

101.701-24/06 – including *Taq* pol., IFU-01
101.701-24u/06u – without *Taq* pol., IFU-02

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“Instructions for Use” (IFU)

Lot No.: **0D8**

Lot-specific information

Olerup SSP® HLA-A-B-DR SSP Combi Tray

Product number:	101.701-24/06 – including <i>Taq</i> pol. 101.701-24u/06u – without <i>Taq</i> pol.
Lot number:	0D8
Expiry date:	2018-April-01
Number of tests:	24 tests – Product No. 101.701-24/24u 6 tests – Product No. 101.701-06/06u
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. 0D8.

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

CHANGES COMPARED TO THE PREVIOUS OLERUP SSP® HLA-A-B-DR SSP COMBI TRAY LOT (52Y)

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

As of lot series V, the Specificity Table is included in the lot-specific Product Insert, and the Interpretation Table is included in the Worksheet.

The **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. 52Y**). The kit design is based on IMGT/HLA database 3.21.1.

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

Well	5'-primer	3'-primer	rationale
3	Added	-	5'-primers added for the A*03:204 allele.
9	-	Added	3'-primer added for the A*25:19:02 allele.
22	Added	-	5'-primer added for the A*68:11N allele.

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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. 52Y**). The kit design is based on IMGT/HLA database 3.21.1.

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

Well	5'-primer	3'-primer	rationale
28	-	Added	3'-primer added for the B*14:46 allele.
55	-	Added	3'-primer added for the B*15:297 allele.

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. 52Y**). The kit design is based on IMGT/HLA database 3.21.1.

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

Well	5'-primer	3'-primer	rationale
76	Added	-	5'-primer added for the DRB1*12:57 allele.
81	-	Added	3'-primer added for the DRB1*07:61 allele.
86	-	Added	3'-primer added for the DRB1*12:58 allele.

Change in revision R01 compared to R00:

1. Primer mix 77 does not amplify the DRB1*03:11:01, *03:97, *11:53 and *15:100 alleles. This has been corrected in the Specificity and Interpretation Tables.

Changes in revision R02 compared to R01:

1. Due to sharing of sequence motifs in codon 38 and 47, DRB3*01:14 will also be amplified in primer mixes 77, 78 and 89, and DRB3*01:23 in mix 77, in addition to primer mix 93.

2. The DRB1*13:02:02 allele is amplified in primer mix 78.

The Specificity and Interpretation Tables have been changed.

Change in revision R02 compared to R01:

1. The expiry date has been corrected.

Changes in revision R03 compared to R02:

1. Primer mix 34 amplifies the C*02:06 and C*15:42 alleles and primer mix 65 amplifies the B*35:291 and the C*15:15 alleles. This has been corrected in the Specificity and Interpretation Tables.

2. Primer mix 21 may generate a false positive band of about 560 base pairs. This band should be disregarded when interpreting HLA-A low resolution typings. A footnote has been added in the Specificity Table.

Change in revision R04 compared to R03:

1. Primer mix 78 does not amplify the DRB1*14:137N and 14:152N alleles. Primer mix 87 does not amplify the DRB1*14:137N allele. This has been corrected in the Specificity and Interpretation Tables.

Change in revision R05 compared to R04:

1. In primer mix 21, an HLA-specific PCR product of 545 bp has been added in the Specificity Table.

Change in revision R06 compared to R05:

1. Primer mix 51 does not amplify the B*08:31, 41:06, 41:15 and 42:14 alleles, and primer mix 72 does not amplify the B*08:31 allele. This has been corrected in the Specificity and Interpretation Tables.

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Well **96** contains Negative Control primer pairs, that will amplify more than 95% of the *Olerup* SSP[®] HLA Class I, DRB, DQB1, DPB1 and DQA1 amplicons as well as all the amplicons generated by the control primer pairs matching the human growth hormone gene.

HLA-specific PCR product sizes range from 75 to 200 base pairs.
The PCR product generated by the positive control primer pair is 430 base pairs.

Length of PCR product	105	200	105	80	75	80	85
5'-primer¹	164	340	440	45	45	43	36
	5'-CAC ^{3'}	5'-Agg ^{3'}	5'-TTA ^{3'}	5'-Tgg ^{3'}	5'-Tgg ^{3'}	5'-Tgg ^{3'}	5'-TAC ^{3'}
							36
							5'-TAT ^{3'}
3'-primer²	231	2nd I	507	59	58	57	47
	5'-TgC ^{3'}	5'-AAA ^{3'}	5'-TTg ^{3'}	5'-CTC ^{3'}	5'-ggC ^{3'}	5'-CTC ^{3'}	5'-ACA ^{3'}
							48
							5'-gCA ^{3'}
							48
							5'-gCC ^{3'}
							52
							5'-TgT ^{3'}
A*	+	+	+				
B*	+	+	+				
C*	+	+	+				
DRB1				+	+		
DRB3				+	+		
DRB5				+			
DQB1					+		
DPB1						+	
DQA1							+

¹The nucleotide position for HLA class I genes and the codon for HLA class II genes, in the 2nd or 3rd exon, matching the specificity-determining 3'-end of the primer is given. Nucleotide and codon numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

²The nucleotide position for HLA class I genes and the codon for HLA class II genes, in the 2nd or 3rd exon or the 2nd intron, matching the specificity-determining 3'-end of the primer is given in the anti-sense direction. Nucleotide and codon numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

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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*80:03 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*10:15 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	NC

The 96 well PCR plate is marked with 'A-B-DR' in silver/gray ink.

Well No. 1 is marked with the Lot No. '0D8'.

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.

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 a few HLA-B and HLA-C alleles will be amplified by primer mixes 4 to 6, 9 and 11.

For further details see Specificity Table.

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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 a few HLA-A and HLA-C alleles will be amplified by primer mixes 25 to 28, 30 to 32, 37, 38, 41, 43 to 46, 49, 50, 53 to 55, 64 to 67, 69 and 72.

For further details see Specificity Table.

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.

For further details see Specificity Table.

UNIQUELY IDENTIFIED ALLELES

All the HLA-A alleles, i.e. **A*01:01 to A*80:03**, recognized by the HLA Nomenclature Committee in August 2015^{1,2} 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^{3,5}.

All the HLA-B alleles, i.e. **B*07:02 to B*83:01**, recognized by the HLA Nomenclature Committee in August 2015^{1,2} 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 specificities⁵.

All the HLA-DRB1, -DRB3, -DRB4⁴ and -DRB5 alleles, i.e. **DRB1*01:01:01 to 10:15, DRB3*01:01:02:01 to DRB3*03:03, DRB4*01:01:01:01 to DRB4*01:09, DRB5*01:01:01 to DRB5*02:06**, recognized by the HLA Nomenclature Committee in August 2015^{1,2} 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 specificities⁵.

¹HLA-A, HLA-B and HLA-DRB alleles listed on the IMGT/HLA web page 2015-August-11, release 3.21.1, www.ebi.ac.uk/imgt/hla.

²Alleles that have been deleted from or renamed in the official WHO HLA Nomenclature up to and including the last IMGT/HLA database release can be retrieved from web page <http://hla.alleles.org/alleles/deleted.html>.

³The A*01:136 and the A*11:94, 11:112 and 11:211 alleles may be distinguished by the different sizes of the specific PCR products generated by primer mixes 1 and 11.

The A*03:88 and the A*11:130 alleles may be distinguished by the different sizes of the specific PCR products generated by primer mixes 11.

The A*11:199:01 and 11:222 and the A*66:23 alleles may be distinguished by the different sizes of the specific PCR products generated by primer mix 11.

The A*24:14-24:15, 24:51-24:53, 24:57, 24:64, 24:114, 24:222N, 24:291 and 24:296 and the C*04:01:03 alleles may be distinguished by the different sizes of the specific PCR products generated by primer mix 5.

⁴The DRB4*02:01N and DRB4*03:01N null alleles will not be amplified by the DR low resolution primer set.

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⁵The HLA-A, HLA-B and the HLA-DRB1, -DRB3, -DRB4 and –DRB5 alleles will be grouped into their corresponding serological specificities, except that following alleles give rise to identical amplification patterns:

Alleles	Alleles
A*03:152, A*24:92	B*53:30, 53:39, B*57:45, 57:51, 57:69
A*23:14:01-23:14:02, A*24:24, 24:71	B*55:04, 55:08, 55:13, 55:27, 55:46, 55:49, B*56:01:05, 56:15, 56:19N, 56:22
A*23:57, 23:66, 24:94, A*24:138, 24:188, 24:228	B*55:23, 55:32, B*56:18, 56:31-56:32
A*31:08, A*33:53	B*57:67, 58:36
A*32:01:18, B*07:81, B*08:52, B*18:67, B*38:41, B*51:185, B*53:05, 53:16, 53:33	DRB1*03:76, 13:176
B*07:202, B*81:02	DRB1*03:11:01, 13:02:02
B*08:26:01-08:26:02, 08:50, 08:62, 08:85, 08:94, 08:146, B*42:07	DRB1*08:20, DRB1*13:18, 13:47, 13:55, 13:158, 13:164
B*13:21, 13:35, 13:59, 13:71, B*44:135, 44:158, 44:184	DRB1*08:31, 08:41, 08:75, DRB1*11:67
B*14:08:01-14:08:02, B*39:01:19, 39:25N, 39:30, 39:32-39:34, 39:47, 39:50, 39:74, 39:82, 39:102	DRB1*13:13, 13:119, 13:154, 13:156, DRB1*14:84, 14:116, 14:144
B*18:29, 18:72, 18:92, 18:102, B*35:32:01- 35:32:02, 35:37, 35:53N, 35:64:01-35:64:02, 35:68:01-35:68:02, 35:99, 35:118-35:119, 35:174	
B*41:06, 41:09, 41:29, 41:32, B*45:02-45:03	

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Lot-specific information
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 ^{4,5}
1^{6,7}	120 bp, 145 bp, 225 bp	800 bp	A1, A36	*01:01:01:01-01:04N, 01:06-01:33, 01:35-01:175, 01:178N-01:189, 03:18, 03:135, 11:94, 11:112, 11:211, 36:01-36:05
2⁷	175 bp, 215 bp, 255 bp, 365 bp, 415 bp	800 bp	A2, A19, A28, A203, A210	*02:01:01:01-02:01:15, 02:01:17-02:01:19, 02:01:21-02:01:81, 02:01:83-02:06:18, 02:06:20-02:22:02, 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, 02:130-02:570, 02:572-02:580
3⁸	205 bp, 235 bp	1070 bp	A1, A3, A11, A32, A34, A36	*01:12, 01:19, 01:21, 01:126, 02:338, 03:01:01:01-03:17:02, 03:19-03:74, 03:76-03:94, 03:96-03:134, 03:136-03:176, 03:178N-03:186, 03:188-03:214, 03:216-03:219, 03:221-03:224, 03:226-03:229, 11:03, 11:20, 11:25, 11:60, 11:130, 11:158, 11:175, 11:183, 11:209, 24:92, 32:04, 34:02:01-34:04, 34:07-34:10N, 36:02, 74:23
4	190 bp	800 bp	A1, A3, A11, A30, A36, A68	*01:01:01:01-01:01:22, 01:01:24-01:01:47, 01:01:49-01:01:64, 01:01:67-01:04N, 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, 01:100-01:144, 01:146, 01:148, 01:150-01:158, 01:160N-01:166, 01:168-01:175, 01:180-01:189, 02:78, 02:169, 03:12, 03:18, 03:88, 03:135, 11:01:01:01-11:27, 11:29-11:52Q, 11:54-11:223, 26:19, 26:72, 29:67, 30:08, 32:64, 36:04, 66:23, 68:13:01, 68:66, 68:134, 74:19, C*12:131
5⁷	160 bp, 335 bp, 505 bp	1070 bp	A3, A9, A23, A24, A2403, A29, A31, A32	*03:15, 03:19, 03:30, 03:152, 11:139, 23:01:01-23:69, 24:02:01:01-24:02:92, 24:02:95-24:11N, 24:13:01-24:15, 24:17-24:64, 24:66-24:210, 24:212-24:303N, 24:305-24:314, 29:07, 29:49, 31:08, 31:29, 32:05, 33:19, 33:53, C*04:01:03
6^{9,12,13,15}	135 bp, 200 bp	800 bp	A9, A23, A24, A29, A80	*11:166, 23:01:01-23:56, 23:58-23:65, 23:67-23:69, 24:24, 24:71, 29:07, 29:49, 31:29, 31:85, 32:72, 80:01:01:01-80:03, B*18:27
7⁷	175 bp, 205 bp	1070 bp	A2, A3, A9, A23, A24, A2403, A26	*02:17:01 ^w -02:17:03 ^w , 11:139, 23:14:01-23:14:02, 24:02:01:01-24:02:92, 24:02:95-24:11N, 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, 24:139-24:187, 24:189-24:210, 24:212-24:221, 24:223-24:227, 24:229-24:290, 24:292-24:295, 24:297-24:303N, 24:305-24:314, 26:16, 33:19, 68:45, 68:117
8⁷	165 bp, 200 bp	800 bp	A2, A3, A10, A11, A25, A26, A28, A32, A34, A66, A68, A69	*01:51, 02:55, 02:527, 03:24, 03:50, 11:10, 11:183, 11:191, 25:01:01-25:16, 25:18-25:32, 26:01:01:01-26:06, 26:08-26:15, 26:17-26:18, 26:20-26:43:02, 26:45-26:63, 26:65-26:71N, 26:73-26:88, 26:90-26:91, 26:93-26:116, 29:28, 32:15, 33:51,

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				34:01:01-34:12, 66:01:01-66:22, 68:01:01-68:134, 69:01-69:03
9^{6,10}	75 bp	800 bp	A3, A25, A32	*25:01:01-25:32, 32:01:01-32:02, 32:04, 32:06-32:37, 32:39-32:59, 32:61-32:70, 32:72-32:74, B*07:81, B*08:52, B*18:67, B*38:41, B*51:185, B*53:05, B*53:16, B*53:33
10^{6,7,12}	80 bp, 240 bp	800 bp	A10, A26, A43	*01:43, 01:51, 11:17, 11:40, 11:223, 26:01:01-26:02:02, 26:04, 26:07:01-26:20, 26:22-26:29, 26:31-26:43:02, 26:45-26:77, 26:79-26:91, 26:93-26:110, 26:112-26:116, 33:13, 33:48, 43:01, 68:84
11^{6,7}	80 bp, 175 bp, 500 bp	1070 bp	A1, A9, A10, A11, A26, A31, A34, A66	*01:13, 01:28, 01:136, 03:63, 03:88, 11:01:01-11:27, 11:29-11:52Q, 11:54-11:223, 24:19, 24:44, 26:03:01, 26:06, 26:21, 26:78, 26:92, 26:111, 34:01:01-34:08, 34:10N-34:12, 66:01:01-66:01:03, 66:04-66:11, 66:13-66:14, 66:17-66:20, 66:22-66:23, 69:02, 80:02, C*07:404
12⁶	125 bp, 190 bp	800 bp	A3, A10, A25, A26, A31, A34, A43, A66	*02:309, 02:454, 03:01:19, 11:11, 25:05-25:06, 26:09, 26:54, 26:91, 31:03-31:04, 34:01:01-34:12, 43:01, 66:02-66:03, 66:16, 66:21, 68:130
13	175 bp, 225 bp	1070 bp	A1, A2, A3, A10, A25, A26, A34, A43, A66	*01:01:56 ^w , 01:13, 02:34-02:35:03, 02:56:01-02:56:02, 02:62, 02:103, 02:135, 02:580, 03:01:01-03:01:22, 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, 03:112-03:141, 03:143-03:151, 03:153-03:171, 03:174-03:175, 03:177, 03:179-03:197N, 03:200Q-03:202, 03:204, 03:206-03:210, 03:212-03:218, 03:221-03:229, 11:199:01-11:199:02, 11:222, 25:01:01-25:01:08, 25:02-25:05, 25:07-25:32, 26:01:01-26:01:20, 26:01:22-26:01:38, 26:02:01 ^w -26:02:02 ^w , 26:03:01, 26:05-26:08, 26:10-26:28, 26:29 ^w , 26:30-26:33, 26:35-26:43:02, 26:45-26:48, 26:49 ^w , 26:50-26:72, 26:74-26:77, 26:79-26:90, 26:92-26:116, 30:55, 34:08, 43:01, 66:01:01, 66:01:03, 66:04-66:09, 66:10 ^w , 66:11-66:15, 66:17-66:20, 66:22-66:23, 68:71, 74:13
14^{6,7,12}	80 bp, 115 bp, 200 bp, 240 bp, 470 bp	1070 bp	A26, A29, A31, A34	*02:237, 02:309, 02:454, 03:95, 26:19, 26:22, 29:01:01-29:80, 31:03-31:04, 32:42, 34:04, 66:09
15^{6,7,13,14}	90 bp, 135 bp, 205 bp	1070 bp	A1, A30	*01:13, 01:28, 03:43, 03:82, 03:186, 11:113, 11:162, 30:01:01-30:04:02, 30:06-30:20, 30:22-30:94, 31:35
16	240 bp, 380 bp, 410 bp	1070 bp	A24, A31, A32	*02:237, 03:95, 29:14, 31:01:02-31:94, 31:96-31:98, 32:05, 33:53, 74:13
17	140 bp, 180 bp	1070 bp	A32	*01:95, 03:43, 03:82, 03:186, 24:243, 29:13, 29:39, 30:89, 31:35, 32:01:01-32:01:17, 32:01:19-32:03, 32:05-32:71, 32:73-32:74, 74:07
18⁷	200 bp, 390 bp	1070 bp	A33, A68	*02:243:01-02:243:02, 29:48, 32:15, 33:01:01-33:01:07, 33:03:01-33:37, 33:39-33:52, 33:54-33:102, 68:29, 74:04, 74:21
19	340 bp, 375 bp	800 bp	A2, A19, A68, A74	*01:121, 02:65, 02:407, 02:449, 32:62, 68:25, 74:01-74:24
20^{12,14}	210 bp, 240 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, 02:580, 11:199:02, 23:01:13, 25:05, 26:54, 34:02:04, 68:01:01-68:134

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21^{6,16}	200 bp, 240 bp, 375 bp, 545 bp	800 bp	A2, A23, A24, A26, A28, A66, A68, A69	*02:17:01-02:17:03, 02:55, 02:108, 02:110, 02:243:01-02:243:02, 02:268, 02:300, 02:303, 23:02, 23:57, 23:66, 24:06, 24:13:01, 24:22, 24:82, 24:94, 24:138, 24:167, 24:188, 24:207, 24:228, 25:30, 26:22, 33:22, 66:06, 66:09, 68:08:02, 68:29, 68:105, 69:01-69:03
22^{6,11}	85 bp, 240 bp, 400 bp	800 bp	A2, A23, A34 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, 02:580, 03:187, 11:155, 11:199:02, 23:01:13, 31:62, 34:02:04, 36:01- 36:05, 68:01:32, 68:11N
23^{6,12}	85 bp, 160 bp, 240 bp, 495 bp	800 bp	A2, A26, A28, A36, A68, A80	*02:55, 02:237, 03:41, 03:63, 03:75, 03:88, 03:95, 03:177, 11:130, 24:18, 24:204, 24:213, 26:03:01, 26:05-26:06, 26:21, 26:30, 26:78, 26:111, 33:24, 36:02, 68:05, 68:15, 68:20, 68:109, 80:01:01-01- 80:01:01:02, 80:03
24¹³	360 bp	1070 bp	A10, A26, A31, A66	*02:135, 02:309, 02:454, 03:01:19, 25:13, 26:30, 26:65, 31:04, 34:09, 66:02-66:03, 66:12, 66:16, 66:21

¹Alleles are assigned by the presence of specific PCR product(s). However, the sizes of the specific PCR products may be helpful in the interpretation of HLA-A low resolution SSP typings.

When the primers in a primer mix can give rise to HLA-specific PCR products of more than one length this is indicated if the size difference is more than 20 base pairs. Size differences of 20 base pairs or less are not given. For high resolution SSP kits, the alleles listed are specified according to amplicon length.

Nonspecific amplifications, i.e. a ladder or a smear of bands, may sometimes be seen. GC-rich primers have a higher tendency of giving rise to nonspecific amplifications than other primers.

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

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

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

²The internal positive control primer pairs amplify segments of the human growth hormone gene. The internal positive control bands are 1070 or 800 base pairs respectively, well distribution as outlined in the table. Well number 1 contains the shorter, 800 bp, internal positive control band. The well distribution of the internal controls can help in orientation of the kit on gel photo, as well as allow for kit identification. In the presence of a specific amplification the intensity of the control band often decreases.

³The 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.

⁴For several HLA Class I alleles 1st and/or 4th exon(s) and beyond, as well as intron nucleotide sequences, are not available. In these instances it is not known whether some of the primers of the SSP sets are completely matched with the target sequences or not. Assumption is made that unknown sequences in these regions are conserved within allelic groups.

⁵Only HLA-A alleles will be amplified by the 24 wells of the HLA-A low resolution primer set, wells 1 to 24, except that a few HLA-B and HLA-C alleles will be amplified by primer mixes 4 to 6, 9 and 11.

⁶HLA-specific PCR products shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR products.

⁷The primer pairs in wells 1, 2, 5, 7, 8, 10, 11, 14, 15 and 18 will in many samples give rise to two or three HLA-specific PCR fragments.

⁸Primer mix 3 may faintly amplify the A*30:04:01-30:04:02, 30:06, 30:17, 30:29, 30:46 and 30:77 alleles.

⁹Primer mix 6 may give rise to a lower yield of A*23 alleles than the other A low primer mixes.

¹⁰Primer mix 9 may weakly amplify the A*34 alleles.

¹¹Primer mix 22 might faintly amplify most A*11 alleles.

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¹²Primer mixes 6, 10, 14, 20 and 23 may have a tendency of giving rise to primer oligomer formation.

¹³Primer mixes 6, 15 and 24 may give rise to a lower yield of HLA-specific PCR product than the other HLA-A low primer mixes.

¹⁴Primer mixes 15 and 20 may have tendencies of unspecific amplifications.

¹⁵In primer mix 6 the positive control band may be weaker than for other HLA-A low primer mixes.

¹⁶Primer mix 21 may generate a false positive band of about 560 base pairs. This band should be disregarded when interpreting HLA-A low resolution typings.

‘w’, might be weakly amplified.

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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, 07:140-07:154, 07:156-07:163, 07:166-07:201N, 07:203-07:208, 07:210-07:219, 07:221-07:222, 07:224-07:225, 07:227-07:234, 07:236-07:249, 07:251N-07:256, 08:79, 15:138, 15:230, 15:241, 15:297, 37:07, 40:15-40:16, 40:23, 40:32, 40:98, 40:136, 40:158, 40:183, 40:198, 40:231, 40:279, 41:08, 42:05:01-42:05:02, 44:150, 48:05, 48:08, 48:15, C*02:23, C*03:260, C*04:77
26	215 bp	1070 bp	8, 44	*08:01:01-08:05, 08:07-08:25, 08:27-08:49, 08:51-08:61, 08:63-08:64, 08:66-08:84, 08:86N-08:93, 08:95-08:122, 08:124-08:131, 08:133-08:145, 08:147-08:151, 15:142, 15:180, 35:218, 35:256, 44:49, 44:156, 49:25, 51:68, 51:176, C*06:147
27	140 bp, 235 bp	1070 bp	7, 8, 13, 15, 35, 4005, 44, 49, 61, 62, 77	*07:20, 07:24, 07:60, 07:100, 07:131, 07:220, 07:223, 08:21, 08:25, 13:01:01-13:04, 13:06-13:08, 13:10-13:23, 13:25-13:38, 13:40-13:57, 13:59-13:66, 13:68-13:84, 15:07:01-15:07:03, 15:36 ^w , 15:45, 15:55, 15:68, 15:89 ^w , 15:126, 15:207, 15:324, 15:329, 15:331, 15:360, 35:05:01-35:05:03, 35:16-35:17:02, 35:22, 35:30, 35:51, 35:58, 35:72, 35:89, 35:97, 35:113-35:114, 35:125, 35:164, 35:199, 35:232, 35:242, 40:05, 40:71, 40:174, 44:08 ^w , 44:54, 44:57 ^w , 44:60, 44:106, 44:110, 44:135, 44:158, 44:184, 44:211, 44:213, 46:12, 51:64, 51:148, 53:14, 55:51, 58:18, C*03:05, C*03:25, C*03:27, C*03:143, C*03:167, C*03:296
28 ^{7,8}	130 bp, 265 bp	800 bp	12, 13, 14, 15, 17, 21, 35, 40, 41, 44, 45, 47, 49, 50, 57, 58, 60, 61, 64, 65	*13:01:01-13:01:09, 13:02:01-13:04, 13:06-13:13:02, 13:15-13:23, 13:25-13:57, 13:59-13:82, 13:84, 14:01:01-14:02:08, 14:02:10-14:04, 14:07N, 14:09, 14:11-14:12, 14:14-14:36, 14:38-14:49, 15:46, 15:53, 15:106, 15:143, 15:212, 15:336, 18:44:01-18:44:02, 18:107, 35:19, 35:46-35:47, 35:63, 35:154, 35:207, 35:217, 39:79, 40:01:01-40:01:39, 40:01:42-40:01:43, 40:07, 40:10:01-40:10:02, 40:14:01-40:16, 40:22N-40:23, 40:25, 40:30-40:34, 40:36, 40:38, 40:42-40:43, 40:45, 40:47-40:49, 40:51-40:55, 40:58-40:63, 40:65-40:67, 40:69, 40:72:01-40:73, 40:76-40:77, 40:79-40:81, 40:84, 40:87:01-40:88, 40:92, 40:100-40:102, 40:106, 40:108, 40:110, 40:112-40:114:02, 40:116-40:118N, 40:121, 40:123-40:126, 40:128-40:130:02, 40:132, 40:134-40:136, 40:139-40:141, 40:146-40:147, 40:150-40:156, 40:158, 40:160:01-40:160:02, 40:163-40:164, 40:166, 40:168, 40:170-40:172, 40:175, 40:178-40:179, 40:182-40:183, 40:186-40:188, 40:191-40:199, 40:204, 40:207-40:208, 40:212-40:213, 40:215-40:219, 40:221-40:223, 40:227-40:228, 40:231, 40:233-40:242, 40:245, 40:247, 40:249-40:250, 40:252-40:253, 40:257-40:264, 40:272-40:273, 40:277-40:282, 40:285-40:286N, 40:288, 40:298-40:299, 40:301, 40:308, 41:01:01-41:39, 44:02:01:01-44:02:31, 44:02:33-44:03:06,

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29⁸	185 bp, 235 bp	800 bp	7, 16, 17, 27, 2708, 37, 38, 39, 3901, 3902, 64, 67	*07:02:32, 07:197, 14:01:01-14:01:05, 14:07N-14:08:02, 14:10, 14:12, 14:14, 14:19, 14:26, 14:32, 14:40, 14:46-14:47, 14:49, 27:01-27:05:15, 27:05:17-27:05:19, 27:05:21-27:06, 27:07:04-27:10, 27:12-27:13, 27:16-27:18, 27:20, 27:23, 27:26-27:27, 27:29, 27:31, 27:35-27:37, 27:39-27:42, 27:44-27:46, 27:48-27:61, 27:64N-27:69, 27:72-27:75, 27:77-27:80, 27:82-27:124, 27:126, 27:128-27:129, 27:131-27:137, 27:140-27:142, 37:02, 38:01:01-38:01:07, 38:01:09-38:02:02, 38:02:04-38:03, 38:07-38:24, 38:26-38:32, 38:34N-38:57, 39:01:01:01-39:01:01:03, 39:01:03-39:01:08, 39:01:10-39:02:01, 39:03, 39:05:01-39:06:02, 39:06:04-39:09:03, 39:11, 39:14-39:15, 39:18, 39:19:02, 39:22, 39:24:01-39:39:01, 39:40:01N-39:44, 39:46-39:48, 39:50-39:62, 39:64-39:71, 39:73-39:75, 39:77, 39:79-39:82, 39:84-39:88, 39:90-39:91, 39:93-39:95N, 39:97N-39:98, 39:100, 39:102, 39:104, 47:04-47:05, 48:21, 48:26, 67:01:01, 67:03-67:04
30	190 bp	800 bp	14, 35, 38, 39, 65	*07:28, 08:87, 14:02:01-14:02:02, 14:02:04-14:02:05, 14:02:07-14:06:02, 14:09, 14:11, 14:13, 14:15-14:18, 14:20, 14:22-14:23, 14:25, 14:27, 14:29-14:31, 14:33-14:39, 14:41N, 14:43-14:45, 14:48, 15:77, 15:189, 15:233, 35:03:17, 35:26, 38:05, 38:33, 39:04, 44:16, 44:37:01-44:37:02, 44:64:01-44:64:02, 44:91, 44:132, 44:150, 44:190, 52:26, 57:04, A*23:31, A*24:106, C*02:97, C*07:231, C*16:10
31	290 bp	1070 bp	15, 22, 46, 62, 63, 71, 72, 75, 76, 77	*15:01:01:01-15:01:03, 15:01:06-15:02:09, 15:03:03, 15:04:01-15:08:02, 15:10:02, 15:11:01-15:11:03, 15:11:05-15:15, 15:17:01:01-15:17:03, 15:19-15:21, 15:24:01-15:28, 15:30-15:36, 15:38:01-15:40, 15:42-15:46, 15:48, 15:50, 15:55-15:58, 15:60, 15:63, 15:65-15:66, 15:70-15:71, 15:73, 15:75-15:79N, 15:81-15:89, 15:92, 15:94N, 15:96-15:97, 15:101-15:102, 15:104-15:107, 15:109-15:113, 15:116-15:118, 15:120-15:122, 15:125-15:126, 15:128-15:129, 15:135-15:150, 15:152, 15:154-15:155, 15:157, 15:159-15:160, 15:162-15:172, 15:174-15:175, 15:177-15:179:02, 15:181N-15:185, 15:187-15:196, 15:199, 15:201-15:209N, 15:211, 15:213-15:219, 15:223-15:225, 15:227-15:228, 15:230-15:234, 15:236-15:237, 15:239-15:241, 15:244-15:251, 15:256-15:262N, 15:264-15:265, 15:267-15:273, 15:276-15:280, 15:283-15:289, 15:291, 15:295-15:305, 15:308-15:310, 15:315-15:322, 15:324-15:328, 15:330-15:334, 15:339-15:346, 15:353, 15:355-15:361, 15:363, 46:01:01-46:64, C*01:73, C*05:01:28, C*07:02:30, C*08:16:02
32	165 bp, 225 bp, 285 bp, 330 bp	1070 bp	5, 8, 12, 21, 22, 37, 41, 42, 44, 45, 48, 51, 56, 57, 60, 62, 70, 71, 72, 82	*08:01:01-08:01:22, 08:01:24-08:05, 08:08N-08:13, 08:15-08:27, 08:29-08:36, 08:38-08:48, 08:50-08:73, 08:75-08:76, 08:78, 08:80-08:86N, 08:88, 08:90-08:106, 08:109-08:110, 08:112-08:151, 13:46, 15:03:01-15:03:05, 15:09-15:10:04, 15:18:01-15:18:06, 15:23, 15:29, 15:37, 15:46-15:47:02, 15:49, 15:51-15:54, 15:61-15:62, 15:64:01-15:64:02, 15:69, 15:72, 15:74, 15:80, 15:83, 15:90-15:91, 15:93, 15:98-15:99, 15:103,

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33^{8,9,11}	165 bp, 190 bp, 390 bp	1070 bp	5, 17, 21, 35, 51, 5102, 5103, 52, 56, 62, 63, 70, 78	*13:62, 15:01:02, 15:09, 15:16:01-15:17:03, 15:67, 15:95, 15:162, 15:168, 15:177, 15:196, 15:208, 15:216, 15:222, 15:230, 15:243, 15:254, 15:268, 15:273, 15:277-15:278, 15:356, 15:361-15:362, 35:01:10, 35:04:02, 35:251, 40:26, 40:28, 44:62, 49:18, 50:14, 51:01:01:01-51:01:03, 51:01:05-51:02:03, 51:02:05-51:09:02, 51:11N-51:12, 51:13:02-51:14, 51:16-51:23, 51:24:03-51:24:05, 51:26-51:33, 51:37-51:41N, 51:43-51:44N, 51:46, 51:48-51:61:02, 51:63-51:80, 51:82-51:91, 51:92:02, 51:94-51:98N, 51:100-51:130, 51:132-51:142, 51:145-51:147, 51:149N-51:156, 51:158:01-51:190, 52:01:01:01-52:01:04, 52:01:06-52:01:14, 52:01:16-52:01:24, 52:01:27-52:13, 52:15-52:24, 52:26-52:45, 52:47-52:50, 53:28, 56:05:01-56:06, 56:21, 58:08:01-58:08:02, 78:01:01-78:08
34	180 bp	800 bp	13, 22, 55, 60	*07:78, 13:01:01-13:02:18, 13:07N-13:09, 13:11, 13:14-13:20, 13:22:01-13:23, 13:25, 13:27-13:34, 13:36-13:45, 13:47, 13:49N-13:50, 13:52, 13:54-13:58, 13:60-13:61, 13:63N-13:70, 13:73-13:78, 13:80-13:84, 40:48, 45:10, 49:07, 50:31, 54:26, 55:09, 55:22, 55:24, 59:09, C*02:06, C*15:42
35⁶	100 bp, 195 bp	1070 bp	8, 12, 27, 38, 39, 3902, 44, 45, 48, 60, 70, 71, 72, 82	*07:27, 07:50, 07:219, 08:04, 08:17, 08:54, 08:110, 15:03:01-15:03:05, 15:47:01-15:47:02, 15:49, 15:54, 15:61-15:62, 15:64:01-15:64:02, 15:68-15:69, 15:91, 15:98, 15:103, 15:123, 15:127, 15:131-15:132, 15:151, 15:156, 15:158, 15:173, 15:210, 15:220, 15:235, 15:242, 15:253, 15:259, 15:266, 15:274, 15:281-15:282, 18:37, 27:18, 27:29, 37:28, 38:03, 39:02:01-39:02:02, 39:08, 39:13:01-39:13:02, 39:23, 39:39:01-39:39:02, 39:49, 39:88, 39:101, 39:105, 40:12, 40:46, 40:93, 42:11, 44:10, 44:15, 44:18, 44:40, 44:44, 44:130, 44:140, 44:156, 44:210, 45:01:01-45:01:02, 45:05-45:07, 45:11-45:16, 48:01:01-48:05, 48:07-48:30, 48:32-48:37, 49:20, 50:02, 52:16, 55:18, 56:44, 58:44, 82:01-82:03
36	280 bp	1070 bp	5, 7, 8, 13, 15, 16, 17, 18, 22, 35, 40, 42, 44, 46, 48, 49, 51, 53, 55, 56, 57, 58, 60, 61, 62, 63, 70, 71, 72, 75, 76, 77, 78	*07:09, 07:11, 07:17, 07:162, 07:235, 07:237, 07:255, 08:28, 08:35, 08:37, 08:89, 08:107, 13:04, 13:10, 13:26:01-13:26:02, 13:72, 15:01:01:01-15:01:04, 15:01:06-15:08:02, 15:11:01-15:16:03, 15:18:01-15:21, 15:23-15:29, 15:31-15:36, 15:38:01-15:40, 15:43-15:44, 15:46-15:47:02, 15:49-15:57, 15:60-15:62, 15:64:01-15:72, 15:74-15:76, 15:78:01-15:82, 15:84-15:85, 15:87-15:89, 15:91-15:98, 15:101-15:129, 15:131-15:132, 15:134-15:136, 15:138-15:149N, 15:151-15:161, 15:163-15:167, 15:169-15:176, 15:178-15:187, 15:189-15:195, 15:197-15:207, 15:209N-15:215, 15:217-15:223, 15:225-15:228, 15:231-15:232, 15:234-15:242, 15:244-15:247, 15:249-15:251,

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69^{6,10}	115 bp, 150 bp	1070 bp	15, 18, 22, 27, 35, 39, 46, 55, 62, 72, 73, 75, 76	*07:100, 13:31, 13:41, 15:01:01:01-15:01:04, 15:01:06-15:01:16, 15:01:18-15:01:30, 15:01:32-15:01:39, 15:04:01-15:04:02, 15:07:01-15:08:02, 15:11:01-15:12, 15:14-15:15, 15:19, 15:24:01-15:24:02, 15:26N-15:28, 15:30, 15:32:01-15:32:02, 15:34-15:35, 15:38:01-15:38:02, 15:43, 15:45-15:46, 15:50, 15:53-15:54, 15:56-15:58, 15:60, 15:63, 15:66, 15:68, 15:70-15:71, 15:73, 15:75-15:77, 15:79N, 15:81-15:82, 15:85, 15:87, 15:92, 15:94N, 15:96-15:97, 15:101-15:102, 15:104-15:105, 15:109-15:111N, 15:113, 15:117-15:118, 15:120, 15:122, 15:125-15:126, 15:128-15:129, 15:135, 15:137, 15:140, 15:142-15:149N, 15:152, 15:154, 15:157, 15:159-15:160, 15:163-15:167, 15:169, 15:171-15:172, 15:174-15:175, 15:178, 15:180-15:184, 15:187, 15:189-15:193, 15:201-15:203, 15:205-15:207, 15:209N, 15:211-15:212, 15:215, 15:217, 15:225, 15:227-15:228, 15:231-15:234, 15:236, 15:239, 15:241, 15:244-15:247, 15:251, 15:256-15:262N, 15:264, 15:267, 15:269-15:270, 15:272N, 15:276-15:280, 15:284-15:286, 15:296, 15:298-15:299, 15:303-15:305, 15:309, 15:315-15:318, 15:320-15:321Q, 15:324, 15:326-15:327, 15:331, 15:333-15:334, 15:336, 15:340, 15:342-15:344, 15:346-15:347, 15:353, 15:355, 15:359, 15:363, 18:19, 27:25, 27:75, 27:115, 35:14:01-35:14:02, 35:43:01-35:44, 35:62, 35:67, 35:79, 35:86, 35:102, 35:117, 35:135, 35:163, 35:185, 35:213, 35:265, 39:18, 39:36, 44:146, 46:01:01-46:02, 46:04-46:05, 46:07N, 46:09-46:10, 46:12, 46:14-46:17, 46:20, 46:22-46:24, 46:26-46:32, 46:34-46:42, 46:44, 46:46-46:53, 46:55N-46:57, 46:60-46:61, 46:63-46:64, 51:61:01-51:61:02, 52:21, 54:06, 54:33, 55:21, 56:03, 56:43, 73:01-73:02, A*26:68, A*26:100, A*68:56, C*02:56, C*06:20, C*12:50
70¹⁵	360 bp	1070 bp	Bw4	
71	350 bp	1070 bp	Bw6	
72	285 bp	800 bp	7, 703, 8, 35, 40, 41, 42, 48, 53, 60, 61, 81	*07:02:01-07:02:38, 07:02:40-07:06, 07:08-07:18:02, 07:20-07:32, 07:34-07:39, 07:41-07:52, 07:54-07:59, 07:61-07:76, 07:79-07:83, 07:85-07:99, 07:101-07:121, 07:123-07:138, 07:140-07:164, 07:166-07:192, 07:194-07:195, 07:199-07:213, 07:215-07:234, 07:236-07:238, 07:240-07:249, 07:251N-07:254, 07:256, 08:01:01-08:01:20, 08:01:22-08:01:24, 08:01:26-08:05, 08:07-08:08N, 08:10-08:11, 08:13-08:15, 08:17-08:30N, 08:32-08:83, 08:85-08:88, 08:90-08:102, 08:104-08:106, 08:108-08:112, 08:114-08:115, 08:117-08:133, 08:135-08:151, 15:297, 35:66, 35:87, 37:07, 40:15-40:16, 40:30-40:32, 40:34, 40:45, 40:59, 40:80, 40:98, 40:137, 40:160:01-40:160:02, 41:02:01-41:02:06, 41:04, 41:10-41:11, 41:13, 41:18-41:19, 41:23-41:24, 41:27, 41:31, 41:36, 41:38-41:39, 42:01:01-42:02:01:02, 42:05:01-42:07, 42:09-42:13, 42:15-42:21, 44:150, 44:166, 48:01:01-48:01:06, 48:05-48:12, 48:14-48:20, 48:22, 48:27-48:37, 53:15, 81:01-81:07, C*03:260

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Lot-specific information

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

Nonspecific amplifications, i.e. a ladder or a smear of bands, may sometimes be seen. GC-rich primers have a higher tendency of giving rise to nonspecific amplifications than other primers.

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

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

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

²The internal positive control primer pairs amplify segments of the human growth hormone gene. The internal positive control bands are 1070 or 800 base pairs respectively, well distribution as outlined in the table. Well number 25 contains the shorter, 800 bp, internal positive control band. The well distribution of the internal controls can help in orientation of the kit on gel photo, as well as allow for kit identification. In the presence of a specific amplification the intensity of the control band often decreases.

³The 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.

⁴For several HLA Class I alleles 1st and/or 4th exon(s) and beyond, as well as intron nucleotide sequences, are not available. In these instances it is not known whether some of the primers of the SSP sets are completely matched with the target sequences or not. Assumption is made that unknown sequences in these regions are conserved within allelic groups.

⁵Only HLA-B alleles will be amplified by the 48 wells of the HLA-B low resolution, primer set, wells 25 to 72, except that a few HLA-A and HLA-C alleles will be amplified by primer mixes 25 to 28, 30 to 32, 37, 38, 41, 43 to 46, 49, 50, 53 to 55, 64 to 67, 69 and 72.

⁶HLA-specific PCR products shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR products.

⁷Primer mix 28 may give rise to a lower yield of HLA-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.

⁸Primer mixes 28, 29, 33, 42, 53 and 63 may give rise to a lower yield of HLA-specific PCR product than the other HLA-B low resolution primer mixes.

⁹Primer mix 33 has pronounced tendencies of unspecific amplifications.

¹⁰Primer mixes 25, 43, 44, 50, 52, 53 and 69 have a tendency to giving rise to primer oligomer formation, most pronounced in primer mix 53.

¹¹The B*57 and B*58 alleles might be faintly amplified by primer mix 33.

¹²The C*17:01 to C*17:04 alleles might be faintly amplified by primer mix 49.

¹³Primer 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.

¹⁴Primer mix 63 may give rise to a lower yield of B*54 alleles than the other B low primer mixes.

¹⁵The 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.

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SPECIFICITY TABLE

Specificities and sizes of the PCR products of the 23+1 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 ^{4,5}
73^{7,8}	210 bp, 235 bp, 260 bp	515 bp	1	*01:01:01-01:02:11, 01:04-01:38, 01:40N-01:71
74	200 bp	430 bp	103	*01:03, 01:39N, 01:42, 01:61
75^{7,11}	210 bp, 230 bp	430 bp	15	*15:01:01:01-15:120, 15:122-15:124
76¹¹	210 bp	430 bp	11, 16	*11:30, 12:57, 16:01:01-16:05:02, 16:07-16:36
77^{5,6,7,12}	120 bp, 220 bp	430 bp	3, 11, 17, 18	*03:01:01:01-03:10, 03:12-03:75, 03:77-03:96, 03:98-03:118, 03:120-03:121, 11:07, 11:103:01-11:103:02, 11:105, 11:107, 11:125, 11:173, 15:25
78^{5,6,7}	75 bp, 210 bp	430 bp	3, 6, 11, 13, 14, 17	*03:01:01:01-03:01:23, 03:01:25, 03:04:01-03:06, 03:08-03:16, 03:18-03:20, 03:22-03:23, 03:25-03:26, 03:28, 03:30-03:31, 03:33-03:34, 03:36-03:37, 03:43-03:48, 03:50-03:52, 03:54-03:68N, 03:70-03:73, 03:75-03:86, 03:89, 03:91-03:93, 03:95-03:96, 03:98-03:100:02, 03:104, 03:106-03:110, 03:112-03:114, 03:116-03:118, 03:121, 08:40, 11:02:01-11:03:02, 11:11:01, 11:11:03, 11:14:01-11:14:02, 11:16, 11:20-11:21, 11:36, 11:40-11:41, 11:48, 11:59, 11:63:01-11:63:02, 11:65:01-11:65:02, 11:68, 11:70, 11:73, 11:76, 11:79-11:80, 11:83, 11:85-11:87, 11:93, 11:118, 11:122, 11:124, 11:127, 11:131-11:132, 11:135, 11:138-11:139, 11:142, 11:151, 11:153, 11:161, 11:168, 11:171, 11:176, 11:182, 11:184, 13:01:01-13:04, 13:08, 13:10, 13:15-13:17, 13:19-13:20, 13:22-13:24, 13:27-13:29, 13:31-13:41, 13:43, 13:45, 13:48, 13:51-13:54, 13:57, 13:59, 13:61:01-13:61:02, 13:63-13:66:02, 13:68-13:76, 13:78-13:81, 13:83-13:85, 13:87-13:99, 13:101-13:102, 13:104-13:107, 13:109, 13:111-13:117, 13:120-13:131, 13:133, 13:135, 13:137N-13:145, 13:147-13:149, 13:151-13:153, 13:155, 13:159, 13:162, 13:165-13:168, 13:170-13:180, 13:182, 13:184-13:188, 13:190-13:191, 13:193-13:194, 13:196, 13:198, 13:200N-13:202, 13:204, 14:16, 14:19, 14:21, 14:45, 14:82, 14:95, 14:109, 14:120, 14:122, 14:132
79^{6,7}	85 bp, 210 bp	430 bp	3, 6, 11, 13, 14, 18	*03:02:01-03:03, 03:27, 03:29, 03:38, 03:53, 03:74, 03:88, 03:90, 03:102-03:103, 03:115, 11:13:01 ^w -11:13:02 ^w , 11:26, 11:34, 13:15, 13:19, 13:26:01-13:26:02, 13:44, 13:53, 13:57, 13:85-13:86, 13:104, 13:193, 13:198, 14:02:01-14:03:02, 14:06:01-14:06:03, 14:09, 14:12:01-14:13, 14:17-14:21, 14:24, 14:27, 14:29-14:30, 14:32:01 ^w -14:32:02 ^w , 14:33, 14:40-14:41, 14:47-14:49, 14:51, 14:63, 14:65 ^w , 14:67, 14:77-14:78, 14:80-14:81, 14:83, 14:85, 14:89, 14:94, 14:98, 14:102, 14:106, 14:108-14:109, 14:115, 14:119, 14:121, 14:135, 14:146, 14:154, 14:156, 14:159-14:160
80^{6,7,8,11}	100 bp, 175 bp	430 bp	3, 4	*04:01:01-04:05:11, 04:05:13-04:194
81^{7,11}	200 bp, 230 bp	430 bp	7, 13, 14	*07:01:01:01-07:01:18, 07:03-07:61, 08:67, 12:22, 13:17, 13:116, 13:175, 14:50

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82⁷	170 bp, 215 bp, 250 bp	515 bp	8, 11, 12, 14	*08:01:01-08:19, 08:21-08:56, 08:58-08:66, 08:68-08:76, 11:67, 12:04, 12:16:01-12:16:03, 12:22, 12:39, 12:49, 14:11, 14:15, 14:68:01-14:68:02, 14:93, 14:148
83^{6,7}	90 bp, 135 bp, 165 bp, 190 bp	430 bp	3, 9, 11	*03:08, 03:65, 03:112, 09:01:02-09:24, 09:26, 11:07, 11:103:01-11:103:02, 11:105, 11:107, 11:125, 11:173
84	175 bp	430 bp	10,11,13	*03:76, 10:01:01-10:15, 11:59, 11:80, 11:83, 11:87, 11:135, 11:142, 11:182, 13:27, 13:41, 13:71, 13:129, 13:176
85^{6,7}	100 bp, 175 bp	430 bp	3, 8, 11	*03:08, 03:65, 08:31, 08:41, 08:63, 08:75, 11:01:01- 11:11:01, 11:11:03-11:70, 11:72-11:176, 11:178-11:184
86^{6,7}	90 bp, 110 bp	430 bp	12, 14	*08:32, 08:53, 12:01:01-12:56, 12:58, 14:52
87⁸	220 bp	430 bp	6, 8, 11, 13, 14, 1403	*03:76, 08:20-08:21, 11:01:01-11:04:12, 11:06:01- 11:06:03, 11:08:01-11:11:01, 11:11:03-11:12:02, 11:14:01- 11:16, 11:18-11:21, 11:23:01-11:25, 11:27:01-11:33, 11:35-11:51, 11:54:01-11:54:02, 11:56-11:66, 11:68, 11:70, 11:72-11:81, 11:83-11:88, 11:90-11:97, 11:99-11:102:02, 11:106, 11:108-11:124, 11:126-11:135, 11:137-11:142, 11:144-11:158, 11:160-11:172, 11:174-11:176, 11:178- 11:184, 12:57, 13:01:01-13:02:01, 13:02:03-13:08, 13:10- 13:16, 13:18-13:43, 13:45-13:85, 13:87-13:115, 13:117- 13:128, 13:130-13:145, 13:147-13:166, 13:168-13:174, 13:176-13:182, 13:184-13:191, 13:194-13:204, 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, 14:128, 14:135, 14:144, 14:156, DRB3*02:27
88^{7,8}	205 bp, 225 bp	430 bp	6, 8, 11, 12, 13, 14	*08:01:01-08:01:05, 08:02:01-08:02:04, 08:04:01-08:09, 08:11, 08:16-08:17, 08:20-08:22, 08:24, 08:26, 08:28, 08:31, 08:39, 08:41-08:44, 08:50, 08:52, 08:54-08:55, 08:57, 08:59, 08:64, 08:67, 08:70, 08:72-08:73, 08:75, 11:01:01-11:01:17, 11:01:20-11:06:03, 11:09-11:11:01, 11:11:03-11:12:02, 11:14:01-11:16, 11:20-11:21, 11:23:01- 11:25, 11:27:01-11:30, 11:32-11:33, 11:35-11:41, 11:43- 11:44, 11:46:01-11:51, 11:54:01-11:56, 11:58:01-11:63:02, 11:65:01-11:70, 11:72, 11:74:01-11:78, 11:80-11:88, 11:90-11:97, 11:99-11:102:02, 11:106, 11:108-11:118, 11:120-11:124, 11:126-11:129, 11:133-11:135, 11:137- 11:142, 11:144-11:152, 11:154-11:158, 11:160-11:172, 11:174-11:176, 11:178-11:183, 12:02:01-12:02:06, 12:13, 12:15-12:16:03, 12:18-12:21, 12:23, 12:26-12:27, 12:31N- 12:33, 12:37, 12:42-12:45, 12:49-12:52, 12:55-12:57, 13:01:01-13:02:01, 13:02:03-13:02:12, 13:04-13:05:03, 13:07:01-13:09, 13:11:01-13:11:02, 13:14:01-13:24, 13:26:01-13:29, 13:31-13:32, 13:34-13:36, 13:38-13:43, 13:45-13:55, 13:57, 13:59, 13:61:01-13:65, 13:67-13:76, 13:78-13:80, 13:83-13:84, 13:87, 13:91-13:93, 13:96:01- 13:100, 13:102-13:109, 13:111-13:114, 13:116-13:117, 13:121, 13:123-13:132, 13:135-13:136, 13:138-13:150, 13:153, 13:155, 13:158-13:160, 13:162, 13:164-13:166, 13:168-13:169, 13:171:01-13:171:02, 13:173, 13:175, 13:177, 13:179, 13:182-13:187, 13:189-13:192, 13:195, 13:197-13:204, 14:15-14:16, 14:22, 14:24-14:25, 14:27, 14:37, 14:53, 14:73, 14:105, 14:128
89^{5,7}	175 bp, 240 bp	430 bp	3, 4, 6, 8, 11, 13, 14, 1403,1404,	*03:01:01:01-03:01:05, 03:01:07-03:01:08, 03:01:10-03:07, 03:09, 03:11:01-03:41:02, 03:43-03:45, 03:47-03:63, 03:66-03:68N, 03:70-03:86, 03:88-03:91, 03:93-03:110,

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90^{6,7,8}	100 bp, 150 bp, 195 bp, 240 bp	430 bp	4, 6, 8,13, 14	*04:62, 04:69, 04:73, 04:105:01-04:105:02, 04:122, 04:146, 08:08, 11:69, 11:82, 13:45, 13:197, 14:01:01-14:01:02, 14:01:04, 14:04:01-14:04:02, 14:07:01-14:07:02, 14:10, 14:16, 14:22, 14:25-14:26, 14:28, 14:31-14:32:03, 14:35, 14:37-14:39, 14:49-14:50, 14:53-14:54:01, 14:54:03-14:55, 14:57-14:58, 14:60-14:62, 14:68:01-14:71, 14:73-14:76, 14:79, 14:82, 14:86-14:88, 14:90, 14:93, 14:99, 14:101, 14:104-14:105, 14:107, 14:110-14:114, 14:117-14:120, 14:122, 14:124-14:125, 14:128-14:129, 14:131, 14:137N-14:140, 14:142-14:143, 14:145-14:147, 14:149-14:153, 14:157-14:158, 14:163, DRB4*01:03:01:02N
91^{6,7,8,9}	110 bp, 145 bp, 170 bp	430 bp	3, 4, 6, 9, 11, 12, 13, 14, 15	*03:10, 09:01:02-09:01:05, 09:01:07-09:02:02, 09:04-09:22, 09:24, 09:26, 11:13:01-11:13:02, 11:17, 11:52, 13:43, 13:159, 13:171:01, 13:179, 13:191, 13:193, 14:01:01-14:02:02, 14:04:01-14:11, 14:13-14:14, 14:16-14:18, 14:19 ^w , 14:20, 14:21 ^w , 14:22-14:23:04, 14:26, 14:28-14:36, 14:38:01-14:39, 14:41, 14:43-14:52, 14:54:01-14:54:03, 14:54:04 ^w , 14:54:05-14:57, 14:59-14:62, 14:64-14:65, 14:68:01-14:68:02, 14:70-14:76, 14:79-14:83, 14:86-14:88, 14:90-14:97, 14:99-14:101, 14:103-14:108, 14:109 ^w , 14:110-14:114, 14:117-14:127:02, 14:129-14:134, 14:137N-14:140, 14:142-14:143, 14:145-14:155, 14:157-14:160, 14:162-14:163, 15:27, 15:34, 15:66:01-15:66:02, 15:122 ^w
92^{6,7,8,11}	110 bp, 150 bp, 180 bp, 220 bp	430 bp	2, 3, 6, 8, 11, 13, 14 15, 16	*03:10, 08:09, 08:20-08:21, 08:32, 08:35, 08:36:02, 08:53, 08:68 ^w , 08:70 ^w , 11:13:01-11:13:02, 11:17, 11:23:01-11:23:02, 11:25, 11:31, 11:45, 11:52, 11:55, 11:64, 11:89, 11:96, 11:119, 11:148, 11:159, 13:13, 13:18, 13:43, 13:45, 13:47, 13:55, 13:119, 13:144, 13:146, 13:154, 13:156, 13:158-13:159, 13:164, 13:171:01, 13:179, 13:191, 13:197, 14:01:01-14:01:04, 14:03:01-14:05:04, 14:07:01-14:08, 14:10-14:12:02, 14:14-14:16, 14:18, 14:22-14:23:04,

101.701-24/06 – including *Taq* pol., IFU-01
101.701-24u/06u – without *Taq* pol., IFU-02

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Lot No.: **0D8**

Lot-specific information

				14:25-14:28, 14:31-14:32:03, 14:34-14:36, 14:38:01-14:40, 14:42-14:45, 14:49-14:50, 14:53-14:65, 14:67-14:79, 14:81-14:82, 14:84-14:93, 14:95-14:97, 14:99-14:105, 14:107, 14:110-14:120, 14:122-14:140, 14:142-14:158, 14:160, 14:162-14:163, 15:21 ^w , 16:04 ^w , 16:18 ^w
93^{7,8}	160 bp, 240 bp	430 bp	52	*14:141, DRB3*01:01:02:01-01:16, DRB3*02:01-02:29N, DRB3*03:01:01-03:03
94^{8,10}	215 bp	430 bp	53	DRB4*01:01:01-01-01:09
95	175 bp	430 bp	51	DRB5*01:01:01-01:15, DRB5*02:02-02:06
96¹³	-	-	-	Negative control

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

Nonspecific amplifications, i.e. a ladder or a smear of bands, may sometimes be seen. GC-rich primers have a higher tendency of giving rise to nonspecific amplifications than other primers, 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 inherent feature of the primer pair(s) of a primer mix. More often it is due to other factors such as too low amount of DNA in the PCR reactions, taking too long time in setting up the PCR reactions, working at elevated room temperature or using thermal cyclers that are not pre-heated.

²The internal positive control primer pairs amplify segments of the human growth hormone gene. The internal positive control bands are 430 or 515 base pairs respectively, well distribution as outlined in the table. Well number 73 contains the longer, 515 bp, internal positive control band. The well distribution of the internal controls can help in orientation of the kit on gel photo, as well as allow for kit identification. In the presence of a specific amplification the intensity of the control band often decreases. In the presence of a specific amplification the intensity of the control band often decreases.

³The 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.

⁴For several DRB1 alleles 1st and/or 3rd exon(s) and beyond, as well as intron nucleotide sequences, are not available. In these instances it is not known whether some of the primers of the SSP sets are completely matched with the target sequences or not. Assumption is made that unknown sequences in these regions are conserved within allelic groups.

⁵Due 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.

⁶HLA-specific PCR products shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR products.

⁷Individual alleles can give rise to two differently sized specific PCR fragments in primer mixes 73, 75, 77 to 83, 85, 86, 88 to 93.

⁸Primer mix 73, 80, 87, 88 and 90 to 94 may have a tendency to giving rise to primer oligomer formation.

⁹Primer 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.

¹⁰The DRB4*01:03:01:02N allele is amplified by primer mix 94, whereas the DRB4*02:01N and DRB4*03:01N null alleles are not amplified by this primer mix.

¹¹Primer mixes 75, 76, 80, 81 and 92 may have tendencies of unspecific amplifications.

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Lot-specific information

¹²Due to sharing of sequence motifs in codon 38 and 47, DRB3*01:14 will also be amplified in primer mixes 77, 78 and 89, and DRB3*01:23 in mix 77, in addition to primer mix 93.

¹³Primer mix 96 contains a negative control, which will amplify more than 95% of HLA amplicons as well as the amplicons generated by the control primer pairs matching the human growth hormone gene. HLA-specific PCR product sizes range from 75 to 200 base pairs and the PCR product generated by the HGH positive control primer pair is 430 base pairs.

'w', might be weakly amplified.

'?', nucleotide sequence information not available for the primer matching sequence.

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Lot No.: 0D8

Lot-specific information

HLA-A LOW PRIMER SPECIFICATION

Well No.	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec.	120	175	205	190	160	135	175	165	75	80	80	125
PCR product	145	215	235		335	200	205	200		240	175	195
	225	255			505						500	
		365										
		415										
Length of int.	800	800	1070	800	1070	800	1070	800	800	800	1070	800
pos. control ¹												
5'-primer(s) ²	98	48	357	98	144	176	98	98	261	98	301	103
	5'-CTT 3'	5'-gCT 3'	5'-ATg 3'	5'-CTA 3'	5'-gCC 3'	5'-gCA 3'	5'-CTC 3'	5'-CTA 3'	5'-AAC 3'	5'-CTA 3'	5'-Cgg 3'	5'-CCT 3'
	103	78	363	413	317	368	102	266	261	302	415	
	5'-CCT 3'	5'-TCT 3'	5'-ATA 3'	5'-CCg 3'	5'-gCT 3'	5'-gTT 3'	5'-gTT 3'	5'-ACA 3'	5'-ACg 3'	5'-AAC 3'	5'-ggA 3'	5'-ggT 3'
	123	106	363					413			385	423
	5'-AgT 3'	5'-CCA 3'	5'-ATA 3'					5'-CCg 3'			5'-ggC 3'	5'-gCT 3'
	363											
	5'-ATA 3'											
3'-primer(s) ³	203	240	527	256	265	270	259	259	302	299	341	257
	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'
	545	292	527	559	368	521	502	259	303		521	506
	5'-AgA 3'	5'-gTg 3'	5'-CCT 3'	5'-CCg 3'	5'-CAA 3'	5'-ggg 3'	5'-CTT 3'	5'-gTT 3'	5'-AgA 3'		5'-ggg 3'	5'-TgT 3'
			527			534	539	538				559
			5'-CCT 3'			5'-CgT 3'	5'-TCT 3'	5'-CCA 3'				5'-CTC 3'
			555									559
			5'-CCA 3'									5'-CgT 3'
			555									559
			5'-gCA 3'									5'-CgC 3'

Well No.	13	14	15	16	17	18	19	20	21	22	23	24
Length of spec.	175	80	90	240	140	200	340	210	200	85	85	360
PCR product	225	115	135	380	180	390	375	240	240	240	160	
		200	205	410					375	400	240	
		240							545		495	
		470										
Length of int.	1070	1070	1070	1070	1070	1070	800	800	800	800	800	1070
pos. control ¹												
5'-primer(s) ²	98	98	203	41	180	41	302	78	28	47	176	341
	5'-CTT 3'	5'-CAC 3'	5'-gAA 3'	5'-CTT 3'	5'-TTT 3'	5'-CTT 3'	5'-ggA 3'	5'-TCT 3'	5'-TCg 3'	5'-g.T 3'	5'-gCA 3'	5'-ggC 3'
	423	219	362	355	203	98	302	106	261	78	261	
	5'-gCT 3'	5'-gCA 3'	5'-ggT 3'	5'-CCg 3'	5'-gAA 3'	5'-CAC 3'	5'-ggA 3'	5'-CCA 3'	5'-AAC 3'	5'-TCT 3'	5'-AAC 3'	
		238	363		418		341	2 nd I	368	527	341	
		5'-AgA 3'	5'-ATA 3'		5'-AgC 3'		5'-ggA 3'	5'-CCT 3'	5'-gTT 3'	5'-TgC 3'	5'-ggA 3'	
		355	363								355	
		5'-CCg 3'	5'-ATA 3'								5'-CCC 3'	
			363								362	
			5'-ATA 3'								5'-gAg 3'	
			369								362	
			5'-TAC 3'								5'-gAg 3'	
3'-primer(s) ³	282	180	299	238	290	256	397	265	97	265	292	418
	5'-gAC 3'	5'-TCA 3'	5'-CCA 3'	5'-CCT 3'	5'-CAA 3'	5'-CCC 3'	5'-gAg 3'	5'-CCC 3'	5'-ggT 3'	5'-CCC 3'	5'-gTg 3'	5'-gTC 3'
	282	257	411	238	317	256		282	355	282	292	
	5'-gAC 3'	5'-gCA 3'	5'-TCA 3'	5'-CCT 3'	5'-ggA 3'	5'-CTC 3'		5'-gAC 3'	5'-gAC 3'	5'-gAC 3'	5'-gTT 3'	
	559	418	526	243	555	259		282	524	282	299	
	5'-CCC 3'	5'-gTC 3'	5'-CCA 3'	5'-TCA 3'	5'-CCA 3'	5'-gTT 3'		5'-gAC 3'	5'-CAT 3'	5'-gAC 3'	5'-TCT 3'	
	559	555		265				502	538	570	555	
	5'-CCg 3'	5'-CCA 3'		5'-CCC 3'				5'-CTT 3'	5'-CCA 3'	5'-CAC 3'	5'-CCA 3'	
				282				506				
				5'-gAC 3'				5'-TgT 3'				
				555								
				5'-CCA 3'								

101.701-24/06 – including *Taq* pol., IFU-01
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Lot-specific information

¹The internal positive control primer pairs amplify segments of the human growth hormone gene. The internal positive control bands are 1070 or 800 base pairs respectively, well distribution as outlined in the table. Well number 1 contains the shorter, 800 bp, internal positive control band. The well distribution of the internal controls can help in orientation of the kit on gel photo, as well as allow for kit identification. In the presence of a specific amplification the intensity of the control band often decreases.

²The nucleotide position matching the specificity-determining 3'-end of the primer is given. Nucleotide numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

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

HLA-B LOW PRIMER SPECIFICATION

Well No.	25	26	27	28	29	30	31	32	33	34	35	36
Length of spec. PCR product	110	215	140 235	130 265	185 235	190	290	165 225 285 330	165 190 390	180	100 195	280
Length of int. pos. control ¹	800	1070	1070	800	800	800	1070	1070	1070	800	1070	1070
5'-primer(s) ²	527 5'-TgA 3'	97 5'-TCg 3'	209 5'-ggC 3'	103 5'-CCg 3'	103 5'-CCT 3'	103 5'-CCg 3'	45 5'-ggA 3'	45 5'-ggA 3'	45 5'-ggA 3'	420 5'-TTA 3'	206 5'-AgA 3'	419 5'-gTC 3'
	540 5'-gAC 3'		363 5'-AgC 3'	103 5'-CCg 3'	103 5'-CCT 3'	418 5'-Agg 3'		357 5'-Tgg 3'	435 5'-AAA 3'		420 5'-TTA 3'	
			363 5'-AgC 3'	361 5'-AgT 3'	363 5'-AAT 3'			412 5'-ATA 3'				
3'-primer(s) ³	605 5'-gCT 3'	272 5'-Tgg 3'	309 5'-gTg 3'	193 5'-CgT 3'	246 5'-TAT 3'	246 5'-TAT 3'	165 5'-Tgg 3'	206 5'-CCT 3'	266 5'-TCC 3'	559 5'-CTC 3'	256 5'-CCC 3'	3 rd I 5'-TAT 3'
		272 5'-TgA 3'	312 5'-gCC 3'	193 5'-CgT 3'	246 5'-TAT 3'	572 5'-gCC 3'		538 5'-gTC 3'	559 5'-CAg 3'		272 5'-Tgg 3'	
			559 5'-CAg 3'	463 5'-gCT 3'	559 5'-CTC 3'			603 5'-gTg 3'	583 5'-gTg 3'		572 5'-gCg 3'	
				583 5'-gTg 3'								
Well No.	25	26	27	28	29	30	31	32	33	34	35	36

101.701-24/06 – including *Taq* pol., IFU-01
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Lot No.: **0D8**

Lot-specific information

Well No.	37	38	39	40	41	42	43	44	45	46	47	48
Length of spec.	195	105	115	80	150	140	55	210	170	110	395	160
PCR product		395	150				245					425
		435					390					
							415					
Length of int.	1070	1070	1070	1070	800	1070	1070	800	800	1070	1070	1070
pos. control ¹												
5'-primer(s) ²	142	45	161	167	355	206	45	142	409	246	44	44
	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'
	419	540					368	368	420			357
	5'-gTC 3'	5'-gAC 3'					5'-gTT 3'	5'-gTC 3'	5'-TTA 3'			5'-Tgg 3'
							557					
							5'-ggA 3'					
3'-primer(s) ³	301	272	234	204	463	302	259	311	544	317	272	302
	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'
	301	272	272			312	259	311				302
	5'-gTC 3'	5'-TgT 3'	5'-TgA 3'			5'-AgT 3'	5'-gTT 3'	5'-ggg 3'				5'-ggT 3'
	570	309	272				266	538				477
	5'-CCg 3'	5'-ATC 3'	5'-Tgg 3'				5'-TCC 3'	5'-gTC 3'				5'-gCg 3'
	572	605					272					
	5'-gCg 3'	5'-gCT 3'					5'-Tgg 3'					
							292					
							5'-gTA 3'					
							572					
							5'-gCg 3'					
Well No.	37	38	39	40	41	42	43	44	45	46	47	48

Well No.	49	50	51	52	53	54	55	56	57	58	59	60
Length of spec.	180	290	105	325	80	215	130	90	90	145	120	430
PCR product		465			115		270	410	175	430	210	
					160							
					195							
					225							
					260							
Length of int.	1070	1070	1070	800	1070	800	800	1070	1070	1070	800	1070
pos. control ¹												
5'-primer(s) ²	355	72	540	1 st I	355	141	209	41	209	48	357	49
	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'
	363	209			418	357	209		368	206		
	5'-Agg 3'	5'-ggC 3'			5'-Agg 3'	5'-Tgg 3'	5'-ggg 3'	5'-gTT 3'	5'-AgC 3'	5'-gAA 3'		
					499		355					
					5'-TCT 3'		5'-TCA 3'					
3'-primer(s) ³	499	193	603	282	538	309	299	282	259	309	435	309
	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'
		193	605		572	538	583	418	499		527	
		5'-TgT 3'	5'-gCT 3'		5'-gCg 3'	5'-gTC 3'	5'-gTg 3'	5'-gTC 3'	5'-ggA 3'		5'-CCT 3'	
		387			573		605					
		5'-TCg 3'			5'-AgT 3'		5'-gCT 3'					
Well No.	49	50	51	52	53	54	55	56	57	58	59	60

101.701-24/06 – including *Taq* pol., IFU-01
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Lot-specific information

Well No.	61	62	63	64	65	66	67	68	69	70	71	72
Length of spec. PCR product	145	300	160	180	180	90	90	95	115	360	350	285
Length of int. pos. control ¹	1070	1070	1070	1070	1070	800	1070	1070	1070	1070	1070	800
5'-primer(s) ²	206 5'-gAA 3'	1 st I 5'-CAG 3'	15 5'-gCA 3'	141 5'-ATT 3'	97 5'-TCg 3'	209 5'-ggC 3'	208 5'-CgT 3'	206 5'-gAC 3'	165 5'-ACC 3'	1 st I 5'-CAG 3'	1 st I 5'-CAG 3'	355 5'-TCA 3'
			418 5'-Agg 3'	420 5'-TTA 3'	420 5'-TTA 3'	209 5'-ggA 3'	209 5'-ggA 3'		463 5'-TgA 3'			363 5'-AgC 3'
						362 5'-ggT 3'	369 5'-TAC 3'					
3'-primer(s) ³	311 5'-ggT 3'	259 5'-CTC 3'	207 5'-TCC 3'	311 5'-ggT 3'	259 5'-gTT 3'	256 5'-CCC 3'	256 5'-CTC 3'	259 5'-gTT 3'	272 5'-TgC 3'	317 5'-ggA 3'	311 5'-ggT 3'	603 5'-gTg 3'
		259 5'-CTC 3'	226 5'-CAC 3'	559 5'-CgT 3'	559 5'-CAG 3'	259 5'-CTT 3'	256 5'-CCC 3'		538 5'-CCA 3'			605 5'-gCT 3'
		262 5'-TgC 3'	538 5'-gTC 3'			263 5'-gTT 3'	420 5'-gCT 3'					
						559 5'-CgT 3'						
Well No.	61	62	63	64	65	66	67	68	69	70	71	72

¹The internal positive control primer pairs amplify segments of the human growth hormone gene. The internal positive control bands are 1070 or 800 base pairs respectively, well distribution as outlined in the table. Well number 25 contains the shorter, 800 bp, internal positive control band. The well distribution of the internal controls can help in orientation of the kit on gel photo, as well as allow for kit identification. In the presence of a specific amplification the intensity of the control band often decreases.

²The nucleotide position matching the specificity-determining 3'-end of the primer is given. Nucleotide numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

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

101.701-24/06 – including *Taq* pol., IFU-01
101.701-24u/06u – without *Taq* pol., IFU-02

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

Lot No.: 0D8

Lot-specific information

DR LOW PRIMER SPECIFICATION

Well No.	73	74	75	76	77	78	79	80	81	82	83	84
Length of spec. PCR product	210	200	210	210	120	75	85	100	200	170	90	175
	235		230		220	210	210	175	230	215	135	
	260									250	165	
											190	
Length of int. pos. control ¹	515	430	430	430	430	430	430	430	430	515	430	430
5'-primer(s) ²	12(124) 5'-A.T 3'	14(129) 5'-gAA 3'	13(126) 5'-Agg 3'	11(119) 5'-gCT 3'	13(125) 5'-gTC 3'	13(125) 5'-gTC 3'	13(125) 5'-gTC 3'	13(125) 5'-ACA 3'	13(127) 5'-gTA 3'	15(133) 5'-gTT 3'	26(165) 5'-TAT 3'	26(164) 5'-gTA 3'
	14(129) 5'-gAA 3'		13(126) 5'-AAg 3'	13(126) 5'-AAg 3'	47(227) 5'-gTT 3'	15(133) 5'-gTT 3'		13(125) 5'-ACC 3'	13(127) 5'-ATA 3'	15(133) 5'-gTT 3'	36(196) 5'-AgA 3'	30(178) 5'-gCg 3'
			13(126) 5'-AgA 3'	13(126) 5'-Agg 3'				13(125) 5'-ATA 3'	13(127) 5'-ATA 3'	15(133) 5'-gCT 3'	58(261) 5'-gAg 3'	
								13(125) 5'-gTC 3'	15(133) 5'-gTT 3'			
3'-primer(s) ³	66(286) 5'-gAg 3'	66(286) 5'-gAT 3'	66(286) 5'-gAT 3'	66(286) 5'-gAA 3'	73(305) 5'-ggC 3'	26(164) 5'-ggT 3'	28(171) 5'-CTC 3'	32(184) 5'-gTg 3'	70(298) 5'-CTC 3'	58(260) 5'-CCT 3'	57(257) 5'-CgA 3'	72(303) 5'-gCA 3'
	66(286) 5'-gAg 3'		66(286) 5'-gAT 3'	66(286) 5'-gAg 3'	73(305) 5'-ggC 3'	66(286) 5'-gAT 3'	69(295) 5'-CTg 3'	58(260) 5'-Cgg 3'	73(305) 5'-ggC 3'	73(307) 5'-Cag 3'	73(305) 5'-ggC 3'	73(307) 5'-CgC 3'
	66(286) 5'-gAT 3'		69(295) 5'-CTg 3'	70(296) 5'-TgT 3'	73(305) 5'-ggC 3'	71(299) 5'-gCT 3'			77(317) 5'-AAT 3'	86(344) 5'-CAC 3'	77(319) 5'-CAC 3'	
	70(297) 5'-CTg 3'		69(295) 5'-Tg 3'	71(301) 5'-ggC 3'	74(308) 5'-CCC 3'				77(319) 5'-CAA 3'			
	71(299) 5'-gCg 3'		70(298) 5'-CgC 3'		74(310) 5'-CAA 3'				77(319) 5'-CAC 3'			
	77(317) 5'-AgT 3'		71(299) 5'-gCT 3'						77(319) 5'-CgC 3'			
	86(344) 5'-CCA 3'		73(305) 5'-ggC 3'									
			77(317) 5'-AgT 3'									
Well No.	73	74	75	76	77	78	79	80	81	82	83	84

Well No.	85	86	87	88	89	90	91	92	93	94	95
Length of spec. PCR product	100	90	220	205	175	100	110	110	160	215	175
	175	110		225	240	150	145	150	240		
						195	170	180			
						240		220			
Length of int. pos. control ¹	430	430	430	430	430	430	430	430	430	430	430
5'-primer(s) ²	13(125) 5'-gTC 3'	12(124) 5'-Cgg 3'	10(116) 5'-gCT 3'	10(116) 5'-gCT 3'	13(125) 5'-gTC 3'	5(101) 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'
	15(133) 5'-gTC 3'	15(133) 5'-gTT 3'	12(122) 5'-TAT 3'	12(122) 5'-TAT 3'	13(125) 5'-gTg 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'	114(429) 5'-CTg 3'	37(197) 5'-gTA 3'		36(196) 5'-AgC 3'	37(199) 5'-TCC 3'		
				13(125) 5'-gTg 3'							
				15(133) 5'-gTT 3'							
				15(133) 5'-gTC 3'							
3'-primer(s) ³	58(260) 5'-CCT 3'	28(171) 5'-CTC 3'	69(295) 5'-gTC 3'	66(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'	86(346) 5'-CTC 3'	57(258) 5'-gCg 3'
	58(260) 5'-CCT 3'	29(175) 5'-gTg 3'	71(299) 5'-gCT 3'	70(298) 5'-CgC 3'	58(260) 5'-CAg 3'	57(257) 5'-CAg 3'	69(295) 5'-CTg 3'	59(265) 5'-gTg 3'	77(317) 5'-AAT 3'	86(346) 5'-CTT 3'	58(260) 5'-CCT 3'
	58(260) 5'-CCT 3'	37(199) 5'-CAg 3'	71(299) 5'-ACT 3'	70(298) 5'-CTC 3'	181(630) 5'-CTT 3'	70(298) 5'-CgC 3'	70(296) 5'-TCC 3'	70(296) 5'-TCC 3'			
								73(307) 5'-CAg 3'			
Well No.	85	86	87	88	89	90	91	92	93	94	95

101.701-24/06 – including *Taq* pol., IFU-01
101.701-24u/06u – without *Taq* pol., IFU-02

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

Lot No.: 0D8

Lot-specific information

¹The internal positive control primer pairs amplify segments of the human growth hormone gene. The internal positive control bands are 430 or 515 base pairs respectively, well distribution as outlined in the table. Well number 73 contains the longer, 515 bp, internal positive control band. The well distribution of the internal controls can help in orientation of the kit on gel photo, as well as allow for kit identification. In the presence of a specific amplification the intensity of the control band often decreases.

²The nucleotide position matching the specificity-determining 3'-end of the primer is given. Nucleotide numbering as on the www.ebi.ac.uk/imgt/hla web site. The sequence of the 3 terminal nucleotides of the primer is given.

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

101.701-24/06 – including *Taq* pol., IFU-01
101.701-24u/06u – without *Taq* pol., IFU-02

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

Lot No.: **0D8**

Lot-specific information

CELL LINE VALIDATION SHEET																				
HLA-A low resolution primer set ²																				
					Well															
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
				Prod. No.:	201553401	201553402	201554703	201553404	201553405	201559006	201553407	201553408	201556309	201553410	201553411	201553412	201553413	201553414	201553415	201553416
	IHCW cell line ¹		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	-	+	-	+	-	-	-	-	-	-	+	-	-	-	-	-

101.701-24/06 – including *Taq* pol., IFU-01
101.701-24u/06u – without *Taq* pol., IFU-02

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

Lot No.: **0D8**

Lot-specific information

CELL LINE VALIDATION SHEET													
HLA-A low resolution primer set ²													
					Prod. No.:	Well							
						17	18	19	20	21	22	23	24
						201553417	201553418	201553419	201553420	201559021	201559022	201553423	201552924
	IHWC cell line ¹		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		-	-	-	-	-	-	-	-

101.701-24/06 – including *Taq* pol., IFU-01
101.701-24u/06u – without *Taq* pol., IFU-02

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

Lot No.: 0D8

Lot-specific information

¹The provided cell line HLA specificities are retrieved from the <http://www.ihwg.org/hla> web site. The specificity of an individual cell line may thus be subject to change.

²The specificity of each primer solution in the kit has been tested against 48 well characterized cell line DNAs and where applicable, additional cell line DNAs.

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 solution 1 and 19 were tested by separately adding one or two 3'-primers. Additional 3'-primers in primer solutions 3 and 18 were tested by separately adding one 5'-primer.

In primer solutions 2, 3, 11, 12, 15 and 22 one or two 5'-primers were not possible to test, and in primer solutions 3, 6, 8, 9, 12, 13, 16 and 18 one 3'-primer was not possible to test.

101.701-24/06 – including *Taq* pol., IFU-01
101.701-24u/06u – without *Taq* pol., IFU-02

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

Lot No.: **0D8**

Lot-specific information

CELL LINE VALIDATION SHEET																					
HLA-B low resolution SSP kit ²																					
					Well																
					Prod. No.:	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
					Prod. No.:	201549701	201549702	201549703	201555304	201549705	201549706	201549707	201549708	201559109	201549710	201549711	201549712	201549713	201549714	201549715	201549716
	IHC cell line ¹		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		-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	

101.701-24/06 – including *Taq* pol., IFU-01
101.701-24u/06u – without *Taq* pol., IFU-02

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

Lot No.: **0D8**

Lot-specific information

CELL LINE VALIDATION SHEET																					
HLA-B low resolution SSP kit ²																					
					Well																
					Prod. No.:	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
						201549717	201549718	201549719	201549720	201549721	201549722	201549723	201549724	201549725	201549726	201549727	201549728	201549729	201549730	201555331	201549732
	IHWC cell line ¹		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		+	+	-	-	-	-	-	-	-	-	-	-	+	-	-	-

101.701-24/06 – including *Taq* pol., IFU-01
101.701-24u/06u – without *Taq* pol., IFU-02

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

Lot No.: **0D8**

Lot-specific information

CELL LINE VALIDATION SHEET																							
HLA-B low resolution SSP kit ²																							
						Well																	
						57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72		
					Prod. No.:	201549733	201549734	201549735	201549736	201549737	201549738	201549739	201549740	201549741	201549742	201549743	201549744	201549745	201549746	201549747	201549748		
	IHC cell line ¹		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		-	-	-	-	-	+	-	-	-	-	-	+	-	+	+	-		

101.701-24/06 – including *Taq* pol., IFU-01
101.701-24u/06u – without *Taq* pol., IFU-02

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Lot No.: 0D8

Lot-specific information

¹The provided cell line HLA specificities are retrieved from the <http://www.ihwg.org/hla> web site. The specificity of an individual cell line may thus be subject to change.

²The specificity of each primer solution in the kit has been tested against 48 well characterized cell line DNAs and where applicable, additional cell line DNAs.

Additional 5'-primers and 3'-primers in primer solutions 27, 30, 38, 43, 53, 55, 64 and 65 were tested by separately adding one additional 3'-primer, respectively one additional 5'-primer. Additional 3'-primers in primer solutions 26, 32, 35, 37, 39 and 42 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, 66 and 67 one 5'-primer was not possible to test, and in primer mixes 27, 53, 62, 63 and 66 one or two 3'-primer was not possible to test.

101.701-24/06 – including *Taq* pol., IFU-01
101.701-24u/06u – without *Taq* pol., IFU-02

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“Instructions for Use” (IFU)

Lot No.: **0D8**

Lot-specific information

CELL LINE VALIDATION SHEET																					
DR low resolution primer set ²																					
					Prod. No.:	Well															
						73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88
						201553601	201553602	201553603	201559204	201557405	201553606	201553607	201553608	201559209	201553610	201554911	201553612	201553613	201557414	201553615	201553616
	IHWC cell line ¹		DRB1																		
1	9001	SA	*01:01			+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2	9280	LK707	*15:02	*04:05		-	-	+	-	-	-	-	+	-	-	-	-	-	-	-	
3	9011	E4181324	*15:02			-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	
4	9275	GU373	*03:01			-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	
5	9009	KAS011	*16:01			-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	
6	9353	SM	*04:07	*08:03		-	-	-	-	-	-	-	+	-	+	-	-	-	-	-	
7	9020	QBL	*03:01			-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	
8	9025	DEU	*04:01			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	
9	9026	YAR	*04:02			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	
10	9107	LKT3	*04:05			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	
11	9051	PITOUT	*07:01			-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	
12	9052	DBB	*07:01			-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	
13	9004	JESTHOM	*01:01			+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
14	9071	OLGA	*08:02			-	-	-	-	-	-	-	-	-	+	-	-	-	-	+	
15	9075	DKB	*09:01			-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	
16	9037	SWEIG007	*11:01			-	-	-	-	-	-	-	-	-	-	-	+	-	+	+	
17	9282	CTM3953540	*03:01	*13:01		-	-	-	-	+	+	-	-	-	-	-	-	-	+	+	
18	9257	32367	*09:01	*11:01		-	-	-	-	-	-	-	-	-	-	+	-	+	-	+	
19	9038	BM16	*12:01			-	-	-	-	-	-	-	-	-	-	-	-	+	-	-	
20	9059	SLE005	*13:02			-	-	-	-	-	+	-	-	-	-	-	-	-	+	+	
21	9064	AMALA	*14:02			-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	
22	9056	KOSE	*13:02	*14:54		-	-	-	-	-	+	-	-	-	-	-	-	-	+	+	
23	9124	IHL	*08:03	*14:14		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	
24	9035	JBUSH	*11:01			-	-	-	-	-	-	-	-	-	-	-	+	-	+	+	
25	9049	IBW9	*07:01			-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	
26	9285	WT49	*03:01			-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	
27	9191	CH1007	*04:05	*10:01		-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	
28	9320	BEL5GB	*04:16	*07:01		-	-	-	-	-	-	-	+	+	-	-	-	-	-	-	
29	9050	MOU	*07:01			-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	
30	9021	RSH	*03:02			-	-	-	-	+	-	+	-	-	-	-	-	-	-	-	
31	9019	DUCAF	*03:01			-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	
32	9297	HAG	*13:03			-	-	-	-	-	+	-	-	-	-	-	-	-	+	-	
33	9098	MT14B	*04:04			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	
34	9104	DHIF	*11:01			-	-	-	-	-	-	-	-	-	-	-	+	-	+	+	
35	9302	SSTO	*04:03			-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	
36	9024	KT17	*04:03	*04:06		-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	
37	9065	HHKB	*13:01			-	-	-	-	-	+	-	-	-	-	-	-	-	+	+	
38	9099	LZL	*14:02			-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	
39	9315	CML	*03:01	*04:01		-	-	-	-	+	+	-	+	-	-	-	-	-	-	-	
40	9134	WHONP199	*07:01	*09:01		-	-	-	-	-	-	-	-	+	-	+	-	-	-	-	
41	9055	H0301	*13:02			-	-	-	-	-	+	-	-	-	-	-	-	-	+	+	
42	9066	TAB089	*08:03			-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	
43	9076	T7526	*09:01			-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	
44	9057	TEM	*14:01			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
45	9239	SHJO	*07:01			-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	
46	9013	SCHU	*15:01			-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	
47	9045	TUBO	*11:04	*12:01		-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	
48	9303	TER-ND	*01:03			-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	

101.701-24/06 – including *Taq* pol., IFU-01
101.701-24u/06u – without *Taq* pol., IFU-02

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Lot No.: 0D8

Lot-specific information

CELL LINE VALIDATION SHEET													
DR low resolution primer set ²													
					Prod. No.:	Well							
						89	90	91	92	93	94	95	
						201553617	201553618	201553619	201553620	201553629	201553630	201553631	
	IHWC cell line ¹		DRB1										
1	9001	SA	*01:01			-	-	-	-	-	-	-	
2	9280	LK707	*15:02	*04:05		-	-	-	-	-	+	+	
3	9011	E4181324	*15:02			-	-	-	-	-	-	+	
4	9275	GU373	*03:01			+	-	-	-	+	-	-	
5	9009	KAS011	*16:01			-	-	-	-	-	-	+	
6	9353	SM	*04:07	*08:03		-	-	-	-	-	+	-	
7	9020	QBL	*03:01			+	-	-	-	+	-	-	
8	9025	DEU	*04:01			-	-	-	-	-	+	-	
9	9026	YAR	*04:02			-	-	-	-	-	+	-	
10	9107	LKT3	*04:05			-	-	-	-	-	+	-	
11	9051	PITOUT	*07:01			-	-	-	-	-	+	-	
12	9052	DBB	*07:01			-	-	-	-	-	+	-	
13	9004	JESTHOM	*01:01			-	-	-	-	-	-	-	
14	9071	OLGA	*08:02			-	-	-	-	-	-	-	
15	9075	DKB	*09:01			-	-	+	-	-	+	-	
16	9037	SWIEG007	*11:01			-	-	-	-	+	-	-	
17	9282	CTM3953540	*03:01	*13:01		+	-	-	-	+	-	-	
18	9257	32367	*09:01	*11:01		-	-	+	-	+	+	-	
19	9038	BM16	*12:01			-	-	-	-	+	-	-	
20	9059	SLE005	*13:02			+	-	-	-	+	-	-	
21	9064	AMALA	*14:02			+	-	+	-	+	-	-	
22	9056	KOSE	*13:02	*14:54		+	+	+	+	+	-	-	
23	9124	IHL	*08:03	*14:14		+	-	+	+	+	-	-	
24	9035	JBUSH	*11:01			-	-	-	-	+	-	-	
25	9049	IBW9	*07:01			-	-	-	-	-	+	-	
26	9285	WT49	*03:01			+	-	-	-	+	-	-	
27	9191	CH1007	*04:05	*10:01		-	-	-	-	-	+	-	
28	9320	BEL5GB	*04:16	*07:01		-	-	-	-	-	+	-	
29	9050	MOU	*07:01			-	-	-	-	-	+	-	
30	9021	RSH	*03:02			+	-	-	-	+	-	-	
31	9019	DUCAF	*03:01			+	-	-	-	+	-	-	
32	9297	HAG	*13:03			+	-	-	-	+	-	-	
33	9098	MT14B	*04:04			-	-	-	-	-	+	-	
34	9104	DHIF	*11:01			-	-	-	-	+	-	-	
35	9302	SSTO	*04:03			-	-	-	-	-	+	-	
36	9024	KT17	*04:03	*04:06		-	-	-	-	-	+	-	
37	9065	HHKB	*13:01			+	-	-	-	+	-	-	
38	9099	LZL	*14:02			+	-	+	-	+	-	-	
39	9315	CML	*03:01	*04:01		+	-	-	-	+	+	-	
40	9134	WHONP199	*07:01	*09:01		-	-	+	-	-	+	-	
41	9055	H0301	*13:02			+	-	-	-	+	-	-	
42	9066	TAB089	*08:03			-	-	-	-	-	-	-	
43	9076	T7526	*09:01			-	-	+	-	-	+	-	
44	9057	TEM	*14:01			+	+	+	+	+	-	-	
45	9239	SHJO	*07:01			-	-	-	-	-	+	-	
46	9013	SCHU	*15:01			-	-	-	-	-	-	+	
47	9045	TUBO	*11:04	*12:01		-	-	-	-	+	-	-	
48	9303	TER-ND	*01:03			-	-	-	-	-	-	-	

101.701-24/06 – including *Taq* pol., IFU-01
101.701-24u/06u – without *Taq* pol., IFU-02

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Lot No.: 0D8

Lot-specific information

¹The provided cell line HLA specificities are retrieved from the <http://www.ihwg.org/hla> web site. The specificity of an individual cell line may thus be subject to change.

²The specificity of each primer solution in the kit has been tested against 48 well characterized cell line DNAs and where applicable, additional cell line DNAs.

Additional 5'- and 3'-primers in primer solutions 76, 81, 83, 84 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, 82 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 to 89 and 92 were not possible to test. One or two of the 3'-primers in primer solution 73, 75 to 78, 81, 85, 87 and 94 were not possible to test.

101.701-24/06 – including *Taq* pol., IFU-01
101.701-24u/06u – without *Taq* pol., IFU-02

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“Instructions for Use” (IFU)

Lot No.: **0D8**

Lot-specific information

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