101.704-48/12 – including *Taq* pol., IFU-01
101.704-48u/12u – without *Taq* pol., IFU-02

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Lot No.: 6F5 **Lot-specific information**

Olerup SSP® DQ-DR SSP Combi Tray

Product number:	**101.704-48/12 – including *Taq* pol.** **101.704-48u/12u – without *Taq* pol.**
Lot number:	**6F5**
Expiry date:	**2020-04-01**
Number of tests:	**48 tests – Product No. 101.704-48/48u** **12 tests – Product No. 101.704-12/12u**
Number of wells per test:	**46 + 1**
Storage - pre-aliquoted primers:	**dark at -20ºC**
- PCR Master Mix:	**-20ºC**
- Adhesive PCR seals	**RT**
- Product Insert	**RT**

This Product Description is only valid for Lot No. 6F5.

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

CHANGES COMPARED TO THE PREVIOUS *OLERUP* SSP® DQ-DR SSP COMBI TRAY LOT (1E8)

The DQ-DR kit has been redesigned and improved with regards to allelic detection and discrimination and facilitated interpretation.

One well has been added to DQ low, well 15.

The DQ low resolution specificity and interpretation tables have been updated for the HLA-DQB1 alleles described since the previous *Olerup* SSP® DQ-DR Combi Tray lot was made **(Lot No. 1E8)**. The kit design is based on IMGT/HLA database 3.27.0.

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

Well	5'-primer	3'-primer	rationale
2	-	Added	Modified 3'-primer for improved HLA-specific amplification.
3	Added	-	5'-primers added for the DQB1*02:40 and DQB1*02:72 alleles.
7	-	Added	3'-primer added for the DQB1*03:01:34 allele.
9	Added	-	5'-primer added for increased yield.
12	-	Added	3'-primer added for the DQB1*03:01:34 allele.
15	New	New	New primer pair added for improved allelic resolution of the DQB1*03:10 allele.

Lot No.: 6F5 **Lot-specific information**

The DR low resolution specificity and interpretation tables have been updated for the HLA-DRB1 alleles described since the previous *Olerup* SSP® DQ-DR Combi Tray lot was made **(Lot No. 1E8)**. The kit design is based on IMGT/HLA database 3.27.0.

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

Well	5'-primer	3'-primer	rationale
18	-	Exchanged, removed	3'-primer exchanged for improved HLA-specific amplification, 3'-primer removed.
19	-	Added	3'-primer added for the DRB1*16:40 allele.
25	Removed	-	5'-primer removed for improved HLA-specific amplification.
26	Modified, removed		5'-primer modified for improved HLA-specific amplification, excess 5'-primer removed.
27	-	Added	3'-primers added for the DRB1*03:126 and DRB1*10:11 alleles.
30	-	Added	3'-primers added for the DRB1*13:167 and DRB1*13:220 alleles.
31	Added	-	5'-primer added for the DRB1*11:01:28 allele.
43	Added	-	5'-primer added for the DRB1*14:183 allele.
44	Removed	-	5'-primer removed.
45	Added	-	5'-primer added for the DRB4*01:27 allele.
46	-	Added	3'-primer added for increased yield of the DRB5*01:12 allele.

Changes in revision R01 compared to R00:

1. Primer mix 6 does not amplify the DQB1*03:03:06, 03:06, 03:25:01-03:25:02 and DQB1*04:03:01-04:03:03 alleles. This has been corrected in the specificity and interpretation tables.

101.704-48/12 – including *Taq* pol., IFU-01
101.704-48u/12u – without *Taq* pol., IFU-02

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Lot No.: 6F5 **Lot-specific information**

Well **47** 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'-primer[1]	**164**	**340**	**440**	**45**	**45**	**43**	**36**
	5'-CAC3'	5'-Agg3'	5'-TTA3'	5'-Tgg3'	5'-Tgg3'	5'-Tgg3'	5'-TAC3'
							36
							5'-TAT3'
3'-primer[2]	**231**	**2nd I**	**507**	**59**	**58**	**57**	**47**
	5'-TgC3'	5'-AAA3'	5'-TTg3'	5'-CTC3'	5'-ggC3'	5'-CTC3'	5'-ACA3'
							48
							5'-gCA3'
							48
							5'-gCC3'
							52
							5'-TgT3'
A*	+	+	+				
B*	+	+	+				
C*	+	+	+				
DRB1				+	+		
DRB3				+	+		
DRB5				+			
DQB1					+		
DPB1						+	
DQA1							+

[1]The 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 codonnumbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

[2]The 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.

101.704-48/12 – including *Taq* pol., IFU-01
101.704-48u/12u – without *Taq* pol., IFU-02

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Lot No.: 6F5 **Lot-specific information**

PRODUCT DESCRIPTION

DQ-DR SSP Combi Tray

CONTENT

The primer set contains 5'- and 3'-primers for grouping the DQB1 alleles in to the serological groups DQ2 to DQ9.
The primer set contains 5'- and 3'-primers for grouping the DRB1*01:01 to DRB1*10:20 alleles into the corresponding serological groups DR1 to DR18 as well as primer pairs for recognizing the DRB3, DRB4 and DRB5 groups of alleles.

Please note that DQB1 amplifications usually are somewhat less pronounced than e.g. DRB and DQA1 amplifications even when using the same DNA preparation and exactly the same experimental procedures.

PLATE LAYOUT

Each test consists of 47 PCR reactions in a 48 well cut PCR plate. Well 48 is empty.

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

The 48 well cut PCR plate is marked with 'DQ-DR'.
Well No. 1 is marked with the Lot No. '6F5' in silver/gray ink.
Wells 1 to 15 – DQ low resolution primers.
Wells 16 to 46 – DR low resolution primers.
Well 47 – 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

Only the DQB1 alleles will be amplified by the 15 wells of the DQ low resolution primer set, **wells 1 to 15**. Thus, the interpretation of DQ low resolution typings is not influenced by the DQB2 and DQB3 genes.
Only HLA-DRB alleles will be amplified by the 31 wells of the DR low resolution primer set, **wells 16 to 46**. Thus, the interpretation of DR low resolution typings is not influenced by other HLA class II genes.

101.704-48/12 – including *Taq* pol., IFU-01
101.704-48u/12u – without *Taq* pol., IFU-02

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Lot No.: 6F5 **Lot-specific information**

UNIQUELY IDENTIFIED ALLELES

All the DQB1 alleles, i.e. **DQB1*05:01 to 05:143, DQB1*06:01 to 06:230, DQB1*02:01 to 02:88, DQB1*03:01 to 03:256 and DQB1*04:01 to 04:39**, recognized by the HLA Nomenclature Committee in January 2017[1,2] will be amplified by the primers in the DQ low resolution SSP primer set, **wells 1 to 15**. The DQB1 alleles will be grouped into their corresponding serological specificities[3,4], i.e.:

DQ5(1) =	DQB1*05:01:01-05:05
DQ6(1) =	DQB1*06:01:01-06:44
DQ2 =	DQB1*02:01:01-02:05
DQ3 =	DQB1*03:06, 03:10, 03:14
DQ7(3) =	DQB1*03:01:01-03:01:06, 03:04, 03:09, 03:13, 03:16, 03:19
DQ8(3) =	DQB1*03:02:01-03:02:05, 03:05:01-03:05:04, 03:07-03:08, 03:11, 03:18
DQ9(3) =	DQB1*03:03:02:01-03:03:04, 03:12, 03:15, 03:17, 03:20
DQ4 =	DQB1*04:01-04:02

[1]DQB1 alleles listed on the IMGT/HLA web page 2017-January-20, release 3.27.0, www.ebi.ac.uk/imgt/hla.
[2]Alleles 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.
[3]The serological split of the DQB1*05:05 to 05:143 alleles, the DQB1*06:06 to 06:07, 06:10, 06:13, 06:15-06:24 and 06:27 to 06:230 alleles, the DQB1*02:04-02:88 alleles, the DQB1*03:07-03:09 and 03:11 to 03:256 alleles and the DQB1:04:03:01-04:39 alleles is not known. In this table we have used the expert-assigned serological grouping in Tissue Antigens (2009) 73:95-170, and also inferred the serological grouping from the naming of the sequence-defined allele.
[4]The DQB1 alleles will be grouped into their corresponding serological specificities, except that following alleles give rise to identical amplification patterns:

Alleles
DQB1*05:03:10, 05:04, 05:34, 05:44, 05:52, 05:54, 05:72, 05:77, 05:105, 05:114, 05:128N, 05:130, 05:132Q, DQB1*06:212

All the HLA-DRB1, -DRB3, -DRB4[1] and -DRB5 alleles, i.e. **DRB1*01:01 to DRB1*16:46, DRB3*01:01 to DRB3*03:11, DRB4*01:01 to DRB4*03:01N and DRB5*01:01 to DRB5*02:16**, recognized by the HLA Nomenclature Committee in January 2017[1,2] will be amplified by the primers in the DR low resolution SSP kit. The HLA-DRB alleles will be grouped into their corresponding serological specificities[3].

[1]DRB alleles listed on the IMGT/HLA web page 2017-January-20, release 3.27.0, www.ebi.ac.uk/imgt/hla.
[2]Alleles 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.
[3]The serological split of all DRB1 alleles is not known. In this table we use the expert-assigned serological grouping in Tissue Antigens (2009) 73:95-170 and the serological grouping of the sequence-defined allele.

101.704-48/12 – including *Taq* pol., IFU-01
101.704-48u/12u – without *Taq* pol., IFU-02

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Lot No.: 6F5 **Lot-specific information**

SPECIFICITY TABLE

DQ low resolution primer set

Specificities and sizes of the PCR products of the 15 primer mixes of the DQ low resolution primer set

Primer Mix	Size of spec. PCR product[1]	Size of control band[2]	DQ serology[3]	Amplified DQB1 alleles[4]
1	135 bp, 225 bp	**515 bp**	5	*05:01:01:01-05:01:15, 05:01:17-05:59, 05:61-05:81, 05:83-05:97, 05:99-05:115, 05:117-05:143, 06:212
2	135 bp, 185 bp, 220 bp, 270 bp	**515 bp**	1, 5, 6	*03:23:01-03:23:02, 03:217, 04:10, 06:01:01-06:168, 06:170-06:211, 06:213-06:219, 06:221-06:230
3	210 bp	430 bp	2	*02:01:01-02:88
4[6]	130 bp, 220 bp	**515 bp**	3, 7	*03:01:01:01-03:01:37, 03:04:01-03:04:03, 03:09-03:10:02, 03:13-03:14:02, 03:16, 03:19:01-03:19:02, 03:21-03:22, 03:24, 03:27-03:29, 03:35-03:36, 03:42, 03:44, 03:46-03:60, 03:69, 03:71, 03:73, 03:75-03:77, 03:80, 03:82-03:84N, 03:92-03:94, 03:101-03:103, 03:108-03:109, 03:114-03:116, 03:118N-03:122, 03:127-03:131, 03:133-03:135, 03:138-03:140, 03:142-03:144, 03:147-03:148, 03:150, 03:152, 03:154, 03:157-03:160, 03:162-03:167, 03:169-03:173, 03:180, 03:182-03:183, 03:186-03:188, 03:191-03:198, 03:201-03:202, 03:206-03:208, 03:216, 03:218-03:219, 03:231-03:232, 03:235-03:236, 03:241-03:243, 03:246, 03:252-03:256, 06:209
5	130 bp, 220 bp	**515 bp**	6, 8	*03:02:01:01-03:02:24, 03:05:01-03:05:04, 03:07-03:08, 03:11, 03:18, 03:32, 03:37, 03:45, 03:61, 03:63-03:64, 03:66N-03:68, 03:70, 03:85, 03:104, 03:106-03:107, 03:125, 03:132, 03:146, 03:153, 03:161, 03:174-03:175, 03:178-03:179, 03:181, 03:184-03:185, 03:189-03:190, 03:199, 03:203-03:205, 03:210-03:211, 03:213N-03:215, 03:220-03:221, 03:223-03:224, 03:226, 03:228-03:229, 03:233, 03:237N, 03:240, 03:245, 03:247, 03:250-03:251, 06:29, 06:123, 06:139
6	135 bp	**515 bp**	2, 3, 6, 9	*02:03, 02:77, 03:03:02:01-03:03:05, 03:03:07-03:03:13, 03:12, 03:15, 03:20, 03:26, 03:30-03:31, 03:33-03:34, 03:38-03:41, 03:43, 03:65, 03:74, 03:79, 03:86-03:91Q, 03:95N-03:99Q, 03:104-03:105, 03:111-03:113, 03:117, 03:123-03:124, 03:126, 03:136-03:137, 03:141, 03:145, 03:149, 03:155-03:156, 03:168, 03:176-03:177, 03:200, 03:209, 03:212, 03:222, 03:227, 03:230, 03:234,

				03:238-03:239, 03:248-03:249, 06:03:10, 06:51:01, 06:66, 06:96, 06:168, 06:172
7[5]	85 bp	**515 bp**	3, 7, 8, 9	*03:01:01:01-03:01:06, 03:01:08-03:02:17, 03:02:19-03:05:04, 03:07, 03:09-03:24, 03:26-03:57, 03:59-03:64, 03:66N-03:103, 03:105-03:106, 03:108-03:136, 03:138-03:153, 03:154[w], 03:155-03:193, 03:195-03:227, 03:229-03:231, 03:233-03:256
8	135 bp, 160 bp, 185 bp, 210 bp	430 bp	4	*03:132, 04:01:01-04:39
9	225 bp	430 bp	4	*04:01:01-04:03:02, 04:06-04:21, 04:22[w], 04:23, 04:24[w], 04:25N-04:32, 04:34-04:37, 04:38[w], 04:39
10	215 bp	430 bp	5	*05:01:01:01-05:03:09, 05:03:11-05:03:17, 05:05:01-05:33, 05:35-05:43:02, 05:45-05:51, 05:53, 05:55-05:71, 05:73-05:76, 05:78-05:104, 05:106-05:113, 05:115-05:127, 05:129, 05:131, 05:133-05:143, 06:156, 06:162, 06:169
11	185 bp	430 bp	8, 9	*03:03:11, 03:05:01, 03:05:03, 03:17:01, 03:61, 03:72, 03:100, 03:181, 03:250
12[6]	185 bp	430 bp	3, 4, 7, 8, 9	*03:01:01:01-03:01:01:05, 03:01:03-03:01:07, 03:01:09-03:02:02, 03:02:04-03:02:12, 03:02:14-03:03:02:04, 03:03:04-03:04:03, 03:05:03-03:17:01, 03:18-03:19:02, 03:21-03:22, 03:23:02-03:36, 03:38-03:60, 03:62-03:71, 03:74, 03:76-03:98, 03:101-03:103, 03:106-03:108, 03:110-03:111, 03:113-03:117, 03:119-03:131, 03:133-03:153, 03:155, 03:157-03:161, 03:163-03:180, 03:182, 03:184-03:188, 03:190-03:203, 03:205-03:222, 03:224-03:225, 03:227-03:232, 03:234-03:236, 03:239-03:249, 03:251, 03:253-03:256, 04:01:03
13[7]	185 bp	**515 bp**	6	*04:10, 06:02:01:01-06:02:26, 06:14:01-06:16, 06:19:01-06:20, 06:23-06:24, 06:33, 06:37, 06:46-06:50, 06:51:02, 06:68, 06:70-06:84, 06:95, 06:97, 06:107, 06:109, 06:111-06:117, 06:122, 06:124-06:127, 06:136-06:138, 06:146:01-06:147, 06:150-06:152, 06:156, 06:159, 06:161-06:163, 06:166, 06:173-06:175, 06:178-06:179N, 06:182-06:183, 06:188, 06:192, 06:197-06:198, 06:200-06:201, 06:208, 06:211, 06:213, 06:215-06:216N, 06:219, 06:224-06:228
14	185 bp	430 bp	1, 5, 6	*06:02:01:01-06:02:12, 06:02:14-06:03:10, 06:03:12-06:03:26, 06:05:02[?]-06:06[?], 06:08:01-06:08:03, 06:10-06:11:03, 06:13:01-06:14:03, 06:16, 06:18:01-06:20, 06:23-06:24, 06:26N-06:27:02, 06:29-06:33, 06:37, 06:40-06:41, 06:44, 06:47-06:51:02, 06:59-06:65, 06:67-06:68, 06:70-06:78, 06:80-06:84, 06:87, 06:90-06:91, 06:95-06:97, 06:99:01-06:99:02, 06:106-06:107, 06:109-06:117, 06:122-06:128,

Lot No.: 6F5 **Lot-specific information**

				06:130-06:131, 06:133-06:134, 06:136-06:139, 06:141, 06:143, 06:145, 06:147-06:148, 06:150-06:152, 06:154, 06:156, 06:159, 06:161-06:163, 06:165-06:166, 06:169-06:170, 06:173-06:176, 06:178-06:179N, 06:182-06:185, 06:187-06:188, 06:190:01-06:192, 06:195-06:198, 06:200-06:201, 06:206:01-06:206:02, 06:208, 06:211, 06:213, 06:215-06:216N, 06:218-06:219, 06:221-06:228, 06:230
15	135 bp	430 bp	3, 9, 5, 6	*03:10:01-03:10:02, 03:12, 03:14:01-03:14:02, 03:70, 03:179, 03:183, 03:195, 06:01:01-06:01:06, 06:01:08-06:01:15, 06:06[?], 06:43, 06:54N-06:58, 06:98, 06:99:02-06:105, 06:108, 06:120, 06:132, 06:140, 06:153, 06:157, 06:167-06:168, 06:177, 06:181, 06:194, 06:205, 06:209, 06:214, 06:229

[1]Alleles 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 DQ low resolution SSP subtypings.
When the primers in a primer mix can give rise to HLA-specific PCR products of more than one length this is indicated if the size difference is more than 20 base pairs. Size differences of 20 base pairs or less are not given. For high resolution SSP kits, the alleles listed are specified according to amplicon length.
Nonspecific amplifications, i.e. a ladder 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 inherit 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.
[2]The 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. In the presence of a specific amplification the intensity of the control band often decreases.
[3]The serological reactivity of all DQ alleles is not known. In this table we use the expert-assigned serological grouping in Tissue Antigens (2009) 73:95-170 and the serological grouping of the sequence-defined allele. The DQB1*03:10 allele has been assigned type DQ7 by NMDP.
[4]For several DQB1 alleles 1st and/or 3rd exon(s) and beyond, as well as intron nucleotide sequences, are not available. In these instances it is not known whether some of the primers of the SSP sets are completely matched with the target sequences or not. Assumption is made that unknown sequences in these regions are conserved within allelic groups.
[5]HLA-specific PCR products shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR products.
[6]Primer mixes 4, 7 and 12 may give rise to a lower yield of HLA-specific PCR product than the other DQ low primer mixes, most pronounced in primer mixes 4, 7 and 12.
[7]Primer mix 13 may have a tendency of unspecific amplification.
'w', may be weakly amplified.
'?', nucleotide sequence information not available for the primer matching sequence.

101.704-48/12 – including *Taq* pol., IFU-01
101.704-48u/12u – without *Taq* pol., IFU-02

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Lot No.: 6F5 **Lot-specific information**

SPECIFICITY TABLE

DR low resolution primer set

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

Primer Mix	Size of spec. PCR product[1]	Size of control band[2]	DR serology[3]	Amplified HLA-DRB alleles[4]
16[9]	210 bp, 230 bp, 260 bp	**515 bp**	1	*01:01:01-01:02:12, 01:04-01:38, 01:40N-01:78
17	200 bp	430 bp	1, 103	*01:03, 01:39N, 01:42, 01:61
18[9,11]	200 bp, 230 bp	430 bp	2, 15	*15:01:01:01-15:142
19[11]	210 bp	430 bp	11, 16	*11:30, 12:57, 16:01:01-16:05:02, 16:07-16:46
20[5,6]	125 bp, 225 bp	**515 bp**	3, 11, 13, 14, 17, 18	*03:01:01:01-03:15:01, 03:16-03:125, 03:127-03:137, 11:07:01-11:07:02, 11:27:02-11:27:03, 11:84:02-11:84:03, 11:103:01-11:103:02, 11:105, 11:107, 11:125, 11:136, 11:173, 13:33:01, 13:61:02, 13:94:01, 13:96:01, 14:38:02, 14:171, 15:25, 15:37:01, 15:100, 15:104
21[5,6]	75 bp, 205 bp	430 bp	3, 6, 11, 13, 14, 17	*03:01:01:01-03:01:23, 03:01:25, 03:04:01-03:06, 03:08-03:16, 03:18-03:20, 03:22-03:23, 03:25-03:26, 03:28, 03:30-03:31, 03:33-03:34, 03:36-03:37, 03:43-03:48, 03:50-03:52, 03:54-03:68N, 03:70-03:73, 03:75-03:86, 03:89, 03:91-03:93, 03:95-03:96, 03:98-03:100:02, 03:104, 03:106-03:110, 03:112-03:114, 03:116-03:118, 03:121-03:130, 03:132-03:137, 08:40, 11:02:01-11:03:02, 11:11:01, 11:11:03, 11:14:01-11:14:02, 11:16, 11:20-11:21, 11:36, 11:40-11:41, 11:48, 11:59, 11:63:01-11:63:02, 11:65:01-11:65:02, 11:68, 11:70, 11:73, 11:76, 11:79-11:80, 11:83, 11:85-11:87, 11:93, 11:118, 11:122, 11:124, 11:127, 11:131-11:132, 11:135, 11:138-11:139, 11:142, 11:151, 11:153, 11:161, 11:168, 11:171, 11:176, 11:182, 11:184, 13:01:01:01-13:04, 13:08, 13:10, 13:15-13:17, 13:19-13:20, 13:22-13:24, 13:27-13:29, 13:31-13:41, 13:43, 13:45, 13:48, 13:51-13:54, 13:57, 13:59, 13:61:01-13:61:02, 13:63-13:66:02, 13:68-13:76, 13:78-13:81, 13:83-13:85, 13:87-13:99, 13:101-13:102, 13:104-13:107, 13:109, 13:111-13:117, 13:120-13:131, 13:133, 13:135, 13:137N-13:145, 13:147-13:149, 13:151-13:153, 13:155, 13:159, 13:162, 13:165-13:168, 13:170-13:180, 13:182, 13:184-13:188, 13:190-13:191, 13:193-13:194, 13:196, 13:198, 13:200N-13:202,

Lot No.: 6F5 **Lot-specific information**

				13:204-13:205, 13:207-13:209, 13:212-13:219, 13:221, 13:223, 13:225-13:227, 13:230, 14:16, 14:19, 14:21, 14:45, 14:82, 14:95, 14:109, 14:120, 14:122, 14:132, 14:178-14:179
22[5]	85 bp, 210 bp	430 bp	3, 6, 11, 13, 14, 1403, 18	*03:02:01-03:03, 03:27, 03:29, 03:38, 03:53, 03:74, 03:88, 03:90, 03:102-03:103, 03:115, 03:119, 03:126, 03:131, 11:13:01[w]-11:13:02[w], 11:26, 11:34, 13:15, 13:19, 13:26:01-13:26:02, 13:44, 13:53, 13:57, 13:85-13:86, 13:104, 13:193, 13:198, 13:206, 14:02:01-14:03:02, 14:06:01-14:06:03, 14:09, 14:12:01-14:13, 14:17-14:21, 14:24, 14:27:01-14:27:02, 14:29-14:30, 14:32:01[w]-14:32:02[w], 14:33, 14:40-14:41, 14:47-14:49, 14:51, 14:63, 14:65[w], 14:67, 14:77-14:78, 14:80-14:81, 14:83, 14:85, 14:89, 14:94, 14:98, 14:102, 14:106, 14:108-14:109, 14:115, 14:119, 14:121, 14:135, 14:146, 14:154, 14:156, 14:159-14:160, 14:165, 14:170, 14:174, 14:176-14:177, 14:179, 14:181, 14:183
23[5]	100 bp, 175 bp	430 bp	3, 4	*04:01:01:01-04:05:11, 04:05:13-04:221
24[11]	235 bp	430 bp	7	*07:01:01:01-07:01:21, 07:03-07:76
25	170 bp, 215 bp, 250 bp	**515 bp**	8, 11, 12, 14	*08:01:01-08:01:02, 08:01:04-08:19, 08:21-08:56, 08:58-08:66, 08:68-08:79, 08:81-08:82, 11:67, 11:193:01-11:193:02, 12:04, 12:16:01-12:16:03, 12:22, 12:39, 12:49, 14:11, 14:15, 14:68:01-14:68:02, 14:93, 14:148
26[5]	85 bp, 100 bp, 135 bp, 160 bp, 195 bp	430 bp	3, 9, 11	*03:08, 03:65, 09:01:02-09:30, 11:07:01-11:07:02, 11:103:01-11:103:02, 11:105, 11:107, 11:125, 11:173
27	175 bp	430 bp	9, 10, 11, 13	*03:76, 03:125-03:126, 09:05, 10:01:01:01-10:20, 11:59, 11:80, 11:83, 11:87, 11:135, 11:142, 11:182, 13:27, 13:41, 13:71, 13:129, 13:176, 14:82, 14:95, 14:132, 14:179
28[5]	100 bp, 170 bp	430 bp	3, 8, 11, 13, 14	*03:08, 03:65, 08:31, 08:41, 08:63, 08:75, 11:01:01:01-11:11:01, 11:11:03-11:70, 11:72-11:208
29[5]	85 bp, 110 bp	430 bp	12, 14	*08:32, 08:53, 12:01:01:01-12:56, 12:58-12:64, 14:52
30[7]	220 bp	430 bp	6, 8, 11, 13, 14, 1403	*03:76, 03:125, 08:20-08:21, 11:01:01:01-11:04:14, 11:06:01-11:06:03, 11:08:01-11:11:01, 11:11:03-11:12:03, 11:14:01-11:16, 11:18-11:21, 11:23:01-11:25, 11:27:01-11:33, 11:35-11:51, 11:54:01-11:54:02, 11:56-11:66, 11:68, 11:70, 11:72-11:81, 11:83-11:88, 11:90-11:97, 11:99-11:102:02, 11:106, 11:108-11:124, 11:126-11:135, 11:137-11:142, 11:144-11:158, 11:160-11:172, 11:174-11:192, 11:194-11:201, 11:203-11:208, 12:57, 13:01:01:01-13:02:01, 13:02:03-13:08, 13:10-13:16, 13:18-13:43, 13:45-13:85,

				13:87-13:115, 13:117-13:128, 13:130-13:145, 13:147-13:174, 13:176-13:182, 13:184-13:191, 13:194-13:205, 13:207-13:209, 13:212-13:213, 13:215-13:221, 13:223-13:231, 14:03:01-14:03:02, 14:12:01-14:12:02, 14:16, 14:19, 14:21-14:22, 14:25, 14:27:01-14:27:02, 14:40, 14:53, 14:63, 14:67, 14:69, 14:74, 14:77-14:78, 14:84-14:85, 14:98, 14:102, 14:105, 14:109, 14:115-14:116, 14:128, 14:135, 14:144, 14:156, 14:173-14:174, 14:181, **DRB3*02:27**
31[9]	200 bp, 225 bp	430 bp	6, 8, 11, 12, 13, 14	*03:125, 08:01:01-08:01:02, 08:01:04-08:01:05, 08:02:01-08:02:04, 08:04:01-08:09, 08:11, 08:16-08:17, 08:20-08:22, 08:24:01-08:24:02, 08:26, 08:28, 08:31, 08:39, 08:41-08:44, 08:50, 08:52, 08:54-08:55, 08:57, 08:59, 08:64, 08:67, 08:70, 08:72-08:73, 08:75, 08:77-08:80, 08:82, 11:01:01:01-11:01:17, 11:01:20-11:06:03, 11:09-11:11:01, 11:11:03-11:12:03, 11:14:01-11:16, 11:20-11:21, 11:23:01-11:25, 11:27:01-11:30, 11:32-11:33, 11:35-11:41, 11:43-11:44, 11:46:01-11:51, 11:54:01-11:56, 11:58:01-11:63:02, 11:65:01-11:70, 11:72, 11:74:01-11:78, 11:80-11:88, 11:90-11:97, 11:99-11:102:02, 11:106, 11:108-11:118, 11:120-11:124, 11:126-11:129, 11:133-11:135, 11:137-11:142, 11:144-11:152, 11:154-11:158, 11:160-11:172, 11:174-11:183, 11:185-11:190, 11:192-11:201, 11:203-11:208, 12:02:01-12:02:07, 12:13, 12:15-12:16:03, 12:18-12:21, 12:23, 12:26-12:27, 12:31N-12:33, 12:37, 12:42-12:45, 12:49-12:52, 12:55-12:57, 12:60N-12:61, 12:64, 13:01:01:01-13:02:01, 13:02:03-13:02:13, 13:04-13:05:03, 13:07:01-13:09, 13:11:01-13:11:02, 13:14:01-13:24, 13:26:01-13:29, 13:31-13:32, 13:34-13:36, 13:38-13:43, 13:45-13:55, 13:57, 13:59, 13:61:01-13:65, 13:67-13:76, 13:78-13:80, 13:83-13:84, 13:87, 13:91-13:93, 13:96:01-13:100, 13:102-13:109, 13:111-13:114, 13:116-13:117, 13:121, 13:123-13:132, 13:135-13:136, 13:138-13:150, 13:153, 13:155, 13:158-13:160, 13:162, 13:164-13:166, 13:168-13:169, 13:171:01-13:171:02, 13:173, 13:175, 13:177, 13:179, 13:182-13:187, 13:189-13:192, 13:195, 13:197-13:205, 13:207-13:215, 13:217-13:218, 13:221-13:223, 13:225-13:226, 13:229-13:230, 14:15-14:16, 14:22, 14:24-14:25, 14:27:01-14:27:02, 14:37, 14:53, 14:73, 14:105, 14:128
32[6]	175 bp	430 bp	3, 6, 11, 13, 14, 1403, 17, 18	*03:01:01:01-03:07, 03:09, 03:11:01-03:41:02, 03:43-03:45, 03:47-03:63, 03:66-03:68N, 03:70-03:86, 03:88-03:91, 03:93-03:110, 03:112-03:129, 03:131-03:137, 08:20, 13:01:01:01-13:16, 13:18-13:42, 13:44,

				13:46-13:66:02, 13:68-13:102, 13:104-13:115, 13:117-13:121, 13:123-13:158, 13:161-13:164, 13:166-13:170, 13:171:02-13:174, 13:176-13:178, 13:180-13:182, 13:184-13:190, 13:192-13:194, 13:196, 13:198-13:213, 13:215-13:216, 13:218-13:227, 13:229-13:231, 14:02:01-14:03:02, 14:05:01-14:06:03, 14:09, 14:12:01-14:14, 14:17-14:21, 14:23:01, 14:23:03-14:24, 14:27:01-14:27:02, 14:29-14:30, 14:33, 14:36-14:37, 14:40-14:45, 14:47-14:48, 14:51, 14:56, 14:59, 14:63-14:65, 14:67, 14:77-14:78, 14:80-14:81, 14:83-14:85, 14:89, 14:91, 14:94-14:96, 14:98, 14:100, 14:102-14:103, 14:106, 14:108-14:109, 14:115-14:116, 14:121, 14:123, 14:127:01-14:127:02, 14:134-14:136, 14:144, 14:154-14:156, 14:159-14:161, 14:165, 14:167, 14:169-14:170, 14:174, 14:176-14:177, 14:179, 14:181, 14:183
33[5]	100 bp, 145 bp, 195 bp, 240 bp	430 bp	4, 6, 8, 13, 14, 1404	*04:62, 04:69, 04:73, 04:105:01-04:105:02, 04:122, 04:146, 08:08, 11:69, 11:82, 13:45, 13:197, 14:01:01-14:01:02, 14:01:04, 14:04:01-14:04:03, 14:07:01-14:07:02, 14:10, 14:16, 14:22, 14:25-14:26, 14:28, 14:31-14:32:03, 14:35, 14:37-14:39, 14:49-14:50, 14:53-14:54:01, 14:54:03-14:55, 14:57-14:58, 14:60-14:62, 14:68:01-14:71, 14:73-14:76, 14:79, 14:82, 14:86-14:88, 14:90, 14:93, 14:99, 14:101, 14:104-14:105, 14:107, 14:110-14:114, 14:117-14:120, 14:122, 14:124-14:125, 14:128-14:129, 14:131, 14:137N-14:140, 14:142-14:143, 14:145-14:147, 14:149-14:153, 14:157-14:158, 14:163-14:164, 14:166N, 14:168[w], 14:171-14:173, 14:178, 14:180, 14:182, 14:184, **DRB4*01:03:01:02N**
34[5,9,10]	110 bp, 145 bp, 170 bp	430 bp	3, 6, 9, 11, 13, 14, 1404	*03:10, 03:126, 04:211, 09:01:02-09:01:05, 09:01:07-09:02:02, 09:04-09:22, 09:24-09:28, 09:30, 11:13:01-11:13:02, 11:17, 11:52, 11:202, 13:43, 13:159, 13:171:01, 13:179, 13:191, 13:193, 13:217, 14:01:01-14:02:03, 14:04:01-14:11, 14:13-14:14, 14:16-14:18, 14:19[w], 14:20, 14:21[w], 14:22-14:23:04, 14:26, 14:28-14:36, 14:38:01-14:39, 14:41, 14:43-14:52, 14:54:01-14:54:03, 14:54:04[w], 14:54:05-14:57, 14:59-14:62, 14:64-14:65, 14:68:01-14:68:02, 14:70-14:76, 14:79-14:83, 14:86-14:88, 14:90-14:97, 14:99-14:101, 14:103-14:108, 14:109[w], 14:110-14:114, 14:117-14:127:02, 14:129-14:134, 14:137N-14:140, 14:142-14:143, 14:145-14:155, 14:157-14:160, 14:162-14:173, 14:175-14:180, 14:182, 14:184, 15:27, 15:34, 15:66:01-15:66:02, 15:122[w]
35[5]	110 bp, 150 bp, 180 bp,	430 bp	2, 3, 4, 6, 8, 11, 13, 14,	*03:10, 08:09, 08:20-08:21, 08:32, 08:35, 08:36:02, 08:53, 08:68[w], 08:70[w], 11:13:01-11:13:02, 11:17, 11:23:01-11:23:02, 11:25,

Lot No.: 6F5 **Lot-specific information**

	215 bp		1403, 1404, 16	11:31, 11:45, 11:52, 11:55, 11:64, 11:89, 11:96, 11:119, 11:148, 11:159, 11:202, 13:13, 13:18, 13:43, 13:45, 13:47, 13:55, 13:119, 13:144, 13:146, 13:154, 13:156, 13:158-13:159, 13:164, 13:171:01, 13:179, 13:191, 13:197, 13:217, 14:01:01-14:01:04, 14:03:01-14:05:04, 14:07:01-14:08, 14:10-14:12:02, 14:14-14:16, 14:18, 14:22-14:23:04, 14:25-14:28, 14:31-14:32:03, 14:34-14:36, 14:38:01-14:40, 14:42-14:45, 14:49-14:50, 14:53-14:65, 14:67-14:79, 14:81-14:82, 14:84-14:93, 14:95-14:97, 14:99-14:105, 14:107, 14:110-14:120, 14:122-14:140, 14:142-14:158, 14:160-14:164, 14:166N-14:169, 14:171-14:175, 14:178, 14:180-14:182, 14:184, 15:21[w], 16:04[w], 16:18[w], **DRB4*01:31**
36	170 bp	430 bp	8, 12, 13, 14	*03:92, 08:01:01-08:01:02, 08:01:04-08:04:05, 08:04:07-08:06, 08:09-08:10, 08:12-08:14, 08:16-08:18, 08:21-08:24:02, 08:26-08:30:03, 08:32-08:33, 08:35-08:40, 08:42-08:51, 08:53-08:62, 08:64-08:74, 08:76-08:82, 12:09, 12:46, 12:48[w], 12:62, 13:17, 13:116, 13:175, 13:214, 14:15, 14:52, 14:126:01, 14:175
37[5,9]	175 bp, 265 bp	**515 bp**	2, 4, 8, 11, 13, 14	*04:12, 04:18, 04:25, 04:58, 08:04:01, 08:04:02[w]-08:04:03[w], 08:04:04-08:04:07, 08:06, 08:10, 08:12, 08:14, 08:20, 08:22, 08:28, 08:54, 08:59, 08:67, 08:70, 08:75, 08:80, 11:25, 11:67, 11:119, 13:18, 13:144, 13:156, 13:164, 14:12:01-14:12:02, 14:15, 14:78, 14:84, 14:156, 14:173, 15:21
38	135 bp	430 bp	8, 12, 13	*03:92, 08:17, 08:28, 08:37, 08:45:01-08:45:02, 08:63, 11:67, 11:193:01-11:193:02, 12:01:01:01-12:20, 12:22-12:37, 12:39-12:41, 12:43-12:52, 12:54-12:56, 12:58-12:64, 13:17, 13:175, 13:214, 14:138, 14:175
39[8]	180 bp	430 bp	3 ,6, 11, 13, 14	*03:12, 13:03:01-13:04, 13:12:01-13:13, 13:21:01-13:21:02, 13:30, 13:32-13:33:03, 13:38, 13:48-13:49, 13:55, 13:58, 13:65-13:66:02, 13:75, 13:81, 13:88-13:90, 13:93-13:95, 13:101, 13:108, 13:115, 13:118, 13:120, 13:122, 13:133-13:134, 13:139, 13:151-13:152, 13:154, 13:161, 13:164, 13:167, 13:169, 13:174, 13:188, 13:194, 13:216, 13:219, 13:227-13:228, 13:230, 14:13, 14:63, 14:65, 14:78, 14:85, 14:169-14:170, **DRB5*01:08N**
40	150 bp	430 bp	2, 4, 6, 11, 13	*03:125, 11:02:05, 11:16, 11:20, 11:40, 11:59, 11:63:02, 11:118, 11:122, 13:01:01:01-13:02:01, 13:02:03-13:02:13, 13:08, 13:15-13:16, 13:19-13:20, 13:27-13:29, 13:31-13:32, 13:34-13:36, 13:39-13:41, 13:43, 13:51-13:53, 13:57, 13:59, 13:61:01-13:61:02, 13:63-13:65, 13:67-13:69, 13:71-13:74, 13:76, 13:78-13:80, 13:83-13:84, 13:87, 13:91-13:93, 13:96:01-13:97:01, 13:98-13:99, 13:102-13:107, 13:109,

				13:111-13:114, 13:117, 13:121, 13:123-13:128, 13:130-13:131, 13:135, 13:138-13:143, 13:145, 13:147-13:148, 13:153, 13:155, 13:159-13:160, 13:165-13:166, 13:168, 13:171:01-13:171:02, 13:173, 13:175, 13:177, 13:179, 13:182-13:187, 13:190-13:191, 13:195, 13:198, 13:200N-13:202, 13:205, 13:207-13:215, 13:217-13:218, 13:221-13:223, 13:225-13:226, 14:16, 14:57, 15:10
41	145 bp	430 bp	3, 6, 11, 13, 14, 17	*03:01:01:01-03:01:22, 03:01:24-03:01:25, 03:04:01-03:05:03, 03:07-03:16, 03:18-03:25, 03:28-03:30, 03:32-03:34, 03:36-03:37, 03:39-03:40, 03:43-03:52, 03:54-03:59, 03:61-03:68N, 03:70-03:73, 03:76-03:79, 03:81, 03:83-03:84, 03:86, 03:89, 03:91, 03:93-03:101, 03:104-03:110, 03:112-03:114, 03:116-03:121, 03:123-03:130, 03:132-03:137, 11:01:01:01-11:01:06, 11:01:08-11:01:27, 11:01:28[?], 11:02:01-11:04:13, 11:06:01-11:11:01, 11:11:03-11:16, 11:18-11:21, 11:23:01-11:29:02, 11:31-11:36, 11:38-11:40, 11:42-11:47, 11:49:01-11:49:02, 11:51, 11:53-11:55, 11:57-11:66, 11:68-11:70, 11:72-11:82, 11:84:01-11:87, 11:89-11:103:02, 11:105-11:106, 11:108-11:144, 11:146-11:148, 11:150-11:169N, 11:172-11:182, 11:185-11:188, 11:190-11:192, 11:194-11:199, 11:201-11:208, 13:01:01:01-13:01:08, 13:01:10-13:02:13, 13:04-13:06, 13:09-13:11:02, 13:14:01-13:16, 13:18, 13:20-13:25, 13:27-13:31, 13:34, 13:39, 13:41-13:46, 13:50:01-13:52, 13:54, 13:56-13:57, 13:59, 13:61:01-13:64, 13:66:01-13:66:02, 13:68-13:69, 13:71, 13:73-13:75, 13:77-13:80, 13:82-13:83, 13:86-13:87, 13:91-13:93, 13:96:01-13:100, 13:102, 13:104-13:107, 13:109-13:114, 13:117, 13:119, 13:121, 13:123-13:132, 13:136-13:148, 13:150, 13:153-13:158, 13:162-13:163, 13:165-13:166, 13:168-13:173, 13:176, 13:178-13:179, 13:181, 13:184-13:187, 13:190, 13:192-13:193, 13:196-13:197, 13:199-13:213, 13:215, 13:217-13:218, 13:220-13:226, 13:229, 14:17, 14:21, 14:30, 14:33, 14:35, 14:42, 14:53, 14:64-14:65, 14:72, 14:95, 14:128, 14:132, 14:134, 14:179
42	145 bp, 210 bp, 240 bp	430 bp	4, 6, 8, 11, 13, 14, 1403, 1404	*08:09, 08:20-08:21, 08:35, 11:13:01-11:13:02, 11:17, 11:23:01-11:23:02, 11:25, 11:45, 11:52, 11:55, 11:64, 11:89, 11:119, 11:149, 11:159, 11:202, 13:08, 13:13, 13:18, 13:47, 13:55, 13:119, 13:144, 13:146, 13:154, 13:156, 13:158, 13:164, 14:01:01-14:01:04, 14:02:02[?]-14:02:03[?], 14:03:01-14:05:04, 14:07:01-14:08, 14:10-14:12:02, 14:14-14:15, 14:16[?], 14:18, 14:19[?]-14:20[?], 14:22[?], 14:23:01-14:23:04,

				14:25[?], 14:26-14:28, 14:29[?]-14:30[?], 14:31-14:32:02, 14:32:03[?]-14:33[?], 14:34-14:36, 14:37[?], 14:38:01-14:40, 14:41[?], 14:42-14:45, 14:48[?]-14:49[?], 14:50, 14:51[?]-14:52[?], 14:54:01-14:65, 14:67-14:68:02, 14:69[?], 14:70-14:72, 14:73[?]-14:74[?], 14:75, 14:76[?], 14:77-14:78, 14:79[?]-14:80[?], 14:81-14:82, 14:83[?], 14:84-14:93, 14:94[?], 14:95-14:97, 14:98[?], 14:99-14:103, 14:104[?]-14:109[?], 14:110, 14:111[?], 14:112-14:118, 14:119[?], 14:120, 14:121[?], 14:122-14:127:02, 14:128[?], 14:129-14:145, 14:146[?], 14:147-14:158, 14:159[?], 14:160-14:164, 14:165[?], 14:166N-14:169, 14:170[?], 14:171-14:175, 14:176[?], 14:178, 14:179[?], 14:180-14:184
43	140 bp, 170 bp	430 bp	6, 13, 14	*03:76, 03:126, 04:211, 13:10, 13:85-13:86, 13:120, 13:170, 13:176, 13:178, 13:193, 13:196, 13:216, 14:02:01-14:02:03, 14:06:01-14:06:03, 14:09, 14:13, 14:17, 14:19-14:21, 14:29-14:30, 14:33, 14:41, 14:46-14:49, 14:51-14:52, 14:80, 14:83, 14:94, 14:106, 14:108-14:109, 14:121, 14:159, 14:165, 14:170, 14:176-14:177, 14:179, 14:183, **DRB3*02:27, DRB3*02:58**
44[5,6,7]	80 bp, 165 bp, 240 bp	430 bp	52	*14:141, **DRB3*01:01:02:01-01:41, DRB3*02:01-02:61Q, DRB3*03:01:01-03:11**
45	130 bp, 215 bp	430 bp	53	*10:19, 15:141, **DRB4*01:01:01:01-01:48, DRB4*02:01N, DRB4*03:01N**
46[8]	175 bp	430 bp	51	**DRB5*01:01:01:01-01:29, DRB5*02:02-02:16**
47[12]	-	-	-	**Negative Control**

[1]Alleles are assigned by the presence of specific PCR product(s). However, the sizes of the specific PCR products may be helpful in the interpretation of DR low resolution SSP subtypings.
When the primers in a primer mix can give rise to HLA-specific PCR products of more than one length this is indicated if the size difference is more than 20 base pairs. Size differences of 20 base pairs or less are not given. For high resolution SSP kits, the alleles listed are specified according to amplicon length.
Nonspecific amplifications, i.e. a ladder 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 inherit 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.

[2]The 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 16 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. In the presence of a specific amplification the intensity of the control band often decreases.

[3]The serological split of all DRB1 alleles is not known. In this table we use the expert-assigned serological grouping in Tissue Antigens (2009) 73:95-170 and the serological grouping of the sequence-defined allele.

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Lot No.: 6F5 **Lot-specific information**

[4]For 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.

[5]HLA-Specific PCR fragments shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR bands.

[6]Due to sharing of sequence motifs in codon 38 and 47, DRB3*01:14 will also be amplified in primer mixes 20, 21 and 32 and DRB3*01:23 and *02:32 in mix 14, in addition to primer mix 44.

[7]Due to sharing of sequence motifs, DRB3*02:27 is amplified by the primer pairs in well 30 in addition to primer mix 44.

[8]DRB5*01:08N is amplified by the primer pairs in well 39 in addition to primer mix 46.

[9]Primer mixes 16, 18, 31, 34 and 37 may have a tendency of giving rise to primer oligomer formation.

[10]Primer mix 34 has a tendency of giving rise to an intense primer cloud due to the high number of primers present in the primer mix.

[11]Primer mixes 18, 19 and 24 may have a tendency of unspecific amplification.

[12]Primer mix 47 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 No.: 6F5 **Lot-specific information**

DQ LOW PRIMER SPECIFICATION

Well No.	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec.	135	135	210	130	130	135	85	135	225	215	185	185
PCR product	225	185		220	220			160				
		220						185				
		270						210				
Length of int.	515	515	430	515	515	515	515	430	430	430	430	430
pos. control[1]												
5'-primer(s)[2]	25(170)	9(122)	28(178)	26(173)	28(179)	26(173)	71(309)	21(159)	9(122)	30(184)	21(159)	38(210)
	5'-gCA 3'	5'-gTT 3'	5'-TgC 3'	5'-TTA 3'	5'-gAC 3'	5'-TCT 3'	5'-ACC 3'	5'-ACC 3'	5'-gTT 3'	5'-gAC 3'	5'-ACC 3'	5'-gCA 3'
	26(173)	25(169)	30(184)		28(179)		71(309)	23(164)				
	5'-ggA 3'	5'-TgT 3'	5'-gAg 3'		5'-gAC 3'		5'-ACC 3'	5'-gCT 3'				
	26(173)	26(173)	30(185)		28(179)			38(210)				
	5'-ggg 3'	5'-TCT 3'	5'-AAg 3'		5'-gAC 3'			5'-gCg 3'				
		26(173)	30(185)									
		5'-TTA 3'	5'-AAA 3'									
3'-primer(s)[3]	57(266)	57(266)	86(353)	55(260)	57(266)	57(266)	86(353)	70(304)	70(304)	87(356)	70(304)	86(353)
	5'-CAA 3'	5'-CAA 3'	5'-gCT 3'	5'-gCg 3'	5'-Cgg 3'	5'-CgT 3'	5'-gCT 3'	5'-CTC 3'	5'-CTC 3'	5'-ggA 3'	5'-CCT 3'	5'-gCT 3'
	87(356)	57(266)		86(353)	57(266)		86(354)	77(327)		87(356)		87(357)
	5'-ggT 3'	5'-CAT 3'		5'-gCT 3'	5'-CAg 3'		5'-AgT 3'	5'-ACg 3'		5'-ggT 3'		5'-CgT 3'
	87(356)	86(353)		86(354)	57(266)		87(355)					
	5'-ggT 3'	5'-ACC 3'		5'-AgT 3'	5'-Cgg 3'		5'-gAC 3'					
	89(361)	86(353)			87(356)		87(356)					
	5'-CCT 3'	5'-ACg 3'			5'-ggg 3'		5'-ggC 3'					
		86(354)					87(357)					
		5'-AAT 3'					5'-CgT 3'					
							88(358)					
							5'-gCC 3'					
Well No.	1	2	3	4	5	6	7	8	9	10	11	12

Well No.	13	14	15
Length of spec.	185	185	135
PCR product			
Length of int.	515	430	430
pos. control[1]			
5'-primer(s)[2]	9(122)	38(209)	13(134)
	5'-gTT 3'	5'-CgC 3'	5'-ggC 3'
3'-primer(s)[3]	57(266)	86(353)	45(230)
	5'-CAT 3'	5'-ACg 3'	5'-CCC 3'
	58(270)		
	5'-TCC 3'		
Well No.	13	14	15

[1]The 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.

[2]The 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.

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

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DR LOW PRIMER SPECIFICATION

Well No.	16	17	18	19	20	21	22	23	24	25	26	27
Length of spec.	210	200	200	210	125	75	85	100	235	170	85	175
PCR product	230		230		225	205	210	175		215	100	
	260									250	135	
											160	
											195	
Length of int.	515	430	430	430	515	430	430	430	430	515	430	430
pos. control[1]												
5'-primer(s)[2]	13(124)	14(129)	12(121)	11(119)	13(125)	13(125)	13(125)	13(125)	11(118)	16(133)	26(165)	26(164)
	5'-A.T 3'	5'-gAA 3'	5'-CTg 3'	5'-gCT 3'	5'-gTC 3'	5'-gTC 3'	5'-gTC 3'	5'-ACA 3'	5'-AgA 3'	5'-gTT 3'	5'-TAT 3'	5'-gTA 3'
	14(129)		13(126)	13(126)	47(227)	16(133)		13(125)	14(127)	16(133)	37(196)	31(178)
	5'-gAA 3'		5'-AgA 3'	5'-AAg 3'	5'-gTT 3'	5'-gTT 3'		5'-ACC 3'	5'-gTA 3'	5'-gCT 3'	5'-AgA 3'	5'-gCg 3'
			13(126)	13(126)				13(125)	14(127)	16(133)	58(261)	
			5'-AAg 3'	5'-Agg 3'				5'-ATA 3'	5'-ATA 3'	5'-gTT 3'	5'-gAg 3'	
			13(126)					13(125)	14(127)			
			5'-Agg 3'					5'-gTC 3'	5'-ATA 3'			
3'-primer(s)[3]	67(286)	67(286)	67(286)	67(286)	73(305)	26(164)	28(171)	33(184)	78(319)	58(260)	57(257)	72(303)
	5'-gAg 3'	5'-gAT 3'	5'-gAT 3'	5'-gAg 3'	5'-ggC 3'	5'-ggT 3'	5'-CTC 3'	5'-gTg 3'	5'-CgC 3'	5'-CCT 3'	5'-CgA 3'	5'-gCA 3'
	67(286)		67(286)	67(286)	73(305)	67(286)	70(295)	58(260)	78(319)	74(307)	73(305)	74(307)
	5'-gAg 3'		5'-gAT 3'	5'-gAA 3'	5'-ggC 3'	5'-gAT 3'	5'-CTg 3'	5'-Cgg 3'	5'-gTA 3'	5'-CAg 3'	5'-ggC 3'	5'-CgC 3'
	67(286)		67(286)	70(296)	73(305)	71(299)			78(319)	86(344)	78(319)	74(308)
	5'-gAT 3'		5'-gAT 3'	5'-TgT 3'	5'-ggC 3'	5'-gCT 3'			5'-CAA 3'	5'-CAC 3'	5'-CAC 3'	5'-CCT 3'
	70(297)		70(295)	72(301)	73(306)				78(319)			
	5'-CTg 3'		5'-.Tg 3'	5'-ggC 3'	5'-Tgg 3'				5'-CAC 3'			
	71(299)		70(295)	72(301)	74(308)							
	5'-gCg 3'		5'-CTg 3'	5'-gCC 3'	5'-CCC 3'							
	77(317)		71(299)		75(310)							
	5'-AgT 3'		5'-gCT 3'		5'-CAA 3'							
	86(344)		71(299)		77(317)							
	5'-CCA 3'		5'-gCg 3'		5'-AgT 3'							
			72(301)									
			5'-.Cg 3'									
			73(305)									
			5'-ggC 3'									
			77(317)									
			5'-AgT 3'									
Well No.	16	17	18	19	20	21	22	23	24	25	26	27

Well No.	28	29	30	31	32	33	34	35	36	37	38	39
Length of spec.	100	85	220	200	175	100	110	110	170	175	135	180
PCR product	170	110		225		145	145	150		265		
						195	170	180				
						240		215				
Length of int.	430	430	430	430	430	430	430	430	430	515	430	430
pos. control[1]												
5'-primer(s)[2]	13(125)	13(124)	10(116)	10(116)	13(125)	1st I	26(164)	13(125)	13(125)	12(122)	16(133)	13(125)
	5'-gTC 3'	5'-Cgg 3'	5'-gCT 3'	5'-gCT 3'	5'-gTC 3'	5'-CAA 3'	5'-gTA 3'	5'-gTC 3'	5'-ggg 3'	5'-TAg 3'	5'-gTT 3'	5'-gTC 3'
	16(133)	16(133)	12(122)	12(122)		37(197)	34(189)	34(189)	16(133)	74(308)		108(409)
	5'-gTC 3'	5'-gTT 3'	5'-TAT 3'	5'-TAT 3'		5'-gTT 3'	5'-CAg 3'	5'-CAg 3'	5'-gCT 3'	5'-CCT 3'		5'-AgA 3'
	38(200)		13(125)	12(123)		37(197)		37(196)	16(133)			
	5'-CgT 3'		5'-gTC 3'	5'-ACA 3'		5'-gTA 3'		5'-AgC 3'	5'-gTT 3'			
				13(125)					16(133)			
				5'-gTC 3'					5'-gTT 3'			
				13(125)								
				5'-gTg 3'								
				16(133)								
				5'-gTC 3'								
				16(133)								
				5'-gTT 3'								
3'-primer(s)[3]	58(260)	28(171)	70(295)	67(286)	58(260)	42(213)	57(257)	57(257)	57(256)	57(256)	47(227)	57(256)
	5'-CCT 3'	5'-CTC 3'	5'-gTC 3'	5'-gAA 3'	5'-Cgg 3'	5'-TCA 3'	5'-CAg 3'	5'-CAg 3'	5'-gCT 3'	5'-gCT 3'	5'-ggA 3'	5'-gCT 3'
	58(260)	30(175)	71(299)	71(298)	58(260)	57(257)	70(295)	60(265)	57(257)	86(344)		160(565)
	5'-CCT 3'	5'-gTg 3'	5'-gCT 3'	5'-CTC 3'	5'-CAg 3'	5'-CAg 3'	5'-CTg 3'	5'-gTg 3'	5'-CAT 3'	5'-CCA 3'		5'-CAT 3'
	58(260)	38(199)	71(299)	71(298)		71(298)	70(296)	70(296)	57(257)			
	5'-CCT 3'	5'-CAg 3'	5'-ACT 3'	5'-CgC 3'		5'-CgC 3'	5'-TCC 3'	5'-TCC 3'	5'-CAT 3'			
	58(261)		74(307)					74(307)				
	5'-TCT 3'		5'-CgT 3'					5'-CAg 3'				
			78(319)									
			5'-CAC 3'									
Well No.	28	29	30	31	32	33	34	35	36	37	38	39

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Well No.	40	41	42	43	44	45	46
Length of spec.	150	145	145	140	80	130	175
PCR product			210	170	165	215	
			240		240		
Length of int.	430	430	430	430	430	430	430
pos. control[1]							
5'-primer(s)[2]	34(189)	13(125)	13(125)	28(171)	10(116)	28(170)	13(125)
	5' -CAg 3'	5' -gTC 3'	5' -gTC 3'	5' -gAg 3'	5' -gCT 3'	5' -gAT 3'	5' -gTA 3'
	34(189)		37(197)	37(196)	10(116)	28(170)	
	5' -CAg 3'		5' -gTT 3'	5' -AgA 3'	5' -gCT 3'	5' -gAg 3'	
			114(429)		38(199)	105(401)	
			5' -CTg 3'		5' -TCC 3'	5' -AAA 3'	
3'-primer(s)[3]	71(298)	47(227)	70(296)	70(295)	51(239)	87(346)	57(256)
	5' -CTC 3'	5' -ggA 3'	5' -TCC 3'	5' -CTg 3'	5' -CCC 3'	5' -CTC 3'	5' -gTC 3'
		48(229)	74(307)	71(298)	77(317)	87(346)	57(258)
		5' -CCA 3'	5' -CAg 3'	5' -CTT 3'	5' -AAT 3'	5' -CTT 3'	5' -gCg 3'
			181(630)			135(490)	58(260)
			5' -CTT 3'			5' -gCT 3'	5' -CCT 3'
Well No.	40	41	42	43	44	45	46

[1]The 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 16 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.

[2]The 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.

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

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CELL LINE VALIDATION SHEET

DQ low resolution primer set[2]

					Well														
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
				Prod. No.:	201782901	201784802	201672403	201782904	201663505	201663506	201782907	201784808	201672409	201663510	201663511	201782912	201784813	201784814	201784815
	IHWC cell line[1]		DQB1																
1	9001	SA	*05:01		+	-	-	-	-	-	-	-	-	+	-	-	-	-	-
2	9280	LK707	*06:01	*02:02	-	+	+	-	-	-	-	-	-	-	-	-	-	-	+
3	9011	E4181324	*06:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	+
4	9275	GU373	*02:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
5	9009	KAS011	*05:02		+	-	-	-	-	-	-	-	-	+	-	-	-	-	-
6	9353	SM	*03:02	*06:01	-	+	-	-	+	-	+	-	-	-	-	+	-	-	+
7	9020	QBL	*02:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
8	9025	DEU	*03:01		-	-	-	+	-	-	+	-	-	-	-	+	-	-	-
9	9026	YAR	*03:02		-	-	-	-	+	-	+	-	-	-	-	+	-	-	-
10	9107	LKT3	*04:01		-	-	-	-	-	-	-	+	+	-	-	-	-	-	-
11	9051	PITOUT	*02:02		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
12	9052	DBB	*03:03		-	-	-	-	-	+	+	-	-	-	-	+	-	-	-
13	9004	JESTHOM	*05:01		+	-	-	-	-	-	-	-	-	+	-	-	-	-	-
14	9071	OLGA	*04:02		-	-	-	-	-	-	-	+	+	-	-	-	-	-	-
15	9075	DKB	*03:03		-	-	-	-	-	+	+	-	-	-	-	+	-	-	-
16	9037	SWEIG007	*03:01		-	-	-	+	-	-	+	-	-	-	-	+	-	-	-
17	9282	CTM 3953540	*02:01	*06:03	-	+	+	-	-	-	-	-	-	-	-	-	-	+	-
18	9257	32367	*06:02	*02:02	-	+	+	-	-	-	-	-	-	-	-	-	+	+	-
19	9038	BM16	*03:01		-	-	-	+	-	-	+	-	-	-	-	+	-	-	-
20	9059	SLE005	*06:04		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
21	9064	AMALA	*03:01		-	-	-	+	-	-	+	-	-	-	-	+	-	-	-
22	9056	KOSE	*05:03	*06:04	+	+	-	-	-	-	-	-	-	+	-	-	-	-	-
23	9124	IHL	*05:03	*06:01	+	+	-	-	-	-	-	-	-	+	-	-	-	-	+
24	9035	JBUSH	*03:01		-	-	-	+	-	-	+	-	-	-	-	+	-	-	-
25	9049	IBW9	*02:02		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
26	9285	WT49	*02:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
27	9191	CH1007	*04:01	*05:01	+	-	-	-	-	-	-	+	+	+	-	-	-	-	-
28	9320	BEL5GB	*02:02	*03:01	-	-	+	+	-	-	+	-	-	-	-	+	-	-	-
29	9050	MOU	*02:02		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
30	9021	RSH	*04:02		-	-	-	-	-	-	-	+	+	-	-	-	-	-	-
31	9019	DUCAF	*02:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
32	9297	HAG	*03:01		-	-	-	+	-	-	+	-	-	-	-	+	-	-	-
33	9098	MT14B	*03:02		-	-	-	-	+	-	+	-	-	-	-	+	-	-	-
34	9104	DHIF	*03:01		-	-	-	+	-	-	+	-	-	-	-	+	-	-	-
35	9302	SSTO	*03:05		-	-	-	-	+	-	+	-	-	-	+	-	-	-	-
36	9024	KT17	*03:02		-	-	-	-	+	-	+	-	-	-	-	+	-	-	-
37	9065	HHKB	*06:03		-	+	-	-	-	-	-	-	-	-	-	-	-	+	-
38	9099	LZL	*03:01		-	-	-	+	-	-	+	-	-	-	-	+	-	-	-
39	9315	CML	*02:01	*03:01	-	-	+	+	-	-	+	-	-	-	-	+	-	-	-
40	9134	WHONP199	*02:02	*03:03	-	-	+	-	-	+	+	-	-	-	-	+	-	-	-
41	9055	H0301	*06:09		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
42	9066	TAB089	*06:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	+
43	9076	T7526	*03:03		-	-	-	-	-	+	+	-	-	-	-	+	-	-	-
44	9057	TEM	*05:03		+	-	-	-	-	-	-	-	-	+	-	-	-	-	-
45	9239	SHJO	*02:02		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
46	9013	SCHU	*06:02		-	+	-	-	-	-	-	-	-	-	-	-	+	+	-
47	9045	TUBO	*03:01		-	-	-	+	-	-	+	-	-	-	-	+	-	-	-
48	9303	TER-ND	*05:01		+	-	-	-	-	-	-	-	-	+	-	-	-	-	-

101.704-48/12 – including *Taq* pol., IFU-01
101.704-48u/12u – without *Taq* pol., IFU-02

Visit www.labproducts.caredx.com for **"Instructions for Use" (IFU)**

Lot No.: 6F5 **Lot-specific information**

CELL LINE VALIDATION SHEET

DR low resolution primer set[2]

					Well															
					16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
				Prod. No.:	201673401	201673402	201673403	201673404	201673405	201673406	201673407	201673408	201663309	201675110	201675111	201675112	201782713	201673414	201782715	201673416
	IHWC cell line[1]		DRB1																	
1	9001	SA	*01:01		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280	LK707	*15:02	*04:05	-	-	+	-	-	-	-	+	-	-	-	-	-	-	-	-
3	9011	E4181324	*15:02		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
4	9275	GU373	*03:01		-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-
5	9009	KAS011	*16:01		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
6	9353	SM	*04:07	*08:03	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	-
7	9020	QBL	*03:01		-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-
8	9025	DEU	*04:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
9	9026	YAR	*04:02		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
10	9107	LKT3	*04:05		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
11	9051	PITOUT	*07:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
12	9052	DBB	*07:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
13	9004	JESTHOM	*01:01		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071	OLGA	*08:02		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+
15	9075	DKB	*09:01		-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
16	9037	SWEIG007	*11:01		-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	+
17	9282	CTM3953540	*03:01	*13:01	-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	+
18	9257	32367	*09:01	*11:01	-	-	-	-	-	-	-	-	-	-	+	-	+	-	+	+
19	9038	BM16	*12:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
20	9059	SLE005	*13:02		-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	+
21	9064	AMALA	*14:02		-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
22	9056	KOSE	*13:02	*14:54	-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	+
23	9124	IHL	*08:03	*14:14	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
24	9035	JBUSH	*11:01		-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	+
25	9049	IBW9	*07:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
26	9285	WT49	*03:01		-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-
27	9191	CH1007	*04:05	*10:01	-	-	-	-	-	-	-	+	-	+	-	+	-	-	-	-
28	9320	BEL5GB	*04:16	*07:01	-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-
29	9050	MOU	*07:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
30	9021	RSH	*03:02		-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-
31	9019	DUCAF	*03:01		-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-
32	9297	HAG	*13:03		-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-
33	9098	MT14B	*04:04		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
34	9104	DHIF	*11:01		-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	+
35	9302	SSTO	*04:03		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
36	9024	KT17	*04:03	*04:06	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
37	9065	HHKB	*13:01		-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	+
38	9099	LZL	*14:02		-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-
39	9315	CML	*03:01	*04:01	-	-	-	-	+	+	-	+	-	-	-	-	-	-	-	-
40	9134	WHONP199	*07:01	*09:01	-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	-
41	9055	H0301	*13:02		-	-	-	-	-	+	-	-	-	-	-	-	-	-	+	+
42	9066	TAB089	*08:03		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
43	9076	T7526	*09:01		-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-
44	9057	TEM	*14:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	9239	SHJO	*07:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
46	9013	SCHU	*15:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
47	9045	TUBO	*11:04	*12:01	-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	+
48	9303	TER-ND	*01:03		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-

101.704-48/12 – including *Taq* pol., IFU-01
101.704-48u/12u – without *Taq* pol., IFU-02

Visit www.labproducts.caredx.com for **"Instructions for Use" (IFU)**

Lot No.: 6F5 **Lot-specific information**

CELL LINE VALIDATION SHEET

DR low resolution primer set[2]

					Well														
					32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
				Prod. No.:	201782717	201673418	201673419	201673420	201669921	201669922	201669923	201669924	201669925	201669926	201782727	201782728	201782729	201675130	201782731
	IHWC cell line[1]		DRB1																
1	9001	SA	*01:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280	LK707	*15:02	*04:05	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
3	9011	E4181324	*15:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
4	9275	GU373	*03:01		+	-	-	-	-	-	-	-	-	+	-	-	+	-	-
5	9009	KAS011	*16:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
6	9353	SM	*04:07	*08:03	-	-	-	-	+	-	-	-	-	-	-	-	-	+	-
7	9020	QBL	*03:01		+	-	-	-	-	-	-	-	-	+	-	-	+	-	-
8	9025	DEU	*04:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
9	9026	YAR	*04:02		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
10	9107	LKT3	*04:05		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
11	9051	PITOUT	*07:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
12	9052	DBB	*07:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
13	9004	JESTHOM	*01:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071	OLGA	*08:02		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
15	9075	DKB	*09:01		-	-	+	-	-	-	-	-	-	-	-	-	-	+	-
16	9037	SWEIG007	*11:01		-	-	-	-	-	-	-	-	-	+	-	-	+	-	-
17	9282	CTM3953540	*03:01	*13:01	+	-	-	-	-	-	-	-	+	+	-	-	+	-	-
18	9257	32367	*09:01	*11:01	-	-	+	-	-	-	-	-	-	+	-	-	+	+	-
19	9038	BM16	*12:01		-	-	-	-	-	-	+	-	-	-	-	-	+	-	-
20	9059	SLE005	*13:02		+	-	-	-	-	-	-	-	+	+	-	-	+	-	-
21	9064	AMALA	*14:02		+	-	+	-	-	-	-	-	-	-	-	+	+	-	-
22	9056	KOSE	*13:02	*14:54	+	+	+	+	-	-	-	-	+	+	+	-	+	-	-
23	9124	IHL	*08:03	*14:14	+	-	+	+	+	-	-	-	-	-	+	-	+	-	-
24	9035	JBUSH	*11:01		-	-	-	-	-	-	-	-	-	+	-	-	+	-	-
25	9049	IBW9	*07:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
26	9285	WT49	*03:01		+	-	-	-	-	-	-	-	-	+	-	-	+	-	-
27	9191	CH1007	*04:05	*10:01	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
28	9320	BEL5GB	*04:16	*07:01	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
29	9050	MOU	*07:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
30	9021	RSH	*03:02		+	-	-	-	-	-	-	-	-	-	-	-	+	-	-
31	9019	DUCAF	*03:01		+	-	-	-	-	-	-	-	-	+	-	-	+	-	-
32	9297	HAG	*13:03		+	-	-	-	-	-	-	+	-	-	-	-	+	-	-
33	9098	MT14B	*04:04		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
34	9104	DHIF	*11:01		-	-	-	-	-	-	-	-	-	+	-	-	+	-	-
35	9302	SSTO	*04:03		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
36	9024	KT17	*04:03	*04:06	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
37	9065	HHKB	*13:01		+	-	-	-	-	-	-	-	+	+	-	-	+	-	-
38	9099	LZL	*14:02		+	-	+	-	-	-	-	-	-	-	-	+	+	-	-
39	9315	CML	*03:01	*04:01	+	-	-	-	-	-	-	-	-	+	-	-	+	+	-
40	9134	WHONP199	*07:01	*09:01	-	-	+	-	-	-	-	-	-	-	-	-	-	+	-
41	9055	H0301	*13:02		+	-	-	-	-	-	-	-	+	+	-	-	+	-	-
42	9066	TAB089	*08:03		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-
43	9076	T7526	*09:01		-	-	+	-	-	-	-	-	-	-	-	-	-	+	-
44	9057	TEM	*14:01		-	+	+	+	-	-	-	+	-	-	+	-	+	-	-
45	9239	SHJO	*07:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
46	9013	SCHU	*15:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
47	9045	TUBO	*11:04	*12:01	-	-	-	-	-	-	+	-	-	+	-	-	+	-	-
48	9303	TER-ND	*01:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

101.704-48/12 – including *Taq* pol., IFU-01
101.704-48u/12u – without *Taq* pol., IFU-02

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Lot No.: 6F5 Lot-specific information

[1]The 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.

[2]The 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.
One 5'-primer and one or more 3'primers in primer solution 2, 19, 26, 27, 30, 33 and 42 were tested by separately adding additional 5'-primers or 3'-primers.
One or more additional 3'-primers in primer solution 1, 10, 16, 18, 20, 24, 25, 35 and 37 were tested by separately adding another 5'-primer.
One 5'-primer in primer solutions 7, 21, 31 and 43 was tested by separately adding additional 3'-primers.
In primer solutions 1, 2, 4, 5, 7, 12, 13, 16, 18 to 21, 24, 28, 30, 36, 41, 45 and 46 one or more 3'-primers were not possible to test, and in primer solutions 1 to 3, 5, 16, 18, 19, 23 to 25, 28 to 31, 35 to 37, 42 and 45 one or more 5'-primers were not possible to test.

Lot No.: 6F5 **Lot-specific information**

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