Olerup SSP® HLA-A-B-DR SSP Combi Tray

Product number:	**101.701-24u/06u – without *Taq* pol.**
Lot number:	**91M**
Expiry date:	**2014-May-01**
Number of tests:	**24 tests – Product No. 101.701-24u**
	6 tests – Product No. 101.701-06u
Number of wells per test:	**95 +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. 91M.

CHANGES COMPARED TO THE PREVIOUS *OLERUP* SSP® HLA-A-B-DR SSP COMBI TRAY LOT

The **HLA-A low resolution** specificity and interpretation tables have been updated for the HLA-A alleles described since the previous *Olerup* SSP® HLA-A-B-DR SSP Combi Tray lot was made **(Lot No. 44M)**.

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	-	Increased yield of specific PCR product.
6	Modified	-	Increased yield of specific PCR product.
8	-	Added	Primer added for the A*25:15 allele.
9	-	Added	Primer added for the A*25:15 allele.
12	-	Added	Improved allelic resolution.
13	-	Modified	Increased yield of specific PCR product.
15	Added	Modified	Primers added for the A*30:47 and 30:52 alleles.

The **HLA-B low resolution** specificity and interpretation tables have been updated for the HLA-B alleles described since the previous *Olerup* SSP® HLA-A-B-DR SSP Combi Tray lot was made **(Lot No. 44M)**.

The HLA-B low primer set is unchanged compared to the previous lot.

The **HLA-DR low resolution** specificity and interpretation tables have been updated for the HLA-DRB alleles described since the previous *Olerup* SSP® HLA-A-B-DR SSP Combi Tray lot was made **(Lot No. 44M)**.

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

Well	5'-primer	3'-primer	rationale
87	-	Modified	Improved allelic resolution.

Change in revision R01 compared to R00:
1. The HLA-A*68:13 allele is amplified by primer mix 4. This has been corrected in the specificity and interpretation tables.

Change in revision R02 compared to R01:
1. Primer mix 43 does not amplify the B*15:101 allele. This has been corrected in the Specificity and Interpretation tables.

Change in revision R03 compared to R02:
1. The HLA-A*03:01:03, 03:09, 03:23:01, 03:89, 03:108, 11:06, 11:18, 24:28, 24:89, 26:03:01-26:03:02, 26:06, 26:07:02, 26:21, 26:30, 30:13, 30:16, 30:44, 30:46, 68:05, 68:15, 68:20 and 68:30 alleles are weakly amplified by primer mix 2. This has been corrected in the Specificity and Interpretation Tables.
2. The DR serology has been corrected in the Specificity Table.

Changes in revision R04 compared to R03:
1. In primer mix 5, the specific PCR product of 535 base pairs may be difficult to distinguish from the internal control band. A foot note has been added to the Specificity Table.
2. Primer mix 17 does not amplify the HLA-A*36:02 allele. This has been corrected in the Specificity and Interpretation Tables.

Change in revision R05 compared to R04:
1. Primer mix 43 does not amplify the B*44:10 allele. This has been corrected in the Specificity and Interpretation Tables.

Well 96 contains Negative Control primer pairs, that will amplify more than 95% of the *Olerup* SSP® HLA Class I, DRB, DQB1 and DPB1 amplicons as well as the amplicons generated by control primer pairs.

PCR product sizes range from 75 to 430 base pairs.
The PCR product generated by the control primer pair is 430 base pairs.

Length of PCR product	**105**	**200**	**105**	**80**	**75**	**80**
5'-primer[1]	**164**	**340**	**440**	**45**	**45**	**43**
	5'-CAC3'	**5'-Agg3'**	**5'-TTA3'**	**5'-Tgg3'**	**5'-Tgg3'**	**5'-Tgg3'**
3'-primer[2]	**231**	**2nd I**	**507**	**59**	**58**	**57**
	5'-TgC3'	**5'-AAA3'**	**5'-TTg3'**	**5'-CTC3'**	**5'-ggC3'**	**5'-CTC3'**
A*	**+**	**+**	**+**			
B*	**+**	**+**	**+**			
C*	**+**	**+**	**+**			
DRB1				**+**	**+**	
DRB3				**+**	**+**	
DRB5				**+**		
DQB1					**+**	
DPB1						**+**

[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 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.
[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.

PRODUCT DESCRIPTION

HLA-A-B-DR SSP Combi Tray

CONTENT

The primer set contains 5'- and 3'-primers for grouping the HLA-A*01:01 to A*80:02 alleles into the corresponding serological groups A1 to A80.
The primer set contains 5'- and 3'-primers for grouping the B*07:02 to B*83:01 alleles into the corresponding serological groups B7 to B81 as well as primer pairs for recognizing the Bw4 and Bw6 sequence motifs.
The primer set contains 5'- and 3'-primers for grouping the DRB1*01:01 to DRB1*10:03 alleles into the corresponding serological groups DR1 to DR18 as well as primer pairs for recognizing the DRB3, DRB4 and DRB5 groups of alleles.

PLATE LAYOUT

Each test consists of 96 PCR reactions in a 96 well 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**	**48**
49	**50**	**51**	**52**	**53**	**54**	**55**	**56**
57	**58**	**59**	**60**	**61**	**62**	**63**	**64**
65	**66**	**67**	**68**	**69**	**70**	**71**	**72**
73	**74**	**75**	**76**	**77**	**78**	**79**	**80**
81	**82**	**83**	**84**	**85**	**86**	**87**	**88**
89	**90**	**91**	**92**	**93**	**94**	**95**	**ctrl**

Wells 1 to 24 – HLA-A low resolution primers.
Wells 25 to 72 – HLA-B low resolution primers.
Wells 73 to 95 – HLA-DR low resolution primers.
Well 96 – Negative Control.
The 96 well PCR plate is marked with 'A-B-DR' in silver/gray ink.
Well No. 1 is marked with the Lot No. '91M'.
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.

INTERPRETATION

Only HLA-A alleles will be amplified by the 24 wells of the HLA-A low resolution primer set, **wells 1 to 24**, except that primer mix 6 will amplify the B*18:27 allele. Thus, the interpretation of HLA-A low resolution is only influenced by this HLA-B allele and not by other HLA Class I genes.

Only HLA-B alleles will be amplified by the 48 wells of the HLA-B low resolution, primer set, **wells 25 to 72**, except that the C*02:23 and C*04:77 alleles will be

amplified by primer mix 25, the C*03:05, 03:25 and 03:27 alleles will be amplified by primer mix 27, the C*01:30 allele will be amplified by primer mix 28, the A*23:31, A*24:106 and C*16:10 alleles will be amplified by primer mix 30, the C*07:46 allele will be amplified by primer mix 32, the A*24:174 allele will be amplified by primer mix 37, the C*03:102 allele will be amplified by primer mixes 41 and 65, the C*15:51 allele will amplified by primer mix 45, the C*15:25 allele will be amplified by primer mix 53, the C*15:39 allele will be amplified by primer mix 55, the C*15:02:04 allele will amplified by primer mix 64, the C*03:12 and 03:19 alleles will be amplified by primer mix 65, the C*02:06 and 02:47 alleles will be weakly amplified by primer mix 67 and the A*26:68, A*68:56, C*06:20 and C*12:50 alleles will be amplified by primer mix 69.
Thus, the interpretation of HLA-B low resolution typings is only influenced by these alleles and not by other alleles of other HLA class I genes.

Only HLA-DRB alleles will be amplified by the 23 wells the DR low resolution primer set, **wells 73 to 95**. Thus, the interpretation of DR low resolution typings is not influenced by other HLA class II genes.

UNIQUELY IDENTIFIED ALLELES

All the HLA-A alleles, i.e. **A*01:01 to A*80:02**, recognized by the HLA Nomenclature Committee in July 2011[1] will be amplified by the primers in the HLA-A low resolution primer set, **wells 1 to 24**. The HLA-A alleles will be grouped into their corresponding serological specificities[2].
All the HLA-B alleles, **i.e. B*07:02 to B*83:01**, recognized by the HLA Nomenclature Committee in July 2011[1] will be amplified by the primers in the HLA-B low resolution primer set, **wells 25 to 72**. The HLA-B alleles will be grouped into their corresponding serological specificities[3].
All the HLA-DRB1, -DRB3, -DRB4[4] and -DRB5 alleles, i.e. **DRB1*01:01:01 to 10:03, DRB3*01:01:02:01 to DRB3*03:03, DRB4*01:01:01:01 to DRB4*01:08, DRB5*01:01:01 to DRB5*02:05**, recognized by the HLA Nomenclature Committee in July 2011[1] will be amplified by the primers in the DR low resolution primer set, **wells 73 to 95**. The HLA-DRB alleles will be grouped into their corresponding serological specificities[5].

[1]HLA-A, HLA-B and HLA-DRB alleles listed on the IMGT/HLA web page 2011-July-14, release 3.5.0, www.ebi.ac.uk/imgt/hla.
[2]The A*23:14 and the A*24:05, 24:13:02 and 24:24 alleles will give rise to identical amplification patterns. These four alleles can be separated by the respective high resolution SSP primer sets.
[3]The B*08:26, 08:50 and 08:62 and B*42:07 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
The B*14:08 and the B*39:25N, 39:30, 39:32-39:34, 39:47 and 39:50 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
The B*18:29 and the B*35:32, 35:37, 35:53N, 35:64, 35:68:01-35:68:02, 35:99, 35:118-35:119 and 35:174 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
The B*41:09 and the B*45:02 and 45:03 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

The B*54:01:02 and the B*55:01:07-55:02:06, 55:07, 55:10, 55:12, 55:16, 55:19, 55:26, 55:30, 55:35, 55:37, 55:39, 55:41-55:43, 55:47-55:48 and 55:50 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
The B*55:04, 55:08, 55:13, 55:27, 55:46 and 55:49 and the B*56:15, 56:19N and 56:22 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
The B*55:23 and 55:32 and the B*56:18 and 56:31-56:32 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
[4]The DRB4*02:01N and DRB4*03:01N null alleles will not be amplified by the DR low resolution primer set.
[5]The DRB1*08:09 and the DRB1*14:15 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
The DRB1*08:20 and the DRB1*13:18, 13:47 and 13:55 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
The DRB1*08:31, 08:41 and DRB1*11:67 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
The DRB1*13:13 and 13:119 and DRB1*14:84 and 14:116 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

SPECIFICITY TABLE

HLA-A low resolution primer set

Specificities and sizes of the PCR products of the 24 primer mixes used for HLA-A low resolution SSP typing

Primer Mix	Size of spec. PCR product[1]	Size of control band[2]	HLA-A serology[3]	Amplified HLA-A alleles[4-6]
1[7,8]	120 bp, 145bp, 225 bp	**800 bp**	A1, A36	*01:01:01:01-01:04N, 01:06-01:33, 01:35-01:101, 03:18, 11:94, 36:01-36:05
2[8]	210 bp, 255 bp, 365 bp, 415 bp	**800 bp**	A2,A19, A28, A203, A210, A3, A11, A9, A26, A30, A68	*02:01:01:01-02:01:15, 02:01:17-02:01:19, 02:01:21-02:22:02, 02:24:01-02:35:01, 02:35:03-02:47, 02:49-02:77, 02:78[w], 02:79:01-02:97:02, 02:99, 02:101:01-02:128, 02:130-02:323, 02:325-02:326, 03:01:03[w], 03:09[w], 03:23:01[w], 03:89[w], 03:108[w], 11:06[w], 11:18[w], 24:28[w], 24:89[w], 26:03:01-26:03:02[w], 26:06[w], 26:07:02[w], 26:21[w], 26:30[w], 30:13[w], 30:16[w], 30:44[w], 30:46[w], 68:05[w], 68:15[w], 68:20[w], 68:30[w]
3[9]	205 bp, 235 bp	1070 bp	A1, A3, A11, A32, A34, A36	*01:12, 01:19, 01:21, 03:01:01:01-03:17, 03:19-03:74, 03:76-03:94, 03:96-03:132, 11:25, 11:60, 24:92, 32:04, 33:49[w], 34:02:01, 34:02:02[w], 34:03-34:04, 34:07-34:09, 36:02
4	190 bp	**800 bp**	A1, A3, A11, A30, A36, A68	*01:01:01:01-01:01:22, 01:01:24-01:04N, 01:06-01:07, 01:09-01:11N, 01:13, 01:16N-01:18N, 01:20-01:29, 01:31N-01:33, 01:35-01:78, 01:80-01:98, 01:100-01:101, 02:78, 02:169, 03:12, 03:18, 03:88, 11:01:01-11:27, 11:29-11:106, 26:19, 30:08, 36:04, 68:13, 68:66
5[14]	160 bp, 535 bp	**800 bp**	A3, A9, A23, A24, A2403, A31, A32	*01:95, 03:30, 23:01:01-23:46, 24:02:01:01-24:11N, 24:13:01-24:15, 24:17-24:64, 24:66-24:88, 24:90N-24:128, 24:130-24:182, 31:08, 32:05, 32:13
6[10]	135 bp, 175 bp, 210 bp	**800 bp**	A9, A23, A24, A29, A80	*23:01:01-23:46, 24:05, 24:13:02, 24:24, 29:07, 31:29, 80:01-80:02, **B*18:27**
7	175 bp, 205 bp	1070 bp	A2, A3, A9, A23, A24, A2403, A26	*02:17:01[w]-02:17:02[w], 23:14, 24:02:01:01-24:11N, 24:13:01-24:13:02, 24:17-24:50, 24:54-24:56, 24:58-24:63, 24:66-24:91, 24:93, 24:95-24:113, 24:115-24:137, 24:139-24:182, 26:16, 33:19, 68:45
8	165 bp, 200 bp	**800 bp**	A2, A3, A10, A11, A25, A26, A28, A32, A34, A66, A68, A69	*01:51, 02:55, 03:24, 03:50, 11:10, 25:01:01-25:16, 26:01:01-26:06, 26:08-26:15, 26:17-26:18, 26:20-26:43:02, 26:45-26:63, 26:65-26:69, 29:28, 32:15, 33:51, 34:01:01-34:09, 66:01-66:16, 68:01:01:01-68:83, 69:01

9[7]	75 bp	**800 bp**	A3, A25, A32	*25:01:01-25:16, 32:01:01-32:02, 32:04, 32:06-32:36
10[7]	85 bp	1070 bp	A10, A26	*01:51, 01:83, 02:146, 26:01:01-26:02, 26:04, 26:07:01-26:18, 26:20, 26:22-26:29, 26:31-26:43:02, 26:45-26:69, 33:13, 33:48
11[7,8]	80 bp, 175 bp, 500 bp	1070 bp	A1, A9, A10, A11, A26, A31, A34, A66	*01:13, 01:28, 03:63, 03:88, 11:01:01-11:27, 11:29-11:106, 24:19, 24:44, 26:03:01-26:03:02, 26:06, 26:21, 31:03, 34:01:01-34:08, 66:01, 66:04-66:11, 66:13-66:15, 80:02
12	185 bp	**800 bp**	A3, A10, A25, A26, A31, A34, A43, A66	*02:309, 03:01:19, 11:11, 25:05-25:06, 26:09, 26:54, 31:03-31:04, 34:01:01-34:09, 43:01, 66:02-66:03, 66:16
13	175 bp, 225 bp	1070 bp	A1, A2, A3, A10, A25, A26, A34, A43, A66	*01:13, 02:34-02:35:03, 02:56:01-02:56:02, 02:62, 02:103, 02:135, 03:01:01:01-03:01:22, 03:01:24-03:07, 03:09-03:11N, 03:13-03:31, 03:33-03:35, 03:37-03:40, 03:42-03:56, 03:58, 03:60-03:71, 03:73-03:87, 03:90-03:106, 03:109-03:110, 03:112-03:132, 25:01:01-25:05, 25:07-25:16, 26:01:01-26:01:20, 26:01:22, 26:02[w], 26:03:01-26:03:02, 26:05-26:08, 26:10-26:33, 26:35-26:43:02, 26:45-26:69, 30:55, 34:08, 43:01, 66:01, 66:04-66:15, 68:71, 74:13
14[7]	100 bp, 200 bp, 240 bp	1070 bp	A2, A29	*02:237, 02:309, 03:95, 26:19, 26:22, 29:01:01:01-29:31, 31:03-31:04, 33:13, 33:48, 34:04, 66:09
15[7,8,12,13]	90 bp, 135 bp, 205 bp	1070 bp	A1, A30	*01:13, 01:28, 03:43, 03:82, 30:01:01-30:04:02, 30:06-30:20, 30:22-30:55, 31:35
16	240 bp, 370 bp, 395 bp	1070 bp	A2, A24, A31, A32	*02:237, 03:95, 29:14, 31:01:02-31:54, 32:05
17	140 bp, 180 bp	1070 bp	A32	*01:95, 03:43, 03:82, 29:13, 31:35, 32:01:01-32:03, 32:05-32:36, 74:07
18	200 bp	1070 bp	A33, A68	*02:243, 33:01:01-33:01:06, 33:03:01-33:50, 68:29
19[12]	160 bp, 200 bp	**800 bp**	A74	*29:19, 74:01-74:15
20[10]	220 bp, 245 bp	**800 bp**	A2, A210, A25, A68	*02:34-02:35:03, 02:46, 02:48, 02:56:01-02:56:02, 02:62, 02:70, 02:78, 02:103, 02:129, 25:05, 26:54, 68:01:01:01-68:83
21	240 bp, 375 bp	**800 bp**	A2, A26, A28, A68, A69	*02:55, 02:243, 24:82, 26:22, 33:22, 66:09, 68:29, 69:01
22[7,11]	85 bp, 240 bp	**800 bp**	A2, A36	*02:34-02:35:03, 02:46, 02:48, 02:56:01-02:56:02, 02:62, 02:70, 02:78, 02:103, 02:129, 36:01-36:05
23[7,10]	75 bp, 160 bp, 240 bp, 495 bp	**800 bp**	A2, A26, A28, A36, A68, A80	*02:55, 03:41, 03:63, 03:75, 03:88, 24:18, 26:03:01-26:03:02, 26:05-26:06, 26:21, 26:30, 33:24, 36:02, 68:05, 68:15, 68:20, 80:01

24[12]	360 bp	1070 bp	A10, A26, A31, A66	*02:135, 02:309, 03:01:19, 25:13, 26:30, 26:65, 31:04, 34:09, 66:02-66:03, 66:12, 66:16

[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 HLA-A low resolution SSP typings.
When the primers in a primer mix can give rise to specific PCR products of more than one length this is indicated if the size difference is 20 base pairs or more. Size differences shorter than 20 base pairs are not given. For high resolution SSP kits the respective lengths of the specific PCR product(s) of the alleles amplified by these primer mixes are given.
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 two different control primer pairs give rise to either an internal positive control band of 1070 base pairs, for most wells, or a band of 800 base pairs, for some wells.
Well number 1 contains the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to help in the correct orientation of the HLA-A low resolution typing.
In addition, wells 2, 4, 5, 6, 8, 9, 12 and 19 to 23 contain the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to allow kit identification.
In the presence of a specific amplification the intensity of the control band often decreases.
[3]The serological reactivity of all HLA-A 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.
[4]For several HLA-A alleles only partial 1st exon nucleotide sequences are available. We assume that unknown sequences are conserved within allelic groups.
Nucleotide sequence information is available for only exons 2 and 3 of many HLA Class I alleles and for only exon 2 of many HLA Class II alleles and not for other exons or for the introns of these alleles. We assume that unknown sequences in these exons and in the introns are conserved within loci and within allelic groups.
[5]The A*23:14, 24:05, 24:13:02 and 24:24 alleles will give rise to identical amplification patterns. These four alleles can be separated by the respective high resolution SSP primer sets.
[6]Primer mix 6 will amplify the B*18:27 allele.
[7]Specific PCR fragments shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR bands.
[8]The primer pairs in wells 1, 2, 11 and 15 will in many samples give rise to two or three HLA-specific PCR fragments.
[9]Primer mix 3 may faintly amplify the A*30:04, 30:06, 30:17 and 30:29 alleles.
[10]Primer mixes 6, 20 and 23 may have a tendency of primer dimer formation.
[11]Primer mix 22 might faintly amplify most A*11 alleles.
[12]Primer mixes 15 and 24 may yield less specific PCR product than the other HLA-A low primer mixes.
[13]Primer mix 15 may have tendencies of unspecific amplifications.
[14]In primer mix 5, the specific PCR product of 535 base pairs may be difficult to distinguish from the internal control band. The alleles giving rise to a product of this size are the following:
A*01:95, 23:09, 24:02:06, 24:02:27, 24:08, 24:24, 24:29 , 24:42, 24:67, 24:116, 24:137, 24:140, 24:145, 24:156, 24:171 and 32:13.
'w', might be weakly amplified.

SPECIFICITY TABLE

HLA-B low resolution primer set

Specificities and sizes of the PCR products of the 48 primer mixes used for HLA-B low resolution SSP typing

Primer Mix	Size of spec. PCR product[1]	Size of control band[2]	HLA-B serol.[3]	Amplified HLA-B alleles[4,5]
25[6,10]	110 bp	**800 bp**	7, 703, 40, 41, 42, 48, 61	*07:02:01-07:18:02, 07:20-07:32, 07:34-07:39, 07:41-07:47, 07:49N-07:50, 07:52, 07:54-07:59, 07:61-07:99, 07:101-07:121, 07:123-07:138, 15:138, 15:230, 37:07, 40:15-40:16, 40:23, 40:32, 40:98, 40:136, 40:158, 41:08, 42:05:01-42:05:02, 48:05, 48:08, 48:15, **C*02:23, C*04:77**
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71	350 bp	1070 bp	Bw6	
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[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 HLA-B low resolution SSP typings.
When the primers in a primer mix can give rise to specific PCR products of more than one length this is indicated if the size difference is 20 base pairs or more. Size differences shorter than 20 base pairs are not given. For high resolution SSP kits the respective lengths of the specific PCR product(s) of the alleles amplified by these primer mixes are given.
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 two different control primer pairs give rise to either an internal positive control band of 1070 base pairs, for most wells, or a band of 800 base pairs, for some wells.
Well number 25 contains the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to help in the correct orientation of the HLA-B low resolution typing.
In addition, wells number 28 to 30, 34, 41, 44, 45, 54, 59, 66 and 72 contain the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to allow kit identification.
In the presence of a specific amplification the intensity of the control band often decreases.
[3]The serological reactivity of all HLA-B 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.
[4]Nucleotide sequence information is available for only exons 2 and 3 of many HLA Class I alleles and for only exon 2 of many HLA Class II alleles and not for other exons or for the introns of these alleles. We assume that unknown sequences in these exons and in the introns are conserved within loci and within allelic groups.
The B*08:26, 08:50 and 08:62 and B*42:07 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
The B*14:08 and the B*39:25N, 39:30, 39:32-39:34, 39:47 and 39:50 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
The B*18:29 and the B*35:32, 35:37, 35:53N, 35:64, 35:68:01-35:68:02, 35:99, 35:118-35:119 and 35:174 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
The B*41:09 and the B*45:02 and 45:03 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
The B*54:01:02 and the B*55:01:07-55:02:06, 55:07, 55:10, 55:12, 55:16, 55:19, 55:26, 55:30, 55:35, 55:37, 55:39, 55:41-55:43, 55:47-55:48 and 55:50 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
The B*55:04, 55:08, 55:13, 55:27, 55:46 and 55:49 and the B*56:15, 56:19N and 56:22 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
The B*55:23 and 55:32 and the B*56:18 and 56:31-56:32 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
[5]The C*02:23 and C*04:77 alleles will be amplified by primer mix 25, the C*03:05, 03:25 and 03:27 alleles will be amplified by primer mix 27, the C*01:30 allele will be amplified by primer mix 28, the A*23:31, A*24:106 and C*16:10 alleles will be amplified by primer mix 30, the C*07:46 allele will be amplified by primer mix 32, the A*24:174 allele will be amplified by primer mix 37, the C*03:102 allele will be amplified by primer mixes 41 and 65, the C*15:51 allele will amplified by primer mix 45, the C*15:25 allele will be amplified by primer mix 53, the C*15:39 allele will be amplified by primer mix 55, the C*15:02:04 allele will amplified by primer mix 64, the C*03:12 and 03:19 alleles will be amplified by primer mix 65, the C*02:06 and 02:47 alleles will be weakly amplified by primer mix 67 and the A*26:68, A*68:56, C*06:20 and C*12:50 alleles will be amplified by primer mix 69.
[6]Specific PCR fragments shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR bands.
[7]Primer mix 28 may yield less specific PCR product than the other HLA-B low resolution primer mixes in B*40, B*41, B*45, B*49 and B*50 alleles.
[8]Primer mixes 28, 29, 33 and 63 give a lower yield of specific PCR product than the other HLA-B low resolution primer mixes.
[9]Primer mix 33 has pronounced tendencies of giving rise to nonspecific amplifications.
[10]Primer mixes 25, 43 and 44 may give rise to a primer oligomer artifact.
[11]The B*57 and B*58 alleles might be faintly amplified by primer mix 33.
[12]The C*17:01 to C*17:04 alleles might be faintly amplified by primer mix 49.
[13]Primer mixes 56 and 67 may generate a false positive band of about 800 base pairs. This band should be disregarded when interpreting HLA-B low resolution typings.
[14]The Bw4-associated HLA-A specificities A9, A23, A24, A2403, A25 and A32 are not amplified by the primer pair in primer mix 70.
'w', might be weakly amplified.
'?', nucleotide sequence information not available for the primer matching sequence.

SPECIFICITY TABLE

Specificities and sizes of the PCR products of the 24 primer mixes used for DR low resolution SSP typing

Primer Mix	Size of spec. PCR product[1]	Size of control band[2]	DR serology[3]	Amplified HLA-DRB alleles[4]
73[6,8]	205 bp, 255 bp	**515 bp**	1	*01:01:01-01:02:05, 01:04-01:37
74	200 bp	430 bp	103	*01:03
75[6]	200 bp, 215 bp	430 bp	2, 15	*15:01:01:01-15:58
76	210 bp	430 bp	16	*16:01:01-16:05:02, 16:07-16:18
77[5,6,7]	120 bp, 220 bp	430 bp	3, 17, 18, 11	*03:01:01:01-03:65, 11:07, 11:53, 11:103, 11:105, 11:107, 15:25
78[5,6,7]	80 bp, 210 bp	430 bp	3, 6, 17, 11, 13, 14	*03:01:01:01-03:01:14, 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, 03:54-03:65, 08:40, 11:02:01-11:03, 11:11:01-11:11:02, 11:14:01-11:14:02, 11:16, 11:20-11:21, 11:36, 11:40-11:41, 11:48, 11:59, 11:63, 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, 13:01:01-13:04, 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, 14:16, 14:19, 14:21, 14:82, 14:95, 14:109
79[5,6]	85 bp, 210 bp	430 bp	3, 6, 11, 13, 14, 1403, 18	*03:02:01-03:03, 03:27, 03:29, 03:38, 03:53, 11:13:01^{w}-11:13:02^{w}, 11:26, 11:34, 13:15, 13:19, 13:26, 13:44, 13:53, 13:57, 13:85-13:86, 13:104, 14:02-14:03:02, 14:06:01-14:06:02, 14:09, 14:12:01-14:13, 14:17-14:21, 14:24, 14:27, 14:29-14:30, 14:32:01^{w}-14:32:02^{w}, 14:33, 14:40-14:41, 14:47-14:49, 14:51, 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
80[5,6]	100 bp, 175 bp	430 bp	3, 4	*04:01:01-04:102
81[6]	210 bp, 235 bp	430 bp	7, 13, 14	*07:01:01:01-07:01:04, 07:03-07:21, 12:22, 13:17, 13:116, 14:50
82[6]	170 bp, 215 bp, 250 bp	**515 bp**	8, 12, 14	*08:01:01-08:19, 08:21-08:48, 11:67, 12:04, 12:16, 12:22, 14:11, 14:15, 14:68, 14:93

83[5,6]	90 bp, 135 bp, 180 bp	430 bp	3, 9, 11	*03:08, 03:65, 09:01:02-09:16, 11:07, 11:53, 11:103, 11:105, 11:107
84	205 bp	430 bp	10	*10:01:01-10:03
85[5,6]	100 bp, 170 bp	430 bp	3, 8, 11, 14	*03:08, 03:65, 08:31, 08:41, 11:01:01-11:70, 11:72-11:113
86[5,6]	85 bp, 105 bp	430 bp	12	*08:32, 12:01:01-12:34
87[8]	215 bp	430 bp	6, 8, 11, 13, 14, 1403	*08:20-08:21, 11:01:01-11:04:08, 11:06:01-11:06:02, 11:08:01-11:12:02, 11:14:01-11:16, 11:18-11:21, 11:23-11:25, 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, 11:106, 11:108-11:113, 13:01:01-13:08, 13:10-13:16, 13:18-13:43, 13:45-13:85, 13:87-13:115, 13:117-13:119, 14:03:01-14:03:02, 14:12:01-14:12:02, 14:16, 14:19, 14:21-14:22, 14:25, 14:27, 14:40, 14:53, 14:63, 14:67, 14:69, 14:74, 14:77-14:78, 14:84-14:85, 14:98, 14:102, 14:105, 14:109, 14:115-14:116, **DRB3*02:27**
88[6,8]	195 bp, 225 bp	430 bp	6, 8, 11, 12, 13, 14	*08:01:01-08:02:04, 08:04:01-08:09, 08:11, 08:16-08:17, 08:20-08:22, 08:24, 08:26, 08:28, 08:31, 08:39, 08:41-08:44, 11:01:01-11:06:02, 11:09-11:12:02, 11:14:01-11:16, 11:20-11:21, 11:23-11:25, 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, 11:65:01-11:70, 11:72, 11:74:01-11:78, 11:80-11:88, 11:90-11:97, 11:99-11:102, 11:106, 11:108-11:113, 12:02:01-12:02:05, 12:13, 12:15-12:16, 12:18-12:21, 12:23, 12:26-12:27, 12:31N-12:33, 13:01:01-13:02:01, 13:02:03-13:02:05, 13:04-13:05:02, 13:07:01-13:09, 13:11:01-13:11:02, 13:14:01-13:24, 13:26-13:29, 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, 14:15-14:16, 14:22, 14:24-14:25, 14:27, 14:37, 14:53, 14:73, 14:105
89[7]	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, 03:43-03:45, 03:47-03:63, 08:20, 13:01:01-13:16, 13:18-13:42, 13:44, 13:46-13:66:02, 13:68-13:102, 13:104-13:115, 13:117-13:119, 14:02-14:03:02, 14:05:01-14:06:02, 14:09, 14:12:01-14:14, 14:17-14:21, 14:23:01, 14:23:03-14:24, 14:27, 14:29-14:30, 14:33, 14:36-14:37, 14:40-14:45,

				14:47-14:48, 14:51, 14:56, 14:59, 14:63-14:65, 14:67, 14:77-14:78, 14:80-14:81, 14:83-14:85, 14:89, 14:91, 14:94-14:96, 14:98, 14:100, 14:102-14:103, 14:106, 14:108-14:109, 14:115-14:116
90[5,6]	100 bp, 140 bp, 155 bp	430 bp	4, 6, 8,13, 14, 1404	*04:62, 04:69, 04:73, 08:08, 11:69, 11:82, 13:45, 14:01:01-14:01:02, 14:04, 14:07:01-14:07:02, 14:10, 14:16, 14:22, 14:25-14:26, 14:28, 14:31-14:32:02, 14:35, 14:37-14:39, 14:49-14:50, 14:53-14:55, 14:57-14:58, 14:60-14:62, 14:68-14:71, 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, **DRB4*01:03:01:02N**
91[5,6, 9]	110 bp, 135 bp, 170 bp	430 bp	3, 4, 6, 9, 11, 13,14,1404	*03:10, 09:01:02-09:01:05, 09:01:07-09:02:02, 09:04-09:16, 11:13:01-11:13:02, 11:17, 11:52, 13:43, 14:01:01-14:02, 14:04-14:11, 14:13-14:14, 14:16-14:18, 14:19[w], 14:20, 14:21[w], 14:22-14:23:03, 14:26, 14:28-14:36, 14:38-14:39, 14:41, 14:43-14:52, 14:54-14:57, 14:59-14:62, 14:64-14:65, 14:68, 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, 15:27, 15:34
92[5,6,8,10]	110 bp, 175 bp, 225 bp	430 bp	2, 3, 4, 6, 8, 11,13, 14, 1403, 1404, 16	*03:10, 08:09, 08:20-08:21, 08:32, 08:35, 11:13:01-11:13:02, 11:17, 11:23, 11:25, 11:31, 11:45, 11:52, 11:55, 11:64, 11:89, 11:96, 13:13, 13:18, 13:43, 13:45, 13:47, 13:55, 13:119, 14:01:01-14:01:03, 14:03:01-14:05:03, 14:07:01-14:08, 14:10-14:12:02, 14:14-14:16, 14:18, 14:22-14:23:03, 14:25-14:28, 14:31-14:32:02, 14:34-14:36, 14:38-14:40, 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, 14:110-14:117, 15:21[w], 16:04[w], 16:18[w]
93[6,7]	160 bp, 240 bp	430 bp	52	**DRB3*01:01:02:01-01:15, DRB3*02:01-02:28, DRB3*03:01:01-03:03**
94[10]	215 bp	430 bp	53	**DRB4*01:01:01:01-01:08**
95	175 bp	430 bp	51	**DRB5*01:01:01-01:14, DRB5*02:02-02:05**
96[11]	-	-		**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 specific PCR products of more than one length this is indicated if the size difference is 20 base pairs or more. Size differences shorter than 20 base pairs are not given. For high resolution SSP kits the respective lengths of the specific PCR product(s) of the alleles amplified by these primer mixes are given.
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, e.g. the primers in

wells 75 and 90 to 92.
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 two different control primer pairs give rise to either an internal positive control band of 430 base pairs, for most wells, or a band of 515 base pairs, for some wells.
Well number 73 contains the primer pair giving rise to the longer, 515 bp, internal positive control band in order to help in the correct orientation of the DR low resolution typing.
In addition, well number 82 contains the primer pair giving rise to the longer, 515 bp, internal positive control band in order to allow kit identification.
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.
[4]For several DRB alleles only partial second exon nucleotide sequences are available. In these instances it is not known whether some of the primers of the SSP set are completely matched with the target sequences or not. We assume that unknown sequences in the first hyperpolymorphic region of the second exon of DRB alleles are conserved within allelic groups and that unknown sequences of codons 87 to 92 are identical with the DRB1*0101 consensus sequence.
The DRB1*08:09 and the DRB1*14:15 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
The DRB1*08:20 and the DRB1*13:18, 13:47 and 13:55 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
The DRB1*08:31, 08:41 and DRB1*11:67 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
The DRB1*13:13 and 13:119 and DRB1*14:84 and 14:116 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
[5]Specific PCR fragments shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR bands.
[6]Individual alleles can give to rise to two differently sized specific PCR fragments in primer mixes 73, 75, 77 to 83, 85, 86, 88 and 90 to 93.
[7]Due to sharing of sequence motifs in codon 38, DRB3*01:14 will also be amplified in primer mixes 77, 78 and 89 in addition to primer mix 93.
[8]Primer mix 73, 87, 88 and 92 may give rise a primer oligomer formation.
[9]Primer mix 91 has a tendency of primer oligomer formation and also has an intense primer cloud due to the high number of primers present in the primer mix.
[10]The DRB4*01:03:01:02N allele is amplified by the primer pair in well No. 94, whereas the DRB4*02:01N and DRB4*03:01N null alleles are not amplified by this primer pair.
[11]Primer mix 96 contains a negative control, which will amplify more than 95% of HLA amplicons as well as the amplicons generated by control primer pairs. PCR product sizes range from 75 to 200 base pairs. The PCR product generated by the control primer pair is 430 base pairs.
'w', might be weakly amplified.

INTERPRETATION TABLE

HLA-A low resolution SSP typing

Amplification patterns of the A*01:01 to A*80:02 alleles

	Well[6]																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Length of spec.	120	210	205	190	160	135	175	165	75	85	80	125	175	100	90	240	140	200	160	220	240	85	75	360
PCR product(s)	145	255	235		535	175	205	200			175	185	225	200	135	370	180		200	245	375	240	160	
	225	365				210					500			240	205	395							240	
		415																					495	
Length of int.	800	800	1070	800	800	800	1070	800	800	1070	1070	800	1070	1070	1070	1070	1070	1070	800	800	800	800	800	1070
pos. control[1]																								
5'-primer(s)[2]	98	48	363	98	144	176	98	98	266	257	301	103	98	98	203	41	180	98	180	78	28	78	176	341
	5'-CTT 3'	5'-gCT 3'	5'-ATA 3'	5'-CTA 3'	5'-gCC 3'	5'-gCA 3'	5'-CTC 3'	5'-CTA 3'	5'-ACg 3'	5'-Cgg 3'	5'-Cgg 3'	5'-CCT 3'	5'-CTT 3'	5'-CAC 3'	5'-gAA 3'	5'-CTT 3'	5'-TTT 3'	5'-CAC 3'	5'-TTT 3'	5'-TCT 3'	5'-TCg 3'	5'-TCT 3'	5'-gCA 3'	5'-ggC 3'
	103	78		413	317	368	368	102	266	259	302	423	423	238	362	355	203			106	261	527	261	
	5'-CCT 3'	5'-TCT 3'		5'-CCg 3'	5'-gCT 3'	5'-gTT 3'	5'-gTT 3'	5'-ACA 3'	5'-ACg 3'	5'-CgA 3'	5'-ggA 3'	5'-gCT 3'	5'-gCT 3'	5'-AgA 3'	5'-ggT 3'	5'-CCg 3'	5'-gAA 3'		5'-TTT 3'	5'-CCA 3'	5'-AAC 3'	5'-TgC 3'	5'-AAC 3'		
	123	106						413	266	261	385			355	363		418			2nd			341	
	5'-AgT 3'	5'-CCA 3'						5'-CCg 3'	5'-Agg 3'	5'-AAC 3'	5'-ggC 3'			5'-CCg 3'	5'-ATA 3'		5'-AgC 3'			5'-CCT 3'			5'-ggA 3'	
	363														363								355	
	5'-ATA 3'														5'-ATA 3'								5'-CCC 3'	
															369									
															5'-TAC 3'									
3'-primer(s)[3]	203	240	527	256	265	270	259	259	302	299	341	257	282	257	299	238	290	256	299	265	97	265	292	418
	5'-TCT 3'	5'-ggA 3'	5'-CCA 3'	5'-CTg 3'	5'-CCC 3'	5'-ACA 3'	5'-gTT 3'	5'-gTT 3'	5'-ggC 3'	5'-TCg 3'	5'-CgT 3'	5'-gCA 3'	5'-gAC 3'	5'-gCA 3'	5'-CCA 3'	5'-CCT 3'	5'-CAA 3'	5'-CCC 3'	5'-CCA 3'	5'-CCC 3'	5'-ggT 3'	5'-CCC 3'	5'-gTg 3'	5'-gTC 3'
	545	292	527	559	570	502	502	259			521	506	282	299	411	243	317	256	299	282	355	282	292	
	5'-AgA 3'	5'-gTg 3'	5'-CCT 3'	5'-CCg 3'	5'-CCg 3'	5'-CTg 3'	5'-CTT 3'	5'-gTT 3'			5'-ggg 3'	5'-TgT 3'	5'-gAC 3'	5'-TCg 3'	5'-TCA 3'	5'-TCA 3'	5'-ggA 3'	5'-CTC 3'	5'-CCA 3'	5'-gAC 3'	5'-gAC 3'	5'-gAC 3'	5'-gTT 3'	
			555			538	539	538				559	559	418	526	265	555	259	341	282		282	299	
			5'-gCA 3'			5'-CAg 3'	5'-TCT 3'	5'-CCA 3'				5'-CTC 3'	5'-CCg 3'	5'-gTC 3'	5'-CCA 3'	5'-CCC 3'	5'-CCA 3'	5'-gTT 3'	5'-CgT 3'	5'-gAC 3'		5'-gAC 3'	5'-TCT 3'	
			555									559		555		555				502		570	555	
			5'-CCA 3'									5'-CgT 3'		5'-CCA 3'		5'-CCA 3'				5'-CTT 3'		5'-CAC 3'	5'-CCA 3'	
																				506				
																				5'-TgT 3'				
Well No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

Well No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HLA-A allele[4]	ser[5]																								
*01:01:01:01-01:01:22, 01:01:24-01:04N, 01:06-01:07, 01:09-01:11N, 01:16N-01:18N, 01:20, 01:22N-01:27N, 01:29, 01:31N-01:33, 01:35-01:50, 01:52N-01:78, 01:80-01:82, 01:84-01:94, 01:96-01:98, 01:100-01:101	A1, Null, –	1			4																				
*01:01:23, 01:08, 01:14-01:15N, 01:30, 01:79, 01:99	A1, Null, –	1																							
*01:12, 01:19	A1, –	1		3																					
*01:13	A1	1			4							11		13		15									
*01:21	A1	1		3	4																				
*01:28	–	1			4							11				15									
*01:51	–	1			4				8		10														
*01:83	–	1			4						10														
*01:95	–	1			4	5												17							
*02:01:01:01-02:01:15, 02:01:17-02:01:19, 02:01:21-02:16, 02:18-02:22:02, 02:24:01-02:33, 02:36-02:45, 02:47, 02:49-02:54, 02:57-02:61, 02:63-02:69, 02:71-02:77, 02:79:01-02:97:02, 02:99, 02:101:01-02:102, 02:104-02:128, 02:130-02:134, 02:136-02:145, 02:147-02:168, 02:170-02:236, 02:238-02:242, 02:244-02:308, 02:310-02:323, 02:325-02:326	A2, A19, Low A2, A203, A210, Null, –		2																						
*02:17:01-02:17:02	A2		2					w																	
*02:34-02:35:01, 02:35:03, 02:56:01-02:56:02, 02:62, 02:103	A2		2											13							20		22		
*02:35:02	A2													13							20		22		
*02:46, 02:70	A2		2																		20		22		
*02:48, 02:129	A2, –																				20		22		
*02:55	A2, A28		2						8													21		23	
*02:78	–		w		4																20		22		
*02:135	–		2											13											24
*02:146	–		2								10														
*02:169	–		2		4																				
*02:237	–		2												14		16								
*02:243	–		2																18			21			
*02:309	–		2										12		14										24
Well No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

Well No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HLA-A allele[4]	ser[5]																								
*03:01:01:01-03:01:02, 03:01:04-03:01:18, 03:01:20-03:01:22, 03:01:24-03:07, 03:10-03:11N, 03:13-03:17, 03:19-03:22:02, 03:23:02, 03:25-03:29, 03:31, 03:33-03:35, 03:37-03:40, 03:42, 03:44-03:49, 03:51-03:56, 03:58, 03:60-03:62, 03:64-03:71, 03:73-03:74, 03:76-03:81, 03:83-03:87, 03:90-03:94, 03:96-03:106, 03:109-03:110, 03:112-03:132	A3, Null, –			3										13											
*03:01:03, 03:09, 03:23:01	A3, –		w	3										13											
*03:01:19	–			3									12	13											24
*03:01:23, 03:08, 03:32, 03:36N, 03:57, 03:59, 03:72, 03:107, 03:111	A3, Null, –			3																					
*03:12	A3			3	4																				
*03:18	–	1			4									13											
*03:24, 03:50	A3, –			3					8					13											
*03:30	A3			3		5								13											
*03:41	–			3																				23	
*03:43, 03:82	–			3										13		15		17							
*03:63	–			3								11		13										23	
*03:75	–													13										23	
*03:88	–			3	4							11												23	
*03:89, 03:108	–		w	3																					
*03:95	–													13	14		16								
*11:01:01-11:05, 11:07-11:09, 11:12-11:17, 11:19-11:24:02, 11:26-11:27, 11:29-11:59, 11:61-11:93, 11:95-11:106	A11, Null, –				4							11													
*11:06, 11:18	A11, –		w		4							11													
*11:10	A11				4				8			11													
*11:11	–				4							11	12												
*11:25, 11:60	A11, –			3	4							11													
*11:94	–	1			4							11													
*23:01:01-23:13, 23:15-23:46	A23, Null, –					5	6																		
*23:14, 24:05, 24:13:02, 24:24[7]	A23, A9, A24					5	6	7																	
*24:02:01:01-24:04, 24:06-24:11N, 24:13:01, 24:17, 24:20-24:23, 24:25-24:43, 24:45N-24:50, 24:54-24:56, 24:58-24:63, 24:66-24:81, 24:83N-24:88, 24:90N-24:91, 24:93, 24:95-24:113, 24:115-24:128, 24:130-24:137, 24:139-24:182	A24, A9, Low A24, A2403, Null, –					5		7																	
Well No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

Well No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HLA-A allele[4]	ser[5]																								
*24:14-24:15, 24:51-24:53, 24:57, 24:64, 24:94, 24:114, 24:138	A24, –					5																			
*24:18	A24, A3					5		7																23	
*24:19, 24:44	A9					5		7				11													
*24:28	A9		w			5		7																	
*24:82	–					5		7														21			
*24:89	–		w					7																	
*24:92	–			3		5																			
*24:129	–							7																	
*25:01:01-25:04, 25:07-25:12N, 25:14-25:16	A25, Null, –								8	9				13											
*25:05	A25								8	9			12	13							20				
*25:06	A25								8	9			12												
*25:13	–								8	9				13											24
*26:01:01-26:01:20, 26:01:22, 26:08, 26:10-26:15, 26:17-26:18, 26:20, 26:23-26:29, 26:31-26:33, 26:35-26:43:02, 26:45-26:53, 26:55-26:63, 26:66-26:69	A26, A10, Null, –								8		10			13											
*26:01:21, 26:04, 26:34	A26, –								8		10														
*26:02	A26								8		10			w											
*26:03:01-26:03:02, 26:06, 26:21	A26, –		w						8			11		13										23	
*26:05	A26								8					13										23	
*26:07:01, 26:64	A26, –										10			13											
*26:07:02	A26		w								10			13											
*26:09	A26								8		10		12												
*26:16	A26							7			10			13											
*26:19	–				4									13	14										
*26:22	A26								8		10			13	14							21			
*26:30	A26		w						8					13										23	24
*26:54	–								8		10		12	13							20				
*26:65	–								8		10			13											24
*29:01:01:01-29:06, 29:08N-29:12, 29:15-29:18, 29:20-29:27, 29:29-29:31	A29, Null, –														14										
*29:07	A29						6								14										
*29:13	–														14			17							
*29:14	–														14		16								
*29:19	–														14					19					
*29:28	–								8						14										
*30:01:01-30:04:02, 30:06-30:07, 30:09-30:12, 30:14-30:15, 30:17-30:20, 30:22-30:43, 30:45, 30:47-30:54	A30, Null, –															15									
*30:13, 30:16, 30:44, 30:46	A30, –		w													15									
*30:08	A30				4											15									
*30:55	–													13		15									
*31:01:02-31:02, 31:05-31:07, 31:09-31:28, 31:30-31:34, 31:36-31:54	A31, Null, –																16								
Well No.		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**

Well No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
HLA-A allele[4]	ser[5]																								
*31:03	A31											11	12		14		16								
*31:04	A31												12		14		16								24
*31:08	A31, A24					5											16								
*31:29	–						6										16								
*31:35	–															15	16	17							
*32:01:01-32:02, 32:06-32:12, 32:14, 32:16-32:36	A32, Null, –									9								17							
*32:03	A32																	17							
*32:04	A32, A3			3						9															
*32:05	A32					5											16	17							
*32:13	A32					5				9								17							
*32:15	A32								8	9								17							
*33:01:01-33:01:06, 33:03:01-33:12, 33:14-33:18, 33:20-33:21, 33:23, 33:25-33:47, 33:50	A33, –																		18						
*33:13, 33:48	–										10				14				18						
*33:19	–							7											18						
*33:22	–																		18			21			
*33:24	–																		18					23	
*33:49	–			w															18						
*33:51	–								8																
*34:01:01-34:01:02, 34:05-34:06	A34, A10								8			11	12												
*34:02:01, 34:03, 34:07	A34			3					8			11	12												
*34:02:02	–			w					8			11	12												
*34:04	A34			3					8			11	12		14										
*34:08	A34			3					8			11	12	13											
*34:09	–			3					8				12												24
*36:01, 36:03, 36:05	A36, –	1																					22		
*36:02	A36	1		3																			22	23	
*36:04	A36	1			4																		22		
*43:01	A43												12	13											
*66:01, 66:04-66:08, 66:10-66:11, 66:13-66:15	A66, A26, –								8			11		13											
*66:02-66:03, 66:16	A66, A10, –								8				12												24
*66:09	–								8			11		13	14							21			
*66:12	–								8					13											24
*68:01:01:01-68:04, 68:06-68:12, 68:14, 68:16-68:19, 68:21:01-68:28, 68:31-68:44, 68:46-68:65, 68:67-68:70, 68:72-68:83	A68, A28, Null, –								8												20				
*68:05, 68:15, 68:20	A68		w						8												20			23	
*68:13, 68:66	A68				4				8												20				
*68:29	A68								8										18		20	21			
*68:30	A68		w						8												20				
*68:45	–							7	8												20				
*68:71	–								8					13							20				
Well No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

Well No.		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
HLA-A allele[4]	**ser[5]**																								
***69:01**	**A69**								**8**													**21**			
***74:01-74:06, 74:08-74:12N, 74:14N-74:15**	**A74, Null, –**																			**19**					
***74:07**	**A74**																	**17**		**19**					
***74:13**	**–**													**13**						**19**					
***80:01**	**A80**						**6**																	**23**	
***80:02**	**–**						**6**					**11**													
B*18:27							**6**																		
Well No.		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**

[1]The internal positive control primer pairs amplify segments of the human growth hormone gene. The two different control primer pairs give rise to either an internal positive control band of 1070 base pairs, for most wells, or a band of 800 base pairs, for some wells.
Well number 1 contains the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to help in the correct orientation of the HLA-A low resolution SSP typing.
In addition, wells number 2, 4, 5, 6, 8, 9, 12 and 19 to 23 contain the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to allow kit identification.
[2]The nucleotide position, in the 1st, 2nd or 3rd exon, 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, in the 2nd or 3rd exon, 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.
[4]The sequence of the A*0105N has been shown to be identical to A*01:04N.
The A*01:34N allele has been renamed A*01:01:38L.
The A*020116 allele has been renamed to A*02:134.
The A*020120 allele has been shown to be identical to A*02:01:18.
The sequence of the A*0223 allele has been shown to be identical to A*02:22:01.
The sequence of the A*0298 allele has been shown to be identical to A*02:96.
The A*02:100 allele has never been assigned.
The A*1128 allele has been renamed to A*11:15:02.
The sequence of the A*2401 allele has been shown to be in error.
The sequence of the A*2412 allele has been shown to be identical to A*24:08.
The A*2416 allele has been renamed to A*31:08.
The A*2465 allele has been renamed to A*24:13:02.
The A*26:44 allele has been renamed to A*26:43:02.
The sequence of the A*3005 allele has been shown to be identical to A*30:04.
The A*3021 allele has been renamed to A*30:11:02.
The sequence of the A*31011 allele has been shown to be identical to A*31:01:02.
The sequence of the A*3302 allele has been shown to be identical to A*33:03:01.
[5]The serological reactivity of all HLA-A 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.
[6]The primer pairs in wells 1, 2, 11 and 15 will in many samples give rise to two or three HLA-specific PCR fragments.
[7]The A*23:14 and the A*24:05, 24:13:02 and 24:24 alleles will give rise to identical amplification patterns. These four alleles can be separated by the respective high resolution SSP primer sets.
'w', may be weakly amplified.

INTERPRETATION TABLE

HLA-B low resolution SSP

Amplification patterns of the B*07:02 to B*83:01 alleles

	Well																							
	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Length of spec.	110	215	140	130	185	190	290	165	165	180	105	280	195	105	115	80	150	135	60	210	170	110	395	160
PCR product(s)			235	265	235			220	190		195			395	150				245					425
								330	390					435					400					
Length of int. pos. control[1]	800	1070	1070	800	800	800	1070	1070	1070	800	1070	1070	1070	1070	1070	1070	800	1070	1070	800	800	1070	1070	1070
5'-primer(s)[2]	527	97	209	103	103	103	45	45	45	420	206	419	142	45	161	167	355	206	45	142	409	246	44	44
	5'-TgA 3'	5'-TCg 3'	5'-ggC 3'	5'-CCg 3'	5'-CCT 3'	5'-CCg 3'	5'-ggA 3'	5'-ggA 3'	5'-ggA 3'	5'-TTA 3'	5'-AgA 3'	5'-gTC 3'	5'-TCT 3'	5'-ggA 3'	5'-Cgg 3'	5'-gCT 3'	5'-TCA 3'	5'-gAC 3'	5'-ggA 3'	5'-TCT 3'	5'-ggC 3'	5'-gAA 3'	5'-ggC 3'	5'-ggC 3'
	540		363	103	103	418		357	435		420		419	540					368	368	420			357
	5'-gAC 3'		5'-AgC 3'	5'-CCg 3'	5'-CCT 3'	5'-Agg 3'		5'-Tgg 3'	5'-AAA 3'		5'-TTA 3'		5'-gTC 3'	5'-gAC 3'					5'-gTT 3'	5'-gTC 3'	5'-TTA 3'			5'-Tgg 3'
			363	361	363			412											557					
			5'-AgC 3'	5'-AgT 3'	5'-AAT 3'			5'-ATA 3'											5'-ggA 3'					
3'-primer(s)[3]	605	272	309	193	246	246	165	206	266	559	272	3rd	301	272	234	204	463	302	259	311	544	317	272	302
	5'-gCT 3'	5'-Tgg 3'	5'-gTg 3'	5'-CgT 3'	5'-TAT 3'	5'-TAT 3'	5'-Tgg 3'	5'-CCT 3'	5'-TCC 3'	5'-CTC 3'	5'-Tgg 3'	5'-TAT 3'	5'-gTC 3'	5'-TgC 3'	5'-TCT 3'	5'-TCT 3'	5'-gCT 3'	5'-ggC 3'	5'-gTT 3'	5'-ggg 3'	5'-ggT 3'	5'-ggA 3'	5'-TgC 3'	5'-ggC 3'
		272	559	193	246	572		538	559		572		301	309	272				259	311				302
		5'-TgA 3'	5'-CAg 3'	5'-CgT 3'	5'-TAT 3'	5'-gCC 3'		5'-gTC 3'	5'-CAg 3'		5'-gCg 3'		5'-gTC 3'	5'-ATC 3'	5'-TgA 3'				5'-gTT 3'	5'-ggg 3'				5'-ggT 3'
				583	559				583				570	605	272				266	538				477
				5'-gTg 3'	5'-CTC 3'				5'-gTg 3'				5'-CCg 3'	5'-gCT 3'	5'-Tgg 3'				5'-TCC 3'	5'-gTC 3'				5'-gCg 3'
													572						272					
													5'-gCg 3'						5'-Tgg 3'					
																			292					
																			5'-gTA 3'					
																			572					
																			5'-gCg 3'					
Well No.	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48

INTERPRETATION TABLE

HLA-B low resolution SSP

Amplification patterns of the B*07:02 to B*83:01 alleles

Well																								
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	
180	290	105	325	115	215	130	90	90	145	120	430	145	300	160	180	180	90	90	95	115	360	350	285	Length of spec.
				195		270	410	175	430	210				330	210		240			150				PCR product(s)
				225																				
				260																				
1070	1070	1070	1070	1070	800	1070	1070	1070	1070	800	1070	1070	1070	1070	1070	1070	800	1070	1070	1070	1070	1070	800	Length of int. pos. control[1]
355	72	540	1st l	355	141	209	41	209	48	357	49	206	1st l	15	141	420	209	209	206	165	1st l	1st l	355	5'-primer(s)[2]
5'-TCA 3'	5'-gCT 3'	5'-gAC 3'	5'-CAg 3'	5'-TCA 3'	5'-ATT 3'	5'-ggC 3'	5'-CTg 3'	5'-ggC 3'	5'-gCC 3'	5'-Tgg 3'	5'-CAg 3'	5'-gAA 3'	5'-CAg 3'	5'-gCA 3'	5'-ATT 3'	5'-TTA 3'	5'-ggC 3'	5'-ggA 3'	5'-gAC 3'	5'-ACC 3'	5'-CAg 3'	5'-CAg 3'	5'-TCA 3'	
363				418	357	209	368	363	206					418	420		209	369		463			363	
5'-Agg 3'				5'-Agg 3'	5'-Tgg 3'	5'-ggg 3'	5'-gTT 3'	5'-AgC 3'	5'-gAA 3'					5'-Agg 3'	5'-TTA 3'		5'-ggA 3'	5'-TAC 3'		5'-TgA 3'			5'-AgC 3'	
				499		355								362										
				5'-TCT 3'		5'-TCA 3'								5'-ggT 3'										
499	193	603	282	538	309	299	282	259	309	435	309	311	259	175	311	559	256	256	259	272	317	311	603	3'-primer(s)[3]
5'-ggA 3'	5'-CgT 3'	5'-gTg 3'	5'-gCC 3'	5'-gTC 3'	5'-ATC 3'	5'-TCA 3'	5'-gCC 3'	5'-gTT 3'	5'-ATC 3'	5'-TCT 3'	5'-ATC 3'	5'-ggT 3'	5'-CTC 3'	5'-CCg 3'	5'-ggT 3'	5'-CAg 3'	5'-CCC 3'	5'-CCC 3'	5'-gTT 3'	5'-TgC 3'	5'-ggA 3'	5'-ggT 3'	5'-gTg 3'	
	193	605		572	538	583	418	499		527			259	538	559		259	256		538			605	
	5'-TgT 3'	5'-gCT 3'		5'-gCg 3'	5'-gTC 3'	5'-gTg 3'	5'-gTC 3'	5'-ggA 3'		5'-CCT 3'			5'-CTC 3'	5'-gTC 3'	5'-CgT 3'		5'-CTT 3'	5'-CTC 3'		5'-CCA 3'			5'-gCT 3'	
													262				559	420						
													5'-TgC 3'				5'-CgT 3'	5'-gCT 3'						
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	Well No.

Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
HLA-B allele[4]	**ser.[5]**																								
*07:02:01-07:02:28, 07:05:01-07:06, 07:10, 07:12-07:15, 07:18:01-07:18:02, 07:21-07:23, 07:26, 07:29-07:31, 07:34-07:35, 07:39, 07:41-07:46, 07:49N, 07:52, 07:55-07:59, 07:61-07:64, 07:66-07:68:03, 07:70-07:72, 07:74-07:76, 07:79-07:80, 07:82-07:83, 07:86-07:99, 07:101-07:121, 07:124-07:130, 07:132, 07:135N-07:138	B7, B42, Null, –	25																							48
*07:03, 07:08, 07:16, 07:32, 07:37	B7, B703, –	25																							48
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*07:07, 07:77	B7, –	25																							48
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*55:21	B55																								
*55:22	B22										34														
*55:23, 55:32, 56:18, 56:31-56:32[12]	B55, –												36												
*55:34	–																								
*55:40	–																								
Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48

49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.
																								ser.[5]	HLA-B allele[4]
											60								68		70			B53, –	*53:01:01-53:01:05, 53:05, 53:08:01-53:08:02, 53:10, 53:16, 53:18, 53:20-53:21, 53:23-53:26
						55					60								68		70			B53	*53:02
																			68		70			B35, B53	*53:03, 53:09, 53:11-53:13
											60								68		70			B53, –	*53:04, 53:07, 53:19
					54	55					60								68		70			B51, B53	*53:06
											60								68		70			–	*53:14
											60								68		70		72	–	*53:15
											60		62								70			–	*53:17:01-53:17:02
				53							60								68		70			–	*53:22
			52				56							63	64							71		B54, Null, –	*54:01:01, 54:02, 54:05N, 54:07-54:08N, 54:10, 54:13, 54:16-54:19, 54:21-54:24
			52				56								64							71		B54, B55, –,	*54:01:02, 55:01:07-55:02:06, 55:07, 55:10, 55:12, 55:16, 55:19, 55:26, 55:30, 55:35, 55:37, 55:39, 55:41-55:43, 55:47-55:48, 55:50[10]
			52				56							63		65						71		B22	*54:03
			52				56							63								71		B54, –	*54:04, 54:15
			52				56							63						69		71		–	*54:06
			52				56							63								71		–	*54:09, 54:14
			52				56							63								71		B54	*54:11
			52				56		58					63	64						70			–	*54:12
			52				56			59				63	64							71		–	*54:20
			52				56			59					64							71		B55, –	*55:01:01-55:01:06, 55:03, 55:05, 55:11, 55:15, 55:25, 55:29, 55:31, 55:33, 55:36, 55:38, 55:44-55:45, 55:52-55:53
			52				56															71		B55, B56, Null, –	*55:04, 55:08, 55:13, 55:27, 55:46, 55:49, 56:15, 56:19N, 56:22[11]
			52				56			59												71		B22, B55	*55:09, 55:24
			52				56										66					71		–	*55:14
			52				56			59												71		B55, –	*55:17, 55:28
													62		64							71		–	*55:18
		51	52		54		56															71		B22	*55:20
			52				56			w					64					69		71		B55	*55:21
			52				56															71		B22	*55:22
			52				56															71		B55, –	*55:23, 55:32, 56:18, 56:31-56:32[12]
			52				56						62		64							71		–	*55:34
			52				56			59			62		64							71		–	*55:40
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.

Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
HLA-B allele[4]	**ser.**[5]																								
*55:51	–			27																					
*56:01:01-56:01:04, 56:08, 56:14, 56:16, 56:20:01, 56:24, 56:26-56:30	B56, Null, –																								
*56:02, 56:04	B56																								
*56:03	B22, 15												36												
*56:05:01	B56									33															
*56:05:02	B56									33															
*56:06	B78									33									42						
*56:07	B56																								
*56:09	B56												36					41							
*56:10	B55																								
*56:11-56:12	B22, B56																	41							
*56:13	B56								32																
*56:17	B56																								
*56:20:02	–																								48
*56:21	–									33															
*56:23	–																								
*56:25	–																								
*57:01:01-57:01:04, 57:01:06-57:01:11, 57:06, 57:08, 57:10, 57:15-57:16, 57:18-57:20, 57:22-57:23, 57:25-57:27, 57:29-57:30, 57:33-57:38, 57:40-57:41, 57:43-57:44, 57:48-57:50, 57:52	B57, –												36					41							
*57:01:05, 57:11, 57:13, 57:21, 57:31, 57:47	B57, –												36												
*57:02:01-57:03:02, 57:05, 57:17, 57:28N, 57:32, 57:39, 57:42, 57:46	B57, Null, –																	41							
*57:04	B57						30											41							
*57:07	B57																	41							
*57:09	B57								32									41							
*57:12	B57																	41							
*57:14	–												36					41							
*57:24	–												36					41							
*57:45, 57:51	–				28								36					41							
*58:01:01-58:01:02, 58:01:04-58:01:09, 58:04-58:05, 58:10N-58:15, 58:19, 58:21-58:24, 58:29-58:33	B58, Null, –												36					41							
*58:01:03, 58:02, 58:06, 58:16, 58:25-58:26	B58, –												36												
*58:07	B58												36	37											
Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48

49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.
																								ser.[5]	HLA-B allele[4]
			52				56															71		–	*55:51
			52				56									65						71		B56, Null, –	*56:01:01-56:01:04, 56:08, 56:14, 56:16, 56:20:01, 56:24, 56:26-56:30
			52				56									65		67				71		B56	*56:02, 56:04
			52				56													69		71		B22, 15	*56:03
			52				56			59					64							71		B56	*56:05:01
			52				56			59												71		B56	*56:05:02
			52				56			59					64				w			71		B78	*56:06
			52				56									65					70			B56	*56:07
			52				56															71		B56	*56:09
			52				56								64			67				71		B55	*56:10
			52				56															71		B22, B56	*56:11-56:12
			52		54		56									65						71		B56	*56:13
																65						71		B56	*56:17
			52				56									65						71		–	*56:20:02
			52				56		58	59											70			–	*56:21
															64							71		–	*56:23
			52				56			59						65						71		–	*56:25
											60						66				70			B57, –	*57:01:01-57:01:04, 57:01:06-57:01:11, 57:06, 57:08, 57:10, 57:15-57:16, 57:18-57:20, 57:22-57:23, 57:25-57:27, 57:29-57:30, 57:33-57:38, 57:40-57:41, 57:43-57:44, 57:48-57:50, 57:52
											60						66				70			B57, –	*57:01:05, 57:11, 57:13, 57:21, 57:31, 57:47
											60						66				70			B57, Null, –	*57:02:01-57:03:02, 57:05, 57:17, 57:28N, 57:32, 57:39, 57:42, 57:46
											60						66				70			B57	*57:04
				53							60						66				70			B57	*57:07
				53							60						66				70			B57	*57:09
																	66					71		B57	*57:12
						55					60						66				70			–	*57:14
				53							60						66				70			–	*57:24
									58		60										70			–	*57:45, 57:51
											60							67			70			B58, Null, –	*58:01:01-58:01:02, 58:01:04-58:01:09, 58:04-58:05, 58:10N-58:15, 58:19, 58:21-58:24, 58:29-58:33
											60							67			70			B58, –	*58:01:03, 58:02, 58:06, 58:16, 58:25-58:26
											60							67			70			B58	*58:07
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.

Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
HLA-B allele[4]	ser.[5]																								
*58:08:01	B17, B5									33															
*58:08:02	–									33															
*58:09	B17												36					41							
*58:17N	Null												36					41							
*58:18	–			27									36												
*58:20	–																					45			
*58:27	–																								
*58:28, 58:34	–																	41							
*59:01:01:01-59:01:01:02, 59:05	B59, –																								
*59:02-59:03	B59, –																								
*59:04	–																								
*67:01:01, 67:03	B67, –					29																45			48
*67:01:02-67:02	B67, –																					45			48
*73:01-73:02	B73, –																								48
*78:01:01-78:01:02, 78:02:02-78:03, 78:07	B78, –									33									42						
*78:02:01, 78:04	B35, B78									33									42						
*78:05	–									33									42						
*78:06	–									33															
*81:01	B81																								
*81:02	B81																								48
*81:03-81:05	Null, –																								
*82:01-82:03	B82, –								32			35								43					
*83:01	–																	41							
*A*23:31, A*24:106, C*16:10*							30																		
*A*24:174*														37											
*A*26:68, A*68:56, C*06:20, C*12:50*																									
*C*01:30*					28																				
*C*02:06, C*02:47*																									
*C*02:23, C*04:77*		25																							
*C*03:05, C*03:25, C*03:27*				27																					
*C*03:12, C*03:19*																									
*C*03:102*																		41							
*C*07:46*									32																
*C*15:02:04*																									
*C*15:25*																									
*C*15:39*																									
*C*15:51*																						45			
Well No.		25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48

49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.
																								ser.[5]	HLA-B allele[4]
					54					59	60							67			70			B17, B5	*58:08:01
										59	60							67			70			–	*58:08:02
						55					60							67			70			B17	*58:09
																		67			70			Null	*58:17N
											60							67			70			–	*58:18
											60							67			70			–	*58:20
											60							67			70			–	*58:27
											60							67			70			–	*58:28, 58:34
									58						64						70			B59, –	*59:01:01:01-59:01:01:02, 59:05
									58												70			B59, –	*59:02-59:03
									58							65					70			–	*59:04
			52																			71		B67, –	*67:01:01, 67:03
			52																			71		B67, –	*67:01:02-67:02
			52																	69		71		B73, –	*73:01-73:02
										59					64				68			71		B78, –	*78:01:01-78:01:02, 78:02:02-78:03, 78:07
										59									68			71		B35, B78	*78:02:01, 78:04
										59			62									71		–	*78:05
										59			62									71		–	*78:06
			52				56	57														71	72	B81	*81:01
			52					57														71	72	B81	*81:02
			52					57														71	72	Null, –	*81:03-81:05
			52				56									65						71		B82, –	*82:01-82:03
			52	53			56							63								71		–	*83:01
																									*A*23:31, A*24:106, C*16:10*
																									*A*24:174*
																				69					*A*26:68, A*68:56, C*06:20, C*12:50*
																									*C*01:30*
																		w							*C*02:06, C*02:47*
																									*C*02:23, C*04:77*
																									*C*03:05, C*03:25, C*03:27*
																65									*C*03:12, C*03:19*
																65									*C*03:102*
																									*C*07:46*
															64										*C*15:02:04*
				53																					*C*15:25*
						55																			*C*15:39*
																									*C*15:51*
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		Well No.

[1]The internal positive control primer pairs amplify segments of the human growth hormone gene. The two different control primer pairs give rise to either an internal positive control band of 1070 base pairs, for most wells, or a band of 800 base pairs, for some wells.
Well number 25 contains the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to help in the correct orientation of the HLA-B low resolution typing.
In addition, wells number 28 to 30, 34, 41, 44, 45, 54, 59, 66 and 72 contain the primer pair giving rise to the shorter, 800 bp, internal positive control band in order to allow kit identification.
[2]The nucleotide position, in the 1st, 2nd or 3rd exon or in the 1st intron, 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, in the 2nd, or 3rd exon or the 1st or 3rd introns, 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.
[4]The sequence of the B*0701 allele has been shown to be in error.
The sequence of the B*08:06 allele has been shown to be identical to B*08:20.
The sequence of the B*1305 allele has been shown to be identical to B*13:04.
The B*1324 allele has been renamed B*13:22:02
The B*150105 allele has been corrected and renamed B*15:120
The B*1522 allele has been renamed B*35:43.
The sequence of the B*1541 allele has been shown to be identical to B*15:39.
The B*1559 allele has been renamed B*35:44.
The B*15:100 allele has never been assigned.
The sequence of the B*1816 allele has been shown to be identical to B*18:14.
The sequence of the B*27051 allele has been shown to be identical to B*27:05:02.
The sequence of the B*2722 allele has been shown to be identical to the corrected B*27:06 sequence.
The B*3573 allele has been renamed B*35:08:03.
The B*35:43:02 allele has been renamed B*35:185.
The sequence of the B*39012 allele has been shown to be identical to B*39:01:01:01.
The sequence of the B*3921 allele has been shown to be identical to B*39:24.
The sequence of the B*4017 allele has been shown to be identical to B*40:16.
The sequence of the B*4041 allele has been shown to be identical to B*40:40.
The sequence of the B*4203 allele has never been assigned.
The sequence of the B*4401 allele has been shown to be identical to B*44:02:01:01.
The sequence of the B*5003 allele has been shown to be identical to B*50:02.
The sequence of the B*5125 allele has been shown to be identical to B*51:22.
The B*5147 allele has been renamed B*51:09:02.
The sequence of the B*5506 allele has been shown to be identical to B*55:04.
The sequence of the B*5803 allele has never been assigned.
The B*7901 allele has been renamed B*15:18:01.
The B*9530 allele has been renamed B*15:27:02.
[5]The serological reactivity of all HLA-B 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.
[6]The B*08:26, 08:50 and 08:62 and B*42:07 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
[7]The B*14:08 and the B*39:25N, 39:30, 39:32-39:34, 39:47 and 39:50 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
[8]The B*18:29 and the B*35:32, 35:37, 35:53N, 35:64, 35:68:01-35:68:02, 35:99, 35:118-35:119 and 35:174 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
[9]The B*41:09 and the B*45:02 and 45:03 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.

[10]The B*54:01:02 and the B*55:01:07-55:02:06, 55:07, 55:10, 55:12, 55:16, 55:19, 55:26, 55:30, 55:35, 55:37, 55:39, 55:41-55:43, 55:47-55:48 and 55:50 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
[11]The B*55:04, 55:08, 55:13, 55:27, 55:46 and 55:49 and the B*56:15, 56:19N and 56:22 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
[12]The B*55:23 and 55:32 and the B*56:18 and 56:31-56:32 alleles give rise to identical amplification patterns with the HLA-B low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
'ser', serological HLA specificity.
'w', might be weakly amplified.
'?', nucleotide sequence information not available for the primer matching sequence.

INTERPRETATION TABLE

DR low resolution SSP typing

Amplification patterns of the DRB1*01:01 to DRB1*10:03 alleles

		Well[6]											
		73	74	75	76	77	78	79	80	81	82	83	84
Length of spec.		205	200	200	210	120	80	85	100	210	170	90	205
PCR product(s)		255		215		220	210	210	175	235	215	135	
											250	180	
Length of int.		515	430	430	430	430	430	430	430	430	515	430	430
pos. control[1]													
5'-primer(s)[2]		13 (124) 5' -A.T 3'	14 (129) 5' -gAA 3'	13 (126) 5' -Agg 3'	13 (126) 5' -Agg 3'	13 (125) 5' -gTC 3'	13 (125) 5' -gTC 3'	13 (125) 5' -gTC 3'	13 (125) 5' -ACA 3'	14 (127) 5' -ATA 3'	16 (133) 5' -gTT 3'	26 (165) 5' -TAT 3'	31 (178) 5' -gCg 3'
		14 (129) 5' -gAA 3'		13 (126) 5' -AAg 3'	13 (126) 5' -AAg 3'	47 (227) 5' -gTT 3'	16 (133) 5' -gTT 3'		13 (125) 5' -ACC 3'	14 (127) 5' -ATA 3'	16 (133) 5' -gTT 3'	58 (261) 5' -gAg 3'	
									13 (125) 5' -ATA 3'	16 (133) 5' -gTT 3'			
									13 (125) 5' -gTC 3'				
3'-primer(s)[3]		67 (286) 5' -gAg 3'	67 (286) 5' -gAT 3'	67 (286) 5' -gAT 3'	67 (286) 5' -gAA 3'	73 (305) 5' -ggC 3'	26 (164) 5' -ggT 3'	28 (171) 5' -CTC 3'	33 (184) 5' -gTg 3'	71 (298) 5' -CTC 3'	58 (260) 5' -CCT 3'	57 (257) 5' -CgA 3'	86 (344) 5' -CAC 3'
		67 (286) 5' -gAg 3'		70 (295) 5' -CTg 3'	67 (286) 5' -gAg 3'	73 (305) 5' -ggC 3'	71 (299) 5' -gCT 3'	70 (295) 5' -CTg 3'	58 (260) 5' -Cgg 3'	73 (305) 5' -ggC 3'	74 (307) 5' -CAg 3'	73 (305) 5' -ggC 3'	86 (344) 5' -CCA 3'
		67 (286) 5' -gAT 3'		70 (295) 5' -.Tg 3'	70 (297) 5' -CTg 3'	74 (308) 5' -CCC 3'				77 (317) 5' -AAT 3'	86 (344) 5' -CAC 3'	78 (319) 5' -CAC 3'	
		71 (299) 5' -gCg 3'		71 (298) 5' -CgC 3'	72 (301) 5' -ggC 3'					78 (319) 5' -CAC 3'			
		86 (344) 5' -CCA 3'		71 (299) 5' -gCT 3'									
				73 (305) 5' -ggC 3'									
Well No.	**DR**	**73**	**74**	**75**	**76**	**77**	**78**	**79**	**80**	**81**	**82**	**83**	**84**
DRB1 allele[4]	**ser[5]**												
***01:01:01-01:02:05, 01:04-01:37**	**DR1, Null, –**	**73**											
***01:03**	**DR103, DR1**		**74**										
***03:01:01:01-03:01:14, 03:04:01-03:06, 03:09, 03:11:01-03:16, 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, 03:43-03:45, 03:47-03:48, 03:50-03:52, 03:54-03:63**	**DR3, DR17, –**					**77**	**78**						
***03:02:01-03:03, 03:27, 03:29, 03:38, 03:53**	**DR3, DR18, –**					**77**		**79**					
Well No.	**DR**	**73**	**74**	**75**	**76**	**77**	**78**	**79**	**80**	**81**	**82**	**83**	**84**

INTERPRETATION TABLE

DR low resolution SSP typing

Amplification patterns of the DRB1*01:01 to DRB1*10:03 alleles

Well[6]													
85	86	87	88	89	90	91	92	93	94	95	96		
100	85	215	195	175	100	110	110	160	215	175	Negative control		Length of spec.
170	105		225		140	135	175	240					PCR product(s)
					155	170	225						
430	430	430	430	430	430	430	430	430	430	430			Length of int. pos. control[1]
13 (125) 5' -gTC 3'	16 (133) 5' -gTT 3'	10 (116) 5' -gCT 3'	10 (116) 5' -gCT 3'	13 (125) 5' -gTC 3'	1st I 5' -CAA 3'	26 (164) 5' -gTA 3'	13 (125) 5' -gTC 3'	10 (116) 5' -gCT 3'	28 (170) 5' -gAT 3'	13 (125) 5' -gTA 3'			5'-primer(s)[2]
16 (133) 5' -gTC 3'		12 (122) 5' -TAT 3'	12 (122) 5' -TAT 3'		37 (197) 5' -gTT 3'	34 (189) 5' -CAg 3'	34 (189) 5' -CAg 3'	10 (116) 5' -gCT 3'					
38 (200) 5' -CgT 3'		13(125) 5' -gTC 3'	13 (125) 5' -gTC 3'		37 (197) 5' -gTA 3'			38 (199) 5' -TCC 3'					
			16 (133) 5' -gTT 3'										
			16 (133) 5' -gTC 3'										
58 (260) 5' -CCT 3'	30 (175) 5' -gTg 3'	70 (295) 5' -gTC 3'	67 (286) 5' -gAA 3'	58 (260) 5' -Cgg 3'	42 (213) 5' -TCA 3'	57 (257) 5' -CAg 3'	57 (257) 5' -CAg 3'	51 (239) 5' -CCC 3'	87 (346) 5' -CTC 3'	57 (258) 5' -gCg 3'			3'-primer(s)[3]
58 (260) 5' -CCT 3'	38 (199) 5' -CAg 3'	71 (299) 5' -gCT 3'	71 (298) 5' -CgC 3'	58 (260) 5' -CAg 3'	57 (257) 5' -CAg 3'	70 (295) 5' -CTg 3'	60 (265) 5' -gTg 3'	77 (317) 5' -AAT 3'	87 (346) 5' -CTT 3'	58 (260) 5' -CCT 3'			
58 (260) 5' -CCT 3'			71 (298) 5' -CTC 3'		71 (298) 5' -CgC 3'	70 (296) 5' -TCC 3'	70 (296) 5' -TCC 3'						
							74 (307) 5' -CAg 3'						
85	86	87	88	89	90	91	92	93	94	95	96	DR ser[5]	Well No. DRB1 allele[4]
											Negative control	DR1, Null, –	*01:01:01-01:02:05, 01:04-01:37
												DR103, DR1	*01:03
				89								DR3, DR17, –	*03:01:01:01-03:01:14, 03:04:01-03:06, 03:09, 03:11:01-03:16, 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, 03:43-03:45, 03:47-03:48, 03:50-03:52, 03:54-03:63
				89								DR3, DR18, –	*03:02:01-03:03, 03:27, 03:29, 03:38, 03:53
85	86	87	88	89	90	91	92	93	94	95	96	DR	Well No.

Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84
DRB1 allele[4]	ser[5]												
*03:07, 03:17, 03:21, 03:24, 03:32, 03:35, 03:39-03:41, 03:49	DR3, –					77							
*03:08, 03:65	DR3, –					77	78					83	
*03:10	DR3					77	78						
*03:42	–					77							
*03:46, 03:64	–					77	78						
*04:01:01-04:61, 04:63-04:68, 04:70-04:72:02, 04:74-04:102	DR3, DR4, Null, –								80				
*04:62, 04:69, 04:73	DR4, –								80				
*07:01:01:01-07:01:04, 07:03-07:21	DR7, Null, –									81			
*08:01:01-08:02:04, 08:04:01-08:07, 08:11, 08:16-08:17, 08:22, 08:24, 08:26, 08:28, 08:39, 08:42-08:44	DR8, –										82		
*08:03:02, 08:10, 08:12-08:15, 08:18-08:19, 08:23, 08:25, 08:27, 08:29-08:30:03, 08:33-08:34, 08:36-08:38, 08:45-08:48	DR8, –										82		
*08:08	DR8										82		
*08:09, 14:15[7]	DR8										82		
*08:20, 13:18, 13:47, 13:55[8]	DR13, –												
*08:21	DR8										82		
*08:31, 08:41, 11:67[9]	DR8, DR11, –										82		
*08:32	–										82		
*08:35	–										82		
*08:40	–						78				82		
*09:01:02-09:01:05, 09:01:07-09:02:02, 09:04-09:16	DR9, –											83	
*09:01:06, 09:03	DR9											83	
*10:01:01-10:03	DR10, –												84
Well No.	**DR**	**73**	**74**	**75**	**76**	**77**	**78**	**79**	**80**	**81**	**82**	**83**	**84**

85	86	87	88	89	90	91	92	93	94	95	96	DR	Well No.
												ser[5]	DRB1 allele[4]
				89								DR3, –	*03:07, 03:17, 03:21, 03:24, 03:32, 03:35, 03:39-03:41, 03:49
85												DR3, –	*03:08, 03:65
						91	92					DR3	*03:10
												–	*03:42
												–	*03:46, 03:64
												DR3, DR4, Null, –	*04:01:01-04:61, 04:63-04:68, 04:70-04:72:02, 04:74-04:102
					90							DR4, –	*04:62, 04:69, 04:73
												DR7, Null, –	*07:01:01:01-07:01:04, 07:03-07:21
			88									DR8, –	*08:01:01-08:02:04, 08:04:01-08:07, 08:11, 08:16-08:17, 08:22, 08:24, 08:26, 08:28, 08:39, 08:42-08:44
												DR8, –	*08:03:02, 08:10, 08:12-08:15, 08:18-08:19, 08:23, 08:25, 08:27, 08:29-08:30:03, 08:33-08:34, 08:36-08:38, 08:45-08:48
			88		90							DR8	*08:08
			88				92					DR8	*08:09, 14:15[7]
		87	88	89			92					DR13, –	*08:20, 13:18, 13:47, 13:55[8]
		87	88				92					DR8	*08:21
85			88									DR8, DR11, –	*08:31, 08:41, 11:67[9]
	86						92					–	*08:32
							92					–	*08:35
												–	*08:40
						91						DR9, –	*09:01:02-09:01:05, 09:01:07-09:02:02, 09:04-09:16
												DR9	*09:01:06, 09:03
												DR10, –	*10:01:01-10:03
85	86	87	88	89	90	91	92	93	94	95	96	DR	Well No.

Negative control

Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84
DRB1 allele[4]	ser[5]												
*11:01:01-11:01:15, 11:04:01-11:04:08, 11:06:01-11:06:02, 11:09-11:10:02, 11:12:01-11:12:02, 11:15, 11:24, 11:27:01-11:30, 11:32-11:33, 11:35, 11:37-11:39, 11:43-11:44, 11:46:01-11:47, 11:49:01-11:51, 11:54:01-11:54:02, 11:56, 11:58:01-11:58:02, 11:60-11:62, 11:66, 11:72, 11:74:01-11:75, 11:77-11:78, 11:81, 11:84, 11:88, 11:90-11:92, 11:94-11:95, 11:97, 11:99-11:102, 11:106, 11:108-11:113	DR11, –												
*11:02:01-11:03, 11:11:01-11:11:02, 11:14:01-11:14:02, 11:16, 11:20-11:21, 11:36, 11:40-11:41, 11:48, 11:59, 11:63, 11:65:01-11:65:02, 11:68, 11:70, 11:76, 11:80, 11:83, 11:85-11:87, 11:93	DR11, DR13, –						78						
*11:05	DR11												
*11:07, 11:53, 11:103, 11:105, 11:107	DR11, –					77						83	
*11:08:01-11:08:02, 11:18-11:19:03, 11:42, 11:57	DR11, –												
*11:13:01-11:13:02	DR11							W					
*11:17, 11:52	DR11, DR14												
*11:22, 11:98, 11:104	–												
*11:23, 11:25, 11:96	DR11, –												
*11:26, 11:34	DR11							79					
*11:31, 11:45, 11:64	DR11, –												
*11:55	DR11												
*11:69, 11:82	–												
*11:73, 11:79	–						78						
*11:89	–												
*12:01:01-12:01:04, 12:03:02, 12:05-12:12, 12:14, 12:17, 12:24N-12:25, 12:28-12:30, 12:34	DR12, Null, –												
*12:02:01-12:02:05, 12:13, 12:15, 12:18-12:21, 12:23, 12:26-12:27, 12:31N-12:33	DR12, Null, –												
*12:04	DR12										82		
*12:16	–										82		
*12:22	–									81	82		
Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84

85	86	87	88	89	90	91	92	93	94	95	96	DR	Well No.
												ser[5]	DRB1 allele[4]
85		87	88								Negative control	DR11, –	*11:01:01-11:01:15, 11:04:01-11:04:08, 11:06:01-11:06:02, 11:09-11:10:02, 11:12:01-11:12:02, 11:15, 11:24, 11:27:01-11:30, 11:32-11:33, 11:35, 11:37-11:39, 11:43-11:44, 11:46:01-11:47, 11:49:01-11:51, 11:54:01-11:54:02, 11:56, 11:58:01-11:58:02, 11:60-11:62, 11:66, 11:72, 11:74:01-11:75, 11:77-11:78, 11:81, 11:84, 11:88, 11:90-11:92, 11:94-11:95, 11:97, 11:99-11:102, 11:106, 11:108-11:113
85		87	88									DR11, DR13, –	*11:02:01-11:03, 11:11:01-11:11:02, 11:14:01-11:14:02, 11:16, 11:20-11:21, 11:36, 11:40-11:41, 11:48, 11:59, 11:63, 11:65:01-11:65:02, 11:68, 11:70, 11:76, 11:80, 11:83, 11:85-11:87, 11:93
85			88									DR11	*11:05
85												DR11, –	*11:07, 11:53, 11:103, 11:105, 11:107
85		87										DR11, –	*11:08:01-11:08:02, 11:18-11:19:03, 11:42, 11:57
85						91	92					DR11	*11:13:01-11:13:02
85						91	92					DR11, DR14	*11:17, 11:52
85												–	*11:22, 11:98, 11:104
85		87	88				92					DR11, –	*11:23, 11:25, 11:96
85												DR11	*11:26, 11:34
85		87					92					DR11, –	*11:31, 11:45, 11:64
85			88				92					DR11	*11:55
85			88		90							–	*11:69, 11:82
85		87										–	*11:73, 11:79
85							92					–	*11:89
	86											DR12, Null, –	*12:01:01-12:01:04, 12:03:02, 12:05-12:12, 12:14, 12:17, 12:24N-12:25, 12:28-12:30, 12:34
	86		88									DR12, Null, –	*12:02:01-12:02:05, 12:13, 12:15, 12:18-12:21, 12:23, 12:26-12:27, 12:31N-12:33
	86											DR12	*12:04
	86		88									–	*12:16
	86											–	*12:22
85	86	87	88	89	90	91	92	93	94	95	96	DR	Well No.

Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84
DRB1 allele[4]	ser[5]												
*13:01:01-13:02:01, 13:02:03-13:02:05, 13:04, 13:08, 13:16, 13:20, 13:22-13:24, 13:27-13:29, 13:31-13:32, 13:34-13:36, 13:38-13:41, 13:48, 13:51-13:52, 13:54, 13:59, 13:61:01-13:61:02, 13:63-13:65, 13:68-13:76, 13:78-13:80, 13:83-13:84, 13:87, 13:91-13:93, 13:96:01-13:99, 13:102, 13:105-13:107, 13:109, 13:111-13:114, 13:117	DR11, DR13, DR14, Null, –						78						
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*13:05:01-13:05:02, 13:07:01-13:07:02, 13:11:01-13:11:02, 13:14:01-13:14:03, 13:21:01-13:21:02, 13:42, 13:46, 13:49-13:50:02, 13:62, 13:100, 13:108	DR11, DR13, DR6, –												
*13:06, 13:12:01-13:12:02, 13:25, 13:30, 13:56, 13:58, 13:60, 13:77, 13:82, 13:110, 13:118	DR11, DR13 , DR6, –												
*13:09	DR13												
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*13:15, 13:19, 13:53, 13:57, 13:104	DR13, –						78	79					
*13:17, 13:116	DR13, –						78			81			
*13:26	DR14							79					
*13:43	DR13						78						
*13:44, 13:86	–							79					
*13:45	DR13						78						
*13:67, 13:103	DR13, –												
*13:85	–						78	79					
Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84

85	86	87	88	89	90	91	92	93	94	95	96	DR	Well No.
												ser[5]	DRB1 allele[4]
		87	88	89							Negative control	DR11, DR13, DR14, Null, –	*13:01:01-13:02:01, 13:02:03-13:02:05, 13:04, 13:08, 13:16, 13:20, 13:22-13:24, 13:27-13:29, 13:31-13:32, 13:34-13:36, 13:38-13:41, 13:48, 13:51-13:52, 13:54, 13:59, 13:61:01-13:61:02, 13:63-13:65, 13:68-13:76, 13:78-13:80, 13:83-13:84, 13:87, 13:91-13:93, 13:96:01-13:99, 13:102, 13:105-13:107, 13:109, 13:111-13:114, 13:117
		87		89								DR13, –	*13:02:02, 13:03:01-13:03:06, 13:10, 13:33:01-13:33:03, 13:37, 13:66:01-13:66:02, 13:81, 13:88-13:90, 13:94-13:95, 13:101, 13:115
		87	88	89								DR11, DR13, DR6, –	*13:05:01-13:05:02, 13:07:01-13:07:02, 13:11:01-13:11:02, 13:14:01-13:14:03, 13:21:01-13:21:02, 13:42, 13:46, 13:49-13:50:02, 13:62, 13:100, 13:108
		87		89								DR11, DR13 , DR6, –	*13:06, 13:12:01-13:12:02, 13:25, 13:30, 13:56, 13:58, 13:60, 13:77, 13:82, 13:110, 13:118
			88	89								DR13	*13:09
		87		89			92					DR13, –	*13:13, 13:119, 14:84, 14:116[10]
		87	88	89								DR13, –	*13:15, 13:19, 13:53, 13:57, 13:104
			88									DR13, –	*13:17, 13:116
		87	88	89								DR14	*13:26
		87	88			91	92					DR13	*13:43
				89								–	*13:44, 13:86
		87	88		90		92					DR13	*13:45
		87	88									DR13, –	*13:67, 13:103
		87		89								–	*13:85
85	86	87	88	89	90	91	92	93	94	95	96	DR	Well No.

Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84
DRB1 allele[4]	ser[5]												
*14:01:01-14:01:02, 14:04, 14:07:01-14:07:02, 14:10, 14:26, 14:28, 14:31, 14:35, 14:38-14:39, 14:54-14:55, 14:57, 14:60-14:62, 14:70-14:71, 14:75-14:76, 14:79, 14:86-14:88, 14:90, 14:99, 14:101, 14:104, 14:107, 14:110-14:114, 14:117	DR14, DR1404, DR4, DR6, –												
*14:01:03, 14:08, 14:23:02, 14:34, 14:72, 14:92N, 14:97	DR14, Null, –												
*14:02, 14:06:01-14:06:02, 14:09, 14:13, 14:17, 14:20, 14:29-14:30, 14:33, 14:41, 14:47-14:48, 14:51, 14:80, 14:83, 14:94, 14:106, 14:108	DR14, DR6, –							79					
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*14:16	DR6						78						
*14:18, 14:81	DR14, –							79					
*14:19, 14:21, 14:109	DR14, –						78	79					
*14:22, 14:105	DR14, –												
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*14:27	DR14							79					
*14:32:01-14:32:02	DR14							w					
*14:37	DR14												
*14:42	–												
*14:46, 14:52	DR14												
*14:49	DR14							79					
*14:50	DR14									81			
*14:58	DR14												
*14:65	DR6							w					
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*14:69	–												
*14:73	–												
*14:74	–												
*14:82	–						78						
*14:89	–							79					
Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84

85	86	87	88	89	90	91	92	93	94	95	96	DR	Well No.
												ser[5]	DRB1 allele[4]
					90	91	92				Negative control	DR14, DR1404, DR4, DR6, –	*14:01:01-14:01:02, 14:04, 14:07:01-14:07:02, 14:10, 14:26, 14:28, 14:31, 14:35, 14:38-14:39, 14:54-14:55, 14:57, 14:60-14:62, 14:70-14:71, 14:75-14:76, 14:79, 14:86-14:88, 14:90, 14:99, 14:101, 14:104, 14:107, 14:110-14:114, 14:117
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		87		89			92					DR14, DR1403, DR6, –	*14:03:01-14:03:02, 14:12:01-14:12:02, 14:40, 14:63, 14:67, 14:77-14:78, 14:85, 14:102, 14:115
				89		91	92					DR14, –	*14:05:01-14:05:03, 14:14, 14:23:01, 14:23:03, 14:36, 14:43-14:45, 14:56, 14:59, 14:64, 14:91, 14:96, 14:100, 14:103
						91	92					DR14	*14:11
		87	88		90	91	92					DR6	*14:16
				89		91	92					DR14, –	*14:18, 14:81
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		87	88		90	91	92					DR14, –	*14:22, 14:105
			88	89								DR14	*14:24
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					90	91	92					DR14	*14:32:01-14:32:02
			88	89	90							DR14	*14:37
				89			92					–	*14:42
						91						DR14	*14:46, 14:52
					90	91	92					DR14	*14:49
					90	91	92					DR14	*14:50
					90		92					DR14	*14:58
				89		91	92					DR6	*14:65
					90	91	92					DR14, –	*14:68, 14:93
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			88		90	91	92					–	*14:73
		87			90	91	92					–	*14:74
					90	91	92					–	*14:82
				89			92					–	*14:89
85	86	87	88	89	90	91	92	93	94	95	96	DR	Well No.

Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84
DRB1 allele[4]	ser[5]												
*14:95	–						78						
*14:98	–							79					
*15:01:01:01-15:20, 15:22-15:24, 15:26, 15:28-15:33, 15:35-15:58	DR15, DR2, Null, –			75									
*15:21	DR2			75									
*15:25	–			75		77							
*15:27, 15:34	–			75									
*16:01:01-16:03, 16:05:01-16:05:02, 16:07-16:17	DR16, Null, –				76								
*16:04, 16:18	DR16, –				76								
DRB3*01:01:02:01-01:15, DRB3*02:01-02:26, DRB3*02:28, DRB3*03:01:01-03:03	DR52, –												
DRB3*02:27	–												
DRB4*01:01:01:01-01:03:01:01, DRB4*01:03:01:03-01:08	DR53, –												
DRB4*01:03:01:02N	Null												
DRB5*01:01:01-01:14, DRB5*02:02-02:05	DR51, Null, –												
DRB1 allele[4]	ser[5]												
Well No.	DR	73	74	75	76	77	78	79	80	81	82	83	84

[1]The internal positive control primer pairs amplify segments of the human growth hormone gene. The two different control primer pairs give rise to either an internal positive control band of 430 base pairs, for most wells, or a band of 515 base pairs, for some wells.
Well number 73 contains the primer pair giving rise to the longer, 515 bp, internal positive control band in order to help in the correct orientation of the DR low resolution typing.
In addition, well number 82 contains the primer pair giving rise to the longer, 515 bp, internal positive control band in order to allow kit identification.
[2]The codon, and in parenthesis the nucleotide, in the 2nd exon, matching the specificity-determining 3'-end of the primer is given. Codon and 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 codon, and in parenthesis the nucleotide, in the 2nd exon, matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Codon and 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 codon, and in parenthesis the nucleotide, in the 2nd exon, matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Codon and 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.

85	86	87	88	89	90	91	92	93	94	95	96	DR	Well No.
												ser[5]	DRB1 allele[4]
				89		91	92				Negative control	–	*14:95
		87		89								–	*14:98
												DR15, DR2, Null, –	*15:01:01:01-15:20, 15:22-15:24, 15:26, 15:28-15:33, 15:35-15:58
							w					DR2	*15:21
												–	*15:25
						91						–	*15:27, 15:34
												DR16, Null, –	*16:01:01-16:03, 16:05:01-16:05:02, 16:07-16:17
							w					DR16, –	*16:04, 16:18
								93				DR52, –	*DRB3*01:01:02:01-01:15, DRB3*02:01-02:26, DRB3*02:28, DRB3*03:01:01-03:03*
		87						93				–	*DRB3*02:27*
									94			DR53, –	*DRB4*01:01:01:01-01:03:01:01, DRB4*01:03:01:03-01:08*
					90				94			Null	*DRB4*01:03:01:02N*
										95		DR51, Null, –	*DRB5*01:01:01-01:14, DRB5*02:02-02:05*
												ser[5]	DRB1 allele[4]
85	86	87	88	89	90	91	92	93	94	95	96	DR	Well No.

[4]The sequence of the DRB1*0702 allele has been shown to be identical to DRB1*07:01:01:01.
The sequence of the DRB1*080301 allele has been shown to be identical to DRB1*08:03:02.
The sequence of the DRB1*09011 allele has been shown to be identical to DRB1*09:01:02.
The sequence of the DRB1*1171 allele has been shown to be identical to DRB1*11:02:01.
The sequence of the DRB1*12031 allele has been shown to be identical to DRB1*12:01:01.
The DRB1*1466 allele has been renamed DRB1*14:32:02.
The sequence of the DRB1*1606 allele has been shown to be identical to DRB1*16:05:01.
The sequence of the DRB3*010101 allele has been shown to be identical to DRB3*01:01:02:01.
The DRB4*0101102N allele has been renamed DRB4*01:03:10:02N.
The sequence of the DRB5*0201 allele has been shown to be identical to DRB5*02:02.
Due to sharing of sequence motifs in codon 38, DRB3*01:14 will also be amplified in primer mixes 77, 78 and 89 in addition to primer mix 93.
[5]The serological reactivity of all DRB 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.
[6]Primer mix 96 contains a negative control, which will amplify more than 95% of HLA amplicons as well as the amplicons generated by control primer pairs. PCR product sizes range from 75 to 200 base pairs. The PCR product generated by the control primer pair is 430 base pairs.
[7]The DRB1*08:09 and the DRB1*14:15 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
[8]The DRB1*08:20 and the DRB1*13:18, 13:47 and 13:55 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
[9]The DRB1*08:31, 08:41 and DRB1*11:67 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
[10]The DRB1*13:13 and 13:119 and DRB1*14:84 and 14:116 alleles yield identical amplification patterns with the DR low resolution primer set. These alleles can be separated by the respective high resolution primer sets.
'ser', serological HLA specificity.
'w', may be weakly amplified.

CELL LINE VALIDATION SHEET

HLA-A low resolution primer set

					Well															
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
				Lot No.:	201193101	201191802	201193103	201191804	201191805	201191806	201191807	201191808	201191809	201191810	201191811	201191812	201191813	201191814	201193115	201191816
	IHWC cell line		A*	A*																
1	9001	SA	*24:02		-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-
2	9280	LK707	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	9011	E4181324	*01:01		+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
4	9275	GU373	*30:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
5	9009	KAS011	*01:01		+	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
6	9353	SM	*02:01	*26:03	-	+	-	-	-	-	-	+	-	-	+	-	+	-	-	-
7	9020	QBL	*26:01		-	-	-	-	-	-	-	+	-	+	-	-	+	-	-	-
8	9025	DEU	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
9	9026	YAR	*26:01		-	-	-	-	-	-	-	+	-	+	-	-	+	-	-	-
10	9107	LKT3	*24:02		-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-
11	9051	PITOUT	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
12	9052	DBB	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	9004	JESTHOM	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	9071	OLGA	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
15	9075	DKB	*24:02		-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	-
16	9037	SWEIG007	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
17	9282	CTM3953540	*03:01	*80:01	-	-	+	-	-	+	-	-	-	-	-	-	+	-	-	-
18	9257	32367	*33:03	*74:01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	9038	BM16	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	9059	SLE005	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	9064	AMALA	*02:17		-	+	-	-	-	-	w	-	-	-	-	-	-	-	-	-
22	9056	KOSE	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	9124	IHL	*02:01	*34:01	-	+	-	-	-	-	-	+	-	-	+	+	-	-	-	-
24	9035	JBUSH	*32:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
25	9049	IBW9	*33:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	9285	WT49	*02:05		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	9191	CH1007	*24:10	*29:01	-	-	-	-	+	-	+	-	-	-	-	-	-	+	-	-
28	9320	BEL5GB	*02:01	*29:02	-	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-
29	9050	MOU	*29:02		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
30	9021	RSH	*30:01	*68:02	-	-	-	-	-	-	-	+	-	-	-	-	-	-	+	-
31	9019	DUCAF	*30:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
32	9297	HAG	*02:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	9098	MT14B	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
34	9104	DHIF	*31:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	+
35	9302	SSTO	*32:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
36	9024	KT17	*02:06	*11:01	-	+	-	+	-	-	-	-	-	-	+	-	-	-	-	-
37	9065	HHKB	*03:01		-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-
38	9099	LZL	*02:17		-	+	-	-	-	-	w	-	-	-	-	-	-	-	-	-
39	9315	CML	*01:01	*03:01	+	-	+	+	-	-	-	-	-	-	-	-	+	-	-	-
40	9134	WHONP199	*02:07	*30:01	-	+	-	-	-	-	-	-	-	-	-	-	-	-	+	-
41	9055	H0301	*03:01		-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-
42	9066	TAB089	*02:07		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43	9076	T7526	*02:06	*02:07	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	9057	TEM	*66:01		-	-	-	-	-	-	-	+	-	-	+	-	+	-	-	-
45	9239	SHJO	*23:01	*24:02	-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-
46	9013	SCHU	*03:01		-	-	+	-	-	-	-	-	-	-	-	-	+	-	-	-
47	9045	TUBO	*02:16	*03:01	-	+	+	-	-	-	-	-	-	-	-	-	+	-	-	-
48	9303	TER-ND	*02:01	*11:01	-	+	-	+	-	-	-	-	-	-	+	-	-	-	-	-

CELL LINE VALIDATION SHEET

HLA-A low resolution primer set

					Well							
					17	18	19	20	21	22	23	24
				Lot No.:	201191817	201191818	201191819	201191820	201191821	201191822	201191823	201193124
	IHWC cell line		A*	A*								
1	9001	SA	*24:02		-	-	-	-	-	-	-	-
2	9280	LK707	*02:01		-	-	-	-	-	-	-	-
3	9011	E4181324	*01:01		-	-	-	-	-	-	-	-
4	9275	GU373	*30:01		-	-	-	-	-	-	-	-
5	9009	KAS011	*01:01		-	-	-	-	-	-	-	-
6	9353	SM	*02:01	*26:03	-	-	-	-	-	-	+	-
7	9020	QBL	*26:01		-	-	-	-	-	-	-	-
8	9025	DEU	*31:01		-	-	-	-	-	-	-	-
9	9026	YAR	*26:01		-	-	-	-	-	-	-	-
10	9107	LKT3	*24:02		-	-	-	-	-	-	-	-
11	9051	PITOUT	*29:02		-	-	-	-	-	-	-	-
12	9052	DBB	*02:01		-	-	-	-	-	-	-	-
13	9004	JESTHOM	*02:01		-	-	-	-	-	-	-	-
14	9071	OLGA	*31:01		-	-	-	-	-	-	-	-
15	9075	DKB	*24:02		-	-	-	-	-	-	-	-
16	9037	SWEIG007	*29:02		-	-	-	-	-	-	-	-
17	9282	CTM3953540	*03:01	*80:01	-	-	-	-	-	-	+	-
18	9257	32367	*33:03	*74:01	-	+	+	-	-	-	-	-
19	9038	BM16	*02:01		-	-	-	-	-	-	-	-
20	9059	SLE005	*02:01		-	-	-	-	-	-	-	-
21	9064	AMALA	*02:17		-	-	-	-	-	-	-	-
22	9056	KOSE	*02:01		-	-	-	-	-	-	-	-
23	9124	IHL	*02:01	*34:01	-	-	-	-	-	-	-	-
24	9035	JBUSH	*32:01		+	-	-	-	-	-	-	-
25	9049	IBW9	*33:01		-	+	-	-	-	-	-	-
26	9285	WT49	*02:05		-	-	-	-	-	-	-	-
27	9191	CH1007	*24:10	*29:01	-	-	-	-	-	-	-	-
28	9320	BEL5GB	*02:01	*29:02	-	-	-	-	-	-	-	-
29	9050	MOU	*29:02		-	-	-	-	-	-	-	-
30	9021	RSH	*30:01	*68:02	-	-	-	+	-	-	-	-
31	9019	DUCAF	*30:02		-	-	-	-	-	-	-	-
32	9297	HAG	*02:01		-	-	-	-	-	-	-	-
33	9098	MT14B	*31:01		-	-	-	-	-	-	-	-
34	9104	DHIF	*31:01		-	-	-	-	-	-	-	-
35	9302	SSTO	*32:01		+	-	-	-	-	-	-	-
36	9024	KT17	*02:06	*11:01	-	-	-	-	-	-	-	-
37	9065	HHKB	*03:01		-	-	-	-	-	-	-	-
38	9099	LZL	*02:17		-	-	-	-	-	-	-	-
39	9315	CML	*01:01	*03:01	-	-	-	-	-	-	-	-
40	9134	WHONP199	*02:07	*30:01	-	-	-	-	-	-	-	-
41	9055	H0301	*03:01		-	-	-	-	-	-	-	-
42	9066	TAB089	*02:07		-	-	-	-	-	-	-	-
43	9076	T7526	*02:06	*02:07	-	-	-	-	-	-	-	-
44	9057	TEM	*66:01		-	-	-	-	-	-	-	-
45	9239	SHJO	*23:01	*24:02	-	-	-	-	-	-	-	-
46	9013	SCHU	*03:01		-	-	-	-	-	-	-	-
47	9045	TUBO	*02:16	*03:01	-	-	-	-	-	-	-	-
48	9303	TER-ND	*02:01	*11:01	-	-	-	-	-	-	-	-

CELL LINE VALIDATION SHEET

HLA-B low resolution SSP kit

					Well															
					25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
				Prod. No.:	201190001	201190002	201190003	201190004	201190005	201190006	201190007	201190008	201190009	201190010	201190011	201190012	201190013	201190014	201190015	201190016
	IHWC cell line		B*																	
1	9001	SA	*07:02		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	9280	LK707	*52:01	*73:01	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
3	9011	E4181324	*52:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
4	9275	GU373	*15:10	*53:01	-	-	-	-	-	-	-	+	-	-	-	+	-	+	-	-
5	9009	KAS011	*37:01		-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
6	9353	SM	*39:01	*51:01	-	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-
7	9020	QBL	*18:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
8	9025	DEU	*35:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
9	9026	YAR	*38:01		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
10	9107	LKT3	*54:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	9051	PITOUT	*44:03		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
12	9052	DBB	*57:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
13	9004	JESTHOM	*27:05		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	+
14	9071	OLGA	*15:01	*15:20	-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-
15	9075	DKB	*40:01		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
16	9037	SWEIG007	*40:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	9282	CTM3953540	*08:01	*55:01	-	+	-	-	-	-	-	+	-	-	-	-	-	-	-	-
18	9257	32367	*14:01	*56:01	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-
19	9038	BM16	*18:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
20	9059	SLE005	*40:01		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
21	9064	AMALA	*15:01		-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-
22	9056	KOSE	*35:03		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	9124	IHL	*40:02	*56:02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	9035	JBUSH	*38:01		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
25	9049	IBW9	*14:02		-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-
26	9285	WT49	*58:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	-
27	9191	CH1007	*07:05	*51:01	+	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
28	9320	BEL5GB	*44:02	*44:03	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
29	9050	MOU	*44:03		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
30	9021	RSH	*42:01		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
31	9019	DUCAF	*18:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
32	9297	HAG	*41:02		-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-
33	9098	MT14B	*40:01		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
34	9104	DHIF	*38:01		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
35	9302	SSTO	*44:02		-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-
36	9024	KT17	*15:01	*35:01	-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-
37	9065	HHKB	*07:02		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	9099	LZL	*15:01		-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-
39	9315	CML	*08:01	*27:05	-	+	-	-	+	-	-	+	-	-	-	-	-	-	-	+
40	9134	WHONP199	*13:02	*46:01	-	-	+	+	-	-	+	-	-	+	-	+	-	-	-	-
41	9055	H0301	*14:02		-	-	-	+	-	+	-	-	-	-	-	-	-	-	-	-
42	9066	TAB089	*46:01		-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-
43	9076	T7526	*46:01		-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-
44	9057	TEM	*38:01		-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-
45	9239	SHJO	*42:01	*50:01	-	-	-	+	-	-	-	+	-	-	-	-	-	-	-	-
46	9013	SCHU	*07:02		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	9045	TUBO	*51:01		-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-
48	9303	TER-ND	*35:01	*44:03	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-

CELL LINE VALIDATION SHEET

HLA-B low resolution SSP kit

					Well													
					41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
				Prod. No.:	201190017	201190018	201190019	201190020	201190021	201190022	201190023	201190024	201190025	201190026	201190027	201190028	201190029	201190030	201190031	201190032
	IHWC cell line		B*																	
1	9001	SA	*07:02		-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-
2	9280	LK707	*52:01	*73:01	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-
3	9011	E4181324	*52:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	9275	GU373	*15:10	*53:01	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
5	9009	KAS011	*37:01		+	-	-	+	-	-	-	-	-	-	-	-	+	-	-	-
6	9353	SM	*39:01	*51:01	-	-	-	-	+	-	+	+	-	-	-	-	-	+	-	-
7	9020	QBL	*18:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	9025	DEU	*35:01		+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	9026	YAR	*38:01		-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-
10	9107	LKT3	*54:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+
11	9051	PITOUT	*44:03		+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
12	9052	DBB	*57:01		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	9004	JESTHOM	*27:05		-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+
14	9071	OLGA	*15:01	*15:20	+	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
15	9075	DKB	*40:01		-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-
16	9037	SWEIG007	*40:02		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-
17	9282	CTM3953540	*08:01	*55:01	-	-	-	-	-	-	-	+	-	-	+	+	-	-	-	+
18	9257	32367	*14:01	*56:01	-	-	-	-	-	-	+	+	-	-	-	+	-	-	-	+
19	9038	BM16	*18:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	9059	SLE005	*40:01		-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-
21	9064	AMALA	*15:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
22	9056	KOSE	*35:03		+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	9124	IHL	*40:02	*56:02	-	-	-	-	-	-	-	-	-	+	-	+	-	-	-	+
24	9035	JBUSH	*38:01		-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-
25	9049	IBW9	*14:02		-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-
26	9285	WT49	*58:01		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	9191	CH1007	*07:05	*51:01	-	-	-	-	-	-	-	+	-	-	-	+	-	+	-	-
28	9320	BEL5GB	*44:02	*44:03	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
29	9050	MOU	*44:03		+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
30	9021	RSH	*42:01		-	-	-	-	-	-	-	+	-	-	+	+	-	-	-	-
31	9019	DUCAF	*18:01		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	9297	HAG	*41:02		-	-	-	-	-	-	-	+	-	-	+	-	-	-	-	-
33	9098	MT14B	*40:01		-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	-
34	9104	DHIF	*38:01		-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-
35	9302	SSTO	*44:02		+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-
36	9024	KT17	*15:01	*35:01	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-
37	9065	HHKB	*07:02		-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-
38	9099	LZL	*15:01		-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-
39	9315	CML	*08:01	*27:05	-	-	-	-	-	-	-	+	-	-	+	+	-	-	-	+
40	9134	WHONP199	*13:02	*46:01	-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
41	9055	H0301	*14:02		-	-	-	-	-	-	+	+	-	-	-	-	-	-	-	-
42	9066	TAB089	*46:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
43	9076	T7526	*46:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
44	9057	TEM	*38:01		-	-	-	-	+	+	+	-	-	-	-	-	-	-	-	-
45	9239	SHJO	*42:01	*50:01	-	-	-	-	-	-	-	+	-	-	+	+	-	-	-	-
46	9013	SCHU	*07:02		-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	-
47	9045	TUBO	*51:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
48	9303	TER-ND	*35:01	*44:03	+	+	-	-	-	-	-	-	-	-	-	-	+	-	-	-

CELL LINE VALIDATION SHEET

HLA-B low resolution SSP kit

					Well															
					57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72
				Prod. No.:	201190033	201190034	201190035	201190036	201190037	201190038	201190039	201190040	201190041	201190042	201190043	201190044	201190045	201190046	201190047	201188648
	IHWC cell line		B*																	
1	9001	SA	*07:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
2	9280	LK707	*52:01	*73:01	-	-	+	+	-	+	-	-	-	-	-	-	+	+	+	-
3	9011	E4181324	*52:01		-	-	+	+	-	+	-	-	-	-	-	-	-	+	-	-
4	9275	GU373	*15:10	*53:01	-	-	-	+	-	-	-	-	-	-	-	+	-	+	+	-
5	9009	KAS011	*37:01		-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-
6	9353	SM	*39:01	*51:01	-	-	+	+	-	-	-	-	-	-	-	+	-	+	+	-
7	9020	QBL	*18:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
8	9025	DEU	*35:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
9	9026	YAR	*38:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
10	9107	LKT3	*54:01		-	-	-	-	-	-	+	+	-	-	-	-	-	-	+	-
11	9051	PITOUT	*44:03		-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-
12	9052	DBB	*57:01		-	-	-	+	-	-	-	-	-	+	-	-	-	+	-	-
13	9004	JESTHOM	*27:05		-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-
14	9071	OLGA	*15:01	*15:20	-	-	-	-	-	+	-	-	-	-	-	-	+	-	+	-
15	9075	DKB	*40:01		-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	-
16	9037	SWEIG007	*40:02		-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	-
17	9282	CTM3953540	*08:01	*55:01	-	-	+	-	-	-	-	+	-	-	-	-	-	-	+	+
18	9257	32367	*14:01	*56:01	-	-	-	-	-	-	-	-	+	-	-	-	-	-	+	-
19	9038	BM16	*18:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
20	9059	SLE005	*40:01		-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	-
21	9064	AMALA	*15:01		-	-	-	-	-	+	-	-	-	-	-	-	+	-	+	-
22	9056	KOSE	*35:03		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
23	9124	IHL	*40:02	*56:02	-	-	-	-	+	+	-	-	+	-	+	-	-	-	+	-
24	9035	JBUSH	*38:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
25	9049	IBW9	*14:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
26	9285	WT49	*58:01		-	-	-	+	-	-	-	-	-	-	+	-	-	+	-	-
27	9191	CH1007	*07:05	*51:01	-	-	+	+	-	-	-	-	-	-	-	+	-	+	+	+
28	9320	BEL5GB	*44:02	*44:03	-	-	-	-	-	+	+	-	-	-	-	-	-	+	-	-
29	9050	MOU	*44:03		-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-
30	9021	RSH	*42:01		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
31	9019	DUCAF	*18:01		-	-	-	-	-	-	-	-	-	-	-	+	-	-	+	-
32	9297	HAG	*41:02		-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	+
33	9098	MT14B	*40:01		-	-	-	-	+	+	-	-	-	-	-	-	-	-	+	-
34	9104	DHIF	*38:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
35	9302	SSTO	*44:02		-	-	-	-	-	+	+	-	-	-	-	-	-	+	-	-
36	9024	KT17	*15:01	*35:01	-	-	-	-	-	+	-	-	-	-	-	+	+	-	+	-
37	9065	HHKB	*07:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
38	9099	LZL	*15:01		-	-	-	-	-	+	-	-	-	-	-	-	+	-	+	-
39	9315	CML	*08:01	*27:05	-	-	-	-	-	+	-	-	-	-	-	-	-	+	+	+
40	9134	WHONP199	*13:02	*46:01	-	-	-	-	-	+	-	-	-	-	-	-	+	+	+	-
41	9055	H0301	*14:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	-
42	9066	TAB089	*46:01		-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-
43	9076	T7526	*46:01		-	-	-	-	-	-	-	-	-	-	-	-	+	-	+	-
44	9057	TEM	*38:01		-	-	-	-	-	-	-	-	-	-	-	-	-	+	-	-
45	9239	SHJO	*42:01	*50:01	-	-	+	-	+	+	-	-	+	-	-	-	-	-	+	+
46	9013	SCHU	*07:02		-	-	-	-	-	-	-	-	-	-	-	-	-	-	+	+
47	9045	TUBO	*51:01		-	-	+	+	-	-	-	-	-	-	-	+	-	+	-	-
48	9303	TER-ND	*35:01	*44:03	-	-	-	-	-	+	-	-	-	-	-	+	-	+	+	-

CELL LINE VALIDATION SHEET

DR low resolution primer set

					Well															
					73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
				Prod. No.:	201191601	201191602	201191603	201191604	201191605	201191606	201191607	201191608	201185109	201191610	201191611	201191612	201191613	201191614	201193315	201191616
	IHWC cell line		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		-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-

CELL LINE VALIDATION SHEET

DR low resolution primer set

					Well						
					89	90	91	92	93	94	95
				Prod. No.:	201191617	201193318	201191619	201191620	201191629	201191630	201193331
	IHWC cell line		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		-	-	-	-	-	-	-

CERTIFICATE OF ANALYSIS

Olerup SSP® HLA-A-B-DR SSP Combi Tray

Product number: **101.701-24u/06u – without *Taq* pol.**
Lot number: **91M**
Expiry date: **2014-May-01**
Number of tests: **24 tests – Product No. 101.701-24u**
6 tests – Product No. 101.701-06u
Number of wells per test: **95 + 1**

Well specifications:

Well No.	Production No.	Well No.	Production No.	Well No.	Production No.
1	2011-931-01	9	2011-918-09	17	2011-918-17
2	2011-918-02	10	2011-918-10	18	2011-918-18
3	2011-931-03	11	2011-918-11	19	2011-918-19
4	2011-918-04	12	2011-918-12	20	2011-918-20
5	2011-918-05	13	2011-918-13	21	2011-918-21
6	2011-918-06	14	2011-918-14	22	2011-918-22
7	2011-918-07	15	2011-931-15	23	2011-918-23
8	2011-918-08	16	2011-918-16	24	2011-931-24

The specificity of each primer solution of the kit has been tested against 48 well characterized IHWC cell line DNAs.

Additional 5'- and 3'-primers in primer solutions 4, 5, 7, 8, 12, 14 to 17 and 20 to 23 were tested by separately adding one 3'-primer, respectively one 5'-primer. Additional 5'-primers in primer solutions 1 and 10 were tested by separately adding one 3'-primer. Additional 3'-primers in primer solutions 3, 6, 18 and 19 were tested by separately adding one 5'-primer.
In primer solutions 2, 9, 10, 11 and 15 one or two 5'-primers were not possible to test, and in primer solutions 3, 8, 18 and 19 one 3'-primer was not possible to test.

Well No.	Production No.	Well No.	Production No.	Well No.	Production No.
25	2011-900-01	41	2011-900-17	57	2011-900-33
26	2011-900-02	42	2011-900-18	58	2011-900-34
27	2011-900-03	43	2011-900-19	59	2011-900-35
28	2011-900-04	44	2011-900-20	60	2011-900-36
29	2011-900-05	45	2011-900-21	61	2011-900-37
30	2011-900-06	46	2011-900-22	62	2011-900-38
31	2011-900-07	47	2011-900-23	63	2011-900-39
32	2011-900-08	48	2011-900-24	64	2011-900-40
33	2011-900-09	49	2011-900-25	65	2011-900-41
34	2011-900-10	50	2011-900-26	66	2011-900-42
35	2011-900-11	51	2011-900-27	67	2011-900-43
36	2011-900-12	52	2011-900-28	68	2011-900-44
37	2011-900-13	53	2011-900-29	69	2011-900-45
38	2011-900-14	54	2011-900-30	70	2011-900-46
39	2011-900-15	55	2011-900-31	71	2011-900-47
40	2011-900-16	56	2011-900-32	72	2011-886-48

The specificity of each primer solution of the kit has been tested against 48 well characterized IHWC cell line DNAs.

Additional 5'-primers and 3'-primers in primer solutions 27, 30, 38, 43, 53, 55 and 64 were tested by separately adding one additional 3'-primer, respectively one additional 5'-primer. Additional 3'-primers in primer solutions 26, 37, 39 and 59 were tested by separately adding one additional 5'-primer. Additional 5'-primers in primer solutions 25, 45, 49 and 72 were tested by separately adding one additional 3'-primer.
In primer mixes 55 and 66 one 5'-primer was not possible to test, and in primer mixes 62 and 66 one 3'-primer was not possible to test.

Well No.	Production No.	Well No.	Production No.	Well No.	Production No.
73	2011-916-01	81	2011-851-09	89	2011-916-17
74	2011-916-02	82	2011-916-10	90	2011-933-18
75	2011-916-03	83	2011-916-11	91	2011-916-19
76	2011-916-04	84	2011-916-12	92	2011-916-20
77	2011-916-05	85	2011-916-13	93	2011-916-29
78	2011-916-06	86	2011-916-14	94	2011-916-30
79	2011-916-07	87	2011-933-15	95	2011-933-31
80	2011-916-08	88	2011-916-16		

The specificity of each primer solution of the kit has been tested against 48 well characterized IHWC cell line DNAs.

Additional 5'- and 3'-primers in primer solutions 81, 83 and 90 were tested by separately adding one 3'-primer, respectively one 5'-primer.
Additional 5'-primers in primer solutions 78, 87 and 88 were tested by separately adding one 3'-primer. Additional 3'-primers in primer solutions 73, 75, 76, 82, 84 and 92 were tested by separately adding one 5'-primer.
One, two or three of the 5'-primers in primer solution 73, 75, 76, 80 to 82, 85, 87 and 88 were not possible to test. One or two of the 3'-primers in primer solution 73, 75, 76, 85 and 94 were not possible to test.

The negative control primer pairs, **Production No. 2011-917-01**, can detect contamination with PCR products diluted 10^{-7}.

Results: No false positive or false negative amplifications were obtained.

Date of approval: 2011-November-25

Approved by:

Production Quality Control

Declaration of Conformity

Product name: *Olerup* SSP® HLA-A-B-DR SSP Combi Tray
Product number: 101.701-24u/06u
Lot number: 91M

Intended use: HLA-A, HLA-B and HLA-DR low resolution histo-compatibility testing

Manufacturer: *Olerup* SSP AB
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SE-112 51 Stockholm, Sweden
Phone: +46-8-717 88 27
Fax: +46-8-717 88 18

We, *Olerup* SSP AB, hereby declare that this product, to which this Declaration of Conformity relates is in conformity with the following Standard(s) and other normative document(s) ISO 9001:2008 and ISO 13485:2003, following the provisions of the 98/79/EC Directive on *in vitro* diagnostic medical devices, Annex II List B, conformity assessed using Annex IV, as transposed into the national laws of the Member States of the European Union.

The Technical Documentation File is maintained at *Olerup* SSP AB, Franzengatan 5, SE-112 51 Stockholm, Sweden.

Notified Body: Lloyd's Register Quality Assurance Limited, Hiramford, Middlemarch Office Village, Siskin Drive, Coventry CV3 4FJ, United Kingdom. (Notified Body number: 0088.)

Stockholm, Sweden
2011-November-25

Ann-Cathrin Jareman
Head of QA and Regulatory Affairs

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