

101.114-24/03 – including *Taq* pol., IFU-01
101.114-24u/03u – without *Taq* pol., IFU-02

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

Lot No.: **18V**

Lot-specific information
Olerup SSP® DRB1*04

Product number:	101.114-24/03 – including <i>Taq</i> pol. 101.114-24u/03u – without <i>Taq</i> pol.
Lot number:	18V
Expiry date:	2016-July-01
Number of tests:	24 tests – Product No. 101.114-24/24u 3 tests – Product No. 101.114-03/03u
Number of wells per test:	47+1
Storage - pre-aliquoted primers:	dark at -20°C
- PCR Master Mix:	-20°C

This Product Description is only valid for Lot No. 18V.

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

**CHANGES COMPARED TO THE PREVIOUS OLERUP SSP®
DRB1*04 LOT (33R)**

The DRB1*04 kit is updated for new alleles to enable separation of:

- Confirmed¹ alleles as listed in the IMGT/HLA database
- Polymorphisms in exons outside of the region encoding the peptide binding domain
- Null and Alternatively expressed alleles

A well containing Negative Control primer pairs has been added.

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

One well has been added to the DRB1*04 kit, well **48**.

¹As described in section Uniquely Identified Alleles.

The DRB1*04 specificity and interpretation tables have been updated for the DRB1 alleles reported since the previous *Olerup SSP®* DRB1*04 lot (Lot No. 33R) was made.

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Lot-specific information

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.

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	-	5'-primer added for the DRB1*04:160 allele.
10	-	Added	3'-primers added for the DRB1*04:04:07 and DRB1*04:08:03 alleles.
16	Added	-	5'-primer added for the DRB1*04:160 allele.
19	-	Modified	3'-primer modified for decreased tendencies of unspecific amplification.
21	-	Modified, Moved	3'-primer modified for decreased tendencies of unspecific amplification, 3'-primers moved to well 40.
24	Added	-	5'-primer added for the DRB1*04:01:12 allele.
33	-	Added	3'-primer added for the DRB1*04:158N allele
39	-	Added	3'-primer added for the DRB1*04:154 allele.
40	-	Added	3'-primers added from well 21.
41	-	Added	3'-primer added for the DRB1*04:108 allele.
42	-	Added	3'-primer added for the DRB1*04:164 allele.
45	-	Added	3'-primer added for the DRB1*04:157N allele.
47		Modified, added	Exchanged control primer pair, 3'-primer modified for decreased tendencies of unspecific amplification, 3'-primer added for the DRB1*04:142N allele.
48			Negative Control

Change in revision R01 compared to R00:

1. Primer mix 33 may have tendencies of unspecific amplifications. A foot note has been added in the Specificity Tables.

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Well **48** 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 amplicons generated by a control primer pair.

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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Lot-specific information

PRODUCT DESCRIPTION

DRB1*04 SSP subtyping

CONTENT

The primer set contains 5'- and 3'-primers for identifying the DRB1*04:01 to DRB1*04:164 alleles.

PLATE LAYOUT

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

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	NC

The 48 well cut PCR plate is marked with 'DRB1*04' in silver/gray ink.

Well No. 1 is marked with the Lot No. '18V'.

Wells 1 to 47 – DRB1*04 primers.

Well 48 – Negative Control (NC).

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

The PCR plates are covered with a PCR-compatible foil.

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

INTERPRETATION

Due to the sharing of sequence motifs between DRB1 alleles, non-DRB1*04 alleles will be amplified by primer mixes 2 to 4, 7 to 11, 14, 16 to 19, 24, 26 to 32, 39, 42 and 43. In addition, DRB3 and DRB5 alleles will be amplified by primer mixes 24 and 29.

For further details see Specificity Table.

UNIQUELY IDENTIFIED ALLELES

All the phenotypically different DRB1*04 alleles, i.e. **DRB1*04:01 to DRB1*04:164**, recognized by the HLA Nomenclature Committee in October 2013^{1,2} will be amplified by the primers in the DRB1*04 subtyping kit.

The DRB1*04 kit enables separation of the confirmed DRB1*04 alleles as listed in the IMGT/HLA database. An HLA allele is listed as confirmed by IMGT/HLA if it has been sequenced by more than a single laboratory or from multiple sources. Current allele confirmation status for DRB1*04 alleles is listed below.

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The DRB1*04 kit also enables identification of polymorphisms in exons outside of the region encoding the peptide binding domain and of null and alternatively expressed alleles

The following DRB1*04 alleles can be distinguished by the different sizes of the HLA-specific PCR product:

Alleles	Primer mix
DRB1*04:16, 04:151	12
DRB1*04:27, 04:110	20
DRB1*04:39, 04:101	19

The DRB1*04 subtyping kit cannot distinguish the silent mutation in the DRB1*04:01:01-04:01:13 alleles, the DRB1*04:02:01-04:02:03 alleles, the DRB1*04:03:01-04:03:07 alleles, the DRB1*04:04:01-04:04:03 and 04:04:06-04:04:08 alleles, the DRB1*04:05:01, 04:05:03-04:05:07 and 04:05:09-04:05:11, 04:05:13-04:05:14 and 04:05:16 alleles, the 05:05:02 and 04:05:15 alleles, the DRB1*04:06:01-04:06:05 alleles, the DRB1*04:07:01-04:07:04 alleles, the DRB1*04:08:01-04:08:03 alleles, the DRB1*04:11:01-04:11:02 alleles, the DRB1*04:17:01-04:17:02 alleles and the DRB1*04:105:01-04:105:02 alleles.

¹DRB1 alleles listed on the IMGT/HLA web page 2013-October-11, release 3.14.0, 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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Lot-specific information

ALLELE CONFIRMATION STATUS

Allele	Status ¹	Allele	Status ¹	Allele	Status ¹	Allele	Status ¹
DRB1*04:01:01	Confirmed	DRB1*04:06:04	Unconfirmed	DRB1*04:46	Unconfirmed	DRB1*04:95:01	Confirmed
DRB1*04:01:02	Confirmed	DRB1*04:06:05	Unconfirmed	DRB1*04:47	Unconfirmed	DRB1*04:95:02	Unconfirmed
DRB1*04:01:03	Unconfirmed	DRB1*04:07:01	Confirmed	DRB1*04:48	Unconfirmed	DRB1*04:96	Confirmed
DRB1*04:01:04	Unconfirmed	DRB1*04:07:02	Unconfirmed	DRB1*04:49	Unconfirmed	DRB1*04:97	Unconfirmed
DRB1*04:01:05	Confirmed	DRB1*04:07:03	Unconfirmed	DRB1*04:50	Confirmed	DRB1*04:98:01	Unconfirmed
DRB1*04:01:06	Confirmed	DRB1*04:07:04	Confirmed	DRB1*04:51	Unconfirmed	DRB1*04:98:02	Unconfirmed
DRB1*04:01:07	Unconfirmed	DRB1*04:08:01	Confirmed	DRB1*04:52	Unconfirmed	DRB1*04:99	Confirmed
DRB1*04:01:08	Unconfirmed	DRB1*04:08:02	Confirmed	DRB1*04:53	Unconfirmed	DRB1*04:100	Unconfirmed
DRB1*04:01:09	Unconfirmed	DRB1*04:08:03	Unconfirmed	DRB1*04:54	Confirmed	DRB1*04:101	Confirmed
DRB1*04:01:10	Unconfirmed	DRB1*04:09	Confirmed	DRB1*04:55	Unconfirmed	DRB1*04:102	Unconfirmed
DRB1*04:01:11	Unconfirmed	DRB1*04:10:01	Confirmed	DRB1*04:56	Unconfirmed	DRB1*04:103	Unconfirmed
DRB1*04:01:12	Unconfirmed	DRB1*04:10:02	Unconfirmed	DRB1*04:57	Unconfirmed	DRB1*04:104	Unconfirmed
DRB1*04:01:13	Unconfirmed	DRB1*04:11:01	Confirmed	DRB1*04:58	Unconfirmed	DRB1*04:105:01	Confirmed
DRB1*04:02:01	Confirmed	DRB1*04:11:02	Unconfirmed	DRB1*04:59	Unconfirmed	DRB1*04:105:02	Confirmed
DRB1*04:02:02	Unconfirmed	DRB1*04:11:03	Unconfirmed	DRB1*04:60	Unconfirmed	DRB1*04:106	Unconfirmed
DRB1*04:02:03	Unconfirmed	DRB1*04:12	Confirmed	DRB1*04:61	Unconfirmed	DRB1*04:107	Unconfirmed
DRB1*04:03:01	Confirmed	DRB1*04:13	Confirmed	DRB1*04:62	Unconfirmed	DRB1*04:108	Confirmed
DRB1*04:03:02	Confirmed	DRB1*04:14	Confirmed	DRB1*04:63	Confirmed	DRB1*04:109	Unconfirmed
DRB1*04:03:03	Unconfirmed	DRB1*04:15	Confirmed	DRB1*04:64	Unconfirmed	DRB1*04:110	Unconfirmed
DRB1*04:03:04	Unconfirmed	DRB1*04:16	Confirmed	DRB1*04:65	Unconfirmed	DRB1*04:111	Unconfirmed
DRB1*04:03:05	Confirmed	DRB1*04:17:01	Confirmed	DRB1*04:66	Unconfirmed	DRB1*04:112	Unconfirmed
DRB1*04:03:06	Unconfirmed	DRB1*04:17:02	Confirmed	DRB1*04:67	Unconfirmed	DRB1*04:113	Unconfirmed
DRB1*04:03:07	Unconfirmed	DRB1*04:18	Confirmed	DRB1*04:68	Confirmed	DRB1*04:114	Confirmed
DRB1*04:03:08	Unconfirmed	DRB1*04:19	Confirmed	DRB1*04:69	Unconfirmed	DRB1*04:115	Unconfirmed
DRB1*04:04:01	Confirmed	DRB1*04:20	Confirmed	DRB1*04:70	Unconfirmed	DRB1*04:116	Unconfirmed
DRB1*04:04:02	Unconfirmed	DRB1*04:21	Unconfirmed	DRB1*04:71	Unconfirmed	DRB1*04:117	Unconfirmed
DRB1*04:04:03	Confirmed	DRB1*04:22	Unconfirmed	DRB1*04:72:01	Unconfirmed	DRB1*04:118	Unconfirmed
DRB1*04:04:04	Unconfirmed	DRB1*04:23	Unconfirmed	DRB1*04:72:02	Unconfirmed	DRB1*04:119N	Unconfirmed
DRB1*04:04:05	Unconfirmed	DRB1*04:24	Unconfirmed	DRB1*04:73	Unconfirmed	DRB1*04:120N	Unconfirmed
DRB1*04:04:06	Unconfirmed	DRB1*04:25	Confirmed	DRB1*04:74	Confirmed	DRB1*04:121	Unconfirmed
DRB1*04:04:07	Unconfirmed	DRB1*04:26	Confirmed	DRB1*04:75	Unconfirmed	DRB1*04:122	Unconfirmed
DRB1*04:04:08	Unconfirmed	DRB1*04:27	Unconfirmed	DRB1*04:76	Unconfirmed	DRB1*04:123	Unconfirmed
DRB1*04:05:01	Confirmed	DRB1*04:28	Unconfirmed	DRB1*04:77	Unconfirmed	DRB1*04:124	Unconfirmed
DRB1*04:05:02	Unconfirmed	DRB1*04:29	Unconfirmed	DRB1*04:78	Unconfirmed	DRB1*04:125	Unconfirmed
DRB1*04:05:03	Confirmed	DRB1*04:30	Unconfirmed	DRB1*04:79	Confirmed	DRB1*04:126	Unconfirmed
DRB1*04:05:04	Confirmed	DRB1*04:31	Confirmed	DRB1*04:80	Unconfirmed	DRB1*04:127	Unconfirmed
DRB1*04:05:05	Confirmed	DRB1*04:32	Unconfirmed	DRB1*04:81N	Unconfirmed	DRB1*04:128	Unconfirmed
DRB1*04:05:06	Unconfirmed	DRB1*04:33	Confirmed	DRB1*04:82	Unconfirmed	DRB1*04:129	Unconfirmed
DRB1*04:05:07	Unconfirmed	DRB1*04:34	Confirmed	DRB1*04:83	Confirmed	DRB1*04:130	Unconfirmed
DRB1*04:05:08	Unconfirmed	DRB1*04:35	Unconfirmed	DRB1*04:84	Unconfirmed	DRB1*04:131	Unconfirmed
DRB1*04:05:09	Confirmed	DRB1*04:36	Confirmed	DRB1*04:85	Unconfirmed	DRB1*04:132	Unconfirmed
DRB1*04:05:10	Confirmed	DRB1*04:37	Unconfirmed	DRB1*04:86	Unconfirmed	DRB1*04:133	Unconfirmed
DRB1*04:05:11	Confirmed	DRB1*04:38	Confirmed	DRB1*04:87	Unconfirmed	DRB1*04:134	Unconfirmed
DRB1*04:05:13	Confirmed	DRB1*04:39	Confirmed	DRB1*04:88	Confirmed	DRB1*04:135	Unconfirmed
DRB1*04:05:14	Confirmed	DRB1*04:40	Confirmed	DRB1*04:89	Confirmed	DRB1*04:136	Unconfirmed
DRB1*04:05:15	Unconfirmed	DRB1*04:41	Confirmed	DRB1*04:90	Unconfirmed	DRB1*04:137	Unconfirmed
DRB1*04:05:16	Unconfirmed	DRB1*04:42	Confirmed	DRB1*04:91	Unconfirmed	DRB1*04:138	Confirmed
DRB1*04:06:01	Confirmed	DRB1*04:43	Confirmed	DRB1*04:92	Unconfirmed	DRB1*04:139	Unconfirmed
DRB1*04:06:02	Unconfirmed	DRB1*04:44	Unconfirmed	DRB1*04:93	Unconfirmed	DRB1*04:140	Unconfirmed
DRB1*04:06:03	Unconfirmed	DRB1*04:45	Confirmed	DRB1*04:94N	Unconfirmed	DRB1*04:141	Unconfirmed

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Lot-specific information

Allele	Status ¹
DRB1*04:142N	Unconfirmed
DRB1*04:143	Unconfirmed
DRB1*04:144	Unconfirmed
DRB1*04:145	Unconfirmed
DRB1*04:146	Unconfirmed
DRB1*04:147	Unconfirmed
DRB1*04:148	Unconfirmed
DRB1*04:149	Unconfirmed
DRB1*04:150	Unconfirmed
DRB1*04:151	Unconfirmed
DRB1*04:152	Unconfirmed
DRB1*04:153	Unconfirmed
DRB1*04:154	Confirmed
DRB1*04:155	Unconfirmed
DRB1*04:156	Unconfirmed
DRB1*04:157N	Unconfirmed
DRB1*04:158N	Unconfirmed
DRB1*04:159	Unconfirmed
DRB1*04:160	Unconfirmed
DRB1*04:161	Unconfirmed
DRB1*04:162	Unconfirmed
DRB1*04:163	Unconfirmed
DRB1*04:164	Unconfirmed

¹Allele status “confirmed” or “unconfirmed” as listed on the IMGT/HLA web page 2013-October-11, release 3.14.0, www.ebi.ac.uk/imgt/hla.

RESOLUTION IN HOMO- AND HETEROZYGOTES

Results file with resolution in DRB1*04 homo- and heterozygotes is available upon request.

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Lot-specific information
SPECIFICITY TABLE

DRB1*04 SSP subtyping

Specificities and sizes of the PCR products of the 47+1 primer mixes used for DRB1*04 SSP subtyping

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	Amplified DRB1*04 alleles ³	Other amplified DRB alleles ⁴
1	215 bp	515 bp	*04:01:01-04:01:13, 04:09, 04:13, 04:16, 04:21, 04:26, 04:33, 04:35, 04:38, 04:62-04:63, 04:67, 04:72:01-04:72:02, 04:76, 04:100, 04:111-04:115, 04:117, 04:119N, 04:123, 04:125, 04:127, 04:130, 04:135, 04:139, 04:145, 04:150-04:151, 04:153, 04:158N-04:159	
2	215 bp	430 bp	*04:02:01-04:02:03, 04:14, 04:37, 04:106, 04:124, 04:132-04:134, 04:138, 04:143, 04:161	*14:57
3	225 bp	430 bp	*04:03:01-04:03:08, 04:06:01-04:07:04, 04:11:01-04:11:03, 04:17:01-04:17:02, 04:20, 04:27, 04:39, 04:41, 04:46, 04:49-04:52, 04:59-04:60, 04:65, 04:69, 04:71, 04:78, 04:85, 04:88, 04:91-04:93, 04:95:02-04:97, 04:100-04:102, 04:109-04:110, 04:114, 04:129, 04:136, 04:142N, 04:144, 04:146, 04:148, 04:150, 04:154, 04:156, 04:160, 04:163	*14:10, 14:143
4	225 bp	515 bp	*04:01:01-04:02:03, 04:04:01-04:05:11, 04:05:13-04:05:16, 04:08:01-04:10:02, 04:13-04:16, 04:19, 04:21, 04:23-04:24, 04:26, 04:28-04:30, 04:32-04:33, 04:35-04:38, 04:40, 04:42-04:43, 04:44 ^w , 04:45, 04:47-04:48, 04:53, 04:56-04:57, 04:61-04:63, 04:67-04:68, 04:70, 04:72:01, 04:73, 04:75-04:77, 04:79-04:84, 04:87, 04:89, 04:99, 04:104-04:108, 04:111-04:113, 04:115-04:125, 04:127-04:128, 04:130, 04:132-04:135, 04:138-04:139, 04:141, 04:143, 04:145, 04:147, 04:149, 04:151-04:153, 04:158N-04:159, 04:161-04:162, 04:164	*11:22, 14:57
5	170 bp	430 bp	*04:05:01-04:05:11, 04:05:13-04:05:16, 04:09-04:11:02, 04:12, 04:17:01-04:17:02, 04:24, 04:28-04:30, 04:45, 04:48, 04:57, 04:67, 04:77, 04:80-04:81N, 04:83-04:84, 04:86-04:87, 04:89-04:91, 04:103-04:104, 04:106-04:107, 04:116, 04:125-04:126, 04:131, 04:136-04:137, 04:147, 04:152, 04:162	
6 ⁵	115 bp	430 bp	*04:06:01-04:06:05, 04:19-04:21, 04:46, 04:49, 04:65, 04:68, 04:78, 04:84-04:85, 04:91, 04:99, 04:114, 04:144	
7	260 bp	430 bp	*04:01:01-04:01:13, 04:05:01-04:05:11, 04:05:13-04:05:16, 04:07:01-04:09, 04:14, 04:16-04:17:02, 04:19-04:21,	*11:22, 14:143

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			04:24, 04:26, 04:28-04:31, 04:33, 04:35, 04:38, 04:43, 04:45, 04:47-04:48, 04:54, 04:57, 04:61-04:63, 04:69, 04:72:01-04:72:02, 04:74-04:77, 04:80-04:84, 04:86-04:87, 04:89-04:90, 04:92, 04:98:01-04:98:02, 04:102-04:107, 04:111-04:113, 04:115-04:117, 04:119N, 04:123, 04:125, 04:127-04:132, 04:135, 04:137, 04:139-04:141, 04:145, 04:151-04:153, 04:155, 04:158N-04:159, 04:162	
8	260 bp	430 bp	*04:02:01-04:04:08, 04:06:01-04:06:05, 04:10:01-04:13, 04:15, 04:18, 04:22-04:23, 04:25, 04:27, 04:32, 04:36-04:37, 04:39-04:42, 04:44, 04:46, 04:49-04:53, 04:55-04:56, 04:58-04:60, 04:65, 04:67-04:68, 04:70-04:71, 04:73, 04:78-04:79, 04:85, 04:88, 04:91, 04:93-04:97, 04:99-04:101, 04:108-04:110, 04:114, 04:118, 04:120N-04:122, 04:124, 04:126, 04:133-04:134, 04:136, 04:138, 04:142N-04:144, 04:146-04:150, 04:154, 04:156-04:157N, 04:161, 04:163-04:164	*14:10, 14:57
9	215 bp	430 bp	*04:03:01-04:04:04, 04:04:05 ^w , 04:04:06-04:05:07, 04:05:08 ^w , 04:05:09-04:05:11, 04:05:13-04:08:03, 04:10:01-04:11:03, 04:12 ^w , 04:15, 04:17:01-04:17:02, 04:18 ^w , 04:19-04:20, 04:23-04:24, 04:25 ^w , 04:27-04:30, 04:31 ^w , 04:32, 04:36, 04:39-04:46, 04:47 ^w , 04:48-04:52, 04:53 ^w -04:55 ^w , 04:56-04:57, 04:58 ^w , 04:59-04:61, 04:68-04:71, 04:74, 04:77-04:81N, 04:82 ^w , 04:83-04:85, 04:86 ^w , 04:87-04:96, 04:99 ^w , 04:101-04:102, 04:103 ^w , 04:104, 04:107-04:110, 04:116, 04:118, 04:120N-04:121, 04:126 ^w , 04:129, 04:131, 04:136-04:137, 04:142N, 04:144, 04:146-04:149, 04:152, 04:154, 04:156-04:157N, 04:162-04:164	*11:22, 14:10, 14:143
10	170 bp	515 bp	*04:01:01-04:04:08, 04:06:01-04:08:03, 04:11:03, 04:13-04:16, 04:18-04:23, 04:25, 04:27, 04:31-04:33, 04:35-04:44, 04:46-04:47, 04:49-04:56, 04:58-04:61, 04:63, 04:65, 04:68, 04:70-04:76, 04:78-04:79, 04:85, 04:88, 04:92-04:98:02, 04:100-04:102, 04:105:01-04:105:02, 04:109-04:115, 04:117-04:124, 04:127-04:130, 04:132-04:135, 04:138-04:145, 04:148-04:151, 04:153-04:159, 04:161, 04:163-04:164	*11:22, 14:57
11	175 bp 220 bp	430 bp	*04:15, 04:61, 04:138, 04:145, 04:154	*11:22
12	180 bp 265 bp	515 bp	*04:16 *04:23, 04:52, 04:151	

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Lot-specific information

13	170 bp 225 bp	430 bp	*04:46 *04:12, 04:18, 04:25, 04:31, 04:54- 04:55, 04:58, 04:86, 04:103, 04:126	
14⁷	210 bp	430 bp	*04:02:01-04:02:03, 04:12, 04:14, 04:18, 04:38, 04:48, 04:53, 04:56, 04:73 ^w , 04:82, 04:86, 04:88, 04:99-04:100, 04:106-04:107, 04:124-04:125, 04:133- 04:134, 04:136, 04:138, 04:161	*14:57
15	215 bp	430 bp	*04:34	
16	225 bp	515 bp	*04:03:01-04:03:08, 04:06:01-04:07:04, 04:11:01-04:11:03, 04:17:01-04:17:02, 04:20, 04:27, 04:39, 04:41, 04:46, 04:49 ^w -04:50 ^w , 04:51-04:52, 04:59- 04:60, 04:65, 04:69, 04:71, 04:78, 04:85, 04:88, 04:91-04:93, 04:95:02 ^w , 04:96-04:97, 04:100-04:102, 04:109- 04:110, 04:114, 04:129, 04:136, 04:142N, 04:144, 04:146, 04:148, 04:150, 04:154, 04:156, 04:160, 04:163	*14:10, 14:143
17	190 bp	430 bp	*04:15, 04:25, 04:36, 04:47, 04:54, 04:57	*11:22
18	145 bp	430 bp	*04:28, 04:35, 04:42-04:43, 04:59, 04:147, 04:156	*11:22
19	140 bp 210 bp	515 bp	*04:39 *04:24, 04:69, 04:78, 04:101	*14:10, 14:143
20⁵	100 bp 175 bp 255 bp	430 bp	*04:63, 04:110, 04:161 *04:40 *04:27	
21⁶	155 bp 205 bp	515 bp	*04:29, *04:37, 04:58, 04:73, 04:105:01- 04:105:02, 04:122, 04:132	
22⁶	230 bp	430 bp	*04:32, 04:50, 04:139	
23	135 bp	430 bp	*04:33	
24^{5,8}	85 bp	430 bp	*04:01:01-04:01:13, 04:09, 04:16, 04:21, 04:26, 04:33-04:35, 04:38 ^w , 04:62- 04:64, 04:66, 04:72:01-04:72:02, 04:76, 04:98:01-04:98:02, 04:111-04:113, 04:115, 04:117, 04:119N, 04:123, 04:125 ^w , 04:127-04:128, 04:130, 04:135, 04:139-04:141, 04:145, 04:151, 04:153, 04:155, 04:158N-04:159	*01:10, 01:16, 03:02:01- 03:02:02, 03:05:01-03:05:03, 03:09, 03:14, 03:17, 03:27, 03:29, 03:35, 03:38, 03:40- 03:41, 03:53, 03:74, 03:81, 03:88, 03:90, 11:53 ^w , 11:79, 11:103, 11:105, 11:107, 11:125 ^w , 11:136, 14:19, 14:109, 14:141, DRB3*01:01:02:01-01:15, DRB3*02:02:01:01-02:03, DRB3*02:05-02:10, DRB3*02:11^w, DRB3*02:12- 02:13, DRB3*02:15-02:16, DRB3*02:17^w, DRB3*02:18- 02:23, DRB3*02:25, DRB3*02:27-02:29N, DRB3*03:03
25⁵	125 bp 230 bp 260 bp	430 bp	*04:26 *04:45 *04:64	

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26	200 bp	515 bp	*04:01:01-04:01:13, 04:03:01-04:05:11, 04:05:13-04:11:03, 04:13, 04:16-04:17:02, 04:19-04:24, 04:26-04:33, 04:35, 04:39-04:46, 04:48-04:52, 04:55, 04:57, 04:59-04:63, 04:65, 04:67-04:72:02, 04:74-04:79, 04:83-04:85, 04:87, 04:89-04:92, 04:94N-04:98:02, 04:101-04:104, 04:108-04:113, 04:115-04:123, 04:126-04:131, 04:135, 04:137, 04:139-04:142N, 04:144-04:149, 04:151-04:159, 04:162-04:164	*14:10, 14:143
27⁵	120 bp	515 bp	*04:10:01-04:12, 04:60, 04:67, 04:91, 04:126, 04:136, 04:147	*03:12, 08:06, 08:10, 08:12, 08:22, 08:54, 13:04, 13:32, 13:48, 13:58, 13:75, 13:81, 13:89, 13:93-13:94:02, 13:108, 13:164, 14:65, 14:78, 15:12
28⁵	265 bp 90 bp	430 bp	*04:49 *04:11:01-04:11:03, 04:17:01-04:17:02, 04:91, 04:136	*08:29
29⁵	75 bp	430 bp	*04:07:01-04:07:04, 04:17:01-04:17:02, 04:20, 04:69, 04:74, 04:92, 04:102, 04:129, 04:160	*01:17, 09:01:02-09:01:05, 09:01:08-09:02:02, 09:04-09:05, 09:07-09:08, 09:10-09:20, 09:22, 14:07:01-14:07:02, 14:14, 14:36, 14:42, 14:44:01-14:44:03, 14:51, 14:68, 14:93, 14:134, 14:143, DRB5*01:12
30⁵	260 bp 80 bp	430 bp	*04:64, *04:09, 04:67, 04:106, 04:125	*08:40, 13:03:01-13:04, 13:32-13:33:03, 13:38, 13:48, 13:65-13:66:02, 13:75, 13:81, 13:88-13:89, 13:93-13:95, 13:101, 13:115, 13:120, 13:122, 13:133, 13:139, 13:151-13:152
31^{5,7}	85 bp	430 bp	*04:14, 04:106, 04:132	*01:03, 01:39N, 08:40, 11:11:01-11:11:02, 11:14:01-11:14:02, 11:20, 11:68, 11:73, 11:93, 11:122, 13:02:01-13:02:03, 13:02:05-13:03:06, 13:23:01-13:23:02, 13:29, 13:31, 13:33:01-13:34, 13:36-13:39, 13:41, 13:45, 13:63, 13:65-13:67, 13:73-13:74, 13:85, 13:88, 13:90, 13:95-13:97:02, 13:99, 13:101, 13:103-13:104, 13:107, 13:115, 13:120, 13:122-13:124, 13:126, 13:128, 13:135, 13:139, 13:143, 13:145, 13:147, 13:151-13:152, 13:155, 13:159
32^{5,8}	260 bp 115 bp	430 bp	*04:64 *04:01:01-04:05:01, 04:05:03-04:05:11, 04:05:13-04:05:14, 04:05:16, 04:07:01-04:18, 04:22-04:33, 04:35-04:45, 04:47-04:48, 04:50-04:63, 04:67, 04:69-04:77,	*11:22

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			04:79-04:83, 04:86-04:90, 04:92-04:95:02, 04:97-04:98:02, 04:100-04:113, 04:115-04:132, 04:134-04:143, 04:145-04:151, 04:153-04:159, 04:161-04:163	
33 ⁶	215 bp	430 bp	*04:65, 04:158N	
34	260 bp	515 bp	*04:66	
35	210 bp 245 bp	430 bp	*04:81N *04:51, 04:70	
36	175 bp 240 bp	515 bp	*04:96 *04:71	
37	235 bp	430 bp	*04:22, 04:72:01, 04:95:02	
38 ⁷	140 bp 215 bp	515 bp	*04:89 *04:73, 04:75, 04:105:01-04:105:02, 04:122	
39 ⁵	100 bp 175 bp	430 bp	*04:83 *04:15, 04:61-04:62, 04:69, 04:138, 04:145-04:146, 04:154	*11:22, 14:10, 14:57, 14:143
40	145 bp 200 bp	430 bp	*04:30, 04:85 *04:38, 04:56, 04:88, 04:100, 04:107, 04:125	
41	165 bp	430 bp	*04:76, 04:108	
42 ⁵	110 bp 140 bp	430 bp	*04:41, 04:77, 04:102, 04:113, 04:152, 04:164 *04:79	*14:10, 14:57, 14:143
43	130 bp	515 bp	*04:80	*11:53, 11:125
44	240 bp	430 bp	*04:87, 04:94N, 04:120N, 04:129, 04:157N	
45	240 bp	515 bp	*04:03:08, 04:04:04, 04:10:02, 04:44, 04:72:02, 04:74, 04:95:01, 04:131, 04:140, 04:157N	
46 ⁵	75 bp	430 bp	*04:92	
47	250 bp	430 bp	*04:119N, 04:142N	
48 ⁹			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 DRB*04 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 or a smear of bands, may sometimes be seen. GC-rich primers have a higher tendency of giving rise to nonspecific amplifications than other primers.

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

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

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

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

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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.

³For several DQB1 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.

⁴Due to the sharing of sequence motifs between DRB1 alleles, non-DRB1*04 alleles will be amplified by primer mixes 2 to 4, 7 to 11, 14, 16 to 19, 24, 26 to 32, 39, 42 and 43. In addition, some DRB3 and DRB5 alleles will be amplified by primer mixes 24 and 29.

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

⁶Primer mixes 21, 22 and 33 may have tendencies of unspecific amplifications.

⁷Primer mixes 14, 31 and 38 have a tendency to giving rise to primer oligomer formation.

⁸Primer mixes 24 and 32 may give rise to a lower yield of HLA-specific PCR product than the other DRB1*04 primer mixes.

⁹Primer mix 48 contains a negative control, which will amplify more than 95% of HLA amplicons as well as the amplicons generated by control primer pairs. PCR product sizes range from 75 to 200 base pairs. The PCR product generated by the control primer pair is 430 base pairs.

‘w’, might be weakly amplified.

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Lot-specific information

PRIMER SPECIFICATION

Well No.	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec. PCR product	215	215	225	225	170	115	260	260	215	170	175	180
Length of int. pos. control ¹	515	430	430	515	430	430	430	430	430	515	430	515
5'-primer(s) ²	13(125) 5'-ACA 3'	13(125) 5'-ACA 3'	13(125) 5'-ACA 3'	13(125) 5'-ACA 3'	13(125) 5'-ACA 3'	13(125) 5'-ACA 3'	13(125) 5'-ACA 3'	13(125) 5'-ACA 3'	13(125) 5'-ACA 3'	13(125) 5'-ACA 3'	13(125) 5'-ACA 3'	13(125) 5'-ACA 3'
			13(125) 5'-ACC 3'									
3'-primer(s) ³	70(298) 5'-CTT 3'	70(298) 5'-CTC 3'	74(308) 5'-CCT 3'	74(308) 5'-CCg 3'	56(256) 5'-gCT 3'	37(197) 5'-Cgg 3'	86(344) 5'-CAC 3'	86(344) 5'-CCA 3'	70(298) 5'-TCT 3'	56(256) 5'-ATC 3'	58(260) 5'-CCT 3'	58(262) 5'-CTg 3'
									70(298) 5'-CCT 3'	56(256) 5'-ATC 3'	73(305) 5'-ggC 3'	88(351) 5'-AAT 3'
										56(256) 5'-gTC 3'		
										58(261) 5'-TCA 3'		
										58(261) 5'-TCC 3'		
Well No.	1	2	3	4	5	6	7	8	9	10	11	12

Well No.	13	14	15	16	17	18	19	20	21	22	23	24
Length of spec. PCR product	170	210	215	225	190	145	140	100	155	230	135	85
								210	175	205		
								255				
Length of int. pos. control ¹	430	430	430	515	430	430	515	430	515	430	430	430
5'-primer(s) ²	13(125) 5'-ACA 3'	13(125) 5'-ACA 3'	13(125) 5'-ACC 3'	13(125) 5'-ACA 3'	13(125) 5'-ACA 3'	13(125) 5'-ACA 3'	13(125) 5'-ACA 3'	13(125) 5'-ACA 3'	13(125) 5'-ACA 3'	13(125) 5'-ACA 3'	39(203) 5'-gCA 3'	71(299) 5'-gAA 3'
				13(125) 5'-ACC 3'								71(299) 5'-gAA 3'
3'-primer(s) ³	55(253) 5'-AgC 3'	66(286) 5'-gAT 3'	70(298) 5'-CTT 3'	74(308) 5'-CCT 3'	59(265) 5'-gTT 3'	47(227) 5'-ggA 3'	46(225) 5'-TAG 3'	32(184) 5'-gTT 3'	51(239) 5'-CCA 3'	72(302) 5'-CCT 3'	71(299) 5'-gCT 3'	86(344) 5'-CAC 3'
	73(307) 5'-CAg 3'	66(286) 5'-gAT 3'			66(286) 5'-gAA 3'		70(296) 5'-TCC 3'	58(260) 5'-CgC 3'	66(286) 5'-gAg 3'	77(319) 5'-gTg 3'		
		66(286) 5'-gAT 3'						85(341) 5'-CAg 3'	70(298) 5'-CgC 3'			
		72(304) 5'-ggA 3'										
Well No.	13	14	15	16	17	18	19	20	21	22	23	24

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Well No.	25	26	27	28	29	30	31	32	33	34	35	36
Length of spec. PCR product	125 230 260	200	120 265	90	75 260	80	85 260	115	215	260	210 245	175 240
Length of int. pos. control ¹	430	515	515	430	430	430	430	430	430	515	430	515
5'-primer(s) ²	13(125) 5'-ATA 3'	13(125) 5'-ACA 3'	10(118) 5'-AgA 3'	57(258) 5'-AgC 3'	13(125) 5'-ATA 3'	57(258) 5'-AgC 3'	13(125) 5'-ATA 3'	13(125) 5'-ACA 3'	13(125) 5'-ACA 3'	13(125) 5'-gTC 3'	13(125) 5'-ACA 3'	19(145) 5'-ACC 3'
			57(258) 5'-AgC 3'		74(308) 5'-CgA 3'		71(299) 5'-CgA 3'					40(208) 5'-TCA 3'
			63(275) 5'-CAA 3'				71(299) 5'-CAA 3'					
3'-primer(s) ³	86(344) 5'-CAC 3'	66(286) 5'-gAg 3'	86(344) 5'-CCA 3'	74(308) 5'-CCT 3'	86(344) 5'-CAC 3'	71(299) 5'-gCT 3'	86(344) 5'-CAC 3'	37(197) 5'-CgT 3'	70(298) 5'-CCA 3'	86(344) 5'-CAC 3'	69(293) 5'-.T 3'	86(344) 5'-CCA 3'
		67(288) 5'-AgA 3'						39(203) 5'-AgT 3'	71(301) 5'-CCg 3'		80(328) 5'-gTA 3'	
Well No.	25	26	27	28	29	30	31	32	33	34	35	36

Well No.	37	38	39	40	41	42	43	44	45	46	47
Length of spec. PCR product	235	140 215	100 175	145 200	165	110 140	130	240	240	75	250
Length of int. pos. control ¹	430	515	430	430	430	430	515	430	515	430	430
5'-primer(s) ²	13(125) 5'-ACA 3'	13(125) 5'-ACA 3'	13(125) 5'-ACA 3'	13(125) 5'-ACA 3'	13(125) 5'-ACA 3'	13(125) 5'-ACA 3'	37(197) 5'-gTA 3'	13(125) 5'-ACA 3'	13(125) 5'-ACA 3'	196(674) 5'-ACA 3'	13(125) 5'-ACA 3'
3'-primer(s) ³	77(317) 5'-AgT 3'	46(224) 5'-ACC 3'	33(185) 5'-ggA 3'	45(223) 5'-CTT 3'	52(244) 5'-CAT 3'	36(196) 5'-gTT 3'	66(286) 5'-gAA 3'	78(321) 5'-CAT 3'	77(317) 5'-AAT 3'	206(706) 5'-CAT 3'	83(336) 5'-CCC 3'
		71(299) 5'-gCg 3'	57(257) 5'-CAg 3'	49(233) 5'-CCA 3'	56(256) 5'-ATg 3'	37(197) 5'-CgA 3'		80(328) 5'-gTA 3'	83(336) 5'-CCA 3'		83(336) 5'-CCT 3'
			58(260) 5'-CCT 3'	66(286) 5'-gAT 3'		46(226) 5'-gTg 3'					
Well No.	37	38	39	40	41	42	43	44	45	46	47

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 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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Lot-specific information

CELL LINE VALIDATION SHEET																					
DRB1*04 SSP subtyping kit ²																					
				Prod. No.	Well																
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
					201188101	201188102	201328503	201188104	201188105	201188106	201188107	201188108	201188109	201328510	201188111	201188112	201188113	201207614	201188115	201328516	
	IHWC 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	*14:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

101.114-24/03 – including *Taq* pol., IFU-01
101.114-24u/03u – without *Taq* pol., IFU-02

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

Lot No.: 18V

Lot-specific information

CELL LINE VALIDATION SHEET																						
DRB1*04 SSP subtyping kit ²																						
				Prod. No.	Well																	
					17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32		
					201188117	201188118	201328519	201188120	201328521	201188122	201207623	201328524	201188125	201188126	201188127	201188128	201188129	201188130	201188131	201188132		
	IHWC 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	*14:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-
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			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-

101.114-24/03 – including *Taq* pol., IFU-01
101.114-24u/03u – without *Taq* pol., IFU-02

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“Instructions for Use” (IFU)

Lot No.: **18V**

Lot-specific information

CELL LINE VALIDATION SHEET																			
DRB1*04 SSP subtyping kit ²																			
			Prod. No.	Well															
				33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	
	IHWC cell line ¹	DRB1		201328533	201188134	201188135	201207636	201188137	201188138	201328539	201328540	201328541	201328542	201188143	201207644	201328545	201207646	201328547	
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	*14:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
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		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

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 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.

101.114-24/03 – including *Taq* pol., IFU-01
101.114-24u/03u – without *Taq* pol., IFU-02

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“Instructions for Use” (IFU)

Lot No.: 18V

Lot-specific information

No DNAs carrying the alleles to be amplified by primer solutions 11, 13, 15, 17 to 20, 22, 23, 25 and 33 to 39 and 41 to 47 were available. The specificities of the primers in primer solutions 11, 13, 17 to 20, 35, 37 to 39, 42 and 45 were tested by separately adding one additional 5'-primer, respectively, one additional 3'-primer.

In primer solutions 15, 23, 25, 34 and 36 it was only possible to test the 3'-primers, the 5'-primers were not possible to test.

In primer solutions 22, 33, 41, 43, 44, 46 and 47 it was only possible to test the 5'-primers, the 3'-primers were not possible to test.

One or two of the 3'-primers in primer solutions 10, 12 to 14, 17, 19 to 21, 26, 32, 35, 38, 39, 42 and 45 was not possible to test, and in primer solution 3, 16, 24, 27, 29 and 31 one or two 5'-primers was not possible to test.

Additional 3'-primers in primer solution 10 and 21 were tested by separately adding one or two additional 5'-primers.

101.114-24/03 – including *Taq* pol., IFU-01
101.114-24u/03u – without *Taq* pol., IFU-02

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

Lot No.: **18V**

Lot-specific information

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