

101.401-48/12 – including *Taq* pol., IFU-01
101.401-48u/12u – without *Taq* pol., IFU-02

Visit <https://labproducts.caredx.com> for
“Instructions for Use” (IFU)

Lot No.: **9H8**

Lot-specific information

Olerup SSP® HLA-A low resolution

Product number: 101.401-48/12 – including *Taq* polymerase
101.401-48u/12u – without *Taq* polymerase

Lot number: 9H8

Expiry date: 2022-01-01

Number of tests: 48 tests – Product No. 101.401-48/48u
12 tests – Product No. 101.401-12/12u

Number of wells per test: 31 +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. 9H8.

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 LOW RESOLUTION LOT (8F6)

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 low resolution lot was made (**Lot No. 8F6**). The kit design is based on IMGT/HLA database 3.35.0.

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

Well	5'-primer	3'-primer	rationale
18	-	Added	3'-primers added for the A*33:135 allele and the A*33:141 allele.
20	Added	-	5'-primer added for the A*68:105 allele.
29	Modified	Modified	5'-primer and 3'-primer modified for improved HLA-specific amplification.

Change in revision R01 compared to R00:

1. Primer mix 27 amplifies the A*03:66, 03:225 and the A*11:08 alleles. This has been corrected in the Specificity and Interpretation Tables.

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Well **32** contains Negative Control primer pairs, that will amplify a majority 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 products generated by the positive control primer pairs are 200 and 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 low resolution

CONTENT

The primer set contains 5'- and 3'-primers for grouping the HLA-A*01:01 to A*80:04 alleles into the corresponding serological groups A1 to A80.

PLATE LAYOUT

Each test consists of 32 PCR reactions in a 32 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	NC

The 32 well PCR plate is marked with ‘HLA-A low’ in silver/gray ink.

Well No. 1 is marked with the Lot No. ‘9H8’.

Wells 1 to 31 – HLA-A low resolution primers.

Well 32 – 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.

Please note: When removing each 32 well PCR plate, make sure that the remaining plates stay covered. Use a scalpel or a similar instrument to carefully cut the foil between the plates.

INTERPRETATION

Only HLA-A alleles will be amplified by the 32 wells of the HLA-A low resolution primer set, **wells 1 to 31**, except that a few HLA-B and HLA-C alleles will be amplified by some primer mixes. For further details see Specificity Table.

UNIQUELY IDENTIFIED ALLELES

All the HLA-A alleles, i.e. **A*01:01 to A*80:04**, recognized by the HLA Nomenclature Committee in January 2019^{1,2} will be amplified by the primers in the HLA-A low resolution primer set³. The HLA-A alleles will be grouped into their corresponding serological specificities.

¹HLA-A alleles listed on the IMGT/HLA web page 2019-January-23, release 3.35.0, www.ebi.ac.uk/imgt/hla.

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

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³The following alleles give rise to identical amplification patterns with the HLA-A low resolution primer set. These alleles can be separated by the respective high-resolution primer sets.

Alleles	Alleles
A*23:14:01-23:14:02, 24:71, 24:315, 24:392	A*30:12:01-30:12:02, 30:31, <i>B*07:260</i>
A *23:66, 24:14:01:01-24:15, 24:51-24:53, 24:57, 24:64, 24:94, 24:114, 24:138, 24:188, 24:222N, 24:228, 24:291, 24:296, 24:304, 24:316, 24:324, 24:412, <i>C*04:01:03</i>	A*31:08, 33:53

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SPECIFICITY TABLE

HLA-A low resolution primer set

Specificities and sizes of the PCR products of the 31+1 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
1 ⁵	120 bp, 145 bp	800 bp	A1, A36	*01:01:01:01-01:01:31, 01:01:33-01:01:59, 01:01:61-01:04:01:02N, 01:06-01:33, 01:35-01:68, 01:70-01:142, 01:144-01:170, 01:172-01:187, 01:189-01:219, 01:221-01:297, 11:282, 26:120, 36:01-36:08
2	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, 02:01:83-02:22:02, 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, 02:572-02:643N, 02:645-02:825
3 ⁶	235 bp	1070 bp	A3, A32, A36	*03:01:01:01-03:01:29, 03:01:31-03:01:34, 03:01:36-03:01:48, 03:01:51-03:04:03, 03:06-03:09, 03:11N-03:17:02, 03:19-03:39, 03:41, 03:43-03:74, 03:76-03:94, 03:96-03:97, 03:99-03:104, 03:106-03:121, 03:123:01-03:134, 03:136-03:166, 03:168N-03:176, 03:178N-03:186, 03:188-03:193, 03:195-03:199, 03:201-03:203, 03:205-03:207, 03:209-03:214, 03:216-03:224, 03:226-03:259, 03:261-03:325, 03:327-03:331, 03:333-03:334N, 11:130, 30:89, 32:04, 36:02
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, 01:01:67-01:01:78, 01:01:80-01:04:01:02N, 01:06-01:07, 01:09:01:01-01:11N, 01:13, 01:15N ^w , 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, 01:168-01:177, 01:179N-01:199, 01:201-01:204, 01:206-01:207, 01:209-01:213, 01:215-01:227, 01:229-01:235, 01:237-01:243, 01:245-01:266:02, 01:268-01:270, 01:272-01:278, 01:280-01:297, 02:78, 02:169, 03:12, 03:18, 03:88, 03:135, 11:01:01:01-11:27, 11:29-11:52Q, 11:54:01-11:312, 25:43, 26:19, 26:72, 29:67, 30:08:01-30:08:02, 32:64, 34:19, 36:04, 66:23, 68:13:01, 68:66:01-68:66:02, 68:134, 68:178, 74:19, C*03:365, C*12:131
5	160 bp, 335 bp, 505 bp	1070 bp	A3, A9, A23, A24, A2403, A29, A31, A32	*03:15, 03:19, 03:30, 03:152, 03:273, 11:139, 23:01:01:01-23:68, 23:70-23:92, 24:02:01:01-24:11N, 24:13:01-24:15, 24:17-24:64, 24:66-24:210, 24:212-24:433N, 29:07, 29:49, 31:08, 31:29, 32:05, 32:79, 33:19, 33:53, C*04:01:03

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6^{7,11}	135 bp, 200 bp	800 bp	A9, A23, A24, A29, A80	*11:166, 23:01:01:01-23:56, 23:58-23:65, 23:67-23:68, 23:70-23:92, 24:24, 24:71, 24:315, 24:392, 29:07, 29:49, 31:29, 31:85, 32:72, 80:01:01:01-80:04, B*18:27
7	175 bp, 205 bp	1070 bp	A2, A3, A9, A23, A24, A2403, A26	*02:17:02 ^w -02:17:04 ^w , 02:804, 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, 24:325-24:411, 24:413-24:433N, 26:16, 33:19, 33:119, 68:45, 68:117
8	165 bp, 200 bp	800 bp	A2/A28, A3, A10, A11, A25, A26, A32, A34, A66, A68, A69	*01:51, 02:55, 02:527, 02:582, 02:644, 02:741, 02:815, 03:24, 03:50, 11:10, 11:183, 11:191, 11:269, 25:01:01:01-25:16, 25:18-25:33, 25:35-25:45, 25:47-25:53, 25:55-25:57, 26:01:01:01-26:01:47, 26:01:49-26:06, 26:08:01-26:15, 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, 26:93-26:176, 26:178, 29:28, 32:15, 33:51, 34:01:01:01-34:18, 34:20-34:21, 66:01:01:01-66:22, 66:24-66:32, 68:01:01:01-68:177, 68:179-68:205N, 69:01:01:01-69:05
9^{5,8}	80 bp	800 bp	A2, A3, A25, A32	*02:81, 02:124, 25:01:01:01-25:45, 25:47-25:57, 32:01:01:01-32:02, 32:04, 32:06-32:37, 32:39-32:59, 32:61-32:70, 32:72-32:77, 32:81-32:106, 32:108-32:121, B*07:81, B*08:52, B*18:67, B*38:41, B*38:67, B*51:185, B*53:05:01-53:05:02, B*53:16, B*53:33, B*57:60
10^{5,11}	80 bp, 240 bp	800 bp	A10, A26, A43	*01:43, 01:51, 02:644, 11:17, 11:40, 11:223, 11:271, 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, 26:112-26:176, 26:178, 29:105, 33:13, 33:48, 43:01, 68:84
11⁵	80 bp, 175 bp, 500 bp	1070 bp	A1, A9, A10, A11, A26, A34, A66	*01:13, 01:26, 01:28, 01:136, 01:176, 01:192, 01:229, 03:63, 03:88, 11:01:01:01-11:27, 11:29-11:52Q, 11:54:01-11:270, 11:272Q-11:312, 24:19, 24:44, 26:03:01, 26:06, 26:21, 26:78, 26:92, 26:111, 26:152, 26:177, 30:125, 30:140, 34:01:01:01-34:08, 34:10N-34:21, 66:01:01:01-66:01:05, 66:04-66:11, 66:13-66:14, 66:17-66:20, 66:22-66:24, 66:27N, 66:29-66:32, 69:02, 74:30, 80:02
12⁵	125 bp, 160 bp, 185 bp	800 bp	A10, A25, A26, A31, A34, A43, A66	*01:01:56, 02:309, 02:454, 03:01:19, 03:103:02, 11:11, 25:05-25:06, 26:09, 26:54, 26:91, 31:03-31:04, 31:123, 34:01:01:01-34:21, 43:01, 66:02-66:03:01:02, 66:16, 66:19, 66:21, 66:25-66:26Q, 66:28N, 68:130:01, 74:01:03
13	180 bp, 225 bp	1070 bp	A1, A2, A3, A10, A25, A26, A34, A43, A66	*01:13, 01:176, 01:194, 02:34-02:35:03, 02:56:01-02:56:02, 02:62, 02:103, 02:135, 02:580, 02:741, 03:01:01:01-03:01:22, 03:01:24-03:07:02, 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,

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14^{5,11}	80 bp, 115 bp, 200 bp, 240 bp, 470 bp	1070 bp	A26, A29, A31, A34, A36, A68	*02:237, 02:309, 02:454, 02:809, 03:01:38, 03:95, 03:123:02, 03:171, 03:231:01, 11:130, 26:19, 26:22, 29:01:01:01-29:128, 31:03-31:04, 31:123, 32:42, 34:04, 36:02, 66:09, 68:19, 68:130:02
15^{5,10,12}	90 bp, 135 bp, 200 bp	1070 bp	A1, A30	*01:13, 01:28, 01:176, 01:194, 01:229, 03:43, 03:82, 03:186, 11:113, 11:162, 11:282, 30:01:01:01-30:04:02, 30:06-30:20, 30:22-30:145N, 31:35, B*07:260
16	240 bp, 370 bp, 400 bp	1070 bp	A24, A31, A32	*02:237, 02:809, 03:95, 11:306, 29:14, 31:01:02:01-31:149N, 32:05, 32:79, 33:53, 33:125, 33:131, 74:13
17	140 bp, 170 bp, 235 bp, 260 bp	1070 bp	A1, A3, A25, A32, A74	*01:07, 01:95, 01:289, 03:32, 03:43, 03:82, 03:152, 03:186, 03:219, 03:273, 23:64, 24:104, 24:243, 25:03, 25:30, 29:13, 29:39, 29:98, 30:89, 31:21, 31:35, 32:01:01:01-32:121, 74:07, 74:33, 80:04
18	200 bp, 390 bp	1070 bp	A24, A31, A32, A33, A68, A74	*02:243:01-02:243:03, 24:82, 26:177, 29:48, 29:105, 31:08, 31:109, 32:05, 32:15, 32:79, 32:93, 33:01:01:01-33:01:12, 33:03:01:01-33:37, 33:39-33:170, 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, 03:246, 03:282, 32:62, 68:25, 74:01:01:01-74:34
20^{11,12}	210 bp, 240 bp	800 bp	A2, A25, A28, 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, 02:571, 02:580, 02:651, 02:741, 25:05, 26:54, 26:122, 68:01:01:01-68:205N
21⁵	65 bp, 240 bp, 375 bp, 545 bp	800 bp	A2, A26, A28, A32, A66, A68, A69	*02:55, 02:149, 02:243:01-02:243:03, 02:309, 02:644, 02:741, 02:815, 23:57, 24:82, 25:30, 26:22, 26:177, 29:80, 31:41, 32:06, 33:22, 66:06, 66:09, 68:08:02, 68:29, 68:105, 68:157, 69:01:01:01-69:05
22^{5,9}	90 bp, 240 bp, 400 bp	800 bp	A2, A36	*02:34-02:35:03, 02:46, 02:48, 02:56:01-02:56:02, 02:62, 02:70, 02:78, 02:103, 02:129, 02:571, 02:576, 02:580, 02:682, 02:741, 03:187, 11:155, 11:226, 31:62, 36:01-36:08, 68:11N, 68:41, B*40:359, B*55:96, B*57:65, C*04:31, C*06:137, C*07:569

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23^{5,11}	75 bp, 160 bp, 240 bp, 495 bp, 575 bp	800 bp	A2/A28, A24/A3, A26, A36, A68, A80	*02:55, 02:237, 02:671, 02:809, 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, 26:177, 33:24, 36:02, 68:05, 68:15, 68:20, 68:109, 68:136, 80:01:01:01- 80:01:01:02, 80:03-80:04, C*06:187
24^{10,12}	360 bp, 445 bp	1070 bp	A10, A26, A31, A66	*02:135, 02:309, 02:454, 03:01:19, 03:103:02, 25:13, 25:46, 26:07:01-26:07:02, 26:30, 26:65, 26:92, 31:04, 31:123, 34:09, 66:02-66:03:01:02, 66:12, 66:16, 66:21, 66:25-66:26Q, 66:28N, 74:01:03
25	190 bp, 400 bp	1070 bp	A24, A29, A30, A31, A32, A33, A74	*11:306, 29:01:01:01-29:29, 29:31-29:118, 29:120-29:128, 30:01:01:01-30:01:07, 30:01:09- 30:04:02, 30:06-30:11:02, 30:13-30:17, 30:19- 30:20, 30:22-30:30, 30:32-30:40, 30:42-30:54, 30:56-30:59N, 30:61-30:102, 30:104-30:145N, 31:01:02:01-31:08, 31:10-31:27, 31:29-31:149N, 32:01:01:01-32:03, 32:05-32:23, 32:25-32:48N, 32:50-32:115, 32:117N-32:121, 33:01:01:01- 33:01:12, 33:03:01:01-33:37, 33:39-33:162, 33:164-33:170, 74:01:01:01-74:34
26	195 bp, 225 bp	800 bp	A1, A36, A43	*01:01:01:01-01:02, 01:04:01:01N-01:04:01:02N, 01:07-01:11N, 01:13, 01:16N-01:18N, 01:21- 01:33, 01:35-01:52:02N, 01:54-01:62, 01:64, 01:67:01-01:72, 01:74-01:97, 01:99-01:126, 01:128-01:129, 01:131-01:135, 01:137-01:191, 01:193-01:199, 01:201-01:221, 01:223-01:243, 01:245-01:254, 01:256-01:286, 01:288-01:297, 03:18, 03:135, 11:11, 11:94, 11:112, 11:211, 11:226, 11:271, 11:290, 36:04, 43:01, 68:130:01
27¹⁰	205 bp	1070 bp	A1, A3, A11, A30, A31, A32, A34	*01:12, 01:19, 01:21, 01:126, 01:200, 01:244, 02:156, 02:338, 03:01:01:01-03:01:05, 03:01:07- 03:01:13, 03:01:15-03:01:46, 03:01:48, 03:01:50- 03:01:51, 03:01:53-03:17:02, 03:19-03:49, 03:51:01-03:53, 03:55-03:63, 03:65-03:74, 03:76- 03:94, 03:96-03:126, 03:128-03:134, 03:136- 03:139, 03:141-03:152, 03:154:01-03:164, 03:166-03:176, 03:178N-03:186, 03:188-03:193, 03:195-03:199, 03:201-03:203, 03:205-03:214, 03:216-03:230, 03:232-03:233, 03:235-03:248, 03:250-03:259, 03:261-03:287, 03:289-03:321, 03:323N-03:334N, 11:03, 11:08, 11:20, 11:25:01- 11:25:02, 11:31, 11:35, 11:60, 11:158, 11:175, 11:183, 11:209, 24:92, 30:04:01-30:04:02, 30:06, 30:09, 30:17, 30:29, 30:46, 30:77, 30:89-30:90, 30:99, 30:103, 30:105, 30:117, 30:139, 31:03- 31:04, 32:04, 33:49, 33:144, 34:02:01:01-34:04, 34:07-34:10N, 34:13, 34:15, 34:20-34:21, 68:103:01-68:103:02, 74:23
28^{5,10}	100 bp, 520 bp	1070 bp	A1, A2, A3, A9, A11, A23, A24, A28, A29, A30, A66, A68, A69	*01:13, 01:17, 01:176, 01:194, 02:34-02:35:03, 02:56:01-02:56:02, 02:62, 02:78, 02:103, 02:580, 03:01:01:01-03:07:02, 03:09-03:31, 03:33, 03:35, 03:37-03:40, 03:42-03:61, 03:64-03:87, 03:90- 03:106, 03:109-03:151, 03:153-03:171, 03:173- 03:175, 03:177-03:193, 03:195-03:197N, 03:199,

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				03:201-03:259, 03:261-03:262N, 03:264-03:272, 03:274-03:334N, 11:12, 11:155, 11:226, 11:271, 23:13, 24:07:01-24:07:02, 24:24, 24:108, 24:112, 24:131, 24:288, 24:290, 24:294Q, 24:339, 24:347:01-24:347:02, 24:387, 24:406, 29:01:01:01-29:18, 29:21-29:29, 29:31-29:33, 29:35-29:47, 29:49-29:65, 29:67-29:73, 29:75-29:97, 29:99-29:105, 29:107-29:128, 30:01:01:01-30:01:12, 30:08:01-30:08:02, 30:11:01-30:11:02, 30:14L-30:20, 30:23-30:26, 30:30, 30:35-30:43, 30:48-30:49, 30:52-30:56, 30:58-30:60, 30:62-30:63, 30:65, 30:71-30:75, 30:78N-30:79, 30:81-30:83, 30:86-30:89, 30:91-30:98, 30:102, 30:104, 30:106, 30:109-30:116, 30:118, 30:120, 30:122-30:123N, 30:126, 30:128-30:132N, 30:134-30:138, 30:141-30:143, 30:145N, 31:89, 31:115, 32:17, 33:125, 33:131, 34:09, 66:02, 66:12, 66:16, 66:21, 66:25-66:26Q, 68:01:01:01-68:01:17, 68:01:19-68:02:13, 68:06-68:14, 68:16-68:19, 68:21:01-68:30, 68:32-68:71, 68:73-68:89, 68:91-68:92, 68:94N-68:96, 68:98-68:108, 68:110-68:179, 68:181N-68:205N, 69:01:01:01-69:01:03, 69:03-69:05, 74:13
29^{5,12}	105 bp, 260 bp	800 bp	A3, A11, A26, A30, A68, A74	*01:134, 01:229, 03:09, 03:89:02, 03:108, 03:172, 03:198, 03:330N, 11:06, 11:18, 11:312, 24:09N, 26:03:01, 26:06, 26:21, 26:30, 26:78, 26:92, 26:111, 26:177, 29:19, 29:48, 30:13, 30:16, 30:44, 30:46, 33:24, 68:05, 68:15, 68:20, 74:06, 74:21, C*06:247
30^{11,13}	180 bp, 465 bp	1070 bp	A10, A25, A26, A43, A66	*01:01:56, 01:04:01:01N-01:04:01:02N, 02:135, 03:21N, 11:21N, 23:07N, 24:11N, 25:01:01:01-25:01:08, 25:01:10-25:05, 25:07-25:17, 25:19:01-25:35, 25:37-25:42N, 25:44-25:49N, 25:51, 25:53-25:57, 26:01:01:01-26:01:20, 26:01:22-26:03:01, 26:05-26:08:01, 26:08:03, 26:10-26:33, 26:35-26:43:02, 26:45-26:72, 26:74-26:77, 26:79-26:90, 26:92-26:102, 26:104-26:178, 30:132N, 43:01, 66:01:01:01-66:01:01:02, 66:01:03-66:01:05, 66:04-66:15, 66:17-66:20, 66:22-66:24, 66:27N, 66:29-66:32
31⁵	110 bp, 195 bp, 465 bp	1070 bp	A34	*01:04:01:01N-01:04:01:02N, 02:741, 03:21N, 03:248, 11:21N, 11:191, 23:07N, 24:11N, 25:43, 30:132N, 34:01:01:01-34:02:04, 34:04-34:05, 34:07-34:18, 34:20-34:21
32¹⁴	-	-	-	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-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.

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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.

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

⁶Primer mix 3 may faintly amplify the A*30:04:01-30:04:02, 30:06, 30:09, 30:17, 30:29, 30:46, 30:77, 30:90, 30:99, 30:103, 30:105, 30:117 and 30:139 alleles.

⁷Primer mix 6 may give rise to a lower yield of A*23 alleles than the other A low primer mixes.

⁸Primer mix 9 may weakly amplify the A*34 alleles.

⁹Primer mix 22 might faintly amplify most A*11 alleles.

¹⁰Primer mixes 15, 24, 27 and 28 may give rise to a lower yield of HLA-specific PCR product than the other HLA-A low primer mixes.

¹¹Primer mixes 6, 10, 14, 20, 23 and 30 have a tendency to giving rise to primer oligomer formation.

¹²Primer mixes 15, 20, 24 and 29 may have tendencies of unspecific amplifications.

¹³Primer mix 30 may generate a false positive band of about 500 base pairs. This band should be disregarded when interpreting HLA-A low resolution typings.

¹⁴Primer mix 32 contains a negative control, which will amplify a majority 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 products generated by the HGH positive control primer pair are 200 and 430 base pairs.

Abbreviations

'w', might be weakly amplified.

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

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Lot-specific information

PRIMER SPECIFICATION

Well No.	1	2	3	4	5	6	7	8	9	10	11	12
Length of spec.	120	175	235	190	160	135	175	165	80	85	80	125
PCR product	145	215			335	200	205	200		245	175	160
		255			505						500	185
		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	363	98	144	176	98	98	257	98	301	103
	5'-CTT 3'	5'-gCT 3'	5'-ATA 3'	5'-CTA 3'	5'-gCC 3'	5'-gCA 3'	5'-CTC 3'	5'-CTA 3'	5'-Cgg 3'	5'-CTA 3'	5'-Cgg 3'	5'-CCT 3'
	103	78		413	317	368	102	259	261	302	415	
	5'-CCT 3'	5'-TCT 3'		5'-CCg 3'	5'-gCT 3'	5'-gTT 3'	5'-gTT 3'	5'-ACA 3'	5'-AgA 3'	5'-AAC 3'	5'-ggA 3'	5'-ggT 3'
	123	106						413	261		385	423
	5'-AgT 3'	5'-CCA 3'						5'-CCg 3'	5'-AAC 3'		5'-ggC 3'	5'-gCT 3'
									266			
									5'-ACg 3'			
3'-primer(s) ³	203	240	555	256	265	270	259	259	302	299	341	257
	5'-TCT 3'	5'-ggA 3'	5'-gCA 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'
		292	555	559	368	521	502	259	303	308	521	506
		5'-gTg 3'	5'-CCA 3'	5'-CCg 3'	5'-CAA 3'	5'-ggg 3'	5'-CTT 3'	5'-gTT 3'	5'-AgA 3'	5'-TCT 3'	5'-ggg 3'	5'-TgT 3'
						534	539	538				538
						5'-CgT 3'	5'-TCT 3'	5'-CCA 3'				5'-CCg 3'
												559
												559
												559
												559
												563
												5'-CgA 3'
Well No.	1	2	3	4	5	6	7	8	9	10	11	12

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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	210	65	90	75	360
PCR product	225	115	135	370	170	390	375	240	240	240	160	445
		200	200	400	235				375	400	240	
		240			260				545		495	
		470									575	
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	98	41	302	78	28	47	176	257
	5'-CTT 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'
	414	219	362	355	180	98	302	106	261	78	261	341
	5'-CAG 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'
	423	238	363		203		341	2 nd	502	521	341	
	5'-gCT 3'	5'-AgA 3'	5'-ATA 3'		5'-gAA 3'		5'-ggA 3'	5'-CCT 3'	5'-CCC 3'	5'-ggT 3'	5'-ggA 3'	
		355	363		418			2 nd		527	355	
		5'-CCg 3'	5'-ATA 3'		5'-AgC 3'			5'-ggC 3'		5'-TgC 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	299	259		282	355	282	292	
	5'-gAC 3'	5'-gCA 3'	5'-TCA 3'	5'-CCT 3'	5'-TCT 3'	5'-gTT 3'		5'-gAC 3'	5'-gAC 3'	5'-gAC 3'	5'-gTT 3'	
	559	418	526	243	317	261		282	524	282	299	
	5'-CCC 3'	5'-gTC 3'	5'-CCA 3'	5'-TCA 3'	5'-ggA 3'	5'-gTg 3'		5'-gAC 3'	5'-CAT 3'	5'-gAC 3'	5'-TCT 3'	
	560	555		265	555	265		502		570	555	
	5'-ACC 3'	5'-CCA 3'		5'-CCC 3'	5'-CCA 3'	5'-CCC 3'		5'-CTT 3'		5'-CAC 3'	5'-CCA 3'	
				282		265		506				
				5'-gAC 3'		5'-CCC 3'		5'-TgT 3'				
				555		265						
				5'-CCA 3'		5'-CCA 3'						
Well No.	13	14	15	16	17	18	19	20	21	22	23	24

Well No.	25	26	27	28	29	30	31
Length of spec.	190	195	205	100	105	180	110
PCR product	400	225		520	260	465	195
							465
Length of int.	1070	800	1070	1070	800	1070	1070
pos. control ¹							
5'-primer(s) ²	41	103	363	282	74	418	270
	5'-CTT 3'	5'-CCT 3'	5'-ATA 3'	5'-CAg 3'	5'-C 3'	5'-AgA 3'	5'-AAA 3'
	123	363		282	78	423	363
	5'-AgT 3'	5'-ATA 3'		5'-CAg 3'	5'-TCC 3'	5'-gCT 3'	5'-ATA 3'
				678	3 rd	3 rd	
				5'-AgA 3'	5'-A 3'	5'-A 3'	
3'-primer(s) ³	270	257	527	341	292	559	341
	5'-ACT 3'	5'-gCA 3'	5'-CCA 3'	5'-Cgg 3'	5'-gTg 3'	5'-CCg 3'	5'-CgT 3'
	270	545	527	521	742	559	517
	5'-ACA 3'	5'-AgA 3'	5'-CCT 3'	5'-ggA 3'	5'-CTA 3'	5'-CCg 3'	5'-CgT 3'
			527		621	621	
			5'-CCT 3'		5'-ggg 3'	5'-ggg 3'	
Well No.	25	26	27	28	29	30	31

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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.

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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.:	201907901	201900802	201907903	201900804	201900805	201900806	201900807	201900808	201900809	201900810	201900811	201900812	201900813	201900814	201900815	201900816
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		-	+	-	-	-	-	W	-	-	-	-	-	-	-	-	-
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	-	+	-	+	-	-	-	-	-	-	+	-	-	-	-	-

101.401-48/12 – including *Taq* pol., IFU-01
101.401-48u/12u – without *Taq* pol., IFU-02

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“Instructions for Use” (IFU)

Lot No.: **9H8**

Lot-specific information

CELL LINE VALIDATION SHEET																																		
HLA-A low resolution primer set²																																		
				Well																														
				17	18	19	20	21	22	23	24	25	26	27	28	29	30	31																
			Prod No.:	201900817	201900818	201900819	201907920	201900821	201900822	201900823	201907924	201907925	201907926	201907927	201907928	201907929	201907930	201907931																
	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	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-																

101.401-48/12 – including *Taq* pol., IFU-01
101.401-48u/12u – without *Taq* pol., IFU-02

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Lot No.: 9H8

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, 20 to 23, 26, 30 and 31 were tested by separately adding one or more 3'-primers, respectively one or more 5'-primers. Additional 5'-primers in primer solutions 1, 9, 13, 19 and 24 were tested by separately adding one or two 3'-primers. Additional 3'-primers in primer solutions 10, 18 and 27 were tested by separately adding one 5'-primer.

In primer solutions 2, 9, 11, 12, 15, 20, 22 and 29 one or two 5'-primers were not possible to test, and in primer solutions 3, 6, 8, 9, 12, 13, 16 and 18 one or two 3'-primers were not possible to test.

101.401-48/12 – including *Taq* pol., IFU-01
101.401-48u/12u – without *Taq* pol., IFU-02

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Lot-specific information

101.401-48/12 – including *Taq* pol., IFU-01
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Lot No.: **9H8**

Lot-specific information

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