

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

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

Lot No.: **4E5**

Lot-specific information

Olerup SSP[®] HLA-A-B-C SSP Combi Tray

Product number:	101.702-24/06 – including <i>Taq</i> pol. 101.702-24u/06u – without <i>Taq</i> pol.
Lot number:	4E5
Expiry date:	2019-04-01
Number of tests:	24 tests – Product No. 101.702-24/24u 6 tests – Product No. 101.702-06/06u
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. 4E5.

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-C SSP COMBI TRAY LOT (0E7)

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-C SSP Combi Tray lot was made (**Lot No. 0E7**). The kit design is based on IMGT/HLA database 3.25.0.

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

Well	5'-primer	3'-primer	rationale
13	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-C SSP Combi Tray lot was made (**Lot No. 0E7**). The kit design is based on IMGT/HLA database 3.25.0.

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

Well	5'-primer	3'-primer	rationale
32	-	Removed, Modified	3'-primer removed, 3'-primer modified for improved HLA-specific amplification.
70	-	Added	3'-primer added for the B*38:61 allele.

The **HLA-C low resolution** specificity and interpretation tables have been updated for the HLA-C alleles described since the previous *Olerup* SSP® HLA-A-B-C SSP Combi Tray lot was made (**Lot No. 0E7**). The kit design is based on IMGT/HLA database 3.25.0.

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

Well	5'-primer	3'-primer	rationale
79	-	Added	3'-primer added for the C*05:129 allele.
83	Added	Added	Primer pair added for the C*16:15:02 allele, 3'-primer added for the C*02:115 allele.
86	Removed	-	5'-primer removed for improved HLA-specific amplification.
91	-	Added	3'-primer added for the C*17:32 allele.

Change in revision R01 compared to R00:

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.

Change in revision R02 compared to R01:

1. The reactivities of primer mix 17 have been corrected in the Specificity and Interpretation Tables.

Change in revision R03 compared to R02:

1. Primer mix 4 amplifies the A*01:15 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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Lot-specific information

PRODUCT DESCRIPTION

HLA-A-B-C 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 HLA-C*01:02 to C*18:10 alleles into the groups C*01:xx to C*18:xx.

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-C' in silver/gray ink.

Well No. 1 is marked with the Lot No. '4E5'.

Wells 1 to 24 – HLA-A low resolution primers.

Wells 25 to 72 – HLA-B low resolution primers.

Wells 73 to 95 – HLA-C 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, 11, 15, 22 and 23.

For further details see Specificity Table.

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, 35, 37, 38, 41, 43 to 46, 48 to 50, 53 to 56, 59, 64 to 67, 69 and 72.

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Lot-specific information

For further details see Specificity Table.

Only HLA-C alleles will be amplified by the 23 wells of the HLA-C low resolution primer set, **wells 73 to 95**, except that a few HLA-A and HLA-B alleles will be amplified by primer mixes 73, 75, 80, 83, 85, 87, 88, 92, 94 and 95.
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 July 2016^{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^{3,4}.

All the HLA-B alleles, i.e. **B*07:02 to B*83:01**, recognized by the HLA Nomenclature Committee in July 2016^{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 specificities³.

All the HLA-C alleles, i.e. **C*01:02 to C*18:10**, recognized by the HLA Nomenclature Committee in July 2016^{1,2} will be amplified by the primers in the HLA-C low resolution primer set, **wells 73 to 95**. The HLA-C alleles will be grouped into the C*01:xx to C*18:xx groups³.

¹HLA-A, HLA-B and HLA-C alleles listed on the IMGT/HLA web page 2016-July-14, release 3.25.0, www.ebi.ac.uk/imgt/hla.

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

³The HLA-A, HLA-B, HLA-C alleles will be grouped into their corresponding serological specificities, except that following alleles give rise to identical amplification patterns.

These alleles can be separated by the full A-B-C primer set or by the respective high resolution SSP primer sets.

Alleles	Alleles
A*23:14:01-23:14:02, A*24:24, 24:71, 24:315	B*53:30, B*57:45, 57:51, 57:69
A*23:57, 23:66, A*24:94, 24:138, 24:188, 24:228	B*55:04, 55:08, 55:13, 55:27, 55:46, 55:49, B*56:01:05, 56:15, 56:19N, 56:22
A*31:08, A*33:53	B*55:23, 55:32, B*56:18, 56:31-56:32, 56:50
B*08:26:01-08:26:02, 08:50, 08:62, 08:85, 08:94, 08:146, B*42:07	B*57:67:01, B*58:36
B*13:21, 13:35, 13:59, 13:71, B*44:135, 44:158, 44:184	C*12:02:14, 12:18:02, B*67:02
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, 39:107, 39:112	C*14:06, 14:08-14:09, 14:28:01-14:28:02, 14:53, 14:63, A*30:62, B*35:252, B*39:114
B*18:29, 18:72:01-18:72:02, 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	

⁴The A*01:136 and 01:192 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*24:14:01:01-24:15, 24:51-24:53, 24:57, 24:64, 24:114, 24:222N, 24:291, 24:296, 24:304, 24:316, 24:324 and the C*04:01:03 alleles may be distinguished by the different sizes of the specific PCR products generated by primer mix 5.

The A*30:01:01-30:04:02, 30:06-30:07, 30:09-30:20, 30:22-30:54, 30:56-30:88, 30:90-30:98 and 30:102 and the B*07:260 alleles may be distinguished by the different sizes of the specific PCR products generated by primer mix 15.

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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	1, 36	*01:01:01:01-01:04N, 01:06-01:33, 01:35-01:208Q, 03:18, 03:135, 11:94, 11:112, 11:211, 11:226, 36:01-36:05
2⁷	175 bp, 215 bp, 255 bp, 365 bp, 415 bp	800 bp	2, 203, 210, 19, 28,	*02:01:01:01-02:01:15, 02:01:17-02:01:19, 02:01:21-02:01:81, 02:01:83-02:22:02, 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, 02:572-02:634
3⁸	205 bp, 235 bp	1070 bp	1, 3, 11, 32, 34, 36	*01:12, 01:19, 01:21, 01:126, 01:200, 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, 03:188-03:193, 03:195-03:214, 03:216-03:224, 03:226-03:248, 11:03, 11:20, 11:25:01-11:25:02, 11:60, 11:130, 11:158, 11:175, 11:183, 11:209, 24:92, 30:99, 32:04, 34:02:01-34:04, 34:07-34:10N, 34:13, 34:15, 36:02, 74:23
4	190 bp	800 bp	1, 3, 11, 30, 36, 68	*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, 01:09:01-01:11N, 01:13, 01:15N-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, 01:168-01:177, 01:180-01:199, 01:201-01:204, 01:206-01:207, 02:78, 02:169, 03:12, 03:18, 03:88, 03:135, 11:01:01:01-11:27, 11:29-11:52Q, 11:54-11:245, 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	3, 9, 23, 24, 2403, 29, 31, 32	*03:15, 03:19, 03:30, 03:152, 11:139, 23:01:01-23:68, 23:70-23:74, 24:02:01:01-24:11N, 24:13:01-24:15, 24:17-24:64, 24:66-24:210, 24:212-24:341, 24:343-24:348, 29:07, 29:49, 31:08, 31:29, 32:05, 32:79, 33:19, 33:53, C*04:01:03
6^{7,9,11}	135 bp, 200 bp	800 bp	9, 23, 24, 29, 80	*11:166, 23:01:01-23:56, 23:58-23:65, 23:67-23:68, 23:70-23:74, 24:24, 24:71, 24:315, 29:07, 29:49, 31:29, 31:85, 32:72, 80:01:01:01-80:03, B*18:27
7^{7,9}	175 bp, 205 bp	1070 bp	2, 3, 9, 23, 24, 2403, 26	*02:17:01 ^w -02:17:03 ^w , 11:139, 23:14:01-23:14:02, 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, 24:139-24:187, 24:189-24:210, 24:212-24:221, 24:223-24:227, 24:229-24:290, 24:292-24:295, 24:297-24:303N, 24:305-24:315, 24:317-24:323N, 24:325-24:341, 24:343-24:348, 26:16, 33:19, 68:45, 68:117

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8⁷	160 bp, 200 bp	800 bp	2, 3, 10, 11, 25, 26, 28, 32, 34, 43, 66, 68, 69	*01:51, 02:55, 02:135, 02:527, 02:582, 03:24, 03:50, 11:10, 11:183, 11:191, 25:01:01-25:35, 26:01:01:01-26:43:02, 26:45-26:124, 29:28, 32:15, 33:51, 34:01:01-34:15, 43:01, 66:01:01-66:26Q, 68:01:01:01-68:148Q, 69:01-69:03
9^{6,10}	75 bp	800 bp	3, 25, 32	*25:01:01-25:35, 32:01:01-32:02, 32:04, 32:06- 32:37, 32:39-32:59, 32:61-32:70, 32:72-32:77, 32:81-32:86, B*07:81, B*08:52, B*18:67, B*38:41, B*51:185, B*53:05, B*53:16, 53:33
10^{6,7,11}	80 bp, 240 bp	800 bp	10, 26, 43	*01:43, 01:51, 11:17, 11:40, 11:223, 26:01:01:01- 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, 26:112-26:124, 33:13, 33:48, 43:01, 68:84
11^{6,7,15}	80 bp, 175 bp, 500 bp	1070 bp	1, 9, 10, 11, 26, 31, 34, 66	*01:13, 01:28, 01:136, 01:176, 01:192, 03:63, 03:88, 11:01:01:01-11:27, 11:29-11:52Q, 11:54- 11:245, 24:19, 24:44, 26:03:01, 26:06, 26:21, 26:78, 26:92, 26:111, 34:01:01-34:08, 34:10N- 34:15, 66:01:01-66:01:03, 66:04-66:11, 66:13- 66:14, 66:17-66:20, 66:22-66:24, 69:02, 80:02, C*07:404
12⁶	125 bp, 185 bp	800 bp	3, 10, 25, 26, 31, 34, 43, 66	*02:309, 02:454, 03:01:19, 11:11, 25:05-25:06, 26:09, 26:54, 26:91, 31:03-31:04, 34:01:01-34:15, 43:01, 66:02-66:03, 66:16, 66:21, 66:25, 68:130, 74:01:03
13	180 bp, 225 bp	1070 bp	1, 2, 3, 10, 25, 26, 34, 43, 66	*01:01:56 ^w , 01:13, 01:145 ^w , 01:176, 01:194, 02:34- 02:35:03, 02:56:01-02:56:02, 02:62, 02:103, 02:135, 02:580, 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- 03:141, 03:143-03:151, 03:153-03:171, 03:174- 03:175, 03:177, 03:179-03:193, 03:195-03:197N, 03:200Q-03:202, 03:204, 03:206-03:210, 03:212- 03:218, 03:220-03:249, 11:116, 11:140, 11:199:01- 11:199:02, 11:222, 25:01:01-25:05, 25:07-25:35, 26:01:01:01-26:01:20, 26:01:22-26:03:01, 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, 26:92-26:124, 30:55, 31:24, 33:61, 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- 66:24, 68:11N, 68:71, 74:13
14^{6,7,11}	80 bp, 115 bp, 200 bp, 240 bp, 460 bp	1070 bp	3, 26, 29, 31, 34, 36, 68	*02:237, 02:309, 02:454, 03:01:38, 03:95, 03:123:02, 03:171, 03:231, 11:130, 26:19, 26:22, 29:01:01:01-29:90, 31:03-31:04, 32:42, 34:04, 36:02, 66:09, 68:19
15^{6,7,13,14}	90 bp, 135 bp, 205 bp	1070 bp	1, 30	*01:13, 01:28, 01:176, 01:194, 03:43, 03:82, 03:186, 11:113, 11:162, 30:01:01-30:04:02, 30:06- 30:20, 30:22-30:99, 30:102, 31:35, B*07:260
16	240 bp, 380 bp, 410 bp	1070 bp	24, 31, 32	*02:237, 03:95, 29:14, 31:01:02:01-31:111, 32:05, 32:79, 33:53, 74:13

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17	140 bp, 180 bp, 235 bp, 260 bp	1070 bp	3, 25, 32, 74	*01:95, 03:32, 03:43, 03:82, 03:152, 03:186, 03:219, 23:64, 24:104, 24:243, 25:03, 25:30, 29:13, 29:39, 30:89, 31:21, 31:35, 32:01:01-32:86, 74:07
18⁷	200 bp, 390 bp	1070 bp	33, 68	*02:243:01-02:243:02, 29:48, 31:109, 32:15, 33:01:01-33:01:08, 33:03:01-33:37, 33:39-33:52, 33:54-33:114, 68:29, 74:04, 74:21
19	340 bp, 375 bp	800 bp	2, 19, 68, 74	*01:121, 02:65, 02:407, 02:449, 03:246, 32:62, 68:25, 74:01:01-74:27
20¹¹	210 bp, 240 bp	800 bp	2, 210, 25, 68	*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, 02:571, 02:580, 11:199:02, 23:01:13, 24:340, 25:05, 26:54, 26:122, 34:02:04, 68:01:01:01-68:148Q
21^{7,16}	200 bp, 240 bp, 375 bp, 545 bp	800 bp	2, 23, 24, 26, 28, 66, 68, 69	*02:17:01-02:17:03, 02:55, 02:108, 02:110, 02:243:01-02:243:02, 02:268, 02:300, 02:303, 02:617, 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, 24:339, 25:30, 25:34-25:35, 26:22, 26:121-26:123, 33:22, 66:06, 66:09, 66:25, 68:04:02, 68:08:02, 68:29, 68:105, 69:01-69:03
22^{6,7,12}	85 bp, 240 bp, 400 bp	800 bp	2, 23, 34 36, 68	*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, 02:571, 02:580, 03:187, 11:155, 11:199:02, 11:226, 11:231 [?] , 23:01:13, 24:340, 31:62, 34:02:04, 36:01- 36:05, 68:01:32, 68:11N, C*07:481[?] , C*07:504[?]
23^{6,7}	85 bp, 160 bp, 240 bp, 495 bp	800 bp	2, 3, 24, 26, 28, 36, 68, 80	*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, 68:136, 80:01:01:01-80:01:01:02, 80:03, C*06:187
24¹³	360 bp, 445 bp	1070 bp	3, 10, 26, 31, 66, 74	*02:135, 02:309, 02:454, 03:01:19, 25:13, 26:07:01-26:07:02, 26:30, 26:65, 26:92, 31:04, 34:09, 66:02-66:03, 66:12, 66:16, 66:21, 66:25- 66:26Q, 74:01:03

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

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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, except that a few HLA-B and HLA-C alleles will be amplified by primer mixes 4 to 6, 9, 11, 15, 22 and 23.

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, 6, 7, 8, 10, 11, 14, 15, 18, 21, 22 and 23 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, 30:77, 30:89 and 30:90 alleles.

⁹Primer mixes 6 and 7 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 mixes 6, 10, 14 and 20 have a tendency to giving rise to primer oligomer formation.

¹²Primer mix 22 might faintly amplify most A*11 alleles.

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

¹⁴Primer mix 15 may have tendency of unspecific amplification.

¹⁵In primer mix 11 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.

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

‘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, 35, 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-07:52, 07:54-07:59, 07:61-07:99, 07:101-07:121, 07:123-07:138, 07:140-07:163, 07:166-07:208, 07:210-07:222, 07:224-07:225, 07:227-07:234, 07:236-07:270, 07:272N-07:275, 08:79, 08:156, 15:138, 15:230, 15:241, 15:297, 35:66, 37:07, 40:15-40:16, 40:23, 40:32, 40:98, 40:128, 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, 08:147-08:165, 13:93, 15:142, 15:180, 35:218, 35:256, 40:328, 44:49, 44:156, 49:25, 51:68, 51:176, C*06:147
27¹⁰	140 bp, 235 bp	1070 bp	7, 8, 13, 15, 35, 4005, 44, 49, 50, 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, 13:68-13:93, 15:07:01-15:07:03, 15:36 ^w , 15:45, 15:55, 15:68, 15:89 ^w , 15:126, 15:197:02, 15:207, 15:324, 15:329, 15:331, 15:360, 15:383, 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, 35:318, 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}	140 bp, 265 bp	800 bp	12, 13, 14, 15, 17, 18, 21, 27, 35, 39, 40, 41, 44, 45, 47, 48, 49, 50, 57, 58, 60, 61, 62, 64, 65	*07:68:01-07:68:03, 07:100, 07:218, 07:220, 07:237, 07:262, 08:71, 08:118, 13:01:01-13:01:09, 13:01:11-13:04, 13:06-13:13:02, 13:15-13:23, 13:25-13:57, 13:59-13:82, 13:84-13:92, 14:01:01-14:02:08, 14:02:10-14:05, 14:07N, 14:09, 14:11-14:36, 14:38-14:54, 15:07:01-15:07:03, 15:45-15:46, 15:53, 15:55, 15:68, 15:106, 15:126, 15:197:02, 15:207, 15:212, 15:324, 15:329, 15:331, 15:336, 15:360, 15:383, 18:14, 18:44:01-18:44:02, 18:107, 27:32, 27:138, 35:05:01-35:05:03, 35:22, 35:46-35:47, 35:51, 35:58, 35:63, 35:66, 35:72, 35:89, 35:97, 35:154, 35:199, 35:207, 35:217, 35:232, 35:317, 38:19, 39:03, 39:14, 39:24:01-39:24:02, 39:29, 39:37, 39:76, 39:79, 40:01:01-40:01:39, 40:01:42-40:01:47, 40:07, 40:10:01-40:10:02, 40:14:01-40:16, 40:22N-40:23, 40:25, 40:30-40:36, 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, 40:71-40:73, 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, 40:171-

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29 ⁸	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, 14:53-14:54, 27:01-27:05:15, 27:05:17-27:05:19, 27:05:21-27:06, 27:07:04, 27:08-27:10, 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, 27:140-27:149, 27:151-27:152, 27:154, 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-38:63, 39:01:01:01-39:01:01:04, 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, 39:106-39:109, 39:111-39:117, 47:04-47:05, 48:21, 48:26, 67:01:01, 67:03-67:04, 67:06-67:07
30	190 bp	800 bp	14, 35, 38, 39, 65	*07:28, 08:87, 14:02:01:01-14:02:02, 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, 14:50-14:52, 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, 57:04:01-57:04:02, A*23:31, A*24:106, C*01:115, C*02:97, C*07:231, C*16:10
31	180 bp, 290 bp	1070 bp	15, 22, 46, 62, 63, 71, 72, 75, 76, 77	*15:01:01:01-15:01:03, 15:01:06-15:02:11, 15:03:03, 15:04:01:01-15:08:02, 15:10:02, 15:11:01-15:11:03, 15:11:05-15:15, 15:17:01:01-15:17:05, 15:19-15:21, 15:24:01-15:28, 15:30-15:36, 15:38:01-15:40:02, 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,

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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	*08:01:01:01-08:01:22, 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, 08:112-08:155, 08:157-08:163, 08:165, 13:46, 15:03:01:01-15:03:06, 15:09-15:10:04, 15:18:01:01-15:18:06, 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, 15:106, 15:108, 15:114-15:115, 15:119, 15:123-15:124, 15:127, 15:131-15:134, 15:143, 15:151, 15:153, 15:156, 15:158, 15:161, 15:173, 15:176, 15:186, 15:197:01-15:198, 15:200, 15:210, 15:212, 15:220-15:221, 15:226N, 15:229, 15:235, 15:238, 15:242:01-15:243, 15:252-15:253, 15:255, 15:259, 15:263, 15:266, 15:274-15:275:02, 15:281-15:282, 15:290, 15:292-15:294N, 15:306-15:307, 15:311-15:314, 15:323, 15:329, 15:335, 15:337-15:338, 15:351, 15:354, 15:369, 15:379-15:380N, 15:382, 15:388-15:389, 15:397, 35:87, 37:12, 38:30, 40:12, 40:136, 40:231, 40:279, 41:01:01-41:03:02, 41:05-41:09, 41:11-41:17, 41:19-41:46, 42:01:01-42:02:01:02, 42:04-42:08, 42:10-42:15, 42:17-42:19, 42:21-42:23, 44:14-44:15, 44:18, 44:20, 44:62, 44:100, 44:166, 44:213, 45:01:01-45:19, 51:08:01-51:08:02, 51:20, 51:36, 51:44N, 51:97, 51:141, 51:153, 52:19, 55:20, 55:56, 56:13, 57:09, 82:01-82:03, C*07:46, 07:356, C*12:184, C*15:99, C*16:85
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, 15:16:01:01-15:17:05, 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, 15:396, 27:153, 35:01:10, 35:04:02, 35:251, 40:26, 40:28, 44:62, 49:18:01, 50:14, 51:01:01:01-51:01:03, 51:01:05-51:02:03, 51:02:05-51:09:03, 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, 51:158:01-51:196, 51:198, 51:200-51:208, 52:01:01:01-52:01:04, 52:01:06-52:01:14, 52:01:16-52:13, 52:15-52:24, 52:25:02-52:57, 52:59-52:61, 53:28, 56:05:01-56:06, 56:21, 58:08:01-58:08:02, 78:01:01-78:09
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, 13:80-13:85, 13:87-13:93, 40:48, 45:10, 49:07, 50:31, 54:26, 55:09, 55:22, 55:24, 59:09

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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, except that a few HLA-A and HLA-C alleles will be amplified by primer mixes 25 to 28, 30 to 32, 35, 37, 38, 41, 43 to 46, 48 to 50, 53 to 56, 59, 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 and 63 may give rise to a lower yield of HLA-specific PCR product than the other HLA-B low resolution primer mixes.

⁹Primer mixes 33, 52 and 62 may have tendencies of unspecific amplifications, most pronounced in primer mix 33.

¹⁰Primer mixes 25, 27, 38, 41, 43, 44, 50, 58, 67 and 69 have a tendency to giving rise to primer oligomer formation.

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

HLA-C low resolution SSP typing

Specificities and sizes of the PCR products of the 23+1 primer mixes used for
HLA-C low resolution SSP typing

Primer Mix	Size of spec. PCR product ¹	Size of control band ²	Amplified HLA class I ^{3,4} alleles
73⁵	90 bp, 150 bp	800 bp	*01:02:01-01:124, 04:71, 07:316, 07:338, 14:58, 15:104, B*39:76, B*54:18
74⁶	130 bp, 200 bp, 270 bp, 300 bp	800 bp	*01:10, 01:43, 02:02:01-02:02:03, 02:02:05-02:40:02, 02:42-02:57, 02:59-02:120, 04:32, 04:77, 05:105, 06:08, 07:101, 07:148, 07:161, 08:31, 12:119, 14:25, 15:42, 15:111, 16:29, 16:50, 17:01:01-17:06, 17:08-17:16, 17:18-17:22, 17:24-17:32, 18:03
75¹³	280 bp	800 bp	*02:02:01-02:02:03, 02:02:05-02:02:29, 02:03, 02:04 ^w , 02:05:01-02:13, 02:14:01 ^w , 02:15-02:25Q, 02:26:02-02:40:02, 02:42-02:86, 02:88-02:106, 02:108-02:120, 03:02:01-03:02:09, 03:02:11-03:02:15, 03:04:01-03:04:25, 03:04:27-03:10, 03:14-03:17, 03:19, 03:23-03:29, 03:32-03:38:02, 03:40:01-03:42, 03:44-03:48, 03:51, 03:54, 03:57:01-03:57:02, 03:60, 03:63-03:64:01, 03:65, 03:70-03:74, 03:77-03:78, 03:80, 03:82, 03:84, 03:87:01-03:87:02, 03:89-03:95, 03:98, 03:100-03:101, 03:104-03:111, 03:113:01-03:115, 03:117-03:118, 03:121N, 03:123, 03:125, 03:128-03:131, 03:134-03:136, 03:138-03:140, 03:143, 03:145-03:149, 03:153-03:155, 03:157, 03:159, 03:162-03:164, 03:169Q, 03:172-03:174, 03:178-03:181, 03:183-03:184:02, 03:186:01-03:186:02, 03:190-03:191, 03:193-03:194, 03:197-03:201N, 03:208N-03:213, 03:215-03:216, 03:218-03:219, 03:221-03:222, 03:224N-03:226, 03:232-03:236, 03:238-03:240, 03:244Q-03:250, 03:252, 03:255-03:261, 03:263, 03:265N-03:266, 03:269-03:270, 03:277N, 03:278 ^w , 03:279-03:283, 03:286-03:287, 03:292-03:294, 03:296-03:303, 03:305-03:306, 03:309-03:311, 03:313-03:315, 03:317-03:318N, 03:322-03:323N, 04:03:01-04:03:03, 04:06, 04:16, 04:80, 04:107, 04:147, 04:160, 04:171, 05:58:01, 05:58:03, 06:03:01, 06:132:01-06:132:02, 07:96:01-07:96:02, 07:314:02, 12:03:23, 15:02:01-15:02:20, 15:02:22-15:02:24, 15:02:26-15:05:08, 15:05:10-15:09, 15:10:02-15:11, 15:13, 15:15-15:19, 15:21-15:22, 15:24-15:35, 15:37-15:60, 15:62, 15:64-15:106, 15:108-15:129, 16:34, 16:70, B*58:74
76^{5,7}	85 bp, 170 bp, 275 bp	1070 bp	*01:67, 01:122, 03:02:01-03:02:12, 03:02:14-03:04:06, 03:04:08-03:11:02, 03:13:01-03:15, 03:17-03:40:04, 03:42-03:57:02, 03:59-03:79, 03:81-03:85, 03:87:01-03:93, 03:95-03:98, 03:100-03:109, 03:111-03:112, 03:114-03:150, 03:152-03:164, 03:166-03:250, 03:252-03:259, 03:261-03:266, 03:268-03:285, 03:287-03:292, 03:294-03:324, 04:212, 07:242
77	280 bp	800 bp	*03:03:01-01-03:03:20, 03:03:22-03:03:32, 03:11:01-03:11:02, 03:13:01-03:13:02, 03:18:02, 03:20N-03:22Q, 03:30-03:31, 03:43:01-03:43:02, 03:49-03:50, 03:52-03:53, 03:55-03:56, 03:58-03:59, 03:61-03:62, 03:66, 03:67 ^w , 03:68-03:69, 03:75-03:76, 03:79, 03:81, 03:83, 03:85-03:86, 03:88, 03:96-03:97, 03:102-03:103, 03:112, 03:116:01-03:116:02, 03:119-03:120, 03:122, 03:124, 03:126-03:127, 03:132-03:133, 03:141-03:142, 03:150-03:152, 03:158, 03:160-03:161, 03:165, 03:167-03:168,

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78¹³	135 bp, 330 bp	800 bp	*02:02:01-02:02:03, 02:02:05-02:02:12, 02:02:14-02:02:25, 02:02:27-02:02:28, 02:02:30-02:20, 02:22-02:25Q, 02:27:01-02:38N, 02:40:01-02:40:02, 02:42-02:44, 02:46-02:86, 02:88-02:100, 02:101 ^w , 02:102-02:106, 02:108-02:120, 03:231, 04:01:01-04:01:27, 04:01:29-04:01:60, 04:01:62, 04:01:64, 04:01:66-04:01:75, 04:03:01-04:15:03, 04:17-04:20, 04:23-04:41, 04:43-04:102, 04:104-04:139, 04:141-04:195, 04:197-04:212, 04:214-04:219, 04:221-04:235, 04:237-04:244, 05:26, 05:78, 07:02:09, 07:125, 07:356, 15:11, 15:36, 15:118, 16:34
79	165 bp, 390 bp, 445 bp	1070 bp	*02:94, 04:129, 05:01:01-05:01:32, 05:03-05:135, 06:05, 06:67, 08:10, 12:21, 12:33, 15:107, 16:40, 16:53, 17:05
80¹³	130 bp, 355 bp	800 bp	*01:90, 01:101-01:102, 01:113, 02:06:01-02:06:02, 02:23, 02:36, 02:47, 04:108 ^w , 04:178, 05:132, 06:02:01-06:02:01:03, 06:02:03-06:02:38, 06:02:40-06:16N, 06:18-06:31, 06:33-06:76:01, 06:77-06:93, 06:96-06:98, 06:100-06:132:01, 06:133-06:179, 06:181-06:187, 08:113, 12:02:11, 12:03:09, 12:03:26, 12:15, 12:113, 15:02:01-01:15:03, 15:05:01 ^w -15:05:12 ^w , 15:06:01-15:13, 15:15-15:19, 15:21, 15:22 ^w -15:23 ^w , 15:26-15:28, 15:29 ^w , 15:31-15:35, 15:36 ^w , 15:37-15:39, 15:41-15:45, 15:46 ^w , 15:47-15:53, 15:54 ^w , 15:55-15:58, 15:59 ^w , 15:60-15:64, 15:67-15:68, 15:69 ^w -15:70 ^w , 15:71-15:75, 15:78-15:89, 15:90 ^w , 15:91-15:101, 15:103, 15:104 ^w -15:105Q ^w , 15:106-15:107, 15:108 ^w , 15:109, 15:110 ^w -15:111 ^w , 15:112-15:114, 15:115N ^w -15:117 ^w , 15:118-15:124, 15:125 ^w , 15:126-15:129, 16:01:16, 16:20, B*58:02:01
81⁸	245 bp, 425 bp	800 bp	*07:01:01-07:33N, 07:35-07:294, 07:296-07:530, 12:181
82^{5,9,13}	110 bp, 165 bp, 390 bp	800 bp	*01:43, 02:87, 03:280, 07:101, 07:148, 07:161, 08:01:01-08:63, 08:65-08:136, 12:127
83	255 bp, 340 bp	1070 bp	*01:14, 01:59, 01:118, 02:02:01-02:02:03, 02:02:05-02:40:02, 02:42-02:86, 02:88-02:120, 03:07, 03:15, 03:45, 03:130, 03:140, 03:163, 03:231, 03:243, 03:248, 03:268, 03:297, 03:308, 04:01:01-04:01:75, 04:03:01-04:20, 04:23-04:244, 05:01:01-05:01:32, 05:03-05:128N, 05:130-05:135, 06:02:01-06:02:01:03, 06:02:03-06:02:11, 06:02:13-06:10, 06:12-06:51, 06:53:01-06:121, 06:123, 06:125-06:146, 06:148-06:187, 07:07, 07:09, 07:49, 07:53, 07:76:01-07:76:02, 07:125, 07:210, 07:216, 07:238, 07:247, 07:315, 07:328, 07:356, 07:403, 07:406, 08:10, 12:04:01-12:05, 12:09, 12:21, 12:33, 12:41, 12:54, 12:60, 12:146, 14:04, 14:12, 14:49, 14:64, 15:02:01-01:15:05:10, 15:06:01-15:06:03, 15:08-15:13, 15:15-15:19, 15:22-15:24, 15:26-15:42, 15:44:01-15:70, 15:72-15:115N, 15:117-15:129, 16:01:01-01:16:02:13, 16:06-16:09, 16:11-16:28, 16:30N-16:32, 16:34, 16:36-16:39:02, 16:41, 16:43-16:44, 16:46-16:52, 16:54, 16:56-16:60, 16:62-16:65, 16:69-16:77N, 16:79-16:81, 16:83-16:98, 17:01:01-01:17:21, 17:23-17:33, 18:01-18:10, A*24:174

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84^{5,11}	100 bp, 155 bp, 220 bp	800 bp	*01:02:18, 01:04, 01:21, 06:02:38, 06:76:02, 12:02:01-12:02:13, 12:03:01:01-12:03:01:04, 12:03:03-12:03:07, 12:03:09-12:03:15, 12:03:17-12:03:19, 12:03:21-12:03:29, 12:03:31-12:03:33, 12:03:35-12:03:38, 12:04:02-12:08, 12:10:01-12:13, 12:14:02- 12:18:01, 12:19-12:25, 12:27-12:32, 12:34-12:58, 12:60-12:143, 12:145-12:180, 12:182-12:184, 12:186, 14:02:08, 16:01:17, 16:02:13, 16:15:02
85^{5,11}	120 bp, 250 bp	800 bp	*01:21, 02:12, 02:49, 02:55:01-02:55:02, 02:115, 04:01:01:01- 04:01:75, 04:03:01-04:09N, 04:12-04:20, 04:23-04:35, 04:37- 04:54, 04:56-04:152, 04:154-04:168, 04:170N-04:191N, 04:193, 04:195-04:209, 04:211-04:213, 04:216-04:226, 04:228-04:244, 05:42, 05:46, 05:112, 06:76:02, 07:02:09, 07:125, 07:356, 08:05, 08:21, 08:25, 12:02:01-12:02:10, 12:02:12-12:03:03, 12:03:05- 12:03:08, 12:03:10-12:03:12, 12:03:13 ^w , 12:03:14-12:03:23, 12:03:24 ^w , 12:03:25-12:03:33, 12:03:35-12:03:38, 12:04:02, 12:06-12:08, 12:10:01-12:20, 12:22-12:32, 12:34-12:48, 12:50- 12:97, 12:99-12:122, 12:124-12:186, 15:03, 15:16, 15:25, 15:75, 16:01:01:01-16:02:13, 16:06-16:28, 16:30N-16:32, 16:34, 16:36- 16:39:02, 16:41, 16:43-16:47, 16:49-16:52, 16:54, 16:56-16:60, 16:62-16:65, 16:67, 16:69-16:77N, 16:79-16:81, 16:83-16:87, 16:89N-16:90, 16:92-16:98, 17:01:04, B*67:02
86^{5,14}	100 bp, 160 bp, 210 bp	800 bp	*01:04, 01:09, 02:05:01-02:05:03, 02:17, 04:42:01-04:42:02, 04:220, 06:02:01:01-06:02:01:03, 06:02:03-06:02:15, 06:02:17- 06:02:42, 06:02:44-06:03:02, 06:07-06:13, 06:15-06:34:02, 06:36- 06:39, 06:41-06:71, 06:73-06:78, 06:80, 06:82-06:100, 06:102- 06:122, 06:124-06:126, 06:128N-06:135, 06:137-06:142, 06:145- 06:152N, 06:154-06:187, 07:31:01-07:31:02, 07:125, 07:177, 07:356, 07:514, 12:03:01:01-12:07, 12:11-12:13, 12:15, 12:19, 12:23, 12:25-12:26, 12:28-12:29, 12:31-12:35, 12:37-12:39N, 12:42Q-12:43, 12:45-12:48, 12:50-12:55, 12:57-12:63, 12:65- 12:66, 12:70-12:71, 12:75-12:79, 12:81-12:82, 12:87-12:95, 12:97-12:102, 12:107-12:111, 12:113, 12:115-12:116, 12:119- 12:122, 12:125, 12:129, 12:131, 12:133, 12:135, 12:138-12:141, 12:143-12:144, 12:147, 12:149-12:150, 12:152, 12:154, 12:156- 12:160, 12:163, 12:165, 12:167, 12:170-12:174, 12:176, 12:178, 12:180, 12:182, 12:184-12:186, 14:15-14:16, 16:04:01, 16:04:03, 16:29, 16:33, 16:35, 16:42, 16:48, 16:55, 16:61, 16:66, 16:78, 16:82, 16:91
87¹³	130 bp, 255 bp, 555 bp	1070 bp	*02:02:01-02:02:03, 02:02:05-02:13, 02:15-02:26:03, 02:28- 02:40:02, 02:42-02:64, 02:66-02:86, 02:88-02:106, 02:108- 02:114, 02:116-02:120, 03:07, 03:10, 03:15, 03:29, 03:45, 03:58, 03:86, 03:94, 03:99, 03:163, 03:209, 03:268, 03:297, 03:302, 04:03:01-04:03:03, 04:06, 04:16, 04:37, 04:80, 04:103, 04:107, 04:147, 04:160, 04:171, 04:190, 05:01:01:01-05:01:32, 05:03- 05:19, 05:21-05:42, 05:44:01-05:77, 05:79-05:112, 05:114- 05:135, 06:03:01-06:03:02, 06:76:01-06:76:02, 06:132:01- 06:132:02, 08:10, 12:04:01-12:05, 12:09, 12:21, 12:33, 12:41, 12:60, 12:72, 12:135, 12:146, 12:154, 12:178, 14:45, 15:02:01:01-15:06:03, 15:08-15:13, 15:15-15:19, 15:21-15:22, 15:24, 15:26-15:35, 15:37-15:42, 15:44:01-15:62, 15:64-15:84Q, 15:86-15:129, 16:02:01-16:02:13, 16:09, 16:12, 16:18-16:19, 16:25, 16:37, 16:46-16:48, 16:60, 16:63, 16:69-16:70, 16:74, 16:77N, 16:84, 16:88-16:91, 17:01:01:01-17:19, 17:21, 17:23- 17:33, 18:09, B*15:277, B*35:222, B*42:22
88¹²	160 bp, 260 bp,	1070 bp	*01:67, 01:122, 03:155, 03:231, 04:11, 04:29, 04:36, 04:55, 04:114, 04:172, 07:64, 07:402, 08:95, 12:55, 14:02:01:01-14:11,

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	445 bp		14:13-14:48, 14:50-14:74, 16:40, 16:53, A*30:62, B*35:252, B*39:114
89^{5,10}	110 bp, 325 bp	800 bp	*01:90, 01:101-01:102, 01:113, 01:116, 02:06:01-02:06:02, 02:23, 02:36, 02:68, 03:81, 03:175, 03:199, 03:245, 03:317, 04:108, 04:112, 04:169, 04:178, 05:36, 05:132, 06:89, 07:123, 07:173, 07:294, 08:113, 12:08, 12:15, 12:81, 12:113, 15:02:01-01:15:13, 15:15-15:19, 15:21-15:24, 15:26-15:129, 16:20, 16:64, 16:70, 16:87
90¹²	180 bp, 210 bp, 240 bp	1070 bp	*02:13, 02:18, 02:33, 02:49, 02:75, 02:115, 04:01:01-01-04:01:22, 04:01:24-04:01:73, 04:01:74 ^w , 04:01:75, 04:03:01-04:10, 04:12-04:20, 04:23-04:32, 04:34-04:106, 04:108-04:115N, 04:117-04:129, 04:131-04:168, 04:170N-04:171, 04:173N-04:230, 04:232-04:244, 05:17, 05:25, 05:42, 05:55, 05:68, 05:76, 05:79, 05:115, 05:134, 06:05, 06:31, 06:76:02, 06:118, 07:02:09, 07:31:01-07:31:02, 07:154, 07:177, 07:514, 08:01:01-08:01:17, 08:01:19, 08:03:01-08:03:04, 08:06, 08:08:01-08:11, 08:14, 08:16:01-08:16:02, 08:20-08:22, 08:24, 08:26N, 08:28, 08:36N, 08:38, 08:40-08:42, 08:44, 08:46-08:47, 08:50, 08:56-08:61, 08:65, 08:72:01-08:72:02, 08:78-08:89N, 08:91, 08:95-08:99, 08:101-08:102, 08:105-08:106, 08:109, 08:117-08:119, 08:121N-08:122, 08:124, 08:127N-08:131, 08:133, 08:135-08:136, 12:14:01-12:14:02, 12:28, 12:58, 12:132, 12:135, 12:146, 12:169, 12:176, 12:181, 14:10, 14:15, 14:17, 15:12, 15:25, 15:31, 15:62, 15:65, 15:75, 16:01:01-01-16:02:13, 16:04:01, 16:04:03, 16:06-16:39:02, 16:41-16:42, 16:44-16:52, 16:54-16:98
91^{11,15}	225 bp, 250 bp	800 bp	*01:60, 04:58, 04:160, 05:23, 05:62, 05:134, 06:118, 08:07, 08:47, 08:104, 12:14:01-12:14:02, 12:176, 12:181, 14:17, 15:25, 15:65, 17:01:01-01-17:33
92	210 bp, 425 bp	800 bp	*01:02:01-01:20, 01:22-01:124, 03:58, 03:86, 03:94, 03:99, 04:37, 04:230, 05:16, 05:85, 05:107, 06:05-06:06, 06:17, 06:31, 07:07, 07:09, 07:39-07:40, 07:49, 07:76:01-07:76:02, 07:177, 07:210, 07:238, 07:247, 07:315, 07:328, 07:335, 07:403, 07:406, 08:12, 12:09, 12:24, 12:176, 14:02:01-01-14:05, 14:07N, 14:10-14:14, 14:17-14:27, 14:29-14:52, 14:55-14:62, 14:64-14:74, 15:102, 16:04:01, 16:04:03, 16:29, 16:33, 16:42, 16:53, 16:55, 16:61, 16:66, 16:68, 16:78, 16:82, 16:88, 16:91, 18:01-18:10, B*07:239, B*14:03
93	325 bp, 380 bp	1070 bp	*01:03, 01:24, 01:34, 01:49:01-01:50, 01:55, 01:78, 02:22, 02:62, 02:118, 03:03:01-01-03:04:51, 03:06:01-03:11:02, 03:14, 03:18:01-03:24, 03:26, 03:28-03:32, 03:34, 03:37:01-03:59, 03:61-03:70, 03:72-03:83, 03:85, 03:87:01-03:88, 03:90-03:93, 03:96, 03:98, 03:100-03:107, 03:109, 03:111-03:120, 03:122-03:131, 03:133-03:134, 03:136-03:138, 03:140-03:145, 03:147-03:153, 03:155-03:166, 03:168, 03:170-03:176, 03:179-03:189N, 03:191-03:193, 03:195-03:196, 03:202-03:215, 03:217-03:220, 03:223, 03:227-03:237, 03:239-03:244Q, 03:246-03:247, 03:250-03:257, 03:259-03:261, 03:262 [?] , 03:263, 03:265N-03:270, 03:272-03:291, 03:293-03:295, 03:297, 03:303-03:314, 03:316N-03:324, 04:01:01-01-04:01:15, 04:01:17-04:01:75, 04:03:01-04:20, 04:24-04:53, 04:55-04:71, 04:73-04:107, 04:109-04:244, 05:01:01-01-05:01:32, 05:03, 05:05-05:21, 05:23-05:102, 05:104-05:106:02, 05:108-05:122, 05:124-05:131, 05:133-05:134, 06:09, 06:14, 06:35, 06:72, 06:143-06:144, 07:10, 07:28, 07:41, 07:43, 07:184, 07:196, 07:367, 08:01:01-08:08:02, 08:10, 08:12-08:47, 08:49-08:63, 08:65-08:82, 08:84-08:107, 08:109-08:112, 08:114-

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

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Lot-specific information

			08:136, 12:31, 12:44, 12:144, 14:54, 15:02:01:01-15:13, 15:15-15:19, 15:21, 15:23-15:36, 15:38-15:54, 15:56-15:57, 15:59-15:64, 15:66-15:71, 15:73-15:101, 15:103-15:124, 15:126-15:129, 16:45, 17:01:01:01-17:33, 18:01-18:10
94¹³	135 bp	800 bp	*02:02:29, 03:02:01-03:02:09, 03:02:11-03:03:20, 03:03:22-03:04:24, 03:04:27-03:11:02, 03:13:01-03:17, 03:18:02-03:38:02, 03:40:01-03:64:01, 03:65-03:66, 03:67 ^w , 03:68-03:98, 03:100-03:136, 03:138-03:143, 03:146-03:155, 03:157-03:165, 03:167-03:169Q, 03:171, 03:173-03:181, 03:183-03:194, 03:196-03:230, 03:232-03:247, 03:249-03:263, 03:265N-03:277N, 03:278 ^w , 03:279-03:294, 03:295 ^w , 03:296-03:323N, 04:32, 04:77, 06:03:01, 06:132:01-06:132:02, 07:96:01-07:96:02, 07:314:02, 14:25, 15:02:10, 15:02:17, 15:43, 18:03, B*13:13:02
95¹³	155 bp, 235 bp	1070 bp	*04:14, 04:42:01-04:42:02, 04:68, 04:220, 05:112, 06:02:01:01-06:02:01:03, 06:02:03-06:02:45, 06:04:01-06:75, 06:78-06:131, 06:133-06:187, 07:01:01:01-07:01:40, 07:01:41 ^w , 07:01:42-07:02:07, 07:02:09-07:02:28, 07:02:30-07:02:40, 07:02:41 ^w , 07:02:42-07:25, 07:27:01-07:32N, 07:35-07:38:02, 07:41-07:63, 07:65-07:91, 07:93-07:95, 07:97-07:138, 07:140-07:151, 07:153-07:155, 07:157-07:176, 07:178-07:209, 07:211-07:222, 07:223 ^w , 07:224-07:237, 07:239-07:245, 07:247-07:266, 07:268-07:294, 07:297-07:313, 07:315-07:316, 07:318-07:321, 07:323-07:334, 07:336-07:350N, 07:352-07:401, 07:403-07:404, 07:406-07:414, 07:415 ^w -07:416 ^w , 07:417-07:448, 07:450-07:492, 07:494Q-07:516, 07:518-07:530, 12:16, 12:147, 15:75, 16:01:01:01-16:02:13, 16:06-16:28, 16:30N-16:32, 16:34, 16:36-16:39:02, 16:41, 16:43-16:47, 16:49-16:52, 16:54, 16:56-16:60, 16:62-16:65, 16:67, 16:69-16:77N, 16:79-16:81, 16:83-16:87, 16:89N-16:90, 16:92-16:98, 17:20, 18:01-18:08, 18:10, A*24:64, A*24:96, A*24:106, A*24:174, B*08:16, B*08:123, B*08:145
96¹⁶	-	-	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 HLA-C 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 73 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.

³For 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.

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

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Lot-specific information

⁴Only HLA-C alleles will be amplified by the 23 wells of the HLA-C low resolution primer set, except that a few HLA-A and HLA-B alleles will be amplified by primer mixes 73, 75, 80, 83, 85, 87, 88, 92, 94 and 95.

⁵HLA-specific PCR products shorter than 125 base pairs have a lower intensity and are less sharp than longer PCR products.

⁶Primer mix 74 will for most C*02 alleles give rise to two specific PCR fragments.

⁷Primer mix 76 will for most C*03 alleles give rise to two specific PCR fragments.

⁸Primer mix 81 will for most C*07 alleles give rise to two specific PCR fragments.

⁹Primer mix 82 will for most C*08 alleles give rise to multiple specific PCR fragments.

¹⁰Primer mix 89 will for most C*15 alleles give rise to two specific PCR fragments.

¹¹Primer mixes 84, 85 and 91 may have tendencies of unspecific amplifications.

¹²Primer mixes 88 and 90 have a tendency to giving rise to primer oligomer formation.

¹³Primer mixes 75, 78, 80, 82, 87, 94 and 95 may give rise to a lower yield of HLA-specific PCR fragments than the other HLA-C low resolution primer mixes.

¹⁴Primer mix 86 might faintly amplify most C*01 and the C*14 alleles.

¹⁵Primer mix 91 might generate a false band of about 500 base pairs. This band should be disregarded when interpreting HLA-C low resolution typings.

¹⁶Primer 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.

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

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Lot No.: **4E5**

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	160	75	80	80	125
PCR product	145	215	235		335	200	205	200		240	175	185
	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	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							423				
	5'-ATA 3'							5'-gCT 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.	1	2	3	4	5	6	7	8	9	10	11	12

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

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Lot No.: **4E5**

Lot-specific information

Well No.	13	14	15	16	17	18	19	20	21	22	23	24
Length of spec.	180	80	90	240	140	200	340	215	200	85	85	445
PCR product	225	115	135	380	180	390	375	245	240	240	155	360
	405	200	205	410	235				375	405	240	
		240			260				550		495	
		460										
Length of int. pos. control ¹	1070	1070	1070	1070	1070	1070	800	800	800	800	800	1070
5'-primer(s) ²	47	98	203	41	98	41	302	78	28	47	176	257
	5'-g.T 3'	5'-CAC 3'	5'-gAA 3'	5'-CTT 3'	5'-CTT 3'	5'-CTT 3'	5'-ggA 3'	5'-TCT 3'	5'-TCg 3'	5'-g.T 3'	5'-gCA 3'	5'-Cgg 3'
	98	219	362	355	180	98	302	106	261	78	261	341
	5'-CTT 3'	5'-gCA 3'	5'-ggT 3'	5'-CCg 3'	5'-TTT 3'	5'-CAC 3'	5'-ggA 3'	5'-CCA 3'	5'-AAC 3'	5'-TCT 3'	5'-AAC 3'	5'-ggC 3'
	414	238	363		203		341	2 nd I	368	527	341	
	5'-CAg 3'	5'-AgA 3'	5'-ATA 3'		5'-gAA 3'		5'-ggA 3'	5'-CCT 3'	5'-gTT 3'	5'-TgC 3'	5'-ggA 3'	
	423	355	363		418						355	
	5'-gCT 3'	5'-CCg 3'	5'-ATA 3'		5'-AgC 3'						5'-CCC 3'	
		489	363								362	
		5'-gCA 3'	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'								
Well No.	13	14	15	16	17	18	19	20	21	22	23	24

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.

101.702-24/06 – including *Taq* pol., IFU-01
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Lot No.: **4E5**

Lot-specific information

HLA-B LOW PRIMER SPECIFICATION

Well No.	25	26	27	28	29	30	31	32	33	34	35	36
Length of spec.	110	215	140	140	185	190	180	165	165	180	100	280
PCR product			235	265	235		290	225	190		195	
								285	390			
								330				
Length of int.	800	1070	1070	800	800	800	1070	1070	1070	800	1070	1070
pos. control ¹												
5'-primer(s) ²	527	97	209	103	103	103	45	45	45	420	206	419
	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'
	539		363	103	103	418		357	435		416	
	5'-gCg 3'		5'-AgC 3'	5'-CCg 3'	5'-CCT 3'	5'-Agg 3'		5'-Tgg 3'	5'-AAA 3'		5'-CCg 3'	
	540		363	361	363			412			420	
	5'-gAC 3'		5'-AgC 3'	5'-AgT 3'	5'-AAT 3'			5'-ATA 3'			5'-TTA 3'	
				363							420	
				5'-AgC 3'							5'-TTC 3'	
3'-primer(s) ³	605	272	309	193	246	246	Intron	206	266	559	256	Intron
	5'-gCT 3'	5'-Tgg 3'	5'-gTg 3'	5'-CgT 3'	5'-TAT 3'	5'-TAT 3'	5'-gAC 3'	5'-CCT 3'	5'-TCC 3'	5'-CTC 3'	5'-CCC 3'	5'-TAT 3'
		272	312	193	246	572	165	538	559		272	
		5'-TgA 3'	5'-gCC 3'	5'-CgT 3'	5'-TAT 3'	5'-gCC 3'	5'-Tgg 3'	5'-gTC 3'	5'-CAg 3'		5'-Tgg 3'	
			559	463	559			603	583		572	
			5'-CAg 3'	5'-gCT 3'	5'-CTC 3'			5'-gTg 3'	5'-gTg 3'		5'-gCg 3'	
				583								
				5'-gTg 3'								
Well No.	25	26	27	28	29	30	31	32	33	34	35	36

Well No.	37	38	39	40	41	42	43	44	45	46	47	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	349	206	45	142	409	246	44	44
	5'-TCT 3'	5'-ggA 3'	5'-Cgg 3'	5'-gCT 3'	5'-CTT 3'	5'-gAC 3'	5'-ggA 3'	5'-TCT 3'	5'-ggC 3'	5'-gAA 3'	5'-ggC 3'	5'-ggC 3'
	419	540			355		368	368	420			357
	5'-gTC 3'	5'-gAC 3'			5'-TCA 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			311	259	311				302
	5'-gTC 3'	5'-TgT 3'	5'-TgA 3'			5'-ggT 3'	5'-gTT 3'	5'-ggg 3'				5'-ggT 3'
	570	309	272			312	266	538				477
	5'-CCg 3'	5'-ATC 3'	5'-Tgg 3'			5'-AgT 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

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

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Lot No.: **4E5**

Lot-specific information

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

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
			370	210	205	240			150			
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'	207 5'-ACC 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'	208 5'-CgT 3'		463 5'-TgA 3'			363 5'-AgC 3'
						362 5'-ggT 3'	209 5'-ggA 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'	320 5'-AgT 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

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

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

Lot No.: 4E5

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 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.

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

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“Instructions for Use” (IFU)

Lot No.: **4E5**

Lot-specific information

HLA-C LOW PRIMER SPECIFICATION

Well No.	73	74	75	76	77	78	79	80	81	82	83	84
Length of spec.	90	130	280	85	280	135	165	130	245	110	155	100
PCR product	150	200		170		330	390	355	425	165	255	155
		270		275			445			390	340	220
		300										
Length of int. pos. control ¹	800	800	800	1070	800	800	1070	800	800	800	1070	800
5'-primer(s) ²	89 5'-gAA 3'	47 5'-Agg 3'	105 5'-gCT 3'	98 5'-CTT 3'	105 5'-gCT 3'	47 5'-Agg 3'	1 st I 5'-CgA 3'	28 5'-TCA 3'	47 5'-Agg 3'	1 st I 5'-CgA 3'	1 st I 5'-CgA 3'	361 5'-AgT 3'
	89 5'-gAA 3'	89 5'-gAA 3'		355 5'-TCA 3'		112 5'-CCT 3'	176 5'-gCA 3'	2 nd I 5'-CCA 3'	648 5'-CAC 3'	176 5'-gCA 3'	419 5'-gTC 3'	419 5'-gTC 3'
	98 5'-CTT 3'	2 nd I 5'-CCA 3'		459 5'-gAT 3'		118 5'-CCA 3'	527 5'-TgA 3'			527 5'-TAC 3'		
		703 5'-CTA 3'										
3'-primer(s) ³	142 5'-TgA 3'	176 5'-ACT 3'	343 5'-C 3'	142 5'-TgA 3'	343 5'-T 3'	201 5'-CTT 3'	302 5'-ggT 3'	213 5'-Cgg 3'	302 5'-ggC 3'	302 5'-ggC 3'	118 5'-gCT 3'	474 5'-gCA 3'
	201 5'-CTT 3'	559 5'-CTC 3'	343 5'-g 3'	589 5'-CTT 3'		218 5'-gCT 3'	307 5'-CCA 3'	409 5'-ATg 3'	853 5'-CAT 3'	595 5'-CCC 3'	218 5'-gCT 3'	477 5'-gCA 3'
	201 5'-CTC 3'	861 5'-TCg 3'					3 rd I 5'-gCA 3'	420 5'-gCT 3'			302 5'-ggT 3'	538 5'-gCA 3'
											304 5'-CAA 3'	
											539 5'-TCT 3'	
Well No.	73	74	75	76	77	78	79	80	81	82	83	84

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

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

Lot No.: **4E5**

Lot-specific information

Well No.	85	86	87	88	89	90	91	92	93	94	95
Length of spec.	120	160	130	160	110	180	215	210	325	135	155
PCR product	250	210	255	260	325	210	250	425	380		235
			555	445		240					
Length of int.	800	800	1070	1070	800	1070	800	800	1070	800	1070
pos. control ¹											
5'-primer(s) ²	201	97	98	98	201	201	2 nd I	47	355	105	97
	5'-CCA 3'	5'-TCg 3'	5'-CTA 3'	5'-CTC 3'	5'-CCA 3'	5'-CCA 3'	5'-CCA 3'	5'-Agg 3'	5'-TCA 3'	5'-gCT 3'	5'-TCg 3'
	218	361	368	98	409	2 nd I		117	412	459	97
	5'-ggA 3'	5'-AgT 3'	5'-gTg 3'	5'-CTT 3'	5'-ggC 3'	5'-CCA 3'		5'-CCT 3'	5'-ATA 3'	5'-gAT 3'	5'-TTg 3'
	2 nd I			194		361		361			361
	5'-CCA 3'			5'-CgT 3'		5'-AgT 3'		5'-AgT 3'			5'-AgT 3'
				527							418
				5'-TgA 3'							5'-Agg 3'
											419
											5'-gTC 3'
											419
											5'-gTT 3'
3'-primer(s) ³	289	218	312	311	270	341	499	289	3 rd I	201	213
	5'-AgC 3'	5'-gCT 3'	5'-AgT 3'	5'-ggT 3'	5'-TAG 3'	5'-CgT 3'	5'-ggA 3'	5'-AgT 3'	5'-CTC 3'	5'-CTC 3'	5'-Cgg 3'
	289	527	312	317	3 rd I	343	512	302		559	289
	5'-AgC 3'	5'-CCg 3'	5'-AgT 3'	5'-CgT 3'	5'-CTC 3'	5'-T 3'	5'-CCA 3'	5'-ggT 3'		5'-CTC 3'	5'-AgC 3'
	291	538	361	Intron		343	538	527			289
	5'-TCg 3'	5'-CCA 3'	5'-CCA 3'	5'-gCA 3'		5'-g 3'	5'-gTC 3'	5'-CCg 3'			5'-AgC 3'
	539	538	459			527		538			539
	5'-TCT 3'	5'-gCA 3'	5'-AgA 3'			5'-CCg 3'		5'-CCg 3'			5'-TCT 3'
						527					
						5'-CCg 3'					
						527					
						5'-CCg 3'					
						527					
						5'-CCg 3'					
						530					
						5'-CCA 3'					
Well No.	85	86	87	88	89	90	91	92	93	94	95

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 73 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.

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

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

Lot No.: **4E5**

Lot-specific information

CELL LINE VALIDATION SHEET																					
HLA-A low resolution primer set ²																					
					Prod. No.:	Well															
						1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
						201568801	201664302	201669103	201664304	201664305	201664306	201664307	201664308	201671809	201664310	201664311	201664312	201671813	201664314	201664315	201672816
	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			-	+	-	-	-	-	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		-	+	-	+	-	-	-	-	-	-	+	-	-	-	-	-

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

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“Instructions for Use” (IFU)

Lot No.: **4E5**

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
						201664317	201672818	201664319	201664320	201664321	201671822	201671823	201669124
	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		-	-	-	-	-	-	-	-

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

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

Lot No.: 4E5

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 or more 3'-primers, respectively one or more 5'-primers. Additional 5'-primers in primer solution 1, 13, 19 and 24 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 to 13, 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.

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

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

Lot No.: **4E5**

Lot-specific information

CELL LINE VALIDATION SHEET																								
HLA-B low resolution SSP kit ²																								
					Well																			
					25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40				
					Prod. No.:	201561101	201561102	201561103	201666504	201561105	201561106	201666507	201672808	201561109	201561110	201666511	201561112	2016663913	2016669214	201561115	201561116			
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	-	-	-	+	-	-	-	-	-	-	-	-	+	-	-	-				

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

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

Lot No.: **4E5**

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.:	201561133	201669234	201561135	201561136	201561137									
											201561138	201561139	201561140	201563941	201561142									
											201561143	201561144	201561145	201672846	201561147									
											201561148													
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		-	-	-	-	-	+	-	-	-	+	+								

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

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

Lot No.: 4E5

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, 35, 38, 43, 53, 55, 64 and 65 were tested by separately adding one or two additional 3'-primers, respectively one or two additional 5'-primers. Additional 3'-primers in primer solutions 26, 32, 37, 39 and 42 were tested by separately adding one or two additional 5'-primers. Additional 5'-primers in primer solutions 25, 28, 45, 49 and 72 were tested by separately adding one or two additional 3'-primers.

In primer mixes 35, 41, 55, 66 and 67 one or two 5'-primers were not possible to test, and in primer mixes 27, 31, 53, 62, 63, 66 and 70 one or two 3'-primers were not possible to test.

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

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“Instructions for Use” (IFU)

Lot No.: **4E5**

Lot-specific information

CELL LINE VALIDATION SHEET																				
HLA-C low resolution SSP primer set ²																				
				Well																
				73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	
				Prod. No.:	201553101	201553102	201553103	201673004	201553105	201553106	201673007	201561308	201553109	201553110	201673011	201553112	201553113	201673014	201673015	201553116
IHCW cell line ¹		C*																		
1	9001 SA	*07:02		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	
2	9280 LK707	*07:01	*15:05	-	-	+	-	-	-	-	-	-	+	-	+	-	-	+	-	
3	9011 E4181324	*12:02		-	-	-	-	-	-	-	-	-	-	-	+	+	-	-	-	
4	9275 GU373	*03:04	*04:01	-	-	+	+	-	+	-	-	-	-	-	+	-	+	-	-	
5	9009 KAS011	*06:02		-	-	-	-	-	-	-	-	+	-	-	+	-	+	-	-	
6	9353 SM	*03:04	*07:02	-	-	+	+	-	-	-	-	-	+	-	-	-	-	-	-	
7	9020 QBL	*05:01		-	-	-	-	-	-	-	+	-	-	-	+	-	-	+	-	
8	9007 DEM	*04:01		-	-	-	-	-	+	-	-	-	-	-	+	-	+	-	-	
9	9026 YAR	*12:03		-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	
10	9107 LKT3	*01:02		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
11	9051 PITOUT	*16:01		-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	-	
12	9052 DBB	*06:02		-	-	-	-	-	-	-	-	+	-	-	+	-	-	+	-	
13	9004 JESTHOM	*01:02		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
14	9071 OLGA	*01:02	*03:04	+	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	
15	9075 DKB	*03:04		-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	
16	9037 SWEIG007	*02:02		-	+	+	-	-	+	-	-	-	-	-	+	-	-	+	-	
17	9282 CTM3953540	*03:03	*07:01	-	-	-	+	+	-	-	-	-	+	-	-	-	-	-	-	
18	9257 32367	*01:02	*07:05	+	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	
19	9038 BM16	*07:01		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	
20	9059 SLE005	*03:04		-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	
21	9064 AMALA	*03:03		-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	
22	9056 KOSE	*12:03		-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	
23	9124 IHL	*01:02	*15:02	+	-	+	-	-	-	-	-	+	-	-	+	-	-	+	-	
24	9035 JBUSH	*12:03		-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	
25	9049 IBW9	*08:02		-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	
26	9285 WT49	*07:01		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	
27	9191 CH1007	*07:04	*15:05	-	-	+	-	-	-	-	-	-	+	-	+	-	-	+	-	
28	9320 BEL5GB	*05:01	*16:01	-	-	-	-	-	-	-	+	-	-	-	+	-	+	-	+	
29	9050 MOU	*16:01		-	-	-	-	-	-	-	-	-	-	-	+	-	+	-	-	
30	9021 RSH	*17:01		-	+	-	-	-	-	-	-	-	-	-	+	-	-	+	-	
31	9019 DUCAF	*05:01		-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	+	
32	9297 HAG	*17:01	*17:03	-	+	-	-	-	-	-	-	-	-	-	+	-	-	+	-	
33	9098 MT14B	*03:04		-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	
34	9104 DHIF	*12:03		-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	
35	9302 SSTS	*05:01		-	-	-	-	-	-	-	+	-	-	-	+	-	-	+	-	
36	9024 KT17	*03:03	*04:01	-	-	-	+	+	+	-	-	-	-	-	+	-	+	-	-	
37	9065 HHKB	*07:02		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	
38	9099 LZL	*03:03		-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	
39	9315 CML	*02:02	*07:01	-	+	+	-	-	+	-	-	-	+	-	+	-	-	+	-	
40	9134 WHONP199	*01:02	*06:02	+	-	-	-	-	-	-	-	+	-	-	+	-	-	+	-	
41	9055 H0301	*08:02		-	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	
42	9066 TAB089	*01:02		+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
43	9076 T7526	*01:02	*08:01	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	
44	9057 TEM	*12:03		-	-	-	-	-	-	-	-	-	-	-	-	+	+	+	-	
45	9239 SHJO	*06:02	*17:01	-	+	-	-	-	-	-	-	+	-	-	+	-	-	+	+	
46	9013 SCHU	*07:02		-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	
47	9045 TUBO	*07:04	*15:02	-	-	+	-	-	-	-	-	+	+	-	+	-	-	+	-	
48	9303 TER-ND	*04:01	*16:01	-	-	-	-	-	-	+	-	-	-	-	+	-	+	-	-	

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

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“Instructions for Use” (IFU)

Lot No.: **4E5**

Lot-specific information

CELL LINE VALIDATION SHEET									
HLA-C low resolution SSP primer set ²									
					Well				
					89	90	91	92	93
					94	95			
					Prod. No.:	201553117	201553118	201673019	201669320
						201553121	201553122	201550823	
					IHWC cell line ¹	C*			
1	9001	SA	*07:02		-	-	-	-	-
2	9280	LK707	*07:01	*15:05	+	-	-	-	+
3	9011	E4181324	*12:02		-	-	-	-	-
4	9275	GU373	*03:04	*04:01	-	+	-	-	+
5	9009	KAS011	*06:02		-	-	-	-	+
6	9353	SM	*03:04	*07:02	-	-	-	-	+
7	9020	QBL	*05:01		-	-	-	-	+
8	9007	DEM	*04:01		-	+	-	-	+
9	9026	YAR	*12:03		-	-	-	-	-
10	9107	LKT3	*01:02		-	-	-	+	-
11	9051	PITOUT	*16:01		-	+	-	-	-
12	9052	DBB	*06:02		-	-	-	-	-
13	9004	JESTHOM	*01:02		-	-	-	+	-
14	9071	OLGA	*01:02	*03:04	-	-	-	+	+
15	9075	DKB	*03:04		-	-	-	-	+
16	9037	SWEIG007	*02:02		-	-	-	-	-
17	9282	CTM3953540	*03:03	*07:01	-	-	-	-	+
18	9257	32367	*01:02	*07:05	-	-	-	+	-
19	9038	BM16	*07:01		-	-	-	-	-
20	9059	SLE005	*03:04		-	-	-	-	+
21	9064	AMALA	*03:03		-	-	-	-	+
22	9056	KOSE	*12:03		-	-	-	-	-
23	9124	IHL	*01:02	*15:02	+	-	-	+	+
24	9035	JBUSH	*12:03		-	-	-	-	-
25	9049	IBW9	*08:02		-	-	-	-	+
26	9285	WT49	*07:01		-	-	-	-	-
27	9191	CH1007	*07:04	*15:05	+	-	-	-	+
28	9320	BEL5GB	*05:01	*16:01	-	+	-	-	+
29	9050	MOU	*16:01		-	+	-	-	-
30	9021	RSH	*17:01		-	-	+	-	+
31	9019	DUCAF	*05:01		-	-	-	-	+
32	9297	HAG	*17:01	*17:03	-	-	+	-	+
33	9098	MT14B	*03:04		-	-	-	-	+
34	9104	DHIF	*12:03		-	-	-	-	-
35	9302	SSTO	*05:01		-	-	-	-	+
36	9024	KT17	*03:03	*04:01	-	+	-	-	+
37	9065	HHKB	*07:02		-	-	-	-	-
38	9099	LZL	*03:03		-	-	-	-	+
39	9315	CML	*02:02	*07:01	-	-	-	-	-
40	9134	WHONP199	*01:02	*06:02	-	-	-	+	-
41	9055	H0301	*08:02		-	-	-	-	+
42	9066	TAB089	*01:02		-	-	-	+	-
43	9076	T7526	*01:02	*08:01	-	+	-	+	+
44	9057	TEM	*12:03		-	-	-	-	-
45	9239	SHJO	*06:02	*17:01	-	-	+	-	+
46	9013	SCHU	*07:02		-	-	-	-	-
47	9045	TUBO	*07:04	*15:02	+	-	-	-	+
48	9303	TER-ND	*04:01	*16:01	-	+	-	-	+

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

Visit www.olerup.com for
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Lot No.: 4E5

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 73, 74, 76, 79, 86 to 88, 92 and 94 were tested by separately adding one or two additional 3'-primers, respectively one or two additional 5'-primers. Additional 3'-primers in primer solution 80, 83, 90 and 91 were tested by separately adding one or two additional 5'-primers. Additional 5'-primers in primer solutions 78, 85 and 95 were tested by separately adding one, two or three additional 3'-primers.

In primer solutions 73, 88 and 95 one 5'-primer was not possible to test, and in primer solutions 75, 79, 83 to 88 and 90 one or two 3'-primers were not possible to test.

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

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Lot No.: **4E5**

Lot-specific information

101.702-24/06 – including *Taq* pol., IFU-01
101.702-24u/06u – without *Taq* pol., IFU-02

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Lot No.: **4E5**

Lot-specific information

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