

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

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

Lot No.: **1E5**

Lot-specific information

Olerup SSP® DR low resolution

Product number:	101.101-48/12 – including <i>Taq</i> pol. 101.101-48u/12u – without <i>Taq</i> pol.
Lot number:	1E5
Expiry date:	2019-02-01
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. 1E5.

Complete product documentation consists of generic Instructions for Use (IFU), lot specific Product Insert, Worksheet and Certificate.

CHANGES COMPARED TO THE PREVIOUS OLERUP SSP® DR LOW RESOLUTION LOT (91Y)

A well containing Negative Control primer pairs has been added.

The format of the Product Insert and Worksheet have been changed.

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. 91Y**). The kit design is based on IMGT/HLA database 3.24.0.

As of lot series V, the Specificity Table is included in the lot-specific Product Insert, and the Interpretation Table is included in the Worksheet.

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

Well	5'-primer	3'-primer	rationale
3	Added	Added	5'-primer added for improved yield of the DRB1*15:69 allele, 3'-primers added for the DRB1*15:127 and DRB1*15:129N alleles.
4	Added	-	5'-primer added for the DRB1*12:57 allele.
5	-	Added	3'-primers added for the DRB1*03:97 and DRB1*03:125 alleles.
9	Added	-	5'-primer added for the DRB1*07:64 allele.
10	Added	-	5'-primer added for the DRB1*10:11 allele.
12	-	Added	3'-primer added for the DRB1*03:126 allele.
13	-	Added	3'-primer added for the DRB1 11:04:13 allele.
21	Added	-	5'-primer added for improved yield of the DRB1*08:14 allele.
29	Added	-	5'-primer added for the DRB1*10:11 allele.
30	Added	Added	Primer pair added for the DRB4*02:01N and DRB4*03:01N alleles.

Changes in revision R01 compared to R00:

1. Due to sharing of sequence motifs, DRB3*01:23 and *02:32 will be amplified in primer mix 5, in addition to primer mix 21.
2. The DRB1*13:02:02 allele is amplified in primer mix 6.
The Specificity and Interpretation Tables have been changed.

Changes in revision R02 compared to R01:

1. Primer mix 3 does not amplify the DRB1*16:05:01-16:05:02 and 16:07 alleles. This has been corrected in the Specificity and Interpretation Tables.

Change in revision R03 compared to R02:

1. Primer mix 6 does not amplify the DRB1*14:137N and 14:152N alleles. Primer mix 15 does not amplify the DRB1*14:137N allele. This has been corrected in the Specificity and Interpretation Tables.

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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, DPB1 and DQA1 amplicons as well as all the amplicons generated by the control primer pairs matching the human growth hormone gene.

HLA-specific PCR product sizes range from 75 to 200 base pairs.
The PCR product generated by the positive control primer pair is 430 base pairs.

Length of PCR product	105	200	105	80	75	80	85
5'-primer¹	164	340	440	45	45	43	36
	5'-CAC ^{3'}	5'-Agg ^{3'}	5'-TTA ^{3'}	5'-Tgg ^{3'}	5'-Tgg ^{3'}	5'-Tgg ^{3'}	5'-TAC ^{3'}
							36
							5'-TAT ^{3'}
3'-primer²	231	2nd I	507	59	58	57	47
	5'-TgC ^{3'}	5'-AAA ^{3'}	5'-TTg ^{3'}	5'-CTC ^{3'}	5'-ggC ^{3'}	5'-CTC ^{3'}	5'-ACA ^{3'}
							48
							5'-gCA ^{3'}
							48
							5'-gCC ^{3'}
							52
							5'-TgT ^{3'}
A*	+	+	+				
B*	+	+	+				
C*	+	+	+				
DRB1				+	+		
DRB3				+	+		
DRB5				+			
DQB1					+		
DPB1						+	
DQA1							+

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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Lot-specific information

PRODUCT DESCRIPTION

DR low resolution

CONTENT

The primer set contains 5'- and 3'-primers for grouping the DRB1*01:01 to DRB1*10:16 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	NC

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

Well No. 1 is marked with the Lot No. ‘1E5’.

Wells 1 to 31 – DR low resolution primers.

Well 32 – Negative Control.

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, -DRB4 and -DRB5 alleles, i.e. **DRB1*01:01 to 10:16, DRB3*01:01:02:01 to DRB3*03:06, DRB4*01:01:01:01 to DRB4*03:01N, DRB5*01:01:01 to DRB5*02:07**, recognized by the HLA Nomenclature Committee in August 2015^{1,2} 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.

¹DRB alleles listed on the IMGT/HLA web page 2016-April-15, release 3.24.0, www.ebi.ac.uk/imgt/hla.

²Alleles that have been deleted from or renamed in the official WHO HLA Nomenclature up to and including the last IMGT/HLA database release can be retrieved from web page <http://hla.alleles.org/alleles/deleted.html>.

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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}
1^{6,7}	210 bp, 235 bp, 260 bp	515 bp	1	*01:01:01-01:02:12, 01:04-01:38, 01:40N-01:73
2	200 bp	430 bp	1/103	*01:03, 01:39N, 01:42, 01:61
3^{6,7,9}	200 bp, 230 bp	430 bp	2, 15, 16	*15:01:01:01-15:131
4⁹	210 bp	430 bp	11, 16	*11:30, 12:57, 16:01:01-16:05:02, 16:07-16:38
5^{5,6,12}	125 bp, 225 bp	515 bp	3, 11, 13, 14, 17, 18	*03:01:01:01-03:125, 03:127-03:129, 11:07, 11:27:02-11:27:03, 11:84:02-11:84:03, 11:103:01-11:103:02, 11:105, 11:107, 11:125, 11:136, 11:173, 13:33:01, 13:61:02, 13:94:01, 13:96:01, 14:38:02, 14:171, 15:25, 15:37:01, 15:100, 15:104
6^{5,6}	75 bp, 205 bp	430 bp	3, 6, 11, 13, 14, 17	*03:01:01:01-03:01:23, 03:01:25, 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, 03:75-03:86, 03:89, 03:91-03:93, 03:95-03:96, 03:98-03:100:02, 03:104, 03:106-03:110, 03:112-03:114, 03:116-03:118, 03:121-03:129, 08:40, 11:02:01-11:03:02, 11:11:01, 11:11:03, 11:14:01-11:14:02, 11:16, 11:20-11:21, 11:36, 11:40-11:41, 11:48, 11:59, 11:63:01-11:63:02, 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, 11:151, 11:153, 11:161, 11:168, 11:171, 11:176, 11:182, 11:184, 13:01:01:01-13:04, 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, 13:165-13:168, 13:170-13:180, 13:182, 13:184-13:188, 13:190-13:191, 13:193-13:194, 13:196, 13:198, 13:200N-13:202, 13:204-13:205, 13:207-13:209, 13:212-13:214, 14:16, 14:19, 14:21, 14:21, 14:45, 14:82, 14:95, 14:109, 14:120, 14:122, 14:132
7^{5,6}	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, 03:102-03:103, 03:115, 03:119, 03:126, 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, 13:193, 13:198, 13:206, 14:02:01-14:03:02, 14:06:01-14:06:03, 14:09, 14:12:01-14:13, 14:17-14:21, 14:24, 14:27, 14:29-14:30, 14:32:01 ^w -14:32:02 ^w , 14:33, 14:40-14:41, 14:47-14:49, 14:51,

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8^{5,6,7}	100 bp, 175 bp	430 bp	3, 4	*04:01:01-04:05:11, 04:05:13-04:207
9⁹	240 bp	430 bp	7	*07:01:01:01-07:01:19, 07:03-07:69
10⁶	170 bp, 205 bp, 215 bp, 250 bp	515 bp	8, 10, 11, 12, 14	*08:01:01-08:01:02, 08:01:04-08:19, 08:21-08:56, 08:58-08:66, 08:68-08:79, 10:01:01:01-10:01:09, 10:03-10:11, 10:13-10:16, 11:67, 11:193, 12:04, 12:16:01-12:16:03, 12:22, 12:39, 12:49, 14:11, 14:15, 14:68:01-14:68:02, 14:93, 14:148
11^{5,6,7}	90 bp, 135 bp, 165 bp, 190 bp	430 bp	3, 9, 11	*03:08, 03:65, 03:112, 09:01:02-09:27, 11:07, 11:103:01-11:103:02, 11:105, 11:107, 11:125, 11:173
12⁷	180 bp	430 bp	9, 10, 11, 13	*03:76, 03:125-03:126, 09:05, 10:01:01:01-10:10, 10:12-10:16, 11:59, 11:80, 11:83, 11:87, 11:135, 11:142, 11:182, 13:27, 13:41, 13:71, 13:129, 13:176, 14:82, 14:95, 14:132
13^{5,6}	100 bp, 170 bp	430 bp	3, 8, 11, 13, 14	*03:08, 03:65, 08:31, 08:41, 08:63, 08:75, 11:01:01:01-11:11:01, 11:11:03-11:70, 11:72-11:195, 11:197-11:198
14^{5,6}	90 bp, 110 bp	430 bp	12, 14	*08:32, 08:53, 12:01:01:01-12:56, 12:58-12:59, 14:52
15¹¹	220 bp	430 bp	6, 8, 11, 13, 14, 1403	*03:76, 03:125, 08:20-08:21, 11:01:01:01-11:04:13, 11:06:01-11:06:03, 11:08:01-11:11:01, 11:11:03-11:12:03, 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, 11:144-11:158, 11:160-11:172, 11:174-11:192, 11:194-11:195, 11:197-11:198, 12:57, 13:01:01:01-13:02:01, 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, 13:147-13:166, 13:168-13:174, 13:176-13:182, 13:184-13:191, 13:194-13:205, 13:207-13:209, 13:212-13:213, 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, 14:144, 14:156, 14:173-14:174, DRB3*02:27
16^{6,7}	205 bp, 225 bp	430 bp	6, 8, 11, 12, 13, 14	*03:125, 08:01:01-08:01:02, 08:01:04-08:01:05, 08:02:01-08:02:04, 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, 08:54-08:55, 08:57, 08:59, 08:64, 08:67, 08:70, 08:72-08:73, 08:75, 08:77-08:80, 11:01:01:01-11:01:17, 11:01:20-11:06:03, 11:09-11:11:01, 11:11:03-11:12:03, 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, 11:54:01-11:56, 11:58:01-11:63:02, 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, 11:144-11:152, 11:154-11:158, 11:160-11:172, 11:174-11:183, 11:185-11:190, 11:192-11:195, 11:197-11:198, 12:02:01-12:02:06, 12:13, 12:15-12:16:03, 12:18-12:21, 12:23, 12:26-12:27, 12:31N-12:33, 12:37,

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17	175 bp	430 bp	3, 6, 11, 13, 14, 1403, 17, 18	*03:01:01:01-03:07, 03:09, 03:11:01-03:41:02, 03:43-03:45, 03:47-03:63, 03:66-03:68N, 03:70-03:86, 03:88-03:91, 03:93-03:110, 03:112-03:129, 08:20, 13:01:01:01-13:16, 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, 13:166-13:170, 13:171:02-13:174, 13:176-13:178, 13:180-13:182, 13:184-13:190, 13:192-13:194, 13:196, 13:198-13:213, 14:02:01-14:03:02, 14:05:01-14:06:03, 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, 14:144, 14:154-14:156, 14:159-14:161, 14:165, 14:167, 14:169-14:170, 14:174
18^{5,6,7,10}	100 bp, 150 bp, 195 bp, 240 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, 13:197, 14:01:01-14:01:02, 14:01:04, 14:04:01-14:04:03, 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, 14:54:03-14:55, 14:57-14:58, 14:60-14:62, 14:68:01-14:71, 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, 14:142-14:143, 14:145-14:147, 14:149-14:153, 14:157-14:158, 14:163-14:164, 14:166N, 14:168 ^w , 14:171-14:173, DRB4*01:03:01:02N
19^{5,6,8}	110 bp, 145 bp, 170 bp	430 bp	3, 4, 6, 9, 11, 13, 14, 1404	*03:10, 03:126, 09:01:02-09:01:05, 09:01:07-09:02:02, 09:04-09:22, 09:24-09:27, 11:13:01-11:13:02, 11:17, 11:52, 13:43, 13:159, 13:171:01, 13:179, 13:191, 13:193, 14:01:01-14:02:02, 14:04:01-14:11, 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, 14:38:01-14:39, 14:41, 14:43-14:52, 14:54:01-14:54:03, 14:54:04 ^w , 14:54:05-14:57, 14:59-14:62, 14:64-14:65, 14:68:01-14:68:02, 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, 14:142-14:143, 14:145-14:155, 14:157-14:160, 14:162-14:167, 14:169-14:173, 15:27, 15:34, 15:66:01-15:66:02, 15:122 ^w
20^{5,6}	110 bp, 150 bp,	430 bp	2 ^w , 3, 4, 6, 8, 11, 13,	*03:10, 08:09, 08:20-08:21, 08:32, 08:35, 08:36:02, 08:53, 08:68 ^w , 08:70 ^w , 11:13:01-11:13:02, 11:17, 11:23:01-11:23:02,

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	180 bp, 220 bp		14, 1403, 1404, 16 ^w	11:25, 11:31, 11:45, 11:52, 11:55, 11:64, 11:89, 11:96, 11:119, 11:148, 11:159, 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, 13:171:01, 13:179, 13:191, 13:197, 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, 14:38:01-14:40, 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- 14:158, 14:160-14:164, 14:166N-14:169, 14:171-14:174, 15:21 ^w , 16:04 ^w , 16:18 ^w
21	170 bp	430 bp	8, 12, 13, 14	*03:92, 08:01:01-08:01:02, 08:01:04-08:04:05, 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, 08:53-08:62, 08:64-08:74, 08:76-08:80, 12:09, 12:46, 12:48 ^w , 13:17, 13:116, 13:175, 13:214, 14:15, 14:52, 14:126:01
22^{5,6}	75 bp, 175 bp, 265 bp	515 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, 08:59, 08:67, 08:70, 08:75, 08:80, 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, 14:156, 14:173, 15:21
23	135 bp	430 bp	8, 12, 13	*03:92, 08:17, 08:28, 08:37, 08:45, 08:63, 11:67, 11:193, 12:01:01:01-12:20, 12:22-12:37, 12:39-12:41, 12:43-12:52, 12:54-12:56, 12:58-12:59, 13:17, 13:175, 13:214, 14:138
24¹³	180 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, 13:167, 13:169, 13:174, 13:188, 13:194, 14:13, 14:63, 14:65, 14:78, 14:85, 14:169-14:170, DRB5*01:08N
25	150 bp	430 bp	2, 4, 6, 11, 13	*03:125, 11:02:05, 11:16, 11:20, 11:40, 11:59, 11:63:02, 11:118, 11:122, 13:01:01:01-13:02:01, 13:02:03-13:02:12, 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, 13:165-13:166, 13:168, 13:171:01-13:171:02, 13:173, 13:175, 13:177, 13:179, 13:182-13:187, 13:190-13:191, 13:195, 13:198, 13:200N- 13:202, 13:205, 13:207-13:212, 13:214, 14:16, 14:57, 15:10
26	145 bp	430 bp	3, 6, 11, 13, 14, 17	*03:01:01:01-03:01:22, 03:01:24-03:01:25, 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, 03:93-03:101, 03:104-03:110, 03:112- 03:114, 03:116-03:121, 03:123-03:129, 11:01:01:01-11:01:06, 11:01:08-11:04:13, 11:06:01-11:11:01, 11:11:03-11:16, 11:18- 11:21, 11:23:01-11:29:02, 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, 11:89-11:103:02,

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				11:105-11:106, 11:108-11:144, 11:146-11:148, 11:150-11:169N, 11:172-11:182, 11:185-11:188, 11:190-11:192, 11:194-11:195, 11:197-11:198, 13:01:01:01-13:01:08, 13:01:10-13:02:12, 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, 13:165-13:166, 13:168-13:173, 13:176, 13:178-13:179, 13:181, 13:184-13:187, 13:190, 13:192-13:193, 13:196-13:197, 13:199-13:213, 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
27^{6,9}	145 bp, 210 bp, 235 bp	430 bp	4, 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, 11:149, 11:159, 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, 14:02:02 [?] , 14:03:01-14:05:04, 14:07:01-14:08, 14:09 [?] , 14:10-14:12:02, 14:14-14:15, 14:16 [?] , 14:18, 14:19 [?] -14:20 [?] , 14:22 [?] , 14:23:01-14:23:04, 14:25 [?] , 14:26-14:28, 14:29 [?] -14:30 [?] , 14:31-14:32:02, 14:33 [?] , 14:34-14:36, 14:37 [?] , 14:38:01-14:40, 14:41 [?] , 14:42-14:45, 14:47 [?] -14:49 [?] , 14:50, 14:51 [?] -14:53 [?] , 14:54:01-14:65, 14:67-14:68:02, 14:69 [?] , 14:70-14:72, 14:73 [?] -14:74 [?] , 14:75, 14:76 [?] , 14:77-14:78, 14:79 [?] -14:80 [?] , 14:81-14:82, 14:83 [?] , 14:84-14:93, 14:94 [?] , 14:95-14:97, 14:98 [?] , 14:99-14:103, 14:104 [?] -14:109 [?] , 14:110, 14:111 [?] , 14:112-14:118, 14:119 [?] , 14:120, 14:121 [?] , 14:122-14:127:02, 14:128 [?] , 14:129-14:145, 14:146 [?] , 14:147-14:158, 14:159 [?] , 14:160-14:164, 14:165 [?] , 14:166N-14:169, 14:170 [?] , 14:171-14:174
28	140 bp	430 bp	6, 13, 14	*03:76, 03:126, 13:10, 13:85, 13:120, 13:170, 13:176, 13:178, 13:193, 13:196, 14:02:01-14:02:02, 14:06:01-14:06:03, 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, 14:165, 14:170
29^{5,6,11,12,14}	80 bp, 170 bp, 240 bp	430 bp	52	*10:11, 14:141, DRB3*01:01:02:01-01:22, DRB3*02:01-02:36, DRB3*03:01:01-03:06
30¹⁰	130 bp, 215 bp	430 bp	53	DRB4*01:01:01:01-01:17, DRB4*02:01N, DRB4*03:01N
31¹³	175 bp	430 bp	51	DRB5*01:01:01-01:18, DRB5*02:02-02:07
32¹⁵	-	-		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 alleles listed are specified according to amplicon length.

Nonspecific amplifications, i.e. a ladder 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.

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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 internal positive control bands are 430 or 515 base pairs respectively, well distribution as outlined in the table. Well number 1 contains the longer, 515 bp, internal positive control band. The well distribution of the internal controls can help in orientation of the kit on gel photo, as well as allow for 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 are completely matched with the target sequences or not. Assumption is made 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, 18 to 20, 22, 27 and 29.

⁷Primer mixes 1, 3, 8, 11, 12, 16 and 18 have a tendency to giving rise to primer oligomer formation, most pronounced in primer mix 12.

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 mixes 3, 4, 9 and 27 may have tendencies of unspecific amplifications.

¹⁰Due to sharing of sequence motifs, the DRB4*01:03:01:02N allele is amplified by the primer pairs in well 18 in addition to primer mix 30.

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 and 47, DRB3*01:14 will also be amplified in primer mixes 5, 6 and 17, and DRB3*01:23 and *02:32 in mix 5, in addition to primer mix 29.

¹³DRB5*01:08N is amplified by the primer pairs in well 24 in addition to primer mix 31.

¹⁴In primer mix 29, the specific PCR product of 240 bp may be difficult to distinguish from the internal control band.

¹⁵Primer mix 32 contains a negative control, which will amplify more than 95% of HLA amplicons as well as the amplicons generated by the control primer pairs matching the human growth hormone gene. HLA-specific PCR product sizes range from 75 to 200 base pairs and the PCR product generated by the HGH positive 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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PRIMER SPECIFICATION

Well No.	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec.	210	200	200	210	125	75	85	100	240	170	90	180
PCR product	235		230		225	205	210	175		205	135	
	260									215	165	
										250	190	
Length of int. pos. control ¹	515	430	430	430	515	430	430	430	430	515	430	430
5'-primer(s) ²	12(124) 5'-A.T 3'	14(129) 5'-gAA 3'	11(121) 5'-CTg 3'	11(119) 5'-gCT 3'	13(125) 5'-gTC 3'	13(125) 5'-gTC 3'	13(125) 5'-gTC 3'	13(125) 5'-ACA 3'	10(118) 5'-AgA 3'	15(133) 5'-gTT 3'	26(165) 5'-TAT 3'	26(164) 5'-gTA 3'
	14(129) 5'-gAA 3'		13(126) 5'-AgA 3'	13(126) 5'-AAg 3'	47(227) 5'-gTT 3'	15(133) 5'-gTT 3'		13(125) 5'-ACC 3'	13(127) 5'-gTA 3'	15(133) 5'-gCT 3'	36(196) 5'-AgA 3'	30(178) 5'-gCg 3'
			13(126) 5'-AAg 3'	13(126) 5'-Agg 3'				13(125) 5'-ATA 3'	13(127) 5'-ATA 3'	15(133) 5'-gTT 3'	58(261) 5'-gAg 3'	
			13(126) 5'-Agg 3'					13(125) 5'-gTC 3'	13(127) 5'-ATA 3'	30(178) 5'-gCg 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'	77(319) 5'-CgC 3'	58(260) 5'-CCT 3'	57(257) 5'-CgA 3'	73(307) 5'-CgC 3'
	66(286) 5'-gAg 3'		66(286) 5'-gAT 3'	66(286) 5'-gAg 3'	73(305) 5'-ggC 3'	66(286) 5'-gAT 3'	69(295) 5'-CTg 3'	58(260) 5'-Cgg 3'	77(319) 5'-gTA 3'	73(307) 5'-CAG 3'	73(305) 5'-ggC 3'	74(308) 5'-CCT 3'
	66(286) 5'-gAT 3'		69(295) 5'-Tg 3'	70(296) 5'-TgT 3'	73(305) 5'-ggC 3'	71(299) 5'-gCT 3'			77(319) 5'-CAA 3'	86(344) 5'-CAC 3'	77(319) 5'-CAC 3'	
	70(297) 5'-CTg 3'		69(295) 5'-CTg 3'	71(301) 5'-ggC 3'	73(306) 5'-Tgg 3'				77(319) 5'-CAC 3'			
	71(299) 5'-gCg 3'		70(298) 5'-CgC 3'		74(308) 5'-CCC 3'							
	77(317) 5'-AgT 3'		71(299) 5'-gCT 3'		74(310) 5'-CAA 3'							
	86(344) 5'-CCA 3'		71(301) 5'-Cg 3'		77(317) 5'-AgT 3'							
			73(305) 5'-Cgg 3'									
			73(305) 5'-ggC 3'									
			77(317) 5'-AgT 3'									
Well No.	1	2	3	4	5	6	7	8	9	10	11	12

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Well No.	13	14	15	16	17	18	19	20	21	22	23	24
Length of spec.	100	90	220	205	175	100	110	110	170	75	135	180
PCR product	170	110		225		150	145	150		175		
						195	170	180		265		
						240		220				
Length of int.	430	430	430	430	430	430	430	430	430	515	430	430
pos. control ¹												
5'-primer(s) ²	13(125) 5'-gTC 3'	12(124) 5'-Cgg 3'	10(116) 5'-gCT 3'	10(116) 5'-gCT 3'	13(125) 5'-gTC 3'	5(101) 5'-CAA 3'	26(164) 5'-gTA 3'	13(125) 5'-gTC 3'	13(125) 5'-ggg 3'	12(122) 5'-TAG 3'	15(133) 5'-gTT 3'	13(125) 5'-gTC 3'
	15(133) 5'-gTC 3'	15(133) 5'-gTT 3'	12(122) 5'-TAT 3'	12(122) 5'-TAT 3'		37(197) 5'-gTT 3'	34(189) 5'-CAG 3'	34(189) 5'-CAG 3'	15(133) 5'-gCT 3'	74(308) 5'-CCT 3'		107(409) 5'-AgA 3'
	38(200) 5'-CgT 3'		13(125) 5'-gTC 3'	13(125) 5'-gTC 3'		37(197) 5'-gTA 3'		36(196) 5'-AgC 3'	15(133) 5'-gTT 3'			
				13(125) 5'-gTg 3'					15(133) 5'-gTT 3'			
				15(133) 5'-gTT 3'								
				15(133) 5'-gTC 3'								
3'-primer(s) ³	58(260) 5'-CCT 3'	28(171) 5'-CTC 3'	69(295) 5'-gTC 3'	66(286) 5'-gAA 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'-CCT 3'	29(175) 5'-gTg 3'	71(299) 5'-gCT 3'	70(298) 5'-CgC 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'
	58(260) 5'-CCT 3'	37(199) 5'-CAG 3'	71(299) 5'-ACT 3'	70(298) 5'-CTC 3'		70(298) 5'-CgC 3'	70(296) 5'-TCC 3'	70(296) 5'-TCC 3'	57(257) 5'-CAT 3'			
	58(261) 5'-TCT 3'							73(307) 5'-CAG 3'				
Well No.	13	14	15	16	17	18	19	20	21	22	23	24

Well No.	25	26	27	28	29	30	31
Length of spec.	150	145		140	80	130	175
PCR product			210		170	215	
			235		240		
Length of int.	430	430	430	430	430	430	430
pos. control ¹							
5'-primer(s) ²	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'	105(401) 5'-AAA 3'	
			114(429) 5'-CTg 3'		30(178) 5'-gCg 3'		
3'-primer(s) ³					37(199) 5'-TCC 3'		
	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'-CTT 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'-CTC 3'	58(260) 5'-CCT 3'
			181(630) 5'-CTT 3'			134(490) 5'-gCT 3'	
Well No.	25	26	27	28	29	30	31

¹The internal positive control primer pairs amplify segments of the human growth hormone gene. The internal positive control bands are 430 or 515 base pairs respectively, well distribution as outlined in the table. Well number 1 contains the longer, 515 bp, internal positive control band. The well distribution of the internal controls can help in orientation of the kit on gel photo, as well as allow for kit identification. In the presence of a specific amplification the intensity of the control band often

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decreases.

²The nucleotide position matching the specificity-determining 3'-end of the primer is given. Nucleotide numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

³The nucleotide position matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Nucleotide numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

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CELL LINE VALIDATION SHEET																				
DR low resolution primer set ³																				
				Well ²																
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
				Prod. No.:	201664001	201664002	201668803	201664004	201669905	201669906	201664007	201664008	201663309	201669910	201664011	201669912	201669913	201664014	201664015	201664016
IHC cell line ¹		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.: **1E5**

Lot-specific information

CELL LINE VALIDATION SHEET																		
DR low resolution primer set ³																		
			Prod. No.:	Well ²														
				17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	IHWC cell line ¹	DRB1		201669917	201664018	201664019	201664020	201669921	201669922	201669923	201669924	201669925	201669926	201669927	201669928	201669929	201664530	201664031
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.: 1E5

Lot-specific information

¹The provided cell line HLA specificities are retrieved from the <http://www.ihwg.org/hla> web site. The specificity of an individual cell line may thus be subject to change.

²The DRB4*01:03:01:02N allele is amplified by primer mix 18 in the 9052 (DBB) cell line.

³The specificity of each primer solution in the kit has been tested against 48 well characterized cell line DNAs and where applicable, additional cell line DNAs.

Additional 5'- and 3'-primers in primer solutions 4, 11, 12, 18 and 27 were tested by separately adding one 3'-primer, respectively one 5'-primer.

Additional 5'-primers in primer solutions 6, 15, 16 and 29 were tested by separately adding one 3'-primer. Additional 3'-primers in primer solutions 1, 3, 5, 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 to 16, 20 to 22 and 27 were not possible to test. One or more of the 3'-primers in primer solution 1, 3 to 6, 9, 13, 15, 21, 26 and 30 were not possible to test.

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

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Lot No.: **1E5**

Lot-specific information

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

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Lot No.: 1E5

Lot-specific information

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

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Lot No.: 1E5

Lot-specific information

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.: **1E5**

Lot-specific information

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