

DRB1*04

101.114-24/03 – including *Taq* pol., IFU-01

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

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

Lot No.: **3F5**

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:	3F5
Expiry date:	2020-03-01
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
- Adhesive PCR seals	RT
- Product Insert	RT

This Product Description is only valid for Lot No. 3F5.

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 (9D2)

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

The format of the Worksheet has been changed.

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 was made (**Lot No. 9D2**). The kit design is based on IMGT/HLA database 3.27.0.

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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
29	Added	-	5'-primer added for the DRB1*04:192 and DRB1*04:213 alleles.
31	Added	-	5'-primer added for the DRB1*04:214N alleles.
34	Added	-	5'-primer added for the DRB1*04:192 and DRB1*04:213 alleles.
36	Modified	-	5'-primer modified for improved HLA-specific amplification.
37	-	Modified, added	3'-primer modified for improved HLA-specific amplification, 3'-primer added for the DRB1*04:72:02 allele.
42	Added	-	3'-primer added for increased yield.
43	Added	Added	Primer pair added for the DRB1*04:218 allele.
46	Added	Added	Primer pair added for the DRB1*04:214N allele.

Change in revision R01 compared to R00:

1. Primer mix 10 weakly amplifies the DRB1*04:26 allele. This has been corrected in the Interpretation and 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*04:221 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. ‘3F5’.

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 some primer mixes. In addition, DRB3 and DRB5 alleles will be amplified by some primer mixes. For further details see Specificity Table.

UNIQUELY IDENTIFIED ALLELES

All the phenotypically different DRB1*04 alleles, i.e. **DRB1*04:01 to DRB1*04:221**, recognized by the HLA Nomenclature Committee in January 2017^{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.

DRB1*04

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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*04:49, 04:219	27
DRB1*04:23, 04:180	12	DRB1*04:89, 04:178N	38
DRB1*04:27, 04:110	20	DRB1*04:117, 04:119N	47
DRB1*04:39, 04:101	19		

¹DRB1 alleles listed on the IMGT/HLA web page 2017-January-20, release 3.27.0, 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*04:01:01:01	Confirmed	DRB1*04:05:05	Confirmed	DRB1*04:25	Confirmed	DRB1*04:72:01	Unconfirmed
DRB1*04:01:01:02	Unconfirmed	DRB1*04:05:06	Unconfirmed	DRB1*04:26	Confirmed	DRB1*04:72:02	Confirmed
DRB1*04:01:02	Confirmed	DRB1*04:05:07	Unconfirmed	DRB1*04:27	Unconfirmed	DRB1*04:73	Unconfirmed
DRB1*04:01:03	Unconfirmed	DRB1*04:05:08	Unconfirmed	DRB1*04:28	Unconfirmed	DRB1*04:74	Confirmed
DRB1*04:01:04	Unconfirmed	DRB1*04:05:09	Confirmed	DRB1*04:29	Unconfirmed	DRB1*04:75	Unconfirmed
DRB1*04:01:05	Confirmed	DRB1*04:05:10	Confirmed	DRB1*04:30	Unconfirmed	DRB1*04:76	Unconfirmed
DRB1*04:01:06	Confirmed	DRB1*04:05:11	Confirmed	DRB1*04:31	Confirmed	DRB1*04:77	Unconfirmed
DRB1*04:01:07	Unconfirmed	DRB1*04:05:13	Confirmed	DRB1*04:32	Confirmed	DRB1*04:78	Unconfirmed
DRB1*04:01:08	Unconfirmed	DRB1*04:05:14	Confirmed	DRB1*04:33	Confirmed	DRB1*04:79	Confirmed
DRB1*04:01:09	Unconfirmed	DRB1*04:05:15	Unconfirmed	DRB1*04:34	Confirmed	DRB1*04:80	Unconfirmed
DRB1*04:01:10	Confirmed	DRB1*04:05:16	Unconfirmed	DRB1*04:35	Unconfirmed	DRB1*04:81N	Unconfirmed
DRB1*04:01:11	Unconfirmed	DRB1*04:05:17	Unconfirmed	DRB1*04:36	Confirmed	DRB1*04:82	Unconfirmed
DRB1*04:01:12	Confirmed	DRB1*04:05:18	Unconfirmed	DRB1*04:37	Unconfirmed	DRB1*04:83	Confirmed
DRB1*04:01:13	Unconfirmed	DRB1*04:06:01	Confirmed	DRB1*04:38	Confirmed	DRB1*04:84	Unconfirmed
DRB1*04:01:14	Unconfirmed	DRB1*04:06:02	Unconfirmed	DRB1*04:39	Confirmed	DRB1*04:85	Unconfirmed
DRB1*04:01:15	Unconfirmed	DRB1*04:06:03	Unconfirmed	DRB1*04:40	Confirmed	DRB1*04:86	Unconfirmed
DRB1*04:01:16	Unconfirmed	DRB1*04:06:04	Unconfirmed	DRB1*04:41	Confirmed	DRB1*04:87	Confirmed
DRB1*04:01:17	Unconfirmed	DRB1*04:06:05	Unconfirmed	DRB1*04:42	Confirmed	DRB1*04:88	Confirmed
DRB1*04:02:01	Confirmed	DRB1*04:06:06	Unconfirmed	DRB1*04:43	Confirmed	DRB1*04:89	Confirmed
DRB1*04:02:02	Unconfirmed	DRB1*04:07:01	Confirmed	DRB1*04:44:01	Unconfirmed	DRB1*04:90	Unconfirmed
DRB1*04:02:03	Unconfirmed	DRB1*04:07:02	Unconfirmed	DRB1*04:44:02	Unconfirmed	DRB1*04:91	Unconfirmed
DRB1*04:02:04	Unconfirmed	DRB1*04:07:03	Confirmed	DRB1*04:45	Confirmed	DRB1*04:92	Unconfirmed
DRB1*04:02:05	Confirmed	DRB1*04:07:04	Confirmed	DRB1*04:46	Unconfirmed	DRB1*04:93	Unconfirmed
DRB1*04:03:01	Confirmed	DRB1*04:07:05	Unconfirmed	DRB1*04:47	Unconfirmed	DRB1*04:94:01N	Unconfirmed
DRB1*04:03:02	Confirmed	DRB1*04:08:01	Confirmed	DRB1*04:48	Unconfirmed	DRB1*04:95:01	Confirmed
DRB1*04:03:03	Unconfirmed	DRB1*04:08:02	Confirmed	DRB1*04:49	Unconfirmed	DRB1*04:95:02	Unconfirmed
DRB1*04:03:04	Unconfirmed	DRB1*04:08:03	Unconfirmed	DRB1*04:50	Confirmed	DRB1*04:96	Confirmed
DRB1*04:03:05	Confirmed	DRB1*04:08:04	Unconfirmed	DRB1*04:51	Unconfirmed	DRB1*04:97	Unconfirmed
DRB1*04:03:06	Unconfirmed	DRB1*04:09	Confirmed	DRB1*04:52	Unconfirmed	DRB1*04:98:01	Unconfirmed
DRB1*04:03:07	Unconfirmed	DRB1*04:10:01	Confirmed	DRB1*04:53:01	Unconfirmed	DRB1*04:98:02	Confirmed
DRB1*04:03:08	Confirmed	DRB1*04:10:02	Unconfirmed	DRB1*04:53:02	Unconfirmed	DRB1*04:99	Confirmed
DRB1*04:03:09	Confirmed	DRB1*04:10:03	Unconfirmed	DRB1*04:54	Confirmed	DRB1*04:100	Confirmed
DRB1*04:03:10	Unconfirmed	DRB1*04:11:01	Confirmed	DRB1*04:55	Unconfirmed	DRB1*04:101	Confirmed
DRB1*04:03:11	Unconfirmed	DRB1*04:11:02	Unconfirmed	DRB1*04:56:01	Unconfirmed	DRB1*04:102	Unconfirmed
DRB1*04:03:12	Confirmed	DRB1*04:11:03	Unconfirmed	DRB1*04:56:02	Confirmed	DRB1*04:103	Unconfirmed
DRB1*04:03:13	Confirmed	DRB1*04:11:04	Unconfirmed	DRB1*04:57	Unconfirmed	DRB1*04:104	Unconfirmed
DRB1*04:04:01	Confirmed	DRB1*04:12	Confirmed	DRB1*04:58	Unconfirmed	DRB1*04:105:01	Confirmed
DRB1*04:04:02	Unconfirmed	DRB1*04:13	Confirmed	DRB1*04:59	Unconfirmed	DRB1*04:105:02	Confirmed
DRB1*04:04:03	Confirmed	DRB1*04:14	Confirmed	DRB1*04:60	Unconfirmed	DRB1*04:106	Unconfirmed
DRB1*04:04:04	Unconfirmed	DRB1*04:15	Confirmed	DRB1*04:61	Unconfirmed	DRB1*04:107	Unconfirmed
DRB1*04:04:05	Unconfirmed	DRB1*04:16	Confirmed	DRB1*04:62	Unconfirmed	DRB1*04:108	Confirmed
DRB1*04:04:06	Unconfirmed	DRB1*04:17:01	Confirmed	DRB1*04:63	Confirmed	DRB1*04:109	Unconfirmed
DRB1*04:04:07	Confirmed	DRB1*04:17:02	Confirmed	DRB1*04:64	Unconfirmed	DRB1*04:110	Unconfirmed
DRB1*04:04:08	Unconfirmed	DRB1*04:18	Confirmed	DRB1*04:65	Unconfirmed	DRB1*04:111	Unconfirmed
DRB1*04:04:09	Unconfirmed	DRB1*04:19	Confirmed	DRB1*04:66	Unconfirmed	DRB1*04:112	Unconfirmed
DRB1*04:04:10	Unconfirmed	DRB1*04:20	Confirmed	DRB1*04:67	Unconfirmed	DRB1*04:113	Unconfirmed
DRB1*04:05:01	Confirmed	DRB1*04:21	Unconfirmed	DRB1*04:68	Confirmed	DRB1*04:114	Confirmed
DRB1*04:05:02	Unconfirmed	DRB1*04:22	Unconfirmed	DRB1*04:69	Unconfirmed	DRB1*04:115	Unconfirmed
DRB1*04:05:03	Confirmed	DRB1*04:23	Unconfirmed	DRB1*04:70	Unconfirmed	DRB1*04:116	Confirmed
DRB1*04:05:04	Confirmed	DRB1*04:24	Unconfirmed	DRB1*04:71	Unconfirmed	DRB1*04:117	Confirmed

DRB1*04

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Lot-specific information

Allele	Status ¹	Allele	Status ¹	Allele	Status ¹	Allele	Status ¹
DRB1*04:118	Unconfirmed	DRB1*04:147	Unconfirmed	DRB1*04:177	Unconfirmed	DRB1*04:207	Unconfirmed
DRB1*04:119N	Unconfirmed	DRB1*04:148	Confirmed	DRB1*04:178N	Unconfirmed	DRB1*04:208	Unconfirmed
DRB1*04:120N	Unconfirmed	DRB1*04:149	Unconfirmed	DRB1*04:179	Unconfirmed	DRB1*04:209	Unconfirmed
DRB1*04:121	Unconfirmed	DRB1*04:150	Confirmed	DRB1*04:180	Unconfirmed	DRB1*04:210	Unconfirmed
DRB1*04:122	Unconfirmed	DRB1*04:151	Unconfirmed	DRB1*04:181	Unconfirmed	DRB1*04:211	Unconfirmed
DRB1*04:123	Confirmed	DRB1*04:152	Unconfirmed	DRB1*04:182	Confirmed	DRB1*04:212N	Confirmed
DRB1*04:124	Unconfirmed	DRB1*04:153	Unconfirmed	DRB1*04:183	Unconfirmed	DRB1*04:213	Confirmed
DRB1*04:125	Unconfirmed	DRB1*04:154	Confirmed	DRB1*04:184	Unconfirmed	DRB1*04:214N	Unconfirmed
DRB1*04:126	Unconfirmed	DRB1*04:155	Unconfirmed	DRB1*04:185	Unconfirmed	DRB1*04:215	Unconfirmed
DRB1*04:127	Confirmed	DRB1*04:156	Unconfirmed	DRB1*04:186N	Unconfirmed	DRB1*04:216	Unconfirmed
DRB1*04:128	Unconfirmed	DRB1*04:157N	Unconfirmed	DRB1*04:187	Unconfirmed	DRB1*04:217	Unconfirmed
DRB1*04:129	Confirmed	DRB1*04:158N	Unconfirmed	DRB1*04:188	Unconfirmed	DRB1*04:218	Unconfirmed
DRB1*04:130	Unconfirmed	DRB1*04:159	Unconfirmed	DRB1*04:189	Unconfirmed	DRB1*04:219	Unconfirmed
DRB1*04:131:01	Unconfirmed	DRB1*04:160	Unconfirmed	DRB1*04:190	Unconfirmed	DRB1*04:220	Unconfirmed
DRB1*04:131:02	Unconfirmed	DRB1*04:161	Unconfirmed	DRB1*04:191	Unconfirmed	DRB1*04:221	Unconfirmed
DRB1*04:132	Unconfirmed	DRB1*04:162	Unconfirmed	DRB1*04:192	Confirmed		
DRB1*04:133	Unconfirmed	DRB1*04:163	Unconfirmed	DRB1*04:193	Unconfirmed		
DRB1*04:134	Unconfirmed	DRB1*04:164	Unconfirmed	DRB1*04:194	Unconfirmed		
DRB1*04:135	Unconfirmed	DRB1*04:165	Unconfirmed	DRB1*04:195	Unconfirmed		
DRB1*04:136	Unconfirmed	DRB1*04:166	Unconfirmed	DRB1*04:196	Unconfirmed		
DRB1*04:137	Unconfirmed	DRB1*04:167	Unconfirmed	DRB1*04:197	Unconfirmed		
DRB1*04:138	Confirmed	DRB1*04:168	Confirmed	DRB1*04:198	Unconfirmed		
DRB1*04:139	Unconfirmed	DRB1*04:169	Unconfirmed	DRB1*04:199	Unconfirmed		
DRB1*04:140	Unconfirmed	DRB1*04:170	Unconfirmed	DRB1*04:200	Unconfirmed		
DRB1*04:141	Unconfirmed	DRB1*04:171	Unconfirmed	DRB1*04:201	Unconfirmed		
DRB1*04:142N	Unconfirmed	DRB1*04:172	Unconfirmed	DRB1*04:202	Unconfirmed		
DRB1*04:143	Unconfirmed	DRB1*04:173	Unconfirmed	DRB1*04:203	Confirmed		
DRB1*04:144	Unconfirmed	DRB1*04:174	Unconfirmed	DRB1*04:204	Unconfirmed		
DRB1*04:145	Unconfirmed	DRB1*04:175	Unconfirmed	DRB1*04:205	Confirmed		
DRB1*04:146	Unconfirmed	DRB1*04:176	Unconfirmed	DRB1*04:206	Unconfirmed		

¹Allele status “confirmed” or “unconfirmed” as listed on the IMGT/HLA web page 2017-January-20, release 3.27.0, 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.

DRB1*04

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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
1	215 bp	515 bp	*04:01:01:01-04:01:17, 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, 04:187, 04:190, 04:192, 04:194, 04:196, 04:200, 04:208, 04:215-04:217	
2	215 bp	430 bp	*04:02:01-04:02:05, 04:14, 04:37, 04:106, 04:124, 04:132-04:134, 04:138, 04:143, 04:161, 04:204, 04:210	*14:57
3	225 bp	430 bp	*04:03:01-04:03:13, 04:06:01-04:07:05, 04:11:01-04:11:04, 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, 04:188, 04:195, 04:197-04:199, 04:203, 04:209, 04:218-04:219	*14:10, 14:143
4	225 bp	515 bp	*04:01:01:01-04:02:05, 04:04:01-04:05:11, 04:05:13-04:05:18, 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, 04:44:01 ^w , 04:44:02-04:45, 04:47-04:48, 04:53:01-04:53:02, 04:56:01-04:57, 04:61-04:63, 04:67-04:68, 04:70, 04:72:01, 04:72:02 ^w , 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, 04:131:01 ^w , 04:131:02-04:135, 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, 04:187, 04:189-04:190, 04:192-04:194, 04:196, 04:200-04:202, 04:204-04:208, 04:210-04:211, 04:213-04:217, 04:220-04:221	*11:22, 14:57, 14:182

DRB1*04

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Lot-specific information

5	170 bp	430 bp	*04:05:01-04:05:11, 04:05:13-04:05:18, 04:09-04:12, 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, 04:131:01-04:131:02, 04:136-04:137, 04:147, 04:152, 04:162, 04:173, 04:178N, 04:191, 04:201-04:203, 04:207, 04:213-04:214N	
6⁴	115 bp	430 bp	*04:06:01-04:06:06, 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, 04:219	
7	260 bp	430 bp	*04:01:01:01-04:01:17, 04:05:01-04:05:11, 04:05:13-04:05:18, 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, 04:187-04:192, 04:194, 04:196-04:197, 04:199-04:200, 04:202, 04:205-04:206, 04:208-04:209, 04:212N-04:214N, 04:216-04:217	*11:22, 14:143
8	260 bp	430 bp	*04:02:01-04:04:10, 04:06:01-04:06:06, 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, 04:44:01-04:44:02, 04:46, 04:49-04:53:02, 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, 04:193, 04:198, 04:201, 04:203-04:204, 04:207, 04:210-04:211, 04:218-04:221	*14:10, 14:57, 14:182
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, 04:05:13-04:08:04, 04:10:01-04:11:04, 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 ,	*11:22, 14:10, 14:143, 14:182

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101.114-24/03 – including *Taq* pol., IFU-01

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

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Lot No.: **3F5**

Lot-specific information

			04:48-04:52, 04:53:01 ^w , 04:53:02, 04:54 ^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, 04:131:01-04:131:02, 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, 04:189 ^w , 04:191 ^w , 04:193, 04:195, 04:197-04:199, 04:201-04:203, 04:205- 04:207, 04:209, 04:211-04:214N, 04:218-04:221	
10	170 bp	515 bp	*04:01:01:01-04:04:10, 04:05:18- 04:08:04, 04:11:03, 04:13-04:16, 04:18- 04:23, 04:25, 04:26 ^w , 04:27, 04:31- 04:33, 04:35-04:44:02, 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, 04:179-04:190, 04:192-04:200, 04:204- 04:206, 04:208-04:212N, 04:215-04:221	*11:22, 14:57
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, 04:203, 04:207	
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, 04:191	
14⁶	210 bp	430 bp	*04:02:01-04:02:05, 04:12, 04:14, 04:18, 04:38, 04:48, 04:53:01-04:53:02, 04:56:01-04:56:02, 04:73 ^w , 04:82, 04:86, 04:88, 04:99-04:100, 04:105:01 ^w - 04:105:02 ^w , 04:106-04:107, 04:124- 04:125, 04:133-04:134, 04:136, 04:138, 04:161, 04:185, 04:204-04:205, 04:210	*14:57
15	175 bp	430 bp	*04:123	*01:10
	215 bp		*04:34	
16	170 bp	430 bp	*04:116, 04:148	*07:73, 11:126, 15:64, DRB3*03:05
17	190 bp	430 bp	*04:15, 04:25, 04:36, 04:47, 04:54, 04:57, 04:191	*11:22
18	145 bp	430 bp	*04:28, 04:35, 04:42-04:43, 04:59, 04:147, 04:156, 04:199, 04:210	*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, 14:182

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101.114-24/03 – including *Taq* pol., IFU-01

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

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Lot No.: **3F5**

Lot-specific information

20⁴	100 bp 175 bp 255 bp	430 bp	*04:63, 04:110, 04:161 *04:40 *04:27	
21⁵	155 bp 210 bp	515 bp	*04:29 *04:37, 04:58, 04:73, 04:105:01- 04:105:02, 04:122, 04:132, 04:206	
22⁵	230 bp	430 bp	*04:32, 04:50, 04:139, 04:166	
23	135 bp 255 bp	430 bp	*04:33 *04:201	
24⁴	85 bp	430 bp	*04:01:01:01-04:01:17, 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, 04:187-04:188, 04:190, 04:192, 04:194, 04:196, 04:200, 04:208, 04:216-04:217	*01:10, 01:16, 03:02:01- 03:02:03, 03:05:01-03:05:03, 03:09, 03:14, 03:17, 03:27, 03:29, 03:35, 03:38, 03:40- 03:41:02, 03:53, 03:74, 03:81, 03:88, 03:90, 03:102- 03:103, 03:115, 03:122, 03:130-03:131, 11:53 ^w , 11:79, 11:103:01-11:103:02, 11:105, 11:107, 11:125 ^w , 11:136 ^w , 13:196, 14:19, 14:109, 14:141, 15:103 ^w , DRB3*01:01:02:01-01:18, DRB3*01:20-01:33, DRB3*01:35-01:41, 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*02:27-02:47, DRB3*02:49-02:57, DRB3*02:59-02:61Q, DRB3*03:03, DRB3*03:06
25⁴	125 bp 230 bp 260 bp	430 bp	*04:26 *04:45 *04:64	
26	200 bp	515 bp	*04:01:01:01-04:01:17, 04:03:01- 04:05:11, 04:05:13-04:11:04, 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, 04:94:01N- 04:98:02, 04:101-04:104, 04:108- 04:113, 04:115-04:123, 04:126- 04:131:02, 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-04:188, 04:190, 04:192-04:203, 04:207-04:208, 04:211- 04:221	*14:10, 14:143, 14:182
27⁴	115 bp	515 bp	*04:10:01-04:12, 04:60, 04:67, 04:91, 04:126, 04:136, 04:147, 04:201, 04:203, 04:207, 04:219	*03:12, 08:06, 08:10, 08:12, 08:22, 08:54, 08:70, 12:46, 13:04, 13:32, 13:48, 13:58, 13:75, 13:81, 13:89, 13:93-

DRB1*04

101.114-24/03 – including *Taq* pol., IFU-01

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

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Lot No.: **3F5**

Lot-specific information

				13:94:02, 13:108, 13:164, 13:169, 14:65, 14:78, 14:169-14:170, 15:12
	265 bp		*04:49	
28⁴	90 bp	430 bp	*04:11:01-04:11:04, 04:17:01-04:17:02, 04:91, 04:136, 04:203	*08:29, 13:188, 14:169
29⁴	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, 04:197, 04:199, 04:209, 04:212N	*01:17, 09:01:02-09:01:05, 09:01:08-09:02:02, 09:04- 09:05, 09:07-09:08, 09:10- 09:30, 14:07:01-14:07:02, 14:14, 14:36, 14:42, 14:44:01-14:44:03, 14:51, 14:68:01-14:68:02, 14:93, 14:134, 14:143, DRB5*01:12
	270 bp		*04:19-04:21, 04:64, 04:192, 04:213	
30⁴	80 bp	430 bp	*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, 13:194, 13:216, 13:219, 13:227, 13:230
31^{4,6}	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, 11:184, 13:02:01- 13:02:03, 13:02:05-13:02:09, 13:02:11-13:03:06, 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, 13:165, 13:167-13:168, 13:170-13:172, 13:174, 13:179-13:180, 13:182, 13:188, 13:194-13:195, 13:198, 13:202, 13:207- 13:212, 13:216, 13:219- 13:220, 13:225, 13:227, 13:230
	200 bp		*04:214N	
	260 bp		*04:64	
32⁴	120 bp	430 bp	*04:01:01:01-04:05:01, 04:05:03- 04:05:11, 04:05:13-04:05:14, 04:05:16- 04:05:18, 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-	*11:22

DRB1*04

101.114-24/03 – including *Taq* pol., IFU-01

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

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Lot No.: 3F5

Lot-specific information

			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, 04:187-04:216, 04:218, 04:220-04:221	
33	215 bp	430 bp	*04:158N	
34	270 bp	515 bp	*04:19-04:21, 04:34, 04:66, 04:160, 04:192, 04:213	
35	210 bp 245 bp	430 bp	*04:81N *04:51, 04:70	
36^{4,7}	120 bp 180 bp	515 bp	*04:96 *04:71	
37	225 bp	430 bp	*04:22, 04:44:01-04:44:02, 04:65, 04:72:01-04:72:02, 04:74, 04:95:01- 04:95:02, 04:131:01-04:131:02, 04:140	
38	140 bp 225 bp	430 bp	*04:89 *04:73, 04:75, 04:105:01-04:105:02, 04:122, 04:178N	
39⁴	100 bp 175 bp	430 bp	*04:83 *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, 14:182
40	145 bp 200 bp	430 bp	*04:30, 04:85 *04:38, 04:56:01-04:56:02, 04:88, 04:100, 04:107, 04:125, 04:205	
41	165 bp 205 bp	430 bp	*04:76, 04:108 *04:182	
42⁴	110 bp 140 bp	430 bp	*04:41, 04:77, 04:102, 04:113, 04:152, 04:164, 04:211 *04:79	*14:10, 14:57, 14:143, 14:182
43	125 bp	515 bp	*04:80, 04:179, 04:209, 04:218	*11:53, 11:125, 11:173
44	165 bp 240 bp	430 bp	*04:127 *04:87, 04:94:01N, 04:120N, 04:129, 04:157N, 04:186N, 04:212N	
45	240 bp	515 bp	*04:03:08, 04:04:04, 04:10:02, 04:44:01, 04:72:02, 04:74, 04:95:01, 04:131:01, 04:140, 04:157N	
46⁴	75 bp 200 bp	430 bp	*04:92 *04:214N	
47	140 bp 250 bp	430 bp	*04:117 *04:119N, 04:142N	
48⁸	-	-	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 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.

DRB1*04

101.114-24/03 – including *Taq* pol., IFU-01

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

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Lot No.: 3F5

Lot-specific information

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.

⁴HLA-specific PCR products shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR products.

⁵Primer mixes 21 and 22, may have tendencies of unspecific amplifications.

⁶Primer mixes 14 and 31 have a tendency to giving rise to primer oligomer formation.

⁷Primer mix 36 may amplify the DRB1*11:60, 11:109 and 15:68 alleles.

⁸Primer 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.

DRB1*04

101.114-24/03 – including *Taq* pol., IFU-01

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

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Lot No.: **3F5**

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	71(298) 5'-CTT 3'	71(298) 5'-CTC 3'	74(308) 5'-CCT 3'	74(308) 5'-CCg 3'	57(256) 5'-gCT 3'	37(197) 5'-Cgg 3'	86(344) 5'-CAC 3'	86(344) 5'-CCA 3'	71(298) 5'-TCT 3'	57(256) 5'-ATC 3'	58(260) 5'-CCT 3'	59(262) 5'-CTg 3'
	71(298) 5'-TTT 3'				57(256) 5'-gCT 3'				71(298) 5'-CCT 3'	57(256) 5'-ATC 3'	73(305) 5'-ggC 3'	88(351) 5'-AAT 3'
					57(256) 5'-gCT 3'					57(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
			215					210	175	210	255	
								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'	44(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'								104(397) 5'-CTg 3'	71(299) 5'-gAA 3'
3'-primer(s) ³	56(253) 5'-AgC 3'	67(286) 5'-gAT 3'	71(298) 5'-CTT 3'	86(344) 5'-CCA 3'	60(265) 5'-gTT 3'	47(227) 5'-ggA 3'	46(225) 5'-TAg 3'	33(184) 5'-gTT 3'	51(239) 5'-CCA 3'	72(302) 5'-CCT 3'	71(299) 5'-gCT 3'	86(344) 5'-CAC 3'
	74(307) 5'-CAg 3'	67(286) 5'-gAT 3'		86(344) 5'-CAC 3'	67(286) 5'-gAA 3'		70(296) 5'-TCC 3'	58(260) 5'-CgC 3'	67(286) 5'-gAg 3'	78(319) 5'-gTg 3'	174(609) 5'-ACg 3'	
		67(286) 5'-gAT 3'						85(341) 5'-CAg 3'	71(298) 5'-CgC 3'			
		73(304) 5'-ggA 3'										
Well No.	13	14	15	16	17	18	19	20	21	22	23	24

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

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Lot No.: **3F5**

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	270	210	120
PCR product	230		265		270		200				245	180
	260						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'	11(118) 5'-AgA 3'	57(258) 5'-AgC 3'	6(103) 5'-CAA 3'	57(258) 5'-AgC 3'	13(125) 5'-ATA 3'	13(125) 5'-ACA 3'	13(125) 5'-ACA 3'	6(103) 5'-CAA 3'	13(125) 5'-ACA 3'	20(145) 5'-ACC 3'
	23(155) 5'-gCC 3'		57(258) 5'-AgC 3'		13(125) 5'-ATA 3'		34(187) 5'-ACT 3'			13(125) 5'-gTC 3'		41(208) 5'-TCA 3'
	58(259) 5'-ATA 3'		63(275) 5'-CAA 3'		74(308) 5'-CgA 3'		71(299) 5'-CgA 3'			13(125) 5'-ACC 3'		
							71(299) 5'-CAA 3'					
3'-primer(s) ³	86(344) 5'-CAC 3'	67(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'	72(301) 5'-CCg 3'	86(344) 5'-CAC 3'	69(293) 5'-..T 3'	67(286) 5'-gAg 3'
		67(288) 5'-AgA 3'						39(203) 5'-AgT 3'			81(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.	225	140	100	145	165	110	125	165	240	75	140
PCR product		225	175	200	205	140		240		200	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'	34(187) 5'-ACT 3'	13(125) 5'-ACA 3'
							123(454) 5'-TCC 3'			196(674) 5'-ACA 3'	
3'-primer(s) ³	71(298) 5'-CCA 3'	46(224) 5'-ACC 3'	33(185) 5'-ggA 3'	46(223) 5'-CTT 3'	53(244) 5'-CAT 3'	37(196) 5'-gTT 3'	67(286) 5'-gAA 3'	55(251) 5'-gCg 3'	77(317) 5'-AAT 3'	86(344) 5'-CAC 3'	46(223) 5'-CTg 3'
	77(317) 5'-AgT 3'	71(299) 5'-gCg 3'	57(257) 5'-CAg 3'	49(233) 5'-CCA 3'	57(256) 5'-ATg 3'	37(197) 5'-CgA 3'	149(534) 5'-TTC 3'	78(321) 5'-CAT 3'	83(336) 5'-CCA 3'	207(706) 5'-CAT 3'	83(336) 5'-CCC 3'
	77(318) 5'-TAA 3'	77(318) 5'-TAg 3'	58(260) 5'-CCT 3'	67(286) 5'-gAT 3'	67(287) 5'-ggg 3'	47(226) 5'-gTg 3'		81(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.

DRB1*04

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.: **3F5**

Lot-specific information

CELL LINE VALIDATION SHEET															
DRB1*04 SSP subtyping kit ²															
				Well											
				1	2	3	4	5	6	7	8	9	10	11	12
				201781301	201781302	201781303	201781304	201781305	201781306	201781307	201781308	201781309	201781310	201781311	201781312
				201781313	201781314	201781315	201781316	201781317	201781318	201781319	201781320	201781321	201781322	201781323	201781324
				201781325	201781326	201781327	201781328	201781329	201781330	201781331	201781332	201781333	201781334	201781335	201781336
				201781337	201781338	201781339	201781340	201781341	201781342	201781343	201781344	201781345	201781346	201781347	201781348
				201781349	201781350	201781351	201781352	201781353	201781354	201781355	201781356	201781357	201781358	201781359	201781360
				201781361	201781362	201781363	201781364	201781365	201781366	201781367	201781368	201781369	201781370	201781371	201781372
				201781373	201781374	201781375	201781376	201781377	201781378	201781379	201781380	201781381	201781382	201781383	201781384
				201781385	201781386	201781387	201781388	201781389	201781390	201781391	201781392	201781393	201781394	201781395	201781396
				201781397	201781398	201781399	201781400	201781401	201781402	201781403	201781404	201781405	201781406	201781407	201781408
				201781409	201781410	201781411	201781412	201781413	201781414	201781415	201781416	201781417	201781418	201781419	201781420
				201781421	201781422	201781423	201781424	201781425	201781426	201781427	201781428	201781429	201781430	201781431	201781432
				201781433	201781434	201781435	201781436	201781437	201781438	201781439	201781440	201781441	201781442	201781443	201781444
				201781445	201781446	201781447	201781448	201781449	201781450	201781451	201781452	201781453	201781454	201781455	201781456
				201781457	201781458	201781459	201781460	201781461	201781462	201781463	201781464	201781465	201781466	201781467	201781468
				201781469	201781470	201781471	201781472	201781473	201781474	201781475	201781476	201781477	201781478	201781479	201781480
				201781481	201781482	201781483	201781484	201781485	201781486	201781487	201781488	201781489	201781490	201781491	201781492
				201781493	201781494	201781495	201781496	201781497	201781498	201781499	201781500	201781501	201781502	201781503	201781504
				201781505	201781506	201781507	201781508	201781509	201781510	201781511	201781512	201781513	201781514	201781515	201781516
				201781517	201781518	201781519	201781520	201781521	201781522	201781523	201781524	201781525	201781526	201781527	201781528
				201781529	201781530	201781531	201781532	201781533	201781534	201781535	201781536	201781537	201781538	201781539	201781540
				201781541	201781542	201781543	201781544	201781545	201781546	201781547	201781548	201781549	201781550	201781551	201781552
				201781553	201781554	201781555	201781556	201781557	201781558	201781559	201781560	201781561	201781562	201781563	201781564
				201781565	201781566	201781567	201781568	201781569	201781570	201781571	201781572	201781573	201781574	201781575	201781576
				201781577	201781578	201781579	201781580	201781581	201781582	201781583	201781584	201781585	201781586	201781587	201781588
				201781589	201781590	201781591	201781592	201781593	201781594	201781595	201781596	201781597	201781598	201781599	201781600
				201781601	201781602	201781603	201781604	201781605	201781606	201781607	201781608	201781609	201781610	201781611	201781612
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				201781625	201781626	201781627	201781628	201781629	201781630	201781631	201781632	201781633	201781634	201781635	201781636
				201781637	201781638	201781639	201781640	201781641	201781642	201781643	201781644	201781645	201781646	201781647	201781648
				201781649	201781650	201781651	201781652	201781653	201781654	201781655	201781656	201781657	201781658	201781659	201781660
				201781661	201781662	201781663	201781664	201781665	201781666	201781667	201781668	201781669	201781670	201781671	201781672
				201781673	201781674	201781675	201781676	201781677	201781678	201781679	201781680	201781681	201781682	201781683	201781684
				201781685	201781686	201781687	201781688	201781689	201781690	201781691	201781692	201781693	201781694	201781695	201781696
				201781697	201781698	201781699	201781700	201781701	201781702	201781703	201781704	201781705	201781706	201781707	201781708
				201781709	201781710	201781711	201781712	201781713	201781714	201781715	201781716	201781717	201781718	201781719	201781720
				201781721	201781722	201781723	201781724	201781725	201781726	201781727	201781728	201781729	201781730	201781731	201781732
				201781733	201781734	201781735	201781736	201781737	201781738	201781739	201781740	201781741	201781742	201781743	201781744
				201781745	201781746	201781747	201781748	201781749	201781750	201781751	201781752	201781753	201781754	201781755	201781756
				201781757	201781758	201781759	201781760	201781761	201781762	201781763	201781764	201781765	201781766	201781767	201781768
				201781769	201781770	201781771	201781772	201781773	201781774	201781775	201781776	201781777	201781778	201781779	201781780
				201781781	201781782	201781783	201781784	201781785	201781786	201781787	201781788	201781789	201781790	201781791	201781792
				201781793	201781794	201781795	201781796	201781797	201781798	201781799	201781800	201781801	201781802	201781803	201781804
				201781805	201781806	201781807	201781808	201781809	201781810	201781811	201781812	201781813	201781814	201781815	201781816
				201781817	201781818	201781819	201781820	201781821	201781822	201781823	201781824	201781825	201781826	201781827	201781828
				201781829	201781830	201781831	201781832	201781833	201781834	201781835	201781836	201781837	201781838	201781839	201781840
				201781841	201781842	201781843	201781844	201781845	201781846	201781847	201781848	201781849	201781850	201781851	201781852
				201781853	201781854	201781855	201781856	201781857	201781858	201781859	201781860	201781861	201781862	201781863	201781864
				201781865	201781866	201781867	201781868	201781869	201781870	201781871	201781872	201781873	201781874	201781875	201781876
				201781877	201781878	201781879	201781880	201781881	201781882	201781883	201781884	201781885	201781886	201781887	201781888
				201781889	201781890	201781891	201781892	201781893	201781894	201781895	201781896	201781897	201781898	201781899	201781900
				201781901	201781902	201781903	201781904	201781905	201781906	201781907	201781908	201781909	201781910	201781911	201781912
				201781913	201781914	201781915	201781916	201781917	201781918	201781919	201781920	201781921	201781922	201781923	201781924
				201781925	201781926	201781927	201781928	201781929	201781930	201781931	201781932	201781933	201781934	201781935	201781936
				201781937	201781938	201781									

DRB1*04

101.114-24/03 – including *Taq* pol., IFU-01

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

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Lot No.: **3F5**

Lot-specific information

CELL LINE VALIDATION SHEET																						
DRB1*04 SSP subtyping kit ²																						
					Well																	
						17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	
				Prod. No.		201781317	201781318	201781319	201781320	201781321	201781322	201781323	201781324	201781325	201781326	201781327	201781328	201781329	201781330	201781331	201781332	
	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		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	

“Instructions for Use” (IFU)

Lot-specific information

CELL LINE VALIDATION SHEET																												
DRB1*04 SSP subtyping kit ²																												
					Well																							
					Prod. No.	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47								
						201781333	201781334	201781335	201781336	201781337	201781338	201781339	201781340	201781341	201781342	201781343	201781344	201781345	201781346	201781347								
	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	*																								

DRB1*04**101.114-24/03 – including *Taq* pol., IFU-01****101.114-24u/03u – without *Taq* pol., IFU-02**Visit www.olerup.com for
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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.

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, 23, 35, 37 to 39, 42, 43, 45 and 46 were tested by separately adding one or two additional 5'-primers, respectively, one additional 3'-primer. In primer solutions 16, 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, 44 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, 5, 10, 12 to 14, 17, 19 to 21, 23, 26, 32, 35, 37 to 40, 42, 43, 45 and 46 was not possible to test, and in primer solution 3, 15, 23, 24, 27, 29, 31, 43 and 46 one or two 5'-primers were not possible to test. Additional 3'-primer in primer solution 10 was tested by separately adding one additional 5'-primer.

DRB1*04

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Lot-specific information

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