3'	70(297) 5'-CTg 3'	74(308) 5'-CCC 3'			
	70(297) 5'-CTg 3'		70(298) 5'-CgC 3'	71(301) 5'-ggC 3'				
	71(299) 5'-gCg 3'		71(299) 5'-gCT 3'					
	77(317) 5'-AgT 3'		73(305) 5'-ggC 3'					
	86(344) 5'-CCA 3'							
Well No.	1	2	3	4	5	6	7	8

Well No.	9	10	11	12	13	14	15	16
Length of spec.	235	170	85	180	100	95	215	195
PCR product(s)		215	135		170			215
		250	180					
Length of int.	430	515	430	430	430	430	430	430
pos. control ¹								
5'-primer(s) ²	13(127) 5'-ATA 3'	15(133) 5'-gTT 3'	26(165) 5'-TAT 3'	26(164) 5'-gTA 3'	13(125) 5'-gTC 3'	15(133) 5'-gTT 3'	10(116) 5'-gCT 3'	10(116) 5'-gCT 3'
	13(127) 5'-ATA 3'	15(133) 5'-gTT 3'	58(261) 5'-gAg 3'	30(178) 5'-gCg 3'	15(133) 5'-gTC 3'		12(122) 5'-TAT 3'	12(122) 5'-TAT 3'
	13(127) 5'-gTA 3'				38(200) 5'-CgT 3'		13(125) 5'-gTC 3'	13(125) 5'-gTC 3'
								15(133) 5'-gTT 3'
								15(133) 5'-gTC 3'
3'-primer(s) ³	77(319) 5'-CAC 3'	58(260) 5'-CCT 3'	57(257) 5'-CgA 3'	73(307) 5'-CgC 3'	58(260) 5'-CCT 3'	29(175) 5'-gTg 3'	69(295) 5'-gTC 3'	66(286) 5'-gAA 3'
	77(319) 5'-gTA 3'	73(307) 5'-CAg 3'	73(305) 5'-ggC 3'		58(260) 5'-CCT 3'	37(199) 5'-CAg 3'	71(299) 5'-gCT 3'	70(298) 5'-CgC 3'
	77(319) 5'-CAA 3'	86(344) 5'-CAC 3'	77(319) 5'-CAC 3'		58(260) 5'-CCT 3'		71(299) 5'-ACT 3'	70(298) 5'-CTC 3'
Well No.	9	10	11	12	13	14	15	16

101.101-48/12 – including *Taq* pol., IFU-01
 101.101-48u/12u – without *Taq* pol., IFU-02

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Lot No.: **93S**

Lot-specific information

Well No.	17	18	19	20	21	22	23	24
Length of spec.	175	100	110	110	165	75	135	170
PCR product(s)		140	140	160		175		195
		155	170	225				
Length of int.	430	430	430	430	430	430	430	430
pos. control ¹								
5'-primer(s) ²	13(125) 5'-gTC 3'	1 st I 5'-CAA 3'	26(164) 5'-gTA 3'	13(125) 5'-gTC 3'	15(133) 5'-gTT 3'	12(122) 5'-TAg 3'	15(133) 5'-gTT 3'	13(125) 5'-gTC 3'
		37(197) 5'-gTT 3'	34(189) 5'-CAg 3'	34(189) 5'-CAg 3'		74(308) 5'-CCT 3'		107(409) 5'-AgA 3'
		37(197) 5'-gTA 3'		36(196) 5'-AgC 3'				
3'-primer(s) ³	58(260) 5'-Cgg 3'	42(213) 5'-TCA 3'	57(257) 5'-CAg 3'	57(257) 5'-CAg 3'	56(256) 5'-gCT 3'	56(256) 5'-gCT 3'	47(227) 5'-ggA 3'	56(256) 5'-gCT 3'
	58(260) 5'-CAg 3'	57(257) 5'-CAg 3'	69(295) 5'-CTg 3'	59(265) 5'-gTg 3'	57(257) 5'-CAT 3'	86(344) 5'-CCA 3'		159(565) 5'-CAT 3'
		70(298) 5'-CgC 3'	70(296) 5'-TCC 3'	70(296) 5'-TCC 3'	57(257) 5'-CAT 3'			
				73(307) 5'-CAg 3'				
Well No.	17	18	19	20	21	22	23	24

Well No.	25	26	27	28	29	30	31
Length of spec.	150	145	145	140	160	215	175
PCR product(s)			215		240		
			240				
Length of int.	430	430	430	430	430	430	430
pos. control ¹							
5'-primer(s) ¹	34(189) 5'-CAg 3'	13(125) 5'-gTC 3'	13(125) 5'-gTC 3'	36(196) 5'-AgA 3'	10(116) 5'-gCT 3'	28(170) 5'-gAT 3'	13(125) 5'-gTA 3'
	34(189) 5'-CAg 3'		37(197) 5'-gTT 3'		10(116) 5'-gCT 3'		
			114(429) 5'-CTg 3'		37(199) 5'-TCC 3'		
3'-primer(s) ²	70(298) 5'-CTC 3'	47(227) 5'-ggA 3'	70(296) 5'-TCC 3'	69(295) 5'-CTg 3'	51(239) 5'-CCC 3'	86(346) 5'-CTC 3'	57(258) 5'-gCg 3'
		47(229) 5'-CCA 3'	73(307) 5'-CAg 3'	70(298) 5'-CTT 3'	77(317) 5'-AAT 3'	86(346) 5'-CTT 3'	58(260) 5'-CCT 3'
			181(630) 5'-CTT 3'				
Well No.	25	26	27	28	29	30	31

¹The codon, and in parenthesis the nucleotide, in the 2nd exon or the 1st 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 web site. The sequence of the 3 terminal nucleotides of the primer is given.

²The codon, and in parenthesis the nucleotide, in the 2nd 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 web site. The sequence of the 3 terminal nucleotides of the primer is given.

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“Instructions for Use” (IFU)

Lot-specific information

CELL LINE VALIDATION SHEET																					
DR low resolution primer set																					
					Prod. No.:	Well															
						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
						201321901	201209002	201209003	201209004	201209005	201209006	201209007	201209008	201325409	201209010	201209011	201209012	201209013	201325414	201205515	201209016
	IHCW 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			-	+	-	-	-	-	-	-		-	-	-	-	-	-	-

101.101-48/12 – including *Taq* pol., IFU-01
 101.101-48u/12u – without *Taq* pol., IFU-02

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Lot No.: **93S**

Lot-specific information

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¹The DRB4*01:03:01:02N allele is amplified by primer mix 18 in the 9052 (DBB) cell line.

101.101-48/12 – including *Taq* pol., IFU-01
 101.101-48u/12u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for
 “Instructions for Use” (IFU)

Lot No.: **93S**

Lot-specific information

CERTIFICATE OF ANALYSIS

Olerup SSP® DR low resolution

Product number: 101.101-48/12 – including *Taq* pol.
 101.101-48u/12u – without *Taq* pol.
 Lot number: 93S
 Expiry date: 2016-April-01
 Number of tests: 48 tests – Product No. 101.101-48/48u
 12 tests – Product No. 101.101-12/12u
 Number of wells per test: 31 + 1

Well specifications:

Well No.	Production No.	Well No.	Production No.	Well No.	Production No.
1	2013-219-01	13	2012-090-13	25	2012-055-25
2	2012-090-02	14	2013-254-14	26	2012-055-26
3	2012-090-03	15	2012-090-15	27	2013-254-27
4	2012-090-04	16	2012-090-16	28	2012-055-28
5	2012-090-05	17	2012-090-17	29	2012-090-29
6	2012-090-06	18	2012-090-18	30	2012-090-30
7	2012-090-07	19	2012-090-19	31	2012-090-31
8	2012-090-08	20	2012-219-20		
9	2012-254-09	21	2012-055-21		
10	2012-090-10	22	2012-055-22		
11	2012-090-11	23	2012-055-23		
12	2012-090-12	24	2013-254-24		

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

Additional 5'- and 3'-primers in primer solutions 11, 18 and 27 were tested by separately adding one 3'-primer, respectively one 5'-primer.

Additional 5'-primers in primer solutions 6, 12, 15 and 16 were tested by separately adding one 3'-primer. Additional 3'-primers in primer solutions 1, 3, 4, 9, 10, 20 and 22 were tested by separately adding one 5'-primer.

One, two or three of the 5'-primers in primer solution 1, 3, 4, 8 to 10, 13, 15, 16, 20, 22 and 27 were not possible to test. One or two of the 3'-primers in primer solution 1, 3, 4, 9, 13, 15, 21, 26 and 30 were not possible to test.

The negative control primer pairs, **Production No. 2013-271-01**, can detect contamination with PCR products diluted 10^{-7} .

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

Date of approval: 2013-October-24

Approved by:

Production Quality Control

101.101-48/12 – including *Taq* pol., IFU-01
101.101-48u/12u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for
“Instructions for Use” (IFU)

Lot No.: **93S**

Lot-specific information

Declaration of Conformity

Product name: *Olerup* SSP® DR low resolution
Product number: 101.101-48/48u, -12/12u
Lot number: 93S

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 13485:2012, 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
2013-October-24

Ann-Cathrin Jareman
Head of QA and Regulatory Affairs

101.101-48/12 – including *Taq* pol., IFU-01
101.101-48u/12u – without *Taq* pol., IFU-02

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“Instructions for Use” (IFU)

Lot No.: **93S**

Lot-specific information

101.101-48/12 – including *Taq* pol., IFU-01
101.101-48u/12u – without *Taq* pol., IFU-02

Visit www.olerup-ssp.com for
“Instructions for Use” (IFU)

Lot No.: **93S**

Lot-specific information

ADDRESSES:

Manufacturer:

Olerup SSP AB, Franzengatan 5, SE-112 51 Stockholm, Sweden.

Tel: +46-8-717 88 27

Fax: +46-8-717 88 18

E-mail: info-ssp@olerup.com

Web page: <http://www.olerup-ssp.com>

Distributed by:

Olerup GmbH, Löwengasse 47 / 6, AT-1030 Vienna, Austria.

Tel: +43-1-710 15 00

Fax: +43-1-710 15 00 10

E-mail: support-at@olerup.com

Web page: <http://www.olerup.com>

Olerup Inc., 901 S. Bolmar St., Suite R, West Chester, PA 19382

Tel: 1-877-OLERUP1

Fax: 610-344-7989

E-mail: info.us@olerup.com

Web page: <http://www.olerup.com>

For information on *Olerup* SSP distributors worldwide, contact **Olerup GmbH**.