

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.: **95X**

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:	95X
Expiry date:	2017-August-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. 95X.

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 (18V)**

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.

¹As described in section Uniquely Identified Alleles.

The DRB1*04 primer set, specificity and interpretation tables have been updated for the DRB1 alleles reported since the previous *Olerup SSP®* DRB1*04 lot was made (**Lot No. 18V**). The kit design is based on IMGT/HLA database 3.18.0.

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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
1	-	Added	3'-primer added for the DRB1*04:01:15 allele.
9	-	Modified	3'-primer modified for improved HLA-specific amplification.
15	Added	-	5'-primer added for the DRB1*04:123 allele.
16	Removed, added	Removed, added	Primer pair removed, primer pairs added for the DRB1*04:116 and DRB1*04:148 alleles, exchanged positive control primer pair.
38	-	Added	3'-primer added for the DRB1*04:178N allele.
44	-	Added	3'-primer added for the DRB1*04:127 allele.
47	-	Added	3'-primer added for the DRB1*04:117 allele.
48	-	-	Updated 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, 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

DRB1*04 SSP subtyping

CONTENT

The primer set contains 5'- and 3'-primers for identifying the DRB1*04:01 to DRB1*04:186N 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. '95X'.

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 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*04:186N**, recognized by the HLA Nomenclature Committee in October 2014^{1,2,3} 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	Alleles	Primer mix
DRB1*04:16, 04:151	12	DRB1*04:39, 04:101	19
DRB1*04:23, 04:180	12	DRB1*04:89, 04:178N	38
DRB1*04:27, 04:110	20	DRB1*04:117, 04:119N	47

The DRB1*04 subtyping kit cannot distinguish the silent mutation in the DRB1*04:01:01-04:01:16 alleles, the DRB1*04:02:01-04:02:03 alleles, the DRB1*04:03:01-04:03:07 and 04:03:09-04:03:10 alleles, the DRB1*04:04:01-04:04:03 and 04:04:06-04:04:09 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*04:07:01-04:07:05 alleles, the DRB1*04:08:01-04:08:03 alleles, the DRB1*04:10:01 and 04:10:03 alleles, the DRB1*04:11:01-04:11:02 alleles, the DRB1*04:17:01-04:17:02 alleles, the DRB1*04:56:01-04:56:02 alleles and the DRB1*04:105:01-04:105:02 alleles.

¹DRB1 alleles listed on the IMGT/HLA web page 2014-October-10, release 3.18.0, 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>.

³The DRB1*04:34 and the DRB1*01:10 alleles will give rise to identical amplification patterns with the DRB1*04 subtyping kit. These alleles can be distinguished by the DR low resolution kit and/or the DRB1*01 subtyping kit.

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ALLELE CONFIRMATION STATUS

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

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Allele	Status ¹	Allele	Status ¹
DRB1*04:133	Unconfirmed	DRB1*04:163	Unconfirmed
DRB1*04:134	Unconfirmed	DRB1*04:164	Unconfirmed
DRB1*04:135	Unconfirmed	DRB1*04:165	Unconfirmed
DRB1*04:136	Unconfirmed	DRB1*04:166	Unconfirmed
DRB1*04:137	Unconfirmed	DRB1*04:167	Unconfirmed
DRB1*04:138	Confirmed	DRB1*04:168	Confirmed
DRB1*04:139	Unconfirmed	DRB1*04:169	Unconfirmed
DRB1*04:140	Unconfirmed	DRB1*04:170	Unconfirmed
DRB1*04:141	Unconfirmed	DRB1*04:171	Unconfirmed
DRB1*04:142N	Unconfirmed	DRB1*04:172	Unconfirmed
DRB1*04:143	Unconfirmed	DRB1*04:173	Unconfirmed
DRB1*04:144	Unconfirmed	DRB1*04:174	Unconfirmed
DRB1*04:145	Unconfirmed	DRB1*04:175	Unconfirmed
DRB1*04:146	Unconfirmed	DRB1*04:176	Unconfirmed
DRB1*04:147	Unconfirmed	DRB1*04:177	Unconfirmed
DRB1*04:148	Confirmed	DRB1*04:178N	Unconfirmed
DRB1*04:149	Unconfirmed	DRB1*04:179	Unconfirmed
DRB1*04:150	Confirmed	DRB1*04:180	Unconfirmed
DRB1*04:151	Unconfirmed	DRB1*04:181	Unconfirmed
DRB1*04:152	Unconfirmed	DRB1*04:182	Unconfirmed
DRB1*04:153	Unconfirmed	DRB1*04:183	Unconfirmed
DRB1*04:154	Confirmed	DRB1*04:184	Unconfirmed
DRB1*04:155	Unconfirmed	DRB1*04:185	Unconfirmed
DRB1*04:156	Unconfirmed	DRB1*04:186N	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		

¹Allele status “confirmed” or “unconfirmed” as listed on the IMGT/HLA web page 2014-October-10, release 3.18.0, 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	*04:01:01-04:01:16, 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, 04:171, 04:174-04:175, 04:179, 04:184	
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	*04:03:01-04:03:10, 04:06:01-04:07:05, 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, 04:165, 04:169-04:170, 04:172, 04:176, 04:181, 04:183	*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, 04:08:01-04:10:03, 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, 04:56:01-04:57, 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, 04:166, 04:168, 04:171, 04:173-04:175, 04:177-04:180, 04:182, 04:184	*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, 04:173, 04:178N	

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6⁵	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, 04:176, 04:186N	
7	260 bp	430 bp	*04:01:01-04:01:16, 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, 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, 04:166, 04:170-04:175, 04:178N-04:179, 04:184-04:185	*11:22, 14:143
8	260 bp	430 bp	*04:02:01-04:04:09, 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, 04:55-04:56:02, 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, 04:163-04:165, 04:167-04:169, 04:176-04:177, 04:180-04:183, 04:186N	*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 , 04:56:01-04:57, 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, 04:162-04:165, 04:167-04:170, 04:172, 04:176-04:178N, 04:180-04:183, 04:185 ^w , 04:186N	*11:22, 14:10, 14:143
10	170 bp	515 bp	*04:01:01-04:04:09, 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,	*11:22, 14:57

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Lot-specific information

			04:46-04:47, 04:49-04:56:02, 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, 04:163-04:168, 04:170-04:172, 04:174-04:177, 04:179-04:186N	
11	175 bp	430 bp	*04:15, 04:61, 04:138, 04:145, 04:154, 04:170	*11:22
	220 bp		*04:22, 04:98:02	
12	180 bp	515 bp	*04:16, 04:180	
	265 bp		*04:23, 04:52, 04:151	
13	170 bp	430 bp	*04:46	
	225 bp		*04:12, 04:18, 04:25, 04:31, 04:54-04:55, 04:58, 04:86, 04:103, 04:126, 04:185	
14⁷	210 bp	430 bp	*04:02:01-04:02:03, 04:12, 04:14, 04:18, 04:38, 04:48, 04:53, 04:56:01-04:56:02, 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, 04:185	*14:57
15	175 bp	430 bp	*04:123	*01:10
	215 bp		*04:34	
16	170 bp	430 bp	*04:116, 04:148	*11:126, 15:64
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	515 bp	*04:39	
	210 bp		*04:24, 04:69, 04:78, 04:101, 04:168	*14:10, 14:143
20⁵	100 bp	430 bp	*04:63, 04:110, 04:161	
	175 bp		*04:40	
	255 bp		*04:27	
21⁶	155 bp	515 bp	*04:29	
	210 bp		*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, 04:166	
23	135 bp	430 bp	*04:33	
24^{5,8}	85 bp	430 bp	*04:01:01-04:01:16, 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, 04:171, 04:174-04:175, 04:179 ^w , 04:184	*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, 03:102-03:103, 03:115, 11:53 ^w , 11:79, 11:103, 11:105, 11:107, 11:125 ^w , 11:136 ^w , 14:19, 14:109, 14:141, 15:103 ^w , 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,

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Lot-specific information

				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	
26	200 bp	515 bp	*04:01:01-04:01:16, 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, 04:162-04:174, 04:176- 04:178N, 04:180-04:181, 04:183- 04:184, 04:186N	*14:10, 14:143
27⁵	115 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, 12:46, 13:04, 13:32, 13:48, 13:58, 13:75, 13:81, 13:89, 13:93- 13:94:02, 13:108, 13:164, 13:169, 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, 13:188
29⁵	75 bp	430 bp	*04:07:01-04:07:05, 04:17:01-04:17:02, 04:20, 04:69, 04:74, 04:92, 04:102, 04:129, 04:160, 04:170, 04:172	*01:17, 09:01:02-09:01:05, 09:01:08-09:02:02, 09:04- 09:05, 09:07-09:08, 09:10- 09:24, 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, 13:167 [?] , 13:174, 13:188
31^{5,7}	85 bp	430 bp	*04:14, 04:106, 04:132	*01:03, 01:39N, 08:40, 11:11:01-11:11:03, 11:14:01- 11:14:02, 11:20, 11:68, 11:73, 11:93, 11:122, 11:168, 13:02:01-13:02:03, 13:02:05- 13:02:09, 13:03:01-13:03:06, 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,

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Lot-specific information

				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, 13:165, 13:167- 13:168, 13:170-13:172, 13:174, 13:179-13:180, 13:182, 13:188
	260 bp		*04:64	
32^{5,8}	120 bp	430 bp	*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, 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, 04:166-04:175, 04:177-04:183, 04:185	*11:22
33⁶	215 bp	430 bp	*04:65, 04:158N	
34	260 bp	515 bp	*04:66	
35	210 bp	430 bp	*04:81N	
	245 bp		*04:51, 04:70	
36	175 bp	515 bp	*04:96	
	240 bp		*04:71	
37	235 bp	430 bp	*04:22, 04:72:01, 04:95:02	
38⁷	140 bp	430 bp	*04:89	
	215 bp		*04:73, 04:75, 04:105:01-04:105:02, 04:122, 04:178N	
39⁵	100 bp	430 bp	*04:83	
	175 bp		*04:15, 04:61-04:62, 04:69, 04:138, 04:145-04:146, 04:154, 04:170	*11:22, 14:10, 14:57, 14:143
40	145 bp	430 bp	*04:30, 04:85	
	200 bp		*04:38, 04:56:01-04:56:02, 04:88, 04:100, 04:107, 04:125	
41	165 bp	430 bp	*04:76, 04:108	
42⁵	110 bp	430 bp	*04:41, 04:77, 04:102, 04:113, 04:152, 04:164	*14:10, 14:57, 14:143
	140 bp		*04:79	
43	130 bp	515 bp	*04:80, 04:179	*11:53, 11:125
44	165 bp	430 bp	*04:127	
	240 bp		*04:87, 04:94N, 04:120N, 04:129, 04:157N, 04:186N	
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	
46⁵	75 bp	430 bp	*04:92	
47	140 bp	430 bp	*04:117	
	250 bp		*04:119N, 04:142N	
48⁹			Negative Control	

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Lot-specific information

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 DRB1*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 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 DRB1 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 to 19, 24, 26 to 32, 39, 42 and 43. In addition, a few 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 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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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
											220	265
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'-TTT 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	175	170	190	145	140	100	155	230	135	85
	225		215				210	175	210			
								255				
Length of int. pos. control ¹	430	430	430	430	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'	43(217) 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'
			26(165) 5'-TTg 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'	86(344) 5'-CCA 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'		86(344) 5'-CAC 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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Lot-specific information

Well No.	25	26	27	28	29	30	31	32	33	34	35	36
Length of spec.	125	200	115	90	75	80	85	120	215	260	210	175
PCR product	230		265		260		260				245	240
	260											
Length of int.	430	515	515	430	430	430	430	430	430	515	430	515
pos. control ¹												
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'
	23(155) 5'-gCC 3'		57(258) 5'-AgC 3'		74(308) 5'-CgA 3'		71(299) 5'-CgA 3'					40(208) 5'-TCA 3'
	57(259) 5'-ATA 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.	235	140	100	145	165	110	130	165	240	75	140
PCR product		225	175	200		140		240			250
Length of int.	430	430	430	430	430	430	515	430	515	430	430
pos. control ¹											
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'	55(251) 5'-gCg 3'	77(317) 5'-AAT 3'	206(706) 5'-CAT 3'	45(223) 5'-CTg 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'		78(321) 5'-CAT 3'	83(336) 5'-CCA 3'		83(336) 5'-CCC 3'
		77(318) 5'-TAg 3'	58(260) 5'-CCT 3'	66(286) 5'-gAT 3'		46(226) 5'-gTg 3'		80(328) 5'-gTA 3'			83(336) 5'-CCT 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.

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.: 95X

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
						201548001	201188102	201328503	201188104	201188105	201188106	201188107	201188108	201548009	201328510	201188111	201188112	201188113	201207614	201548015	201548016
	IHCW 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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Lot No.: 95X

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	201548019	201188120	201548021	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	PTOUT	*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			-	-	-	-	04	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
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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Lot No.: 95X

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	
						201328533	201188134	201188135	201207636	201188137	201548038	201548039	201328540	201328541	201548042	201188143	201548044	201328545	201207646	201548047	
	IHWC cell line ¹		DRB1																		
1	9001	SA	*01:01	*04:05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2	9280	LK707	*15:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	9011	E4181324	*15:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	9275	GU373	*03:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	9009	KAS011	*16:01	*08:03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
6	9353	SM	*04:07		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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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Lot-specific information

No DNAs carrying the alleles to be amplified by primer solutions 11, 13, 15 to 23, 25, 33 to 39 and 41 to 47 were available. The specificities of the primers in primer solutions 11, 13, 15, 17 to 21, 35, 37 to 39, 42 and 45 were tested by separately adding one additional 5'-primer, respectively, one additional 3'-primer.

In primer solutions 16, 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 1, 10, 12 to 14, 17, 19 to 21, 26, 32, 35, 38 to 40, 42 and 45 was not possible to test, and in primer solution 3, 15, 24, 27, 29 and 31 one or two 5'-primers was not possible to test.

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

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

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Lot No.: **95X**

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